





LOUISIANA PURCHASE EXPOSITION. ST. LOUIS, 1904

# HORTICULTURE IN OREGON

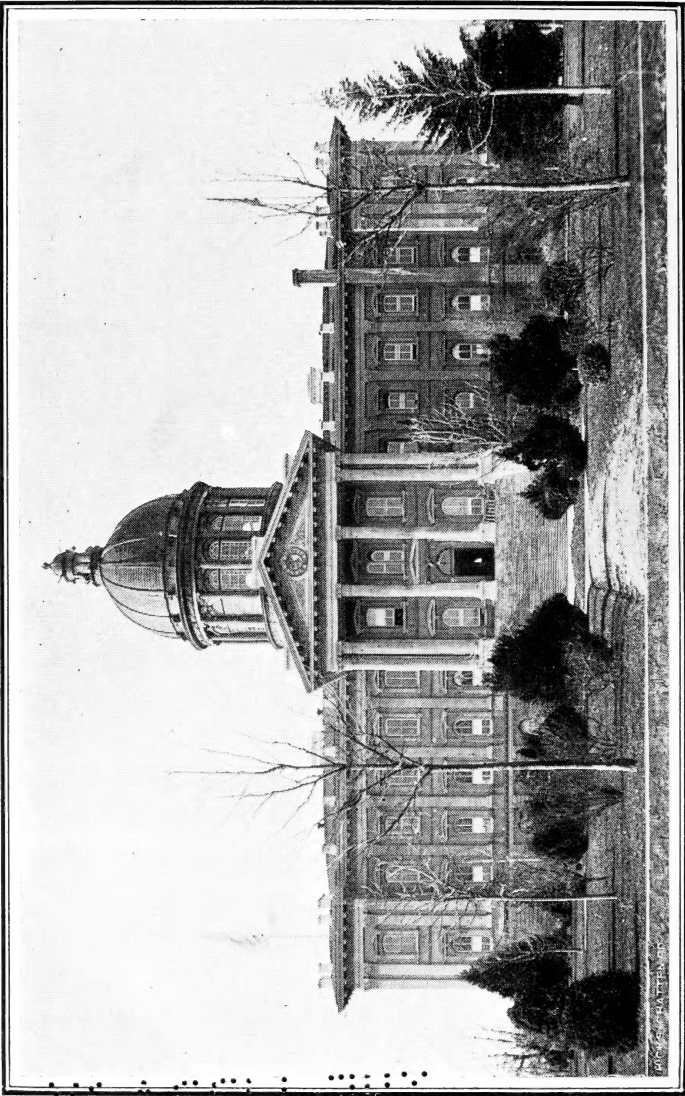
BY HENRY E. DOSCH



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# LEWIS AND CLARK

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**JEFFERSON MYERS, President.**

## HORTICULTURE IN OREGON.

“The law of nature is that a certain quantity of work is necessary to produce a certain quantity of good of any kind, whatever. If you want knowledge, you must toil for it; if food, you must toil for it, and if pleasure, you must toil for it.”—RUSKIN.

Oregon, the State of plenty, and which has long since earned the sobriquet as the “Land of Red Apples,” is nothing if not an horticultural State. All fruits, including the tender olive, do exceedingly well here. In Oregon the planter can not only find the localities best suited to the different varieties of fruits, but in addition, has his choice as to climate. He may select Eastern Oregon, with its extreme seasons; Southern Oregon tempts him with its enchanting valleys, clear skies, and balmy air. Then there is the Willamette Valley, of two hundred miles or more in length, with its equable climate throughout the year; or if fond of sea breezes, the various valleys along our sea coast line. Oregon, therefore, offers an inviting field for the orchardist.

The first thought that enters one's mind is, “What is horticulture?” If we look into Webster's Dictionary, we find “the art of cultivating gardens and orchards,” and a horticulturist is “one who is skilled in the art of cultivating gardens and orchards.” If we look into the Encyclopædia Britannica we find “horticulture embraces the art and science of the cultivation of flowers, fruit, and vegetables.” Please note the emphasis placed on the words “art and science,” the subject being treated from a scientific and practical standpoint. But does it not mean more? When the Creator of this universe laid out the Garden of Eden and planted trees for ornament, as well as fruit, he placed therein the first couple and intended them to be horticulturists; they were happy as long as they remained in their country home. But in an evil hour, they left it, and ever since man has striven to place those who were given him to love and care for in a similar Garden of Eden. Perhaps nowhere on earth do they come so near to it as here in Oregon.

The arid lands of the vast Inland Empire, located east of the Cascade range of mountains, and especially along the cañons and flat areas of the Snake River, which were heretofore considered only fit to grow sagebrush and grease wood, and the home of the jack rabbit and toad, has proven wonderfully fertile under irrigation and under the management of progressive, up-to-date farmers and fruit growers. Canals

have been dug varying in length from twelve to thirty miles, covering thousands of acres of these lands, which are now being brought into cultivation. I have repeatedly visited these regions, especially along Snake River, and seen the transformation of a desert into an oasis. Hundreds of acres had been sown to alfalfa, with surprising success, with an average yield of seven tons of hay per acre for the season. On one of these ranches is an orchard covering two hundred acres planted to peaches, apples, pears, and prunes, now in full bearing, in a most perfect condition, both as to health, vigor, luxuriance of foliage, and bearing capacity. It is almost beyond belief what water, under the control of intelligent endeavor, will produce on these soils. The alfalfa is fed to hogs, calves, and steers for the markets, thus bringing in a ready cash revenue to meet expenses, while the orchard is slowly but surely growing into a revenue producing fact. Along these benches is room for thousands of happy and contented homes, amid plenty to eat and drink, and pure, invigorating, health-giving air to breathe. Finer fruits and melons are not grown anywhere than right here. Grapes measuring ten inches to the bunch, with berries as large as marbles; in fact the bunch of grapes which won the gold medal at the World's Columbian Exposition at Chicago was grown near Snake River.

The beautiful Grand Ronde, Wallowa, Burnt River, Powder River, Eagle Creek, and numerous smaller valleys scattered throughout these higher plateaus, and Blue Mountains, as well as the Hood River Valley, along the Columbia River, and which do not depend on irrigation, are most fertile spots for the fruit grower, especially the rolling foothills. Perhaps nowhere do apples, pears, cherries, and prunes grow to greater perfection as to size, flavor, and color, than in these valleys. A paper was recently read at a Farmers' Institute held at LaGrande, in which the writer said: "At Cove (the garden spot of the Grand Ronde Valley) and here at LaGrande, instances have been reported and verified where over five hundred dollars have been received for the product of a single acre of Jacunda strawberries, while there is no place under the sun where red raspberries do better than here." He considers the apple, pear, and cherry the most profitable fruits for that locality. The fruits grown there, on account of the high elevation and climatic influences, have peculiar keeping qualities; the cherries, owing to the absence of rain in the ripening season, do not crack open, and by reason of so much sunshine color highly, come into market late and consequently always bring remunerative prices. The

Hood River Valley and foothills have become especially famous for their apples and strawberries, and many acres are gradually planted into orchards. The soil of this valley seems peculiarly adapted to the production of large, sound, highly-colored apples of fine flavor and long keeping qualities. It is the boast of the apple growers of that district to produce nothing but first-class fruit, by thorough care of trees and fruit, and succeeding in this, they receive the highest prices for their fruit. The Hood River apple crop for 1903 amounted to 50,000 boxes of 40 pounds per box, which sold at an average price of \$1.25 per box; while last fall the whole crop of Spitzenburg apples was sold under contract at \$2, and Yellow Newtown Pippin apples at \$1.80 per box, f. o. b. at picking time. It is estimated that not one-tenth of the available ground adapted to apple growing is planted. The Hood River strawberry yield for 1903 was about ninety thousand 24-pound crates, and sold at \$150,000 in round figures. The average yield per acre is from one hundred and twenty-five to one hundred and fifty crates, while frequently some especially favorably located plantation produces from three hundred to even five hundred crates per acre. These strawberries are shipped in refrigerator cars and find a market in Montana, Wyoming, Kansas, Nebraska, Iowa, the Dakotas, and Manitoba, while the apples are generally shipped to England, France, and Germany.

Southern Oregon, with its decomposed granite soils, as found in the Rogue River and Umpqua valleys, offers the same advantages for horticulture, and at no distant day will be a veritable paradise for the fruit grower. Its soils are naturally very rich in all the plant foods necessary to produce excellent fruit, combined with a climate unsurpassed anywhere in this fair land of ours. The vast mining districts of this section, which are fast assuming large proportions, will furnish a very good local market for the small grower, while most commercial growers will prefer to ship their products to the East, England, Germany, and France, where these fruits have found a very profitable market. To illustrate: several years ago I was shown a letter by one of our commission houses at Portland, which had shipped the fruit for the grower, from the Hon. William T. Grinnell, American Consul at Manchester, England, stating in a lot of apples received from Oregon, and on sale at that city, placards were found on which was printed "Rogue River Apples, from the orchard of C. Kleinhammer, Phoenix, Oregon," saying that finer fruit had never been exhibited in that market, and the dealers wanted to secure the output for another year.



Thus showing what these valleys can produce, and which opened another and unlimited market for the wide awake fruit grower. Intelligent endeavor, honest packing, brains, and application of business principles, which hereafter must be adopted in order to be successful in horticultural pursuits, has its own reward. Peaches, apples, pears, prunes, walnuts, almonds, chestnuts, filberts, grapes, and watermelons grow in great abundance. The Rogue River Valley, which is, in respect to soil and climate, like the famous Burgundy Valley of France, is the place par excellence for the growing of wine grapes. There is no good reason why the hillsides of that productive valley should not be covered with vineyards. Grapes of as good quality as those grown in California, France, or Germany can be produced in that valley.

The great and beautiful Willamette Valley does, and always did, grow fine fruits, and is the oldest settled part of Oregon. True, these fruits have not the keeping qualities, owing to its humid climate, of those raised in the more dry localities and higher altitudes, but for size, color, and flavor are not excelled anywhere, besides having the advantage of nearness to the large local markets of our cities, as well as cheaper railroad and ocean transportation to the markets of the world. Here flourish the apple, pear, prune, cherry, peach, apricot, walnut, almond, chestnut, all the small bush fruits in great abundance, and grapes galore. That grapes do well in Oregon is evidenced by the fact that there are small vineyards in every part of the State, but I know of only a few commercial vineyards in Oregon, which are located on the red hills in Washington County some twenty-five miles from Portland. These vineyards comprise a total of eighty-four acres. Every year these vines are loaded down with large bunches of the choicest grapes—each vine or stalk yielding from fifty to one hundred pounds. These sell from twenty-five to forty dollars per ton. When the owners of these vineyards came to Oregon, not many years ago, they were in very modest circumstances. They had to clear the land and plant it to grapes, and now are all well to do. I have been in the vineyards of Germany, France, and California, but have never seen such an abundance of grapes as these Forest Grove vines bear from year to year, nor have I tasted grapes of finer quality. The principal varieties grown for table use are Moore's Diamond, Niagara, Worden, Sweetwater, Ione, Delaware, and Hamburg, and for wine making or unfermented grape juice the Riesling, Gut-Edel, Burgundy, Muscat, and Zinfandell. In this connection it may be stated that at the various great expositions held in America we have exhibited the various



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English Walnut Grove.

kinds of wine. These wines came into direct competition with similar brands from other States. Much to my surprise, the jury awarded us the highest medal and diploma for excellence, fineness, aroma or bouquet, as it is generally called, smoothness, and for the absence of that pungent and alcoholic taste so pronounced in wines grown elsewhere, notably in Zinfandell. I said it was a surprise to me, and yet it should not have been, for I know that our soil and climatic conditions, especially of the foothills on both sides of the Willamette Valley, are identical to those of that part of the Rhine in Germany where the finest of wines are produced. Upon further investigation I learned from the growers that it is owing to our humidity and cool nights which makes the skin thinner and has a general tendency to produce the good effects spoken of above. In another very essential respect our wines resemble the fine Rhine wines, that they improve with age; the older they get the better they are and finer the bouquet.

The beautiful and fertile little valleys along our coast line are all more or less adapted to fruit growing, especially the apple. One progressive experimenter has even now fruiting acres of the tender olive. A little enterprise and energy will accomplish wonders in horticulture and viticulture in Oregon.

However, there is one enterprise which does not have the attention it deserves, and that is the growing of nut-bearing trees. I have been advocating the planting of nut-bearing trees, more particularly the English walnut, or more correctly speaking, the French walnut, as the other is simply a commercial term, for many years. While a number of small plantings have been made, there is only one on a commercial scale, consisting of forty acres of walnuts and chestnuts, hence there is practically an unoccupied field, which promises as good returns as any other kind of fruit by way of intensive and diversified farming. This is now well recognized and understood in the East, since the wild nut-bearing trees, which grew so plentifully, have been cut down wastefully and used for posts, fences, and firewood. The scarcity has become so marked that attention has been called to it by the trade, and many new plantings are now being made. When I first planted my own, in order to thoroughly satisfy myself as to the adaptability of our soils and various climatic conditions, I gave away over two hundred yearling trees of my own growing. I sent them to friends in various parts of this State—to Eastern Oregon, Southern Oregon, the coast counties, the Willamette Valley, and even to the Sound counties of Washington—and the reports received have been most gratifying.

Some of these trees have in eight years' time grown to twenty feet in height, with a spreading top of fourteen feet, and measured eleven inches in diameter four feet from the ground. They have proven most indifferent as to location or soil, whether on clay, loam, or gravel, and even on rocky ground, provided there is a loose subsoil for the taproot to go down. It is perfectly useless to plant nut-bearing trees where there is hardpan subsoil. These eight year old trees averaged twenty pounds of fine walnuts, which sold at ten cents per pound, bringing \$2 to the tree.

Here is a line of fruit growing which offers good inducements, and now that it has been proven that nuts of excellent quality not only grow, but mature well in this State, more plantings should be made, so Oregon may become an exporter, instead of importer, of all kinds of nuts. They begin to bear when six years old, and from that time on they are a source of revenue. They seldom fail to bear enough fruit to pay for the labor and expense of taking care of them and gathering the crop. Growers should be careful to plant only such varieties as are known to be suited to our climatic conditions. The varieties of walnuts recommended are the Franquette and Mayette, which is known to the trade as Grenoble; of chestnuts, the Spanish, Italian, Numbo, and Paragon; almonds, Grosse Tendre, or Languedoc, for Northwestern and Eastern Oregon, and the I. X. L., Princess, and Nonpariel for Southern Oregon. Filberts, do exceedingly well here—the Duchally, Aveline, and English cobnut are best.

Reynolds, the great horticulturist, writes: "The farm is a good place on which to be born, on which to live through one's prime work, on which to die." Sometimes it happens that one who has spent his boyhood on a farm may, when he comes to struggle for himself, stray away to town and engage in one of the numerous avocations which men there pursue for a livelihood. However successful he may prove in business in town, there comes a time, as old age approaches, when his thoughts turn back to his earlier life in the country, its independence, its calm, healthful enjoyments amid scenes and products of nature, and he feels a strong, overmastering desire to spend his later years and die in the country, on the bosom of the great mother of us all, generous, teeming earth.

When President Jefferson warned us that America would degenerate as soon as it ceased to be an agricultural and horticultural Nation, he touched the keynote, for he foresaw the coming greed for money; that fearful fight for political power, which seems to have

reached its height just now; that getting something for nothing, and that struggle for social position and prominence.

It is said that John Ruskin "somewhere marveled at the wonderful conception of God's mind, when he first thought of a tree."

There could have been no paradise for man without trees. He caused to grow those trees that were pleasant to the eye as well as good for fruit. Just fancy what this world would be without trees. There is an inseparable companionship between trees and man not readily accounted for, and there are few men who lack the desire to plant and surround themselves with trees. I can not conceive a perfect home devoid of trees. What is more beautiful to the eye than a well laid out and perfectly kept orchard?

Horticulture is no longer an experiment in Oregon. The incessant drudgery, the numerous and keen disappointments which are peculiar to all new enterprises, and which horticulture in Oregon did not escape, are things of the past. We have reached the era of scientific management of the orchard, and of remunerative prices for the product.

Fruit growing is not only a healthy and pleasant occupation, but a profitable one. It has been proven, year after year, that those who have fruit to sell, whether it was raised alone or in connection with other crops, always have money to meet their obligations. It is stated on reliable authority (Bradstreet's Commercial Agency) that throughout the United States there are fewer failures among those engaged in horticultural pursuits than any other branch of farming, and then the question is asked, "Is it owing to the business, or the men that engage in it?" I think it is both, especially the latter, for it requires brains to be a successful horticulturist. Horticulture is an art of the highest order. The planter must keep abreast of the times; he must study and keep posted on the latest improved appliances.

Though fruit has been grown in Oregon for fifty years, it is only recently that horticulture was reduced to a scientific basis. The backwardness, which was the ruling condition until a short time ago, was due to a lack of knowledge about tree planting and fruit growing. Very few growers were thoroughly equipped for the business in which they had invested their capital, and were it not for the fact "that crops in Oregon never fail," many more disappointments would have to be recorded. The State took horticulture in hand, and now supplies an abundance of practical information to all who care to ask for it. This information is distributed through the members of the State



Oregon Prune Orchard.

Board of Horticulture, of which body I had the honor to be a member for twelve years past, and the faculty of the Agricultural College. There now exists no reason for failure because of the absence of useful information about soils, stock selection, tree planting, cultivation, pruning, and the science of pollination. Progressive horticulture does wonders. It makes the old trees bear fruit again, and gives the young ones a good start from the time they are set out.

Horticulture, as we understand it, is no longer the problem it was, thanks to the scientific investigations of the professors of the experimenting stations throughout the world, and to practical, up-to-date fruit growers. We know the soils best adapted for various fruits, the best varieties to plant for family use and commercial purposes, and know how to evaporate them. We also know what varieties to plant together for pollinating purposes. We know the diseases and insects infecting trees and fruit, and how to combat them.

Failure and discouragement in horticulture often result from too much real estate booming. Glowing accounts of this or that locality are published, fruits of abnormal size are exhibited, ridiculous results are given, all of which creates the impression that horticulture, in certain localities, is a veritable gold mine. Credulous persons, tempted by these stories and exhibits, give up occupations in which they are experienced, and take to fruit raising, of which they know nothing. With them failure is only a matter of time, unless they have a large bank account. Horticulture is a special work and applied science. In its expectations are never realized without painstaking work and trying patience. No one should think of going into it when the main inducement is an enormous profit figured out on paper. There are growers in Oregon who have made very large profits in a single year. In some years all have done exceedingly well, but, generally speaking, it is not safe to count on a net profit of more than \$150 per acre in ordinary years for an orchard in full bearing. This result, small as it may seem to the uninitiated, will come only to those who go into the business understandingly, give it their best thoughts and care, manage the fruit farm as they would any other business venture, and keep abreast of the times. The failure of those who had no adequate knowledge of fruit growing, and who under the same circumstances would have failed in any other enterprise, need not discourage any who intend to embark in horticulture. The number who have failed is very small in comparison to the number who have succeeded. No State offers such excellent advantages as Oregon does. There need

be no fear of overproduction. The consumption of fruits increases every year, and there is ready sale for all first-class fruits put on the market. The enlarged use of fruit is due to two important factors:

*First*—For several years past our fresh and evaporated fruits have reached the mining and manufacturing centers never reached before, and within the homes of families which, where exorbitant prices were the rule, could not afford to buy fruit, and in extent an almost unlimited foreign market, especially for our superior apples. It is well known that the apple is to the fruits what the potato is to the vegetable line,—wherever once introduced it is there to stay.

*Second*—The doctors, aided by the medical press, are strongly advocating the consumption of fruits to promote health, not only in America, but abroad.

Doctor Bentzer, of Germany, the noted specialist, and Dr. Sophie Lepper, the great English food specialist, give their emphatic indorsement of fruit as hygienic agents. Doctor Bentzer dwells particularly on the apple, and declares that an apple eaten immediately before bedtime will promote general health; its dietical as well as alimentary substances are of the highest order; it contains more phosphoric acid in an easily digestible combination than any other vegetable product. While Dr. Sophie Lepper says: "Apples supply the higher nerve and muscle food, but do not give stay; prunes afford the highest nerve and brain food, supply heat and waste, but are not muscle feeding; walnuts give nerve and brain food, muscle, heat, and waste." What a happy combination, apples, prunes, and walnuts.

The era of high, exorbitant prices has past, and we do not want it to return, for when prices advance consumption decreases, which is not desirable. It has been demonstrated time and again that prunes at four cents a pound, and apples and pears at seventy-five cents a box of forty pounds, the lowest price ever paid for merchantable fruit, will net the grower one hundred to one hundred and fifty dollars an acre for an orchard in full bearing; while we know that good choice marketable apples and pears for export trade sell from one dollar to two dollars per box. It could stand a considerable reduction from the first figures named and still leave horticulture more profitable than other agricultural pursuits.

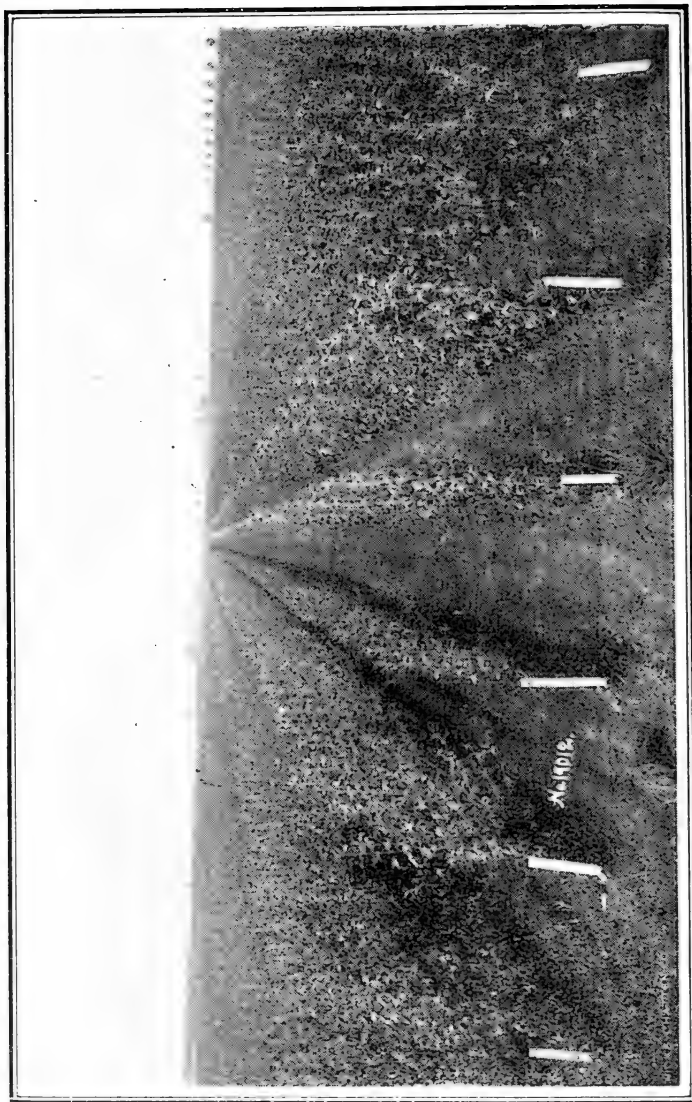
While waiting for his orchard to bear, which usually takes from five to eight years, the orchardist has an avenue of profit opened to him in the growing and marketing of small fruits. The demand for strawberries, currants, gooseberries, raspberries, and blackberries for



home consumption, for export, and for canning establishments is very large, and is seldom met by the supply. Many carloads of these fruits, especially strawberries, as stated heretofore, are shipped every year to the mining and stock raising districts of Idaho, Montana, North and South Dakota, and Wyoming. Shipments of these berries are often made to St. Paul and Omaha; yes, even to Chicago, yielding most gratifying results. If the small fruits are given proper care and sent to the market in good condition, they bring in sufficient money to meet the family expenses. Even after the orchardist begins to bear there is nothing to prevent the orchardist from having two crops—berries in the spring and early summer, and tree fruit in the fall; thus dividing the labor and at the same time doubling the profit. In some parts of Oregon orchardists plant beans between the rows of young trees. This crop yields a net profit of from twenty to thirty dollars per acre.

Horticulture on a large scale offers exceptionally fine opportunities. An orchard conducted on this plan is termed a commercial orchard, of which we have a number in Southern and Eastern Oregon, principally growing apples, and but few growing exclusively pears. One commercial apple orchard shipped eighty carloads of Yellow Newtown and Jonathan apples to Europe alone. Prune orchards vary from five to twenty acres, and are to be found in all parts of the State.

A noted agriculturist said that "most farmers who have been raised on a farm know how to do good farming. They know how to save and apply manure; how to mellow the stubborn soil with plow, harrow, and cultivator; know the value of good seed, the proper time to sow, and the quantity required. They understand the necessary drainage; the rotation of crops, and green manuring. Most farmers know how to do good farming, but they do not farm so well as they know how. Why don't they farm as well as they know how? They lack the proper pride. They have too little ambition." What has been said here of farming in general applies with equal force to horticulture. Ambition is the vital force which prompts great deeds and moves the world. How to excite this enthusiasm and put this power into action is a question to be considered and solved by the progressive orchardist. In these days of push and advancement one of the principal essentials to success is the ability to do the right thing at the right time. This ability is absolutely necessary for the success of every one. It manifests itself in the individual by keen perception, sound judgment, practical knowledge of business, enthusiasm, and a determination to profit by every opportunity that presents itself. Lord Beaconsfield said,



Nursery.

"The great secret of success in life is to be ready when the opportunity comes."

I have said that fruit growing is not only healthful, but more profitable than any other agricultural pursuit, and while it is conceded that all the various fruits can be grown to perfection in Oregon, the highest success can only be obtained by the intelligent, painstaking orchardist. The man who thinks that all that is necessary, even in this favored State, is to scratch the ground, throw in his trees in a haphazard way, with an occasional plowing or harrowing, and let it go at that, will soon find himself very much undeceived. Brains are as essential on the farm and in the orchard as in the office or counting room. When Meissonier, the great French artist, was asked how he succeeded in painting such beautiful pictures, replied: "I mix my colors with brains." The way lies through intelligent investigation of markets and methods, the application of brains to the agricultural and horticultural problems. We must study to please the tastes and notions of the world's consumers, and must avail ourselves of the researches of the biologist, the bacteriologist, the entomologist, and the investigations of the expert in crops and market conditions. Uninformed and unenlightened labor is at a great disadvantage these days of sharp trading and scientific adaptation of means to ends.

#### **ESTIMATED COST OF AN ORCHARD.**

For some years past a great demand has been made by parties who contemplate planting orchards for information as to the cost of planting an orchard and getting it into bearing condition, and the income to be expected during that period. I had taken steps to obtain as much reliable information as possible on the subject. Many of our oldest, conservative and most reliable fruit growers were asked to give the cost and product of their orchards up to the eighth year. It will be seen from the estimates given that the cost and product varies considerably. This is accounted for by the fact that the price of land varies according to location and its condition when bought, and in some cases there is additional expense caused by subsoiling, more thorough preparation of the soil before planting, more careful selection of trees, more thorough cultivation and spraying, while some allow a certain percentage of loss of trees and an occasional off year. Yet, by making due allowance for drawbacks, exercising the proper judgment in the selection of soil for the varieties to be planted, and giving the proper treatment to the orchard from the time it is planted, it will be

seen that an orchard is a safe and profitable investment. Carelessness in any branch will not pay in orchard work. Business principles must be employed in every department. The following estimates include the cost up to the seventh year, or when the trees have six years bearing wood, and are from various sections of Oregon:

### Cost of a Peach Orchard near Ashland.

*By Max Pracht, Ashland, Southern Oregon.*

As regards the cost and care to the age of seven years, I beg to say that my own experience as to the cost is not a true criterion, from the fact that for five years after setting out, my orchard was cared for by persons employed by me, but working under my orders, while I was engaged in other occupations. I will give, however, a very nearly accurate estimate of the cost of a peach orchard, taking the ground in the brush and until it comes to profitable bearing, which, by my method of cutting back is not until the fifth year after setting out, or, say six years from the bud. Good peach soil is light, porous, snarly, warm, and easily cultivated land, neither springy nor boggy, such as our decomposed granite, and must be on a sloping hillside, with an exposure to any point of the compass, except due west, or proportionately such as near west from north to south. The best range is from northwest to south, at least such is my experience here. Having selected the location, choosing—

Land, per acre.....	\$100 00
Cost of cleaning and grubbing, per acre.....	30 00
Cost of plowing and subsoiling, per acre.....	5 00
Cost of laying out and digging holes, per acre.....	8 00
Cost of trees and setting out.....	20 00
Cost of pruning and shaping first year.....	1 00
Cost of fencing orchard must be added, varying with the style of fence, size and shape of orchard, estimated at.....	16 00
Total cost at end of first year.....	\$180 00

#### SECOND YEAR.

Amount forward.....	\$180 00
Plowing, cultivating, and pruning, per acre.....	10 00
Replacing sickly or ill-shapen trees, per acre.....	2 00
Digging for and exterminating borers, per acre.....	1 00
Interest at ten per cent on \$180.....	18 00
Total cost end of second year.....	\$211 00

## THIRD YEAR.

Amount forward.....	\$211 00
Plowing, cultivating, and pruning, per acre.....	10 00
Replacing sickly trees, per acre.....	1 00
Digging borers.....	1 00
Interest at ten per cent on \$211.....	21 00
<b>Total cost end of third year.....</b>	<b>\$244 00</b>

## FOURTH YEAR.

Amount forward.....	\$244 00
Plowing, cultivating, and pruning, per acre.....	10 00
Digging borers.....	1 00
Interest at ten per cent on \$244.....	24 40
<b>Total cost end of fourth year.....</b>	<b>\$279 40</b>

## FIFTH YEAR.

Amount forward.....	\$279 40
Plowing, cultivating, and pruning, per acre.....	10 00
Digging borers and slack liming.....	5 00
Hand thinning fruit.....	1 00
Interest on \$279.....	27 90
<b>Total cost end of fifth year.....</b>	<b>\$323 30</b>

We now have as the cost per acre of an orchard of not less than ten acres and in perfect condition, at the end of the fifth year, the first year of market bearing, \$323.30.

These trees should produce each an average of twenty pounds of marketable fruit, worth here not less than two and one-half cents per pound and up to four and one-half cents, say fifty cents per tree, one hundred and sixty to the acre, \$80; culls and scrubs for home consumption, \$10; total revenue at the end of first year, age of orchard five years, \$90.

From this time on the annual increase of productive capacity may be rated at one box or twenty pounds per tree to the eighth year, when an orchard in prime condition should mature an average of eighty pounds or four boxes per tree; and with trees one rod apart, properly dwarfed, this output should not be exceeded, so as to conserve the vigor and life of the tree; by which method in this locality a peach tree is good for twenty years of profitable life, and will bring at least two dollars per year. From these estimates of cost, any one can

figure out the progressive cost of maintaining the orchard, figuring out the net profit at the end of each season. I have purposely left out the items of taxes, as they vary so much, but are not high.

During the fourth year, though no income from sale of fruit is shown, there will be enough peaches, which may be safely left on the trees, for home consumption. The cost of picking, packing, and marketing is not shown in the estimate, because the price named, *i. e.*, two and one-half cents per pound, is a price at which prime fruit is always salable on the tree to first-class buyers who will harvest and market on their own account.

### Cost of an Apple Orchard out near Grants Pass.

*By A. H. Carson, Grants Pass, Southern Oregon.*

We have found in fifteen years' experience the following to be the cost of planting and caring for an orchard up to the seventh year. Apples — one acre:

DR.	
To plowing and preparing ground.....	\$ 3 00
To 69 trees two years old at twelve and one-half cents each, 25 x 25 feet apart.....	8 63
To one days work planting and laying off ground.....	2 00
To cultivating and pruning seven years at \$6.....	42 00
	<hr/>
Total cost on one acre to seventh year.....	\$ 55 63

CR.	
By 69 boxes of apples at fifty cents up to seventh year..	34 40
	<hr/>
Net cost per acre.....	\$ 21 23

It is seen from the foregoing, the profits of an apple orchard up to the seventh year are on the wrong side of the account, but we now have it at the age when it will begin to pay. The eighth year, if the trees are in good ground, they should produce four boxes of apples to the tree. As the orchard increases in age the expense of cultivation, spraying, and pruning increases; but if the orchard is cared for each year the maximum cost for cultivation, spraying, and pruning, will not be greater any year than \$10 per acre. Then the maximum production of the orchard each year is hard to estimate, but after an apple orchard is nine years old, one year with another, the average production would not be less than ten boxes per tree, or six hundred and ninety boxes to the acre. (A box of apples contains one bushel.)

**Cost of a Prune Orchard in Polk County.***By James R. Sheppard, Zena, Willamette Valley, West Side.*

I estimate the cost of ten acres planted to prunes, twenty feet apart, under ordinary conditions, as follows:

## DR.

Eleven hundred yearling trees (110 per acre) at 6 cents	\$ 66 00
Preparation of land—plowing and cultivation	20 00
Setting out eleven hundred trees at 1 cent each	11 00
Cultivation and care, first year*	—
Cultivation and care, second year*	—
Cultivation and care, third year (no other crop)	30 00
Cultivation and care fourth, fifth, sixth, and seventh years	120 00
<b>Total cost</b>	<b>\$247 00</b>

## CR.

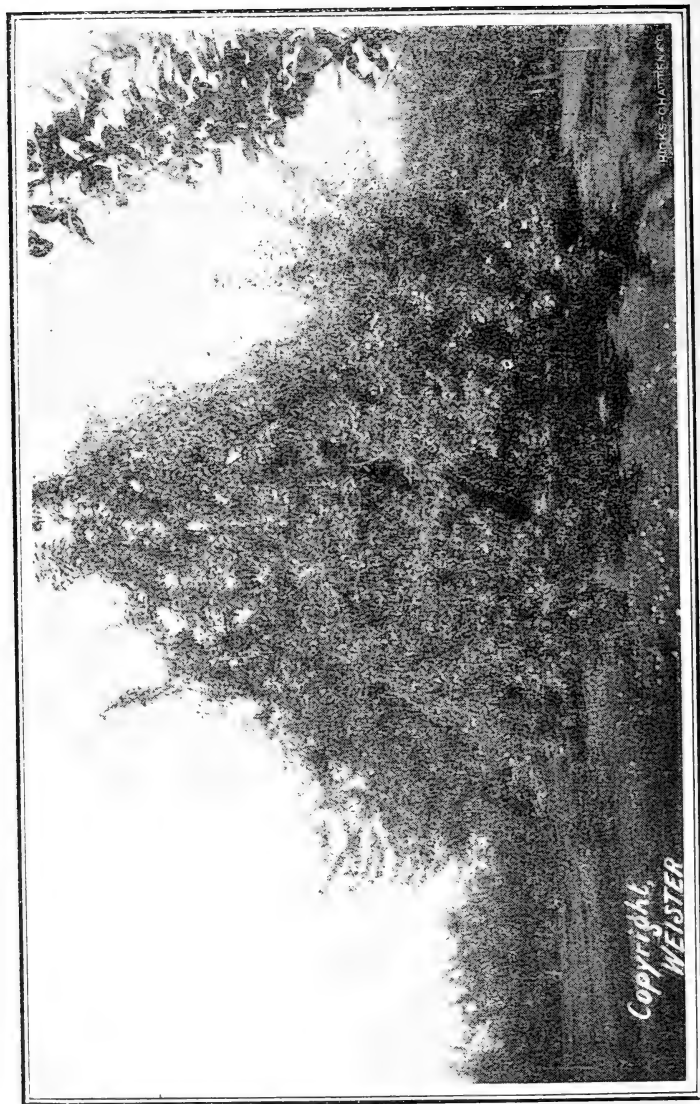
Fourth year, one-third bushel of prunes per tree at 60 cents per bushel	\$220 00
Fifth year, one-half bushel of prunes per tree at 60 cents per bushel	330 00

Which gradually increases until the eighth year, when the trees are in full bearing and will yield from two to three bushels of prunes per tree.

In some instances these figures will be doubled, in others reduced. It will be observed my estimates are very conservative, and no one need do worse, provided he uses ordinary care and judgment; but very much depends on location, soil, etc. I think a net profit—after seven years of age—of \$100 per acre is not at all an extravagant estimate at present prices, say five cents per pound, evaporated prunes. An occasional off year must be reckoned, say one in four for Italian prunes, and one in eight for Petites, or French prunes. Estimates of \$300 to \$500 per acre are misleading. I think, though, much better has occasionally been done under very high prices and favorable conditions.

My estimate presupposes proper pruning. Where land is well cultivated, but no pruning is done, a bushel per tree the fourth year may be cancelled, but the tree is injured thereby.

\* No charge for cultivation and care first and second years, as it is more than offset by potato or bean crops raised between the rows in those years.



Oregon Apple Tree.



**Cost of a Prune Orchard near Salem.***By R. D. Allen, Silverton, Willamette Valley, East Side.*

## FIRST YEAR.

Cost of trees, per acre.....	\$ 10 00
Planting same.....	3 00
Plowing ground, one foot deep, and subsoiling eight inches.....	4 00
Harrowing and cultivating, eight times.....	2 40
Hoeing around trees.....	60
Total cost first year.....	\$ 20 00

## SECOND YEAR.

Interest on land at \$50 per acre at ten per cent.....	\$ 5 00
Interest on previous year's expenses, at ten per cent.....	2 00
Plowing.....	3 00
Harrowing and cultivating, eight times.....	2 40
Hoeing around trees.....	60
Pruning and removing borers.....	1 00
Total cost second year.....	\$ 14 00

## THIRD YEAR.

Interest on land.....	\$ 5 00
Interest on expenses.....	3 40
Plowing.....	3 00
Harrowing and cultivating, eight times.....	2 40
Hoeing around trees.....	1 00
Pruning and removing borers.....	1 50
Total cost third year.....	\$ 16 30

## FOURTH YEAR.

Interest on land.....	\$ 5 00
Interest on expenses.....	5 00
Plowing.....	3 00
Harrowing and cultivating, eight times.....	2 40
Hoeing around trees.....	1 00
Pruning and removing borers.....	2 00
Total cost fourth year.....	\$ 18 40

## FIFTH YEAR.

Interest on land.....	\$ 5 00
Interest on expenses.....	6 87

Plowing .....	3 00
Harrowing and cultivating, eight times.....	2 40
Hoeing around trees.....	1 00
Pruning and removing borers.....	2 00
Total cost fifth year.....	\$ 20 27
Total cost for five years.....	\$ 88 97

The above is without first cost of land, and taxes being included.

### Cost of an Orchard near Newberg.

*By C. E. Hoskins, Springbrook, Tualatin Plains.*

Much depends on the location, quality of soil, and tools used in planting, cultivating, etc., of orchards as handled in Oregon. The difference between the owner and hired help would in many cases be twenty-five per cent.

#### EXPENSE BILL PER ACRE.

Plowing, subsoiling, cultivating, etc. ....	\$ 7 50
Trees, planting, cultivating, etc. ....	16 00
Second year, cultivating.....	5 00
Third year, cultivation, trimming trees, etc.....	6 00
Fourth year, cultivation, trimming trees, etc.....	7 00
Fifth year, cultivation, trimming, etc. ....	8 00
Sixth year, cultivation, trimming, etc. ....	8 00
Seventh year, cultivation, trimming, etc. ....	8 00
Eighth year, cultivation, trimming, etc. ....	8 00
Total .....	\$ 74 00

#### AMOUNT OF FRUIT FROM ONE HUNDRED TREES.

##### APPLES, PEARS, ETC.

Fifth year .....	1,500 pounds
Sixth year.....	3,000 pounds
Seventh year.....	6,000 to 9,000 pounds
Eighth year.....	12,000 to 15,000 pounds

##### PRUNES, PLUMS, ETC.

Fourth year.....	1,000 pounds
Fifth year.....	3,000 pounds
Sixth year.....	6,000 pounds
Seventh year.....	9,000 pounds
Eighth year.....	12,000 pounds

The above is without the original cost of land, interest, taxes, loss of trees, etc.

**Cost of an Orchard in Grand Ronde Valley.***By James Hendershott, Cove, Eastern Oregon.*

I can only approximate the cost, as I have never kept an expense bill. After planting, five cents per tree will cover all expenses up to four years old. After trees are four years old, they will yield a profit to the grower. My prune trees are now twelve years old. They averaged this year 280 pounds. Peach plums, same age, averaged 326 pounds. Apples, same age, averaged 490 pounds.

The man who asserts his prunes produce 1,000 pounds to the tree exaggerates for what money there is in it. If apples can be kept sound, they will pay one hundred per cent more than prunes.

**Cost of an Apple Orchard in Hood River Valley.***By E. L. Smith, President State Board of Horticulture, Hood River, Eastern Oregon.*

I believe the following is a close approximation for an orchard of ten acres:

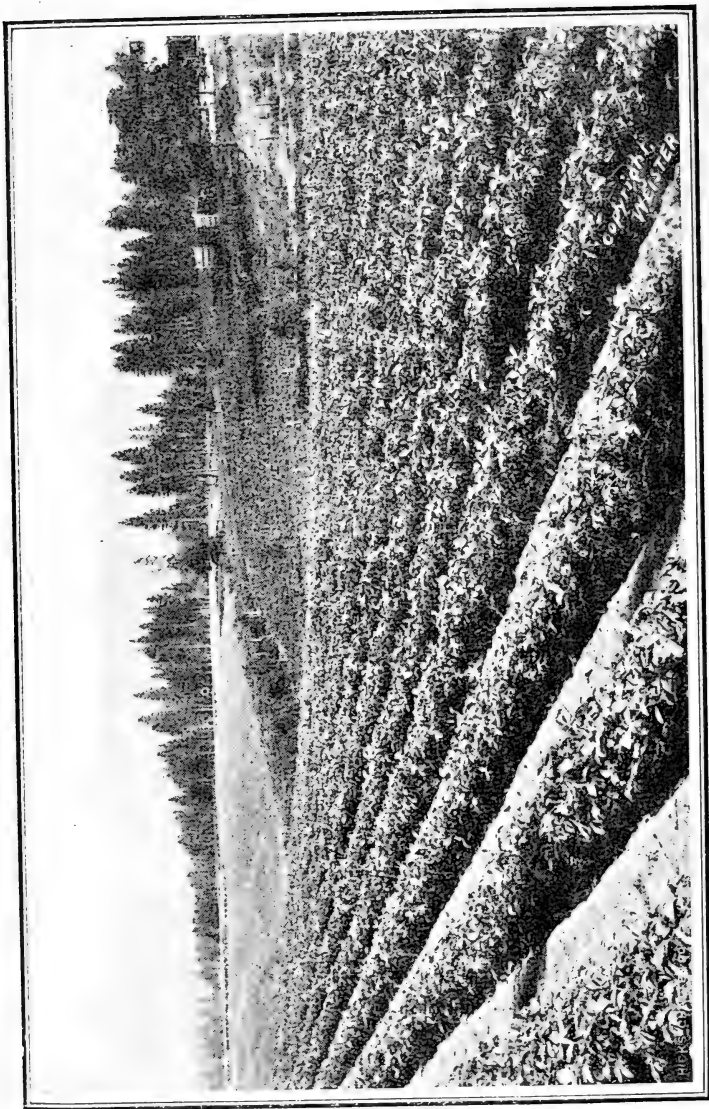
480 trees planted in squares 30 x 30 feet, at ten cents each	\$ 48 00
Digging holes and planting 480 trees, at six cents each	28 80
Cultivating with spring-tooth harrow three times each way, one year, eight days, at \$3.50	\$ 28 00
Cultivating with weed exterminator, twice each way, one year, four days, at \$3.50	14 00
Pruning, average per year	20 00
Hoeing about base of trees	10 00
Resetting trees, etc.	5 00
<b>Total for one year</b>	<b>\$ 77 00</b>

Cost for four years	308 00
Add plowing and cultivating second and third year	40 00

**Grand total to five years**.....\$424 80

This estimate on the supposition that the ground was plowed, harrowed, and ready for planting. No estimate is made for spraying, as it is believed that the fruit the fourth year will fully cover that expense. I have not made an allowance for interest on value of land or for taxes, as no general rule can be followed, both varying greatly.

The fifth year the orchard will pay expenses and usually leave a margin of profit. Last year, 1903, a young seven year old orchard of fifteen acres, paid me a profit of \$100 per acre, not deducting interest and taxes.



Oregon Strawberry Garden.

**Estimated Cost of a Vineyard — Willamette Valley.***By Wilber K. Newell, Dilley, West Side.*

The expense of starting a vineyard is large, and should be well considered before planting.

Land, per acre	\$ 50 00
Plowing, good and deep	2 50
Harrowing	1 00
Digging holes	15 00
Stakes	8 00
Planting	12 00
Eight hundred vines, at four cents each	32 00
Cultivating first season, eight times	8 00
Hoeing twice	3 00
Tying to stakes and pinching back laterals	4 00
<b>Total</b>	<b>\$135 50</b>

## SECOND YEAR.

Pruning in winter	\$ 2 50
Plowing, cultivating, hoeing, and for season	20 00
<b>Total</b>	<b>\$158 00</b>

## THIRD YEAR — TRELLIS WILL COST:

Wire	\$ 5 00
Posts	22 50
Setting posts and stretching wire	15 00
	<b>\$42 00</b>
Pruning, cultivation, etc., for season	25 00
<b>Grand total</b>	<b>\$225 00</b>

These figures are certainly as low as good work can be done for. It is generally considered that an acre of grapes in full bearing has cost very nearly \$500; but as the crop should pay its own way after the third year, I do not count the expense beyond that time. Grapes should be in full bearing at eight or nine years, and with proper care continue for fifty or one hundred years, so there is ample compensation for the heavy expense of getting started.

A fair, average yield per acre would be about four tons. If it falls below three tons there is something seriously wrong with the grower or his vineyard. It is hard to find more delightful work than the care of a vineyard, and where there is a family it is an ideal occupation.

All the foregoing estimates are by actual fruit growers, who make their living by growing fruits, and are not mere theorists, to which I may add my own testimony, that the net profits from my prune orchard ranged from one hundred dollars to two hundred dollars per acre, according to the price for the evaporated product. My pear orchard never netted me less than \$110 per acre, my apple and cherry trees doing much better than either, possibly because they are older.

Before leaving this subject I want to say a few words about berries and their culture. Every orchardist should grow berries by way of diversified fruit growing, or as a by-product, so to speak. The labor and harvest coming before the larger fruits come into market and require all the fruit grower's attention. They come into market when the farmer has little else to sell and bring in ready cash at a time when the exchequer is liable to be pretty low.

The demand for berries has never been fully supplied, especially of raspberries, blackberries, and currants, followed by the strawberry, for shipping to the distant markets. All berries do well here, as is evidenced by the fact that wild berries grow to perfection and in great abundance and variety in Oregon. We might name as profitable berries the currant, gooseberry, blackberry, raspberry, Lucretia dewberry, mulberry, cranberry, strawberry, Loganberry in the various varieties. It is not necessary to enter into the detail of soil, care, planting, and varieties most profitable, as this information can be had to the minutest detail from the fifth, sixth, and seventh reports of the State Board of Horticulture. First of all, farmers everywhere should grow berries for family use. Farmers must grow berries or do without. No one can grow them so cheaply as he. He gets them at first cost, fresh from the vine, and to the extent of his own family, has the best market in the world — a home market. He can select the best land location on his own farm, and is sure of a profit with half a crop. The growing of berries for family use is easily done. The growing of berries on a large scale and for market, either for city use, shipment, or cannery establishments, requires more care, skill, and business tact. The growing of berries offers a special field for women who are dependant upon their own efforts for support of self and possibly a family. Our large cities, adjacent mining regions, and canning establishments offer excellent markets for berries at remunerative prices.

#### **MARKETS.**

The natural question following, and perhaps the first one to be asked by the intending orchardist and intelligent investor is, "Where will

you find a market for all this fruit?" a very pertinent question to ask, and one which requires an honest reply.

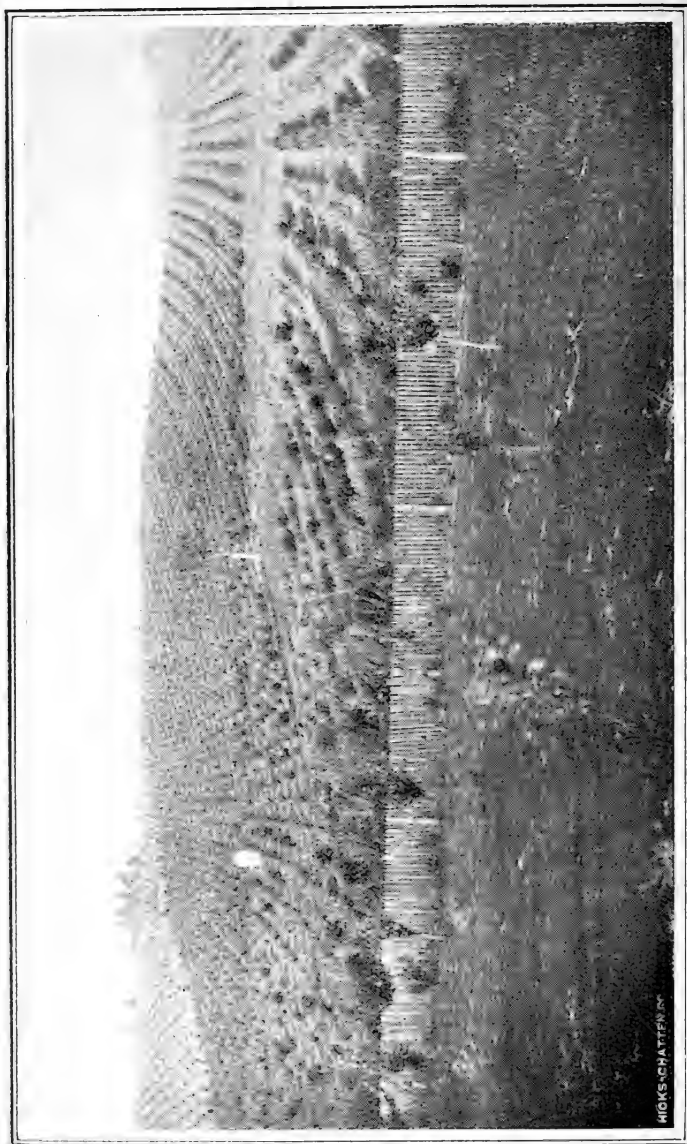
For some years past, as a member of the State Board of Horticulture, I have been convinced that this board should enlarge its scope of usefulness by reaching out to seek reliable information regarding the fruit crops in other States likely to come into competition with our own fruits in the world's markets, as well as to seek new fields for our own choice fruits. With this object in view, I entered into correspondence with the experiment stations, State boards of horticulture, horticultural societies, and the principal fruit growers and dealers throughout the United States, as well as the American consuls in all the various fruit growing districts in Germany, France, England, Russia, Austria, Hungary, Turkey, Italy, Belgium, Sweden, Holland, Chinese Empire, and Japan.

The subject of markets is perhaps the most serious problem confronting the fruit grower, and when we look over the large area that has been planted to fruit, and is still being planted throughout the fruit districts of the United States and Canada, we can not help speculating what to do with all these fruits, especially in a good fruit year.

There is perhaps no fruit which is more universally planted than the apple, owing to the fact that the apple is par excellence the commercial fruit of the world, and if it were not for the further fact that winter apples and apples which stand ocean transportation are grown comparatively in few localities, we would soon become overstocked. Oregon is especially favored in this respect, as the apples grown in this State have not only excellent keeping qualities, but are well adapted for ocean transportation.

By reason of these investigations Eastern dealers became familiar with our fruits, which now are to be found in all the larger cities of America and Canada, but my main efforts were directed to foreign markets, being a larger and more profitable field, and in which we have succeeded admirably, as will be seen by market quotations and sales given later on.

My attention was first drawn to this matter when the Chamber of Commerce of Portland honored me as a delegate to the Nicaragua Canal Convention, which was held in New Orleans in November, 1892, and there in conversation with representatives from South American Republics, I learned that these would be a good market for northern-grown fruits, if freight rates could be arranged. Again my attention was called to it in a letter I received from the American Consul in



HICKS-CHATTEN, INC.

Oregon Prune Orchard.



Manchester, England, stating that a lot of Rogue River apples had found their way there, and that finer apples were never seen, and buyers wanted to contract for the entire output of this man's crop, which was four thousand boxes in 1898, and all were shipped to that point. In this connection the *New York Journal of Commerce* says: "A large increase in the shipment of Pacific Coast apples abroad by way of New York is a noteworthy feature of the fruit trade, and is exciting no little interest; large quantities of Newtown Pippins in boxes weighing fifty pounds net, grown on the Pacific Coast, principally in Oregon, have been sent to this city of late, in carload lots, and from New York have been sent directly abroad." But it is not England alone, there is a growing market in Germany and France for our fruit. My advices from consuls and clerks are very enthusiastic and encouraging. Mr. Cunningham, Consul in Chemnitz, Germany, a large manufacturing center, writes to me: "I wish I had time to detail to you the desires of the people here for our fruits. Germans hunger for our fruits—apples before all others, etc." In France we have a promising market for our Oregon (Italian) prunes and for apple "chops." Mr. Joseph I. Brittain, Consul at Nantes, France, writes to me: "There is a large demand for evaporated apples, known as 'chops.' These apples, which are the lowest grades of windfalls, are sliced thin and dried, including skins, seeds, and core. They are packed in plain barrels. The poorer classes use large quantities of these apples for making an apple wine, known as 'piquette.' Last season one firm imported twelve thousand barrels of apple chops, at a cost of seven cents per pound." Mr. Albion W. Tourgee, Consul at Bordeaux, France, says in this connection, that two years ago thirty-five million gallons of this piquette were used, which increased to fifty million gallons last year; and as it takes one pound of chops to one gallon of piquette, it means fifty million pounds of apple chops, or twenty-five hundred carloads. And so are all other reports of foreign States, many stating that instead of exporting as heretofore, they were now importing more and more each season. There is also a market for our French prunes, Petite d'Agen. Shortly after my return from Japan last fall, Mr. Martineau, representing the firm of A. E. Mouling, Bordeaux, France, called on me regarding the purchase of prunes, and in our conversation I learned that he wanted the French prune as grown here, saying that he could not use the California French prune, as they were sundried. He preferred our "evaporated" French prunes as being more like their own; in fact were sold in France as the French

product. Latest advices from Berlin, Germany, say: "In view of the circular sent by the German government to the chambers of commerce and other bodies, inquiring as to the desirability of a duty on fruit, the Society of Hamburg Fruit Dealers, has adopted a resolution declaring emphatically that American fruit is indispensable there, and protesting energetically against a duty." To illustrate how this European market has developed, I may state that in the season 1899-1900, the Pacific Coast — principally Oregon — shipped via New York 149,515 boxes of apples, distributed among foreign ports as follows:

To Liverpool.....	58,922 boxes
To London.....	70,724 boxes
To Glasgow.....	13,118 boxes
To Hamburg.....	4,826 boxes
To Hull.....	1,925 boxes

These apples brought in the English markets an average price of eleven shillings per box, according to variety and condition, and in the German markets twelve marks—being about three dollars per box. This demand increased from year to year, until it has reached shipments over four hundred and fifty thousand boxes to Europe the past season. The entire output for the year 1903 in Oregon was:

Apples.....	\$ 640,000
Pears.....	148,500
Prunes.....	900,000
Peaches.....	75,000
Cherries.....	35,000
Grapes.....	50,000
Strawberries and other small fruits.....	652,500
Grand total.....	\$ 2,501,000

In addition to these markets, we have the Orient, not only our new acquisitions of Hawaai and Philippine Islands, but Japan, China, and Russian possessions.

Hon. W. H. Seward, in a speech delivered in the United States Senate as far back as 1852, said: "The Pacific Ocean, its shores, its islands, and the vast region beyond, will become the chief theatre of events in the world's great hereafter."

*This hereafter is here right now*, perhaps much sooner than this great statesman anticipated, but he did not know then that he was standing at the threshold of an electrical age, where events pass with lightning rapidity, and what is new to-day is old to-morrow. The new fields opened out to us offer an exceptional opportunity for the promoter.

The first authentic statistics we have showing the exportation of fresh fruits to Oriental markets is the year 1898, and were as follows: British East India, \$12,346; British Australia, \$260,611; other Asiatic possessions and Oceanica, \$147,151; Hong Kong, \$67,718; other parts of China, \$23,761; Japan, \$22,713. These exports have more than quadrupled since. In conversation with the various American consuls, especially in Japan, they assured me repeatedly that the demand and consumption for our fruits was increasing steadily. While at Yokohama I saw five-tier apples sold at five and six dollars per box; at Kobe an inferior lot in damaged condition brought \$3.50 per box, so eager were those people for our fresh apples, and yet these latter boxes of apples would not have sold for fifty cents here. All these are markets of great importance, which should and must be cultivated, and as we have little or no competition, they are practically our own. I am firmly convinced that in these districts alone there is a field for operation that will absorb all the surplus fruit raised in the Pacific Northwest. But in reaching out for these foreign markets, we must concentrate our strength, ship only first-class fruits, honestly graded, honestly packed, and honestly labeled. To do otherwise, is commercial suicide.

In a recent address at a fruit growers' convention the President of the State Horticultural Society of Oregon said: "Looking over the whole State, then, may we not summarize and add that among the varied resources of the great commonwealth of Oregon, potent in its capacity for contributing to the National development of the State to its proper position as one of the foremost States in the Union, it is not at all too much to say that fruit growing, if not destined to take the first rank, is certainly capable of being expanded into the equal of any. Neither Oregon's forests, its mines, its fisheries, its farms, dairies, cattle ranges, sheep walks, nor its manufactories will, in their future growth, be entitled to outrank its orchards if proper methods are adopted by the horticulturists of the State."

"Here, under the peculiar climatic conditions by which we are surrounded, blessed as we are by fertile and responsive soil, is, as has been fully demonstrated, the natural habitat of the apple, the pear, the quince, the plum and the prune, in all its varieties. Here, in select localities, flourish the peach, the apricot, the almond and walnut. Here, under intelligently considered conditions, the grape, the fig, the pomegranate, the medlar pear, the Japanese persimmon grow to maturity, ripen and become useful and agreeable adjuncts of the farm

and home. Melons and berries are at home here ; and in short, it may be said that, excepting the citrus and semi-tropical fruits, Oregon offers to the fruit grower an exceptionally attractive field for the exercise of all his faculties in this important and most attractive branch of business of the tiller of the soil."

I am firmly of the opinion that with our new acquisitions in the Orient, the markets of Japan and China now fairly opened to us, and that as soon as the Panama canal is finished, in the construction and completion of which we here in Oregon are particularly interested, it will bring about great results for the Oregon farmer and fruit grower. Meats have been transported in cold-storage steamers through all climes and to every land, and so will our fresh fruits. Tramp steamers which are now traversing our seas in every direction, seeking cargoes from everywhere to anywhere, will crowd our docks, eager to carry our fresh fruits to the markets of the world, and competition will make freights low enough to allow a good margin to the grower.

Those having orchards, or who are now planting, or contemplate planting, will certainly be largely benefited when this great canal, this missing link, this National maritime highway, which is an imperative necessity for the Pacific Northwest, opening to the Mexican Gulf, to the entire Mississippi Valley and the States on the Atlantic seaboard, not only the reciprocal interchange among ourselves, but the whole commercial world, shall be completed, the practicability of which is conceded by all who have given the question any thought.

A properly planted out apple orchard, considering the best marketable varieties, and all other essential elements entering into it to make it a success, yes, even a prune orchard as a good second, offers today a better field for investment of money and brains than any other commercial enterprise, with the additional advantage of living close to nature, as our Creator intended for us to live, with its outdoor, healthful, life-giving exercise and ideal existence.

Oregon offers all these advantages and is capable of furnishing happy and contented homes in regions of beautiful and majestic landscape, and unsurpassed climate for millions of people, and which in our just estimation will be the richest operating field of the brain and sinew of the rising generation, the yeoman of our National supremacy. Let it be remembered that a happy and prosperous citizenship is the controlling force and the reserve power of our government, and all that contributes to the general welfare and happiness of the citizens, strengthens the bulwarks of our enduring nationality.



Cherry Tree



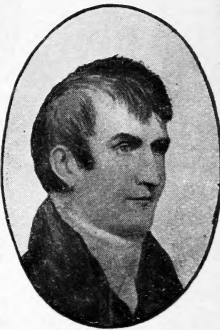
# LEWIS AND CLARK'S EXPLORATION

Its National Achievement



*William Clark.*

**C**APTAINS MERIWETHER LEWIS and WILLIAM CLARK were the first Americans who reached the Pacific Ocean overland. They headed an expedition sent out by President Thomas Jefferson in 1803, which reached the mouth of the Columbia River in 1805. The Pacific West will celebrate at Portland in 1905 the CENTENARY OF THIS NATIONAL EVENT with an American-Pacific Exposition and Oriental Fair.



*Meriwether Lewis.*

The discovery of the Great River of the West by Captain Robert Gray in 1792 and the expedition of Lewis and Clark in 1803-6, added to our National domain a region equalling in extent the whole

of the States of the Union east of the Mississippi and north of the Ohio and Potomac rivers. It is a region destined to be the seat of a population of twenty millions within this century.

The original "Oregon Country" now contains three of the States of the Union—Oregon, Washington, and Idaho—and very extensive parts of Montana and Wyoming. It was the acquisition of this region that GAVE THE UNITED STATES ITS FIRST FOOTING ON THE PACIFIC OCEAN and opened the way to our great continental development. In political importance the acquisition of the Oregon Country stand among the greatest events in our National history.

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