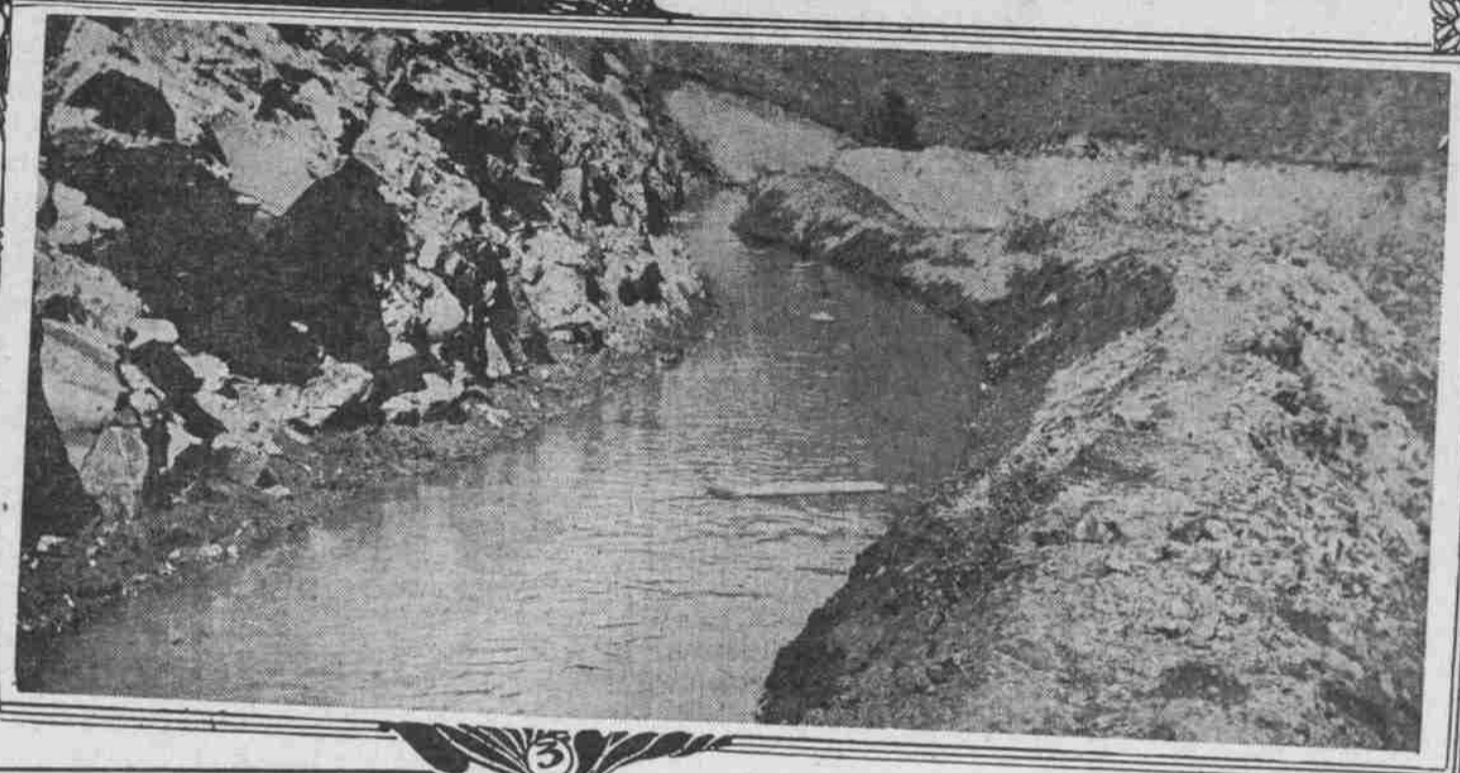
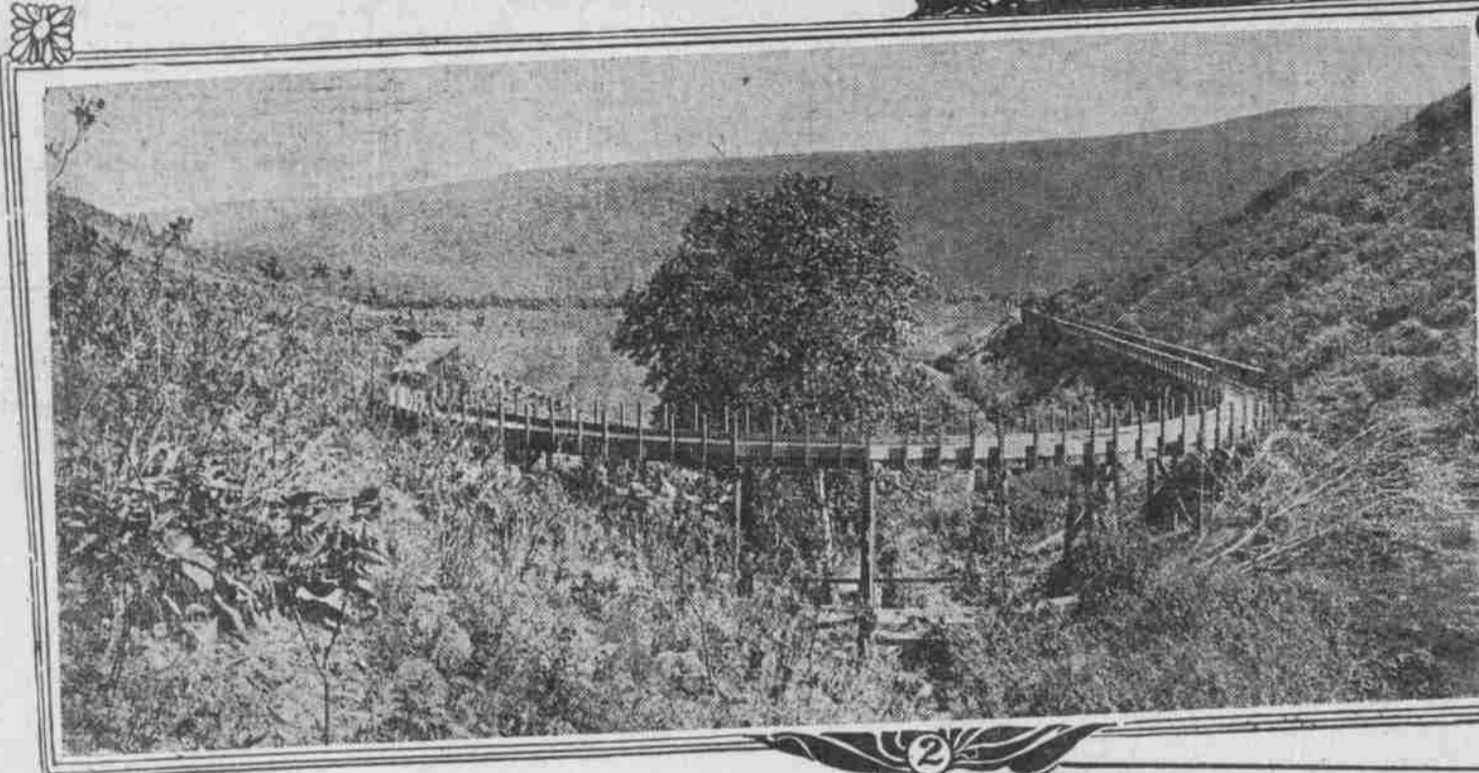
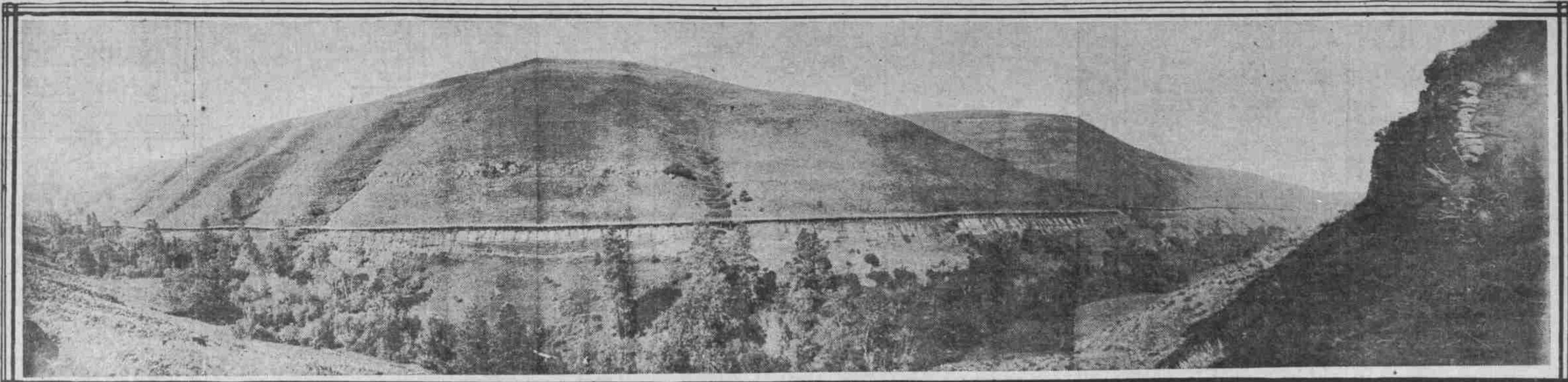


PORTLAND CAPITAL WILL MAKE GARDEN SPOT OF ARID LEWISTON VALLEY



BY WALLACE STANTON.
LEWISTON, Idaho, June 24.—(Special.)—Portland capital is taking a conspicuous and important part in the development of the Lewiston country resources through the operations of the Lewiston Sweetwater Irrigation Company. The Lewiston country was the scene of the first white settlements in Idaho and it was in those days that Portland capital supplied the river craft which carried the rush of gold-seekers into the Idaho mines in the early '60s. Portland later afforded the first market for the grain grown in Idaho and the Oregon metropolis has since been the wholesale supply depot for this great section of the Inland Empire.

There has been in that time a revolution of commercial conditions in the Pacific Northwest—the half century has changed a wilderness into great states, throbbing with the energy of wealth-making and charged with confidence and greater ambition, but Portland is still the great factor in the commercial affairs of the vast basin of the Snake and the Upper Columbia and Snake Rivers.

Lewiston is at the gateway to all Idaho and Portland occupies a similar position in respect to the Pacific Northwest. Lewiston is at the upper stretch of Nature's great canal that flows past Portland, and the laws of trade have bound together in friendly and mutual interest the Oregon and Idaho cities. During the experimental stages, the transportation problem may have temporarily checked its course, but the natural flow of the commerce of the Inland Empire is as definitely toward Portland as is the course of the great waterways, cut deep in the channels of stone.

Railroads Grasp Situation.
Within the past few months the railroad magnates have shown a realization of this fact and that the greatest railroad construction period in the history of the Northwest, centering the greatest activity on the Snake and Columbia Rivers, and that Portland and the Lewiston country are to be drawn still closer together.

With a study of the past and the conditions of the future in mind, it seems a fitting development that Portland capital should give to Northern Idaho its first big irrigation enterprise and thus, in the larger commercial activities that are coming to the Inland Northwest, more closely ally the business interests of the Lewiston country and the Oregon metropolis. Accordingly, Portland capital has with the past year invested more than a quarter of a million dollars in the Lewiston Valley in providing one of the most interesting irrigation enterprises of the entire West and one which will work a marked influence on the development of Lewiston and the tributary region.

The magnitude of the work has been observed in large degree by the most cautious methods of the promoters. It has been quite generally the custom, if not the rule, in the carrying out of such projects, to give wide publicity to every step, but the work here has been a pronounced exception in that regard. The company has quietly worked out its plans and the project became a reality before many Lewiston people realized that the details had been advanced more than beyond the preliminary stage.

The company is now charging its reservoir with water that will flow over 3000 acres of as rich land as can be found in the West and which crowd into the very limits of the city of Lewiston.

History of the Enterprise.
The head of the Lewiston Sweetwater Irrigation Company is Walter F. Burrill, of Portland, with whom are associated a number of Portland business men. H. L. Powers, of Portland, conceived the undertaking, organized the company and has personally managed the enterprise from the beginning. The primary entrance of the company into the field was in January, 1905, when Mr. Powers made a visit here and thoroughly investigated the possibilities of the project. In May, 1905, purchases of 5000 acres of land were made on the lower slopes of the Lewiston Valley, which has its southern boundary at the base of the Craig Mountain and which extends north and west to the Clearwater and Snake Rivers embracing roughly speaking 40,000 to 50,000 acres.

That section of the valley hugging close the rivers and low enough for the rich soil to be served with water by gravity or by pumping through small ditches from the rivers, has been devoted to fruit

culture for forty years, and the products of vine and orchard have contributed largely to the fame of Lewiston valley fruit. The upper stretches of the valley, ranging in altitude from one thousand to 2500 feet are semi-arid, and have been devoted to grain raising, and successfully, too; but during all these years, that land lying from the city limits of Lewiston to the south and east has been looked upon as a most inviting field for an irrigation enterprise—an enterprise that would turn wheat fields into gardens and sparsely settled areas into more thickly populated suburban tracts.

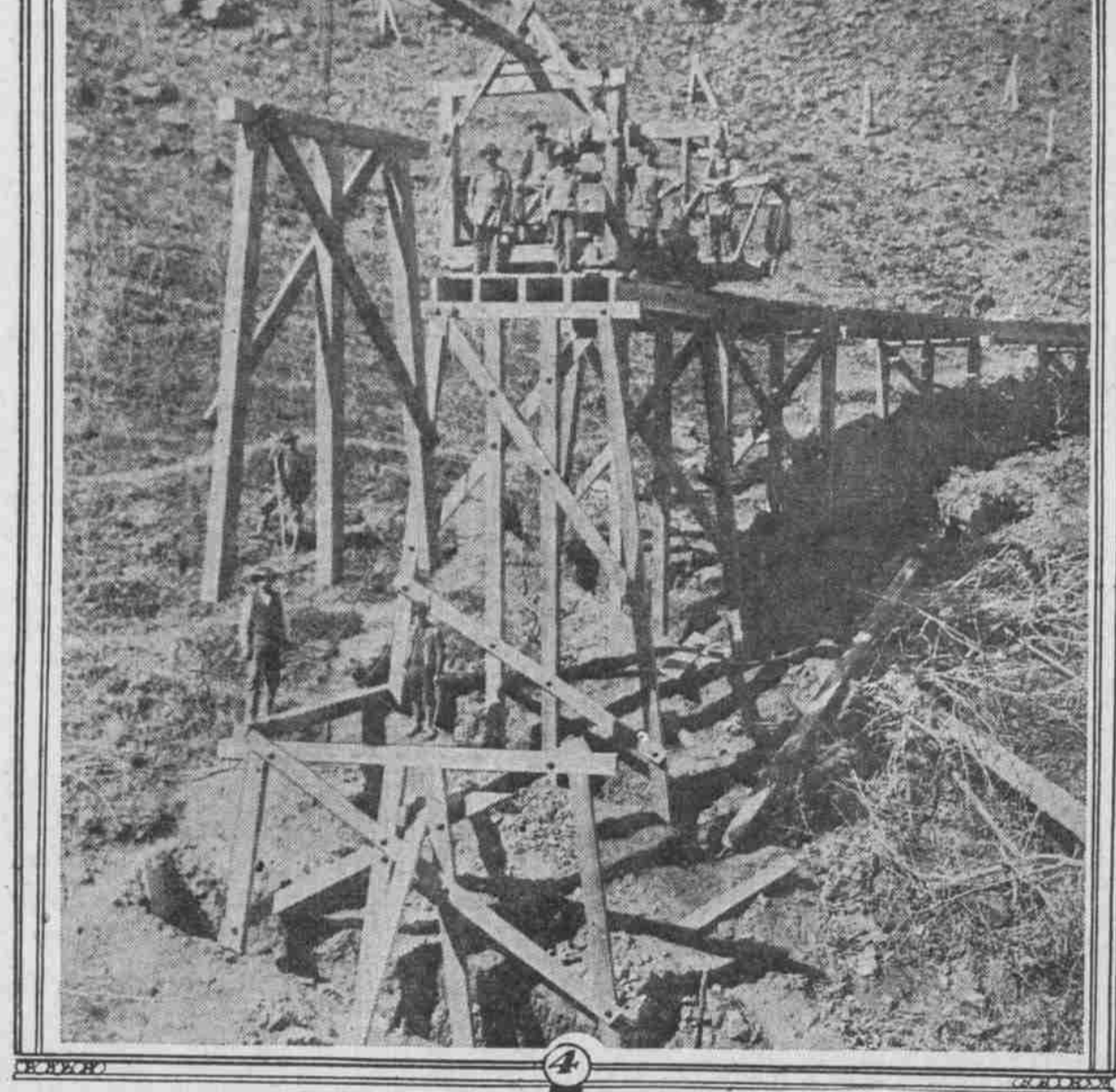
Meet With Many Obstacles.
But obstacles are there. The water supply must be obtained from the deep canyons into which plunge in torrents the storm and flood water, from the melting snow, during a period of comparatively short duration afterward dwindling to inconsiderable streams. To pick up these waters, to divert them from the steep slopes to the plateau and to provide the immense storage accommodations necessary, were problems that only large capital and skillful engineering could solve. Mr. Powers spent nearly a year investigating these various phases before taking up the enterprise.

The soil, the fundamental necessities, the future of Lewiston and the proximity to the city of the lands to be reclaimed, the unusual climate, the mild winters, the intensely hot summers and the long period of sunshine throughout the year with reference to their effect upon the cultivation of fruit; the market value of the products, the demand, the transportation conditions, the supply of labor to harvest the fruit and outside work for the horticulturist in factory, forest or mine during the winter season or while trees were maturing and material are swarming over the work and gradually raising the great wall of the dam. It will take two years to complete it, and then it will be 300 feet high at its highest point, 3500 feet in length and 500 feet thick at its widest point. Seven hundred and fifty thousand yards of selected material are entering into it.

Water Rights on Three Streams.
The water rights for the system were acquired on Sweetwater, Webb and Mission creeks. These streams rush down deep canyons from the slopes of the Craig Mountain. The point of diversion of the ditch just completed is at the forks of the Sweetwater, twelve miles on an air-line from Lewiston. Nine miles of open ditch, at points built through solid rock at a cost of \$20,000 a mile, and three miles of flume, make the canal that leads the water to an immense reservoir, located six miles from Lewiston and four hundred feet above the lands to be served. The flume section of the ditch is eight feet wide at the bottom and has a carrying capacity of one hundred second-feet.

The upper section of the open ditch is nine feet wide at the bottom and ten feet at a depth of three feet. These dimensions are increased on the lower stretches of the ditch to ten feet on the bottom and 20 feet at a depth of three feet, and will ultimately be enlarged to carry the waters of Webb and Mission Creeks when the latter are diverted. A natural depression in the earth has been found for the reservoir, covering 300 acres, and which has a storage capacity of 900 acre feet. From this reservoir, under pressure, the water is to be sent in wooden-stave pipes over the rolling hills to Lewiston, and the undertaking is organized, the company and has personally managed the enterprise from the beginning. The primary entrance of the company into the field was in January, 1905, when Mr. Powers made a visit here and thoroughly investigated the possibilities of the project. In May, 1905, purchases of 5000 acres of land were made on the lower slopes of the Lewiston Valley, which has its southern boundary at the base of the Craig Mountain and which extends north and west to the Clearwater and Snake Rivers embracing roughly speaking 40,000 to 50,000 acres.

Two Years of Reservoir Work.
Just a peep at the scene of the reservoir work will suggest the magnitude and substantial character of the plant. It is the reservoir element that has made possible the reclamation of the lands, and



1. View showing section of three-mile flume of Lewiston-Sweetwater Company, where same is at points bolted to solid cliffs of basalt, the work of Portland people in developing resources of Lewiston country by lifting waters from deep canyons to flow over the fruit lands.
2. A loop in the flume of the Lewiston-Sweetwater Irrigation Company, whose operations have reclaimed to irrigation rich sections of the Lewiston Valley in Idaho.
3. Section of canal of Lewiston-Sweetwater Irrigation Company. At points the canal has been blasted out of solid rock at a cost of \$20,000 a mile. How Portland capital is developing resources of Lewiston Valley.
4. In building the big flume of the Lewiston-Sweetwater Company it became necessary to adopt the same method as is employed in extending a bridge over a stream, a traveling crane being utilized.

here is where the great work has been done, lasting and secure. The reservoir site is a natural one, requiring only a dam, outlet pipes and gates. Water is now flowing into the reservoir, but machinery and material are swarming over the work and gradually raising the great wall of the dam. It will take two years to complete it, and then it will be 300 feet high at its highest point, 3500 feet in length and 500 feet thick at its widest point. Seven hundred and fifty thousand yards of selected material are entering into it.

Layer after layer, six inches thick, is being spread over the wall and wedged into place by heavy rollers 14 tons in weight, actually cementing on all sides the solid concrete out pipes, which have been built in solid rock. Ludlow steel gates, each 35 inches in diameter, are also built beneath the immense mass, which is creeping higher and higher and thicker and thicker. It takes a sharp pick to even scratch the wall at any point. Such compactness seems unnecessary, but the most exacting demands of the expert engineers must be satisfied in modern reservoir construction. This wall is being built by men who have studied the famous reservoirs of Colorado for a quarter of a century and who are specialists in this class of engineering.

Among World's Greatest Dams.
The dam ranks among the highest earthen dams of the world and there are

very few as high that have been constructed for the purpose of irrigation. There are twenty dams which are higher than this one, ranging from 85 feet up to 125 feet, which are distributed over the world as follows: California 6, Maryland 1, New York 1, Ireland 2, India 3, England 1, Algeria 1, Scotland 1. None of these is used for irrigation, except in California, India and Algeria. They are all constructed on much the same slopes and with crowns of from six to sixty feet in width.

There are several dams now projected by the United States reclamation service which will be as high or higher than the dam of the Lewiston Sweetwater Irrigation Company. The dam on the Cold Springs reservoir in the Umattilla project will be of very nearly the same character and height and contain about 700,000 cubic yards of material or a trifle less than this dam. The Bellefourche dam in South Dakota will contain 1,500,000 cubic yards of earth and will be about 115 feet in height and 600 feet in length. It is the largest earthen dam now under construction by the reclamation service.

Who the Engineers Are.
Convinced that the reservoir plan was the only one by which the beautiful valley lands could be reclaimed for fruit growing and suburban homes, the promoters of the Lewiston project went to Colorado, where reservoir irrigation systems have reached their most advanced

success. Investigation there resulted in their securing the services of Professor L. G. Carpenter, the noted irrigation expert, as consulting engineer.

Prof. Carpenter was State Engineer of Colorado and is Professor of Irrigation Engineering at the Fort Collins Agricultural College. He is known throughout the United States for the success of his work in irrigation engineering. To take direct charge of the work for the company here, Professor Carpenter appointed Porter J. Preston, former Assistant State Engineer of Colorado, a graduate of the Fort Collins School of Irrigation Engineering, and an engineer of fifteen years actual field experience. For five years, Mr. Preston was superintendent of the Fort Lyon, Colorado canal system embracing 113 miles of ditch, and his special work has been the handling of those features of irrigation work dealing with the reservoir systems.

Superintendent is From Portland.
Preliminary engineering work was handled by Engineer J. O. Maxon of this city and Engineer A. Wold of Tacoma, who built the N. J. Furnish plant in Eastern Oregon. During actual construction, Professor Carpenter and Mr. Preston have included in their force of assistants three graduates of the Washington State College of Pullman, Washington—C. C. Cartlich, W. R. Rehorn and Dennis P. Woods. Mr. Preston as Chief Engineer has personally directed the various en-

gineering details of the big enterprise, while the field superintendent for the company is F. D. Warner, of Portland, a graduate in Mechanical Engineering of the University of Wisconsin.

In the distribution of the water to the lands of the company, the irrigated tracts to be known as the Lewiston Orchards, the element of efficiency, which has been the governing influence in all the engineering details, is again carried out in the work of the company. The outlet facilities at the reservoir will enable the entire capacity of the reservoir to be discharged in six weeks' time, and the plan of marketing the water to be adopted is such that the owner of the land may at his option receive all the water contracted for within a period of 60 days. Consequently he may take a large quantity during hot days and less during cooler weather.

Essentially Storage Plant.
Every irrigation system has distinct methods of distribution, peculiar to the conditions that must be met. The Portland plant, being one of storage, essentially suggests, when the immense size of the reservoir is considered, that a large amount of water is demanded in a limited period of time, and that the period for catching the water is limited to a season. And these are the facts:

The drainage area of the Craig Mountain watershed is about 100,000 square miles. The greater altitudes of the mountain do not exceed 5000 feet. The melting snows and heavy rain of the country fall and late spring therefore rush down the mountain streams in torrents. If conditions so warrant the step, the Portland company can store, during these rushes of storm waters, 10,000 cubic feet of water in the reservoir and this water can be held until mid-summer, when crops may depend solely upon water.

Model Suburban Residence Tract.
While the prominence of the Lewiston Valley as a fruitgrowing district is ample evidence of the success that can be expected in fruitgrowing on the new lands reclaimed, the proximity of these lands to Lewiston will naturally make Lewiston Orchards a suburban residence district. The company has planned a model district in this regard. The distributing pipes extending from the reservoir are 24, 18 and 10 inches in diameter. The reservoir is several hundred feet higher than the lands. The water is therefore to be delivered under a minimum of 100 feet head pressure to every house.

The lands are divided into five-acre tracts, with 60-foot streets and 30-foot alleys. The plan of marketing the tracts provides for systematic improvements, such as fencing. Each purchaser must maintain around his property a fence of uniform design painted white. This alone will lend character and distinction to the lands under this system. The company will plant avenues of ornamental trees throughout the holdings. The work of the company is toward providing home tracts, with all the advantages of proximity to city conveniences, yet affording the freedom of suburban life and the opportunities of carrying on there successfully fruit growing and truck farming.

What It Means for Lewiston Valley.
Lewiston people view the enterprise of the Portland company as the most important development in the history of the city, assuring a large suburban population and the increase of the fruitgrowing area to such a size as will give the valley first place among the fruit districts in the Northwest from the standpoint of the output of the more delicate varieties of fruits.

For 40 years there have been periodical movements to place under water large tracts of the valley lands, but the plans all these years have awaited consummation. There was no speculation as to the results water would bring—the Robert Schielecher vineyard, recognized as the finest in the Northwest, is in this valley; and that there is the remarkable achievement at Vineland, from which place carloads of cherries, peaches, apricots and berries are shipped out to the East every year.

So long as the waters of Craig Moun-

tain remained unassimilated, wheat-growing was the sole industry of the larger areas of the valley, but Portland capital has assembled the waters, and Idaho's march of progress has been quickened by the addition of another big irrigation scheme successfully carried out.

BEEF CROP IS SCARCE.
Yield in the Grand Ronde Valley Reaches 40,000 Tons.

LA GRANDE, Or., June 24.—(Special.)—Machinists are busy at the sugar factory overhauling the machinery and getting the plant in order for the summer run for the working into brown sugar of the residue syrup of last year. The mill expects to start on this run early in July, and will continue for six or eight weeks, which will bring it almost up to the time when the regular fall run will commence, which to meet demands must begin not later than the middle of September.

The pressing need for this unusually early beeting is brought about by the exceptional heavy crop of beets that is expected to be harvested this year and which must be disposed of before the frost comes; therefore an early start is necessary to get all the beets through. Manager Bramwell is enthusiastic over the present prospects for a beet crop. He says: "We have 400 acres of beets this year and at least 4000 acres of this is a perfect stand. The only difficulty that confronts us is the scarcity of help. We employ all the white help we can and then fill out with the best we can get. In addition to our home supply of help we have about 200 Japanese."

This week a band of Umattilla Indians came over to seek employment in the beet fields, and were welcomed, for the reason that the beetgrowers are glad to get any help they can get. One cause of the present scarcity of help in the beet fields is the big fruit yield all over the valley which employs many pickers and packers that otherwise would be working in the beets. The strawberries and cherries are coming in market and will keep quite an army of workers busy to handle early crop. Beetgrowers are afraid they may be compelled to secure Greeks if the labor supply cannot be obtained in any other way, but this will only come as a last resort.

VINEGAR FACTORY IS ASSURED.
La Grande Plant Will Be Ready for Work Next Fall.

LA GRANDE, Or., June 24.—(Special.)—That La Grande will have a vinegar factory, which will be in operation in time to handle the crop of fall apples, is now an assured fact. Nearly all the stock has been subscribed. Cash stock subscriptions, amounting to nearly \$30,000, have been made.

The company will be known as the Ripley Oregon Apple Food Company. The contract for the construction of the building will be given this week, the location is on the Elgin branch east of the city limits.

The building will be 45x150 with cement cellar, and the factory will have a capacity for handling 100,000 bushels during the year, with an output approximately 300,000 gallons of vinegar, apple wine and cider.

It Was His Job.
Harper's Weekly.
Representative Cushman, of the State of Washington, was recently entertaining a constituent at luncheon. A man passed whom Mr. Cushman seized by the arm and presented to his friend.

"This is the man," said Cushman, confidentially, "who has written more stupidities than any other living person."

The man from Washington was so taken back by the remark, which appeared to him to be the height of impoliteness, that he sat in open-mouthed silence. The man introduced, however, took the observation good-naturedly, smiling broadly.

"Perhaps I should add," continued Cushman, "that this gentleman is one of the official stenographers of the House."