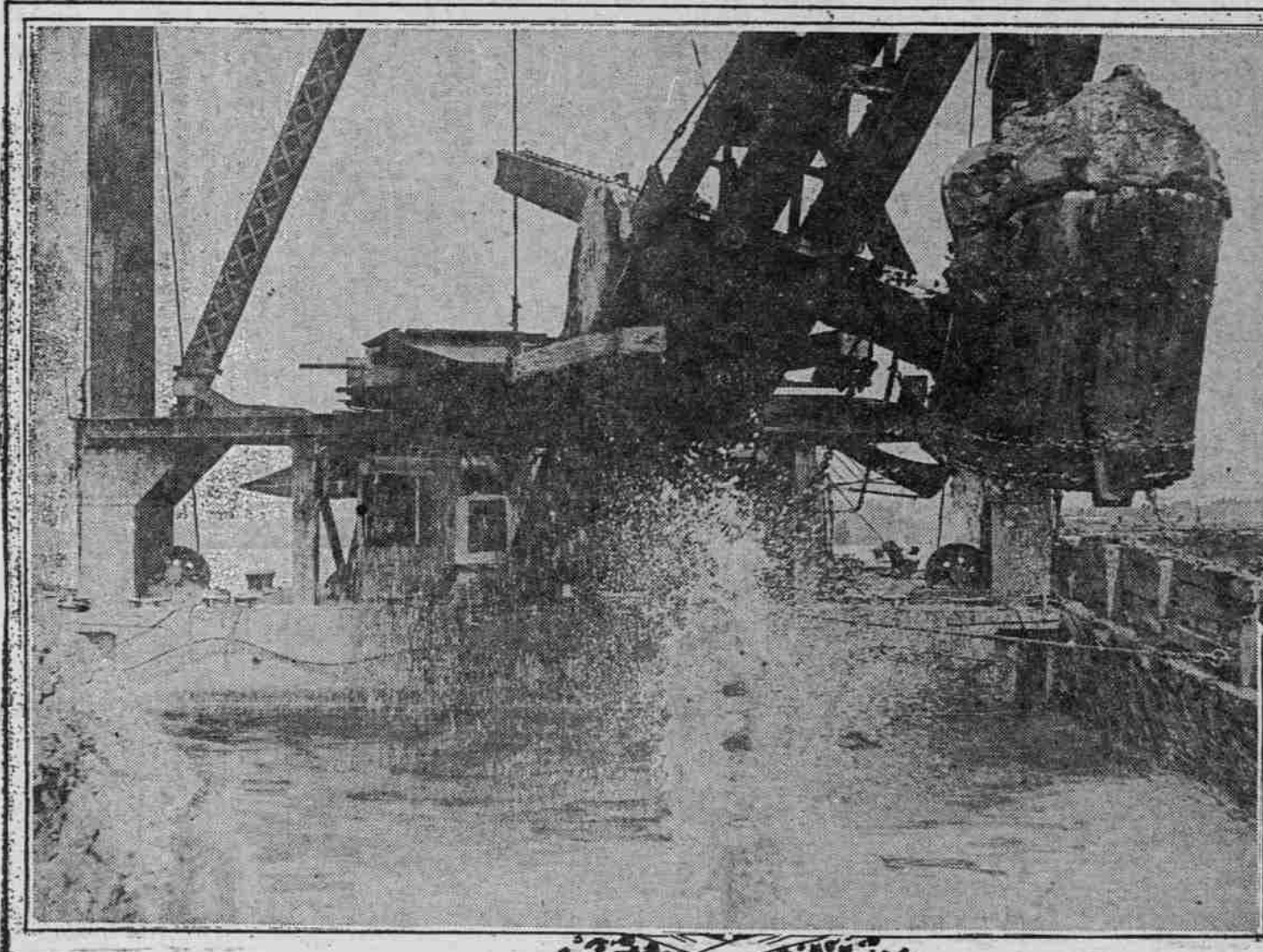


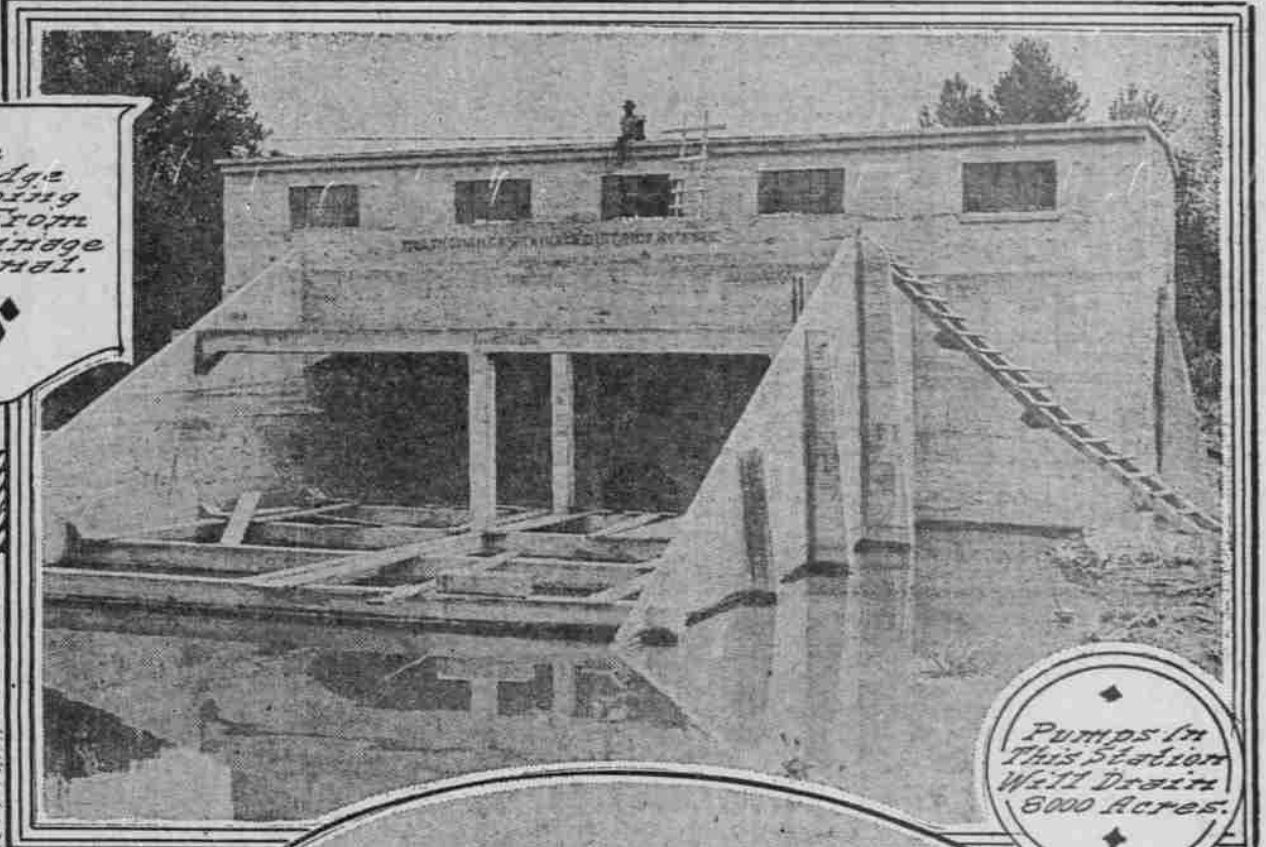


Multnomah Creates Netherlands District On Delta of Willamette.

Carp Pasture and Mosquito Hive Being Converted Into Fertile Farming Community



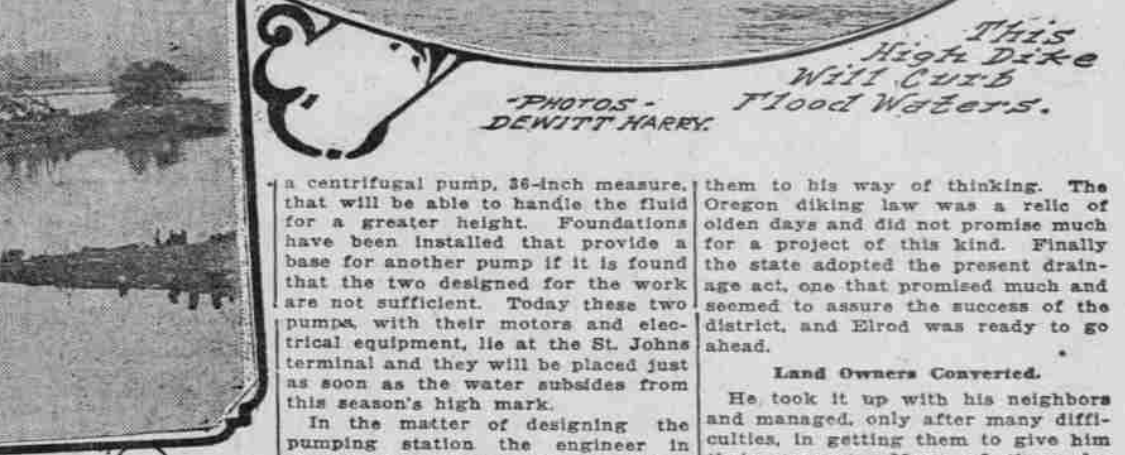
Huge Dredge Scooping Silt From Drainage Canal.



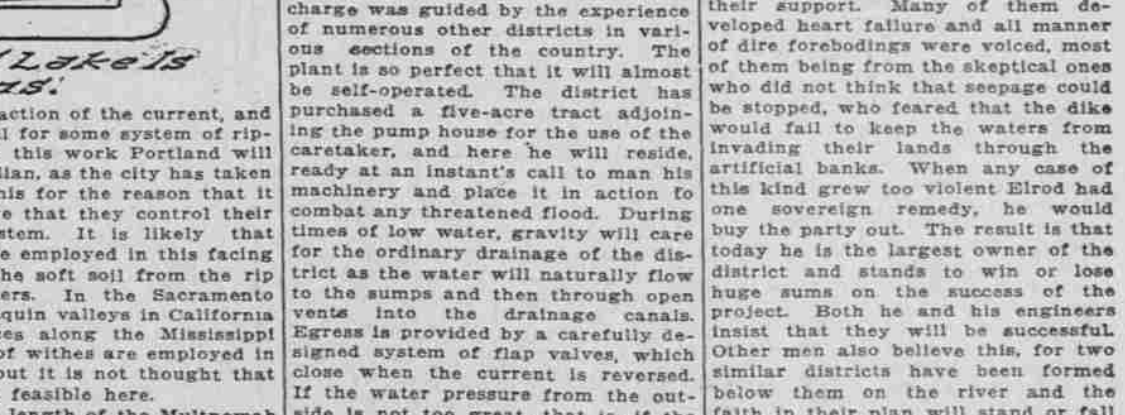
PUMPS IN THIS DISTRICT WILL DRAIN 8000 ACRES.



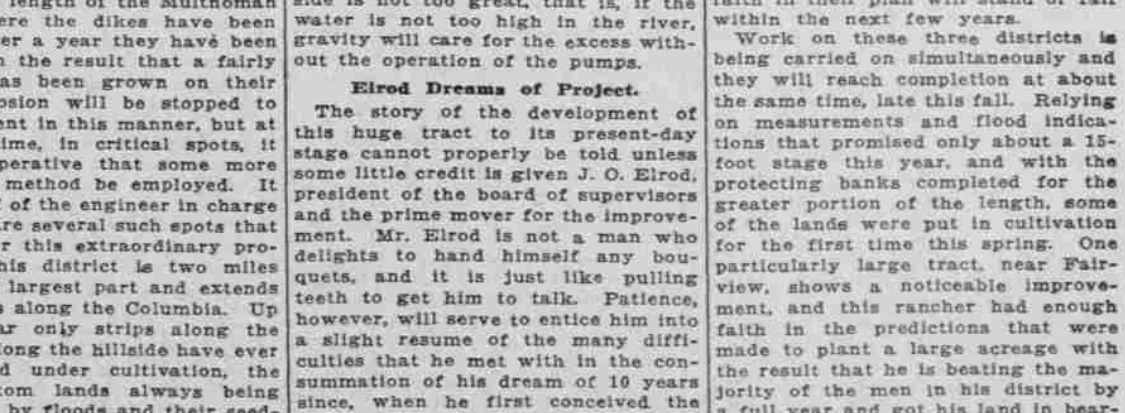
This High Dike Will Curb Flood Waters.



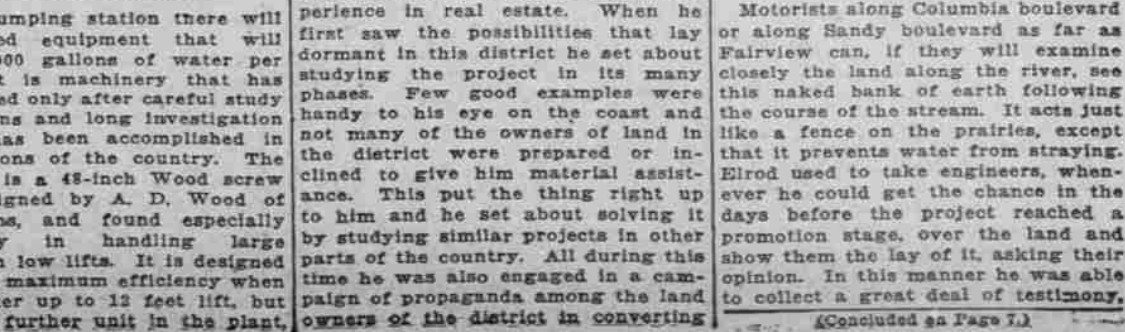
PHOTOS BY DEWITT HARRY.



Under This Beautiful Lake Is Land Worth Millions.



Huge Pumps Installed.



Huge Pumps Installed.

BY DE WITT HARRY.
(Copyright, 1920.)

LAND is the wealth of any nation. First to prove this, Egypt, when civilization was developed from a base of alluvial silt deposited by Nile freshets. So expert became the Egyptian of olden days in conserving every iota of wealth brought by the bountiful river to his lands that he early perfected a system of diking and stepped-down walls so that the flood waters would be stripped of all their fertility before being allowed to continue to the Mediterranean.

It has taken most of the super-progressive Americans decades to profit by this ancient example of thrift. Of course, the main reason for the non-employment of means to cultivate overflow and silt lands has been that there was ample elsewhere and that it took too much trouble. Why go to the expense of diking, draining and reclamation when all that was necessary to get a living was to tickle a couple of acres of virgin soil that could be had almost for the asking?

Fortune Is Neglected.

Multnomah county is a splendid example of this. With thousands of acres of silt land, so rich that it would make the khedive green with envy, right at their doors, citizens of this reputed progressive community have allowed it to rest with little effort at cultivation. With but 21,000 acres of cultivated land in the county, and while paying toll and tribute to market gardeners elsewhere who have shipped their product in to these markets, this rich land has lain idle. Thousands of dollars have been wasted and the population of Portland has been taxed a right fat sum each year that has gone to shippers in addition to the amounts that have been paid the raisers for their fresh vegetables and fruits. And all this time, right at our doors, lay this land—12,000 acres of it, or more—land that the paternal Columbia has devoted ages to carry from the choice pickings that he collected on his rambling way through the immense inland empire of the Pacific northwest.

In the city limits, some of it, and running thence to the Columbia, from the junction of the Willamette as far north and east as Fairview, has for decades been territory looked upon with scorn by most of the residents of Portland, land cursed frequently and fervently as the breeding place for the only mosquito hordes that the city knew; land referred to in slighting terms as carp pasture, as just a mud-wallow, not fit for anything and a detriment. But if any of these folks had stopped and tried to vision this matter out for themselves, to probe about how this land was formed, from whence it came, of what it was composed, they would have realized that here was lying at their feet many fortunes, as fortune has been scorned time without end since the beginning of time.

Carp Lose Their Homes.

Next year carp will have to search for new pasture. The happy breeding place for the festive feasting skeeter will be no more, for most of this immense area will be drained. Over half a million dollars is being spent there today in diking some 11,000 acres to protect them from the annual overflow of the Columbia and reclaim this hitherto worthless land,

to make it a garden spot that will not have a peer even in The Netherlands, Holland, Egypt, the delta of the Mississippi or in the San Joaquin and Sacramento valleys of California, spots on the face of the globe that will show near parallels to the project now being completed right in Portland's yard.

Eleven thousand acres that ten years ago, or even less in most cases, could be bought for a song, and that, even to five years ago, before the reclamation possibilities were fully realized, were held as nearly worthless, often selling for \$5 an acre as duck swamps, will now be worth in excess of \$500 an acre as a fair average, much of it reaching the peak price of the California valleys, the land that produces the record crops of asparagus, celery and onions, and that is accepted as first-class security by hard-fisted bankers for loans on a \$1500-an-acre valuation. Just lumping the entire project at the fair average of \$500 an acre, which it is expected to reach when the projects are in operation and the land in cultivation, we see the immense sum total of nearly six millions in land values created from an original investment of possibly \$50,000, assisted by half a million or so in improvements. Few locations in the world will show such a great creation in tangible wealth, and Portland and Oregon will profit thereby.

Portland to Gain Garden.

Market conditions here today are basically the same as those of San Francisco, plus the high freight tariffs to get the California produce to this city. Within a very few years, depending on how rapid is the operation of placing this area in cultivation, Portland will have a vegetable garden at her door that will produce the best fresh-grown stuffs at minimum cost. Not only will our own markets be kept supplied but there should be surplus available for shipping. It means the addition of further industry to the city, the creation of more wealth, the lowering of living costs, and the placing of more families on land that will yield

a good living. Starting this fall, thousands of acres of virgin soil will first feel the thrust of the plow and with the coming of next spring they will be well on their way to bearing.

It is strange that more people in Portland do not know just what is happening at their very door. Columbia slough, long a favored place for the pursuit of bass which made their homes in the many ponds and sluggish streams that are tributary thereto, is now being changed. Under state laws a trio of drainage districts have been formed—Multnomah number one to the east and Peninsula one and two at the mouth of the river. Multnomah number one is the largest of these districts, containing some 8000 acres, with the main dike starting near Fairview and tying into the high lands again about Union avenue. Below this project lie the Peninsula districts, with an aggregate of about 3000 acres on both.

Drainage District Large.

In Multnomah district No. 1 there are about 100 property owners interested, and the work is being handled by three supervisors—D. C. Powell, Jacob Lasher and J. O. Elrod. Elrod, the largest property owner in the district, is chairman of the board. The engineer in charge is William G. Brown, a man of wide experience in public works and one of the men who assisted in the construction of Cascade locks and other big engineering jobs in the northwest.

The plan for the protection of this large district and its drainage is simple. The dikes are about completed now and will be tied in within a few weeks. This spring's floods are the last that the district is expected to suffer providing the water does not again reach the enormous peak of 1894, when it went three feet higher than ever before or since in the history of the river. This fall, when several of the small gaps in the dikes are closed, the immense area will be practically water-tight and will be kept so from that time on. Indeed, right now Multnomah county is having an experience unique in its late

history in that large areas of virgin soil are feeling the initial thrust of the breaking plow, and next spring they will be placed in crop for the first time.

Dike Over Thirteen Miles Long.
One large dike, starting at the high land near Fairview, follows the bank of the Columbia to McBride's slough, and then follows this slough to the high land across Multnomah slough. At the junction of the present Multnomah slough and McBride's slough, situated just a short distance above the point where the Vancouver street railway trestle crosses, is situated the pump house for the district. Multnomah slough, from this point east, will, in the future, be merely as a drainage ditch for the district, as it will be dammed here by the dike.

McBride's slough is now being converted into an open sewer vent for the east side of the city. Engineering figures, prepared by the city, claim that this project, when completed, will be amply large enough to dilute the sewage from a population of a quarter million, that the flowing water that will traverse the channel will care for and dispose of this amount of material. As this district now has a population of approximately 25,000, and many of them are not yet able to use drains on account of lack of sufficient mains, it will be readily seen that the new installation will be able to care for Portland's increase in population for some long time to come. Today there are large crews employed in carrying this phase of the work to completion, huge dredges tearing the floor from the channel so that it will be deep enough to care for the water flow that is expected, and barges removing the material to points where it is being placed in position on the dikes. This earth, being of a sand or fine silt nature, readily lending itself to the use for which it is intended, makes a dike that is expected to be impervious to fluids, one that will not suffer from leakage.

Only one difficulty is expected, and that is on the face of the dike from the tearing action of the current, and this may call for some system of riprapping. In this work Portland will be the guardian, as the city has taken charge of this for the reason that it is imperative that they control their sewage system. It is likely that stone will be employed in this facing to protect the soft soil from the rip of the waters. In the Sacramento and San Joaquin valleys in California, and in places along the Mississippi river mats of withes are employed in this work, but it is not thought that this will be feasible here.

Along the length of the Multnomah district where the dikes have been built for over a year they have been seeded, with the result that a fairly firm sod has been grown on their slopes. Erosion will be stopped to a great extent in this manner, but at the same time, in critical spots, it will be imperative that some more substantial method be employed. It is the belief of the engineer in charge that there are several such spots that will call for this extraordinary protection. This district is two miles wide at its largest part and extends for 11 miles along the Columbia. Up to this year only strips along the river and along the hillside have been placed under cultivation, the richer bottom lands always being endangered by floods and their seeding being attended by such gambling odds against crops that it has been seldom attempted.

Huge Pumps Installed.
In the pumping station there will be installed equipment that will handle 90,000 gallons of water per minute. It is machinery that has been selected only after careful study of conditions and long investigation of what has been accomplished in other sections of the country. The main unit is a 48-inch Wood screw pump, designed by A. D. Wood of New Orleans, and found especially satisfactory in handling large amounts on low lifts. It is designed to work at maximum efficiency when it has water up to 12 feet lift, but there is a further unit in the plant,

a centrifugal pump, 36-inch measure, that will be able to handle the fluid for a greater height. Foundations have been installed that provide a base for another pump if it is found that the two designed for the work are not sufficient. Today these two pumps, with their motors and electrical equipment, lie at the St. Johns terminal and they will be placed just as soon as the water subsides from this season's high mark.

In the matter of designing the pumping station the engineer in charge was guided by the experience of numerous other districts in various sections of the country. The plant is so perfect that it will almost be self-operated. The district has purchased a five-acre tract adjoining the pump house for the use of the caretaker, and here he will reside, ready at an instant's call to man his machinery and place it in action to combat any threatened flood. During times of low water, gravity will care for the ordinary drainage of the district as the water will naturally flow to the pumps and then through open vents into the drainage canals. Egress is provided by a carefully designed system of flap valves, which close when the current is reversed. If the water pressure from the outside is not too great, that is, if the water is not too high in the river, gravity will care for the excess without the operation of the pumps.

Elrod Dreams of Project.
The story of the development of this huge tract to its present-day stage cannot properly be told unless some little credit is given J. O. Elrod, president of the board of supervisors and the prime mover for the improvement. Mr. Elrod is not a man who delights to hand himself any bouquets, and it is just like pulling teeth to get him to talk. Patience, however, will serve to entice him into a slight resume of the many difficulties that he met with in the consummation of his dream of 16 years since, when he first conceived the idea that he would see this waste land transformed into the garden spot of the state.

Elrod is a mighty canny business man and has had a great deal of experience in real estate. When he first saw the possibilities that lay dormant in this district he set about studying the project in its many phases. Few good examples were handy to his eye on the coast and not many of the owners of land in the district were prepared or inclined to give him material assistance. This put the thing right up to him and he set about solving it by studying similar projects in other parts of the country. All during this time he was also engaged in a campaign of propaganda among the land owners of the district in converting

them to his way of thinking. The Oregon diking law was a relic of olden days and did not promise much for a project of this kind. Finally the state adopted the present drainage act, one that promised much and seemed to assure the success of the district, and Elrod was ready to go ahead.

Land Owners Converted.

He took it up with his neighbors and managed, only after many difficulties, in getting them to give him their support. Many of them developed heart failure and all manner of dire forebodings were voiced, most of them being from the skeptical ones who did not think that seepage could be stopped, who feared that the dike would fail to keep the waters from invading their lands through the artificial banks. When any case of this kind grew too violent Elrod had one sovereign remedy, he would buy the party out. The result is that today he is the largest owner of the district and stands to win or lose huge sums on the success of the project. Both he and his engineers insist that they will be successful. Other men also believe this, for two similar districts have been formed below them on the river and the faith in their plan will stand or fall within the next few years.

Work on these three districts is being carried on simultaneously and they will reach completion at about the same time, late this fall. Relying on measurements and flood indications that promised only about a 15-foot stage this year, and with the protecting banks completed for the greater portion of the length, some of the lands were put in cultivation for the first time this spring. One particularly large tract, near Fairview, shows a noticeable improvement, and this retractor had enough faith in the predictions that were made to plant a large acreage with the result that he is beating the majority of the men in his district by a full year and got his land in bearing, for its first crop, right to the edge of the rising water that came in this spring.

Dikes Can Be Sees.

Motorists along Columbia boulevard or along Sandy boulevard as far as Fairview can, if they will examine closely the land along the river, see this naked bank of earth following the course of the stream. It acts just like a fence on the prairies, except that it prevents water from straying. Elrod used to take engineers, whenever he could get the chance in the days before the project reached a promotion stage, over the land and show them the lay of it, asking their opinion. In this manner he was able to collect a great deal of testimony.