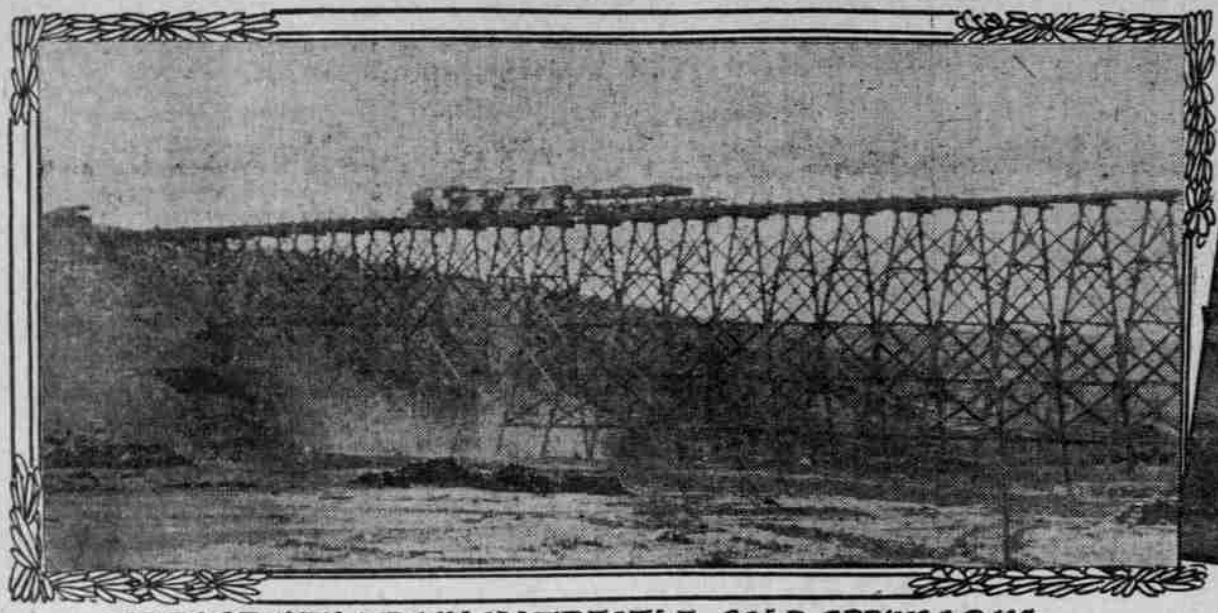


BARREN LAND MADE FERTILE BY UMATILLA WATER PROJECT



FIRST GRAVEL TRAIN ON TRESTLE, COLD SPRINGS DAM



TRESTLE, COLD SPRINGS DAM SHOWING DUMP CARS AT WORK

TO TURN 20,000 acres of sagebrush east of Umatilla River, Oregon, into one of the exceptionally fertile areas of America, the United States Reclamation Service is building an irrigation system, which when completed in 1910 will cost about \$1,000,000. A small acreage will probably be put under cultivation next year and in 1909 a large quantity of land will be ready for cultivation.

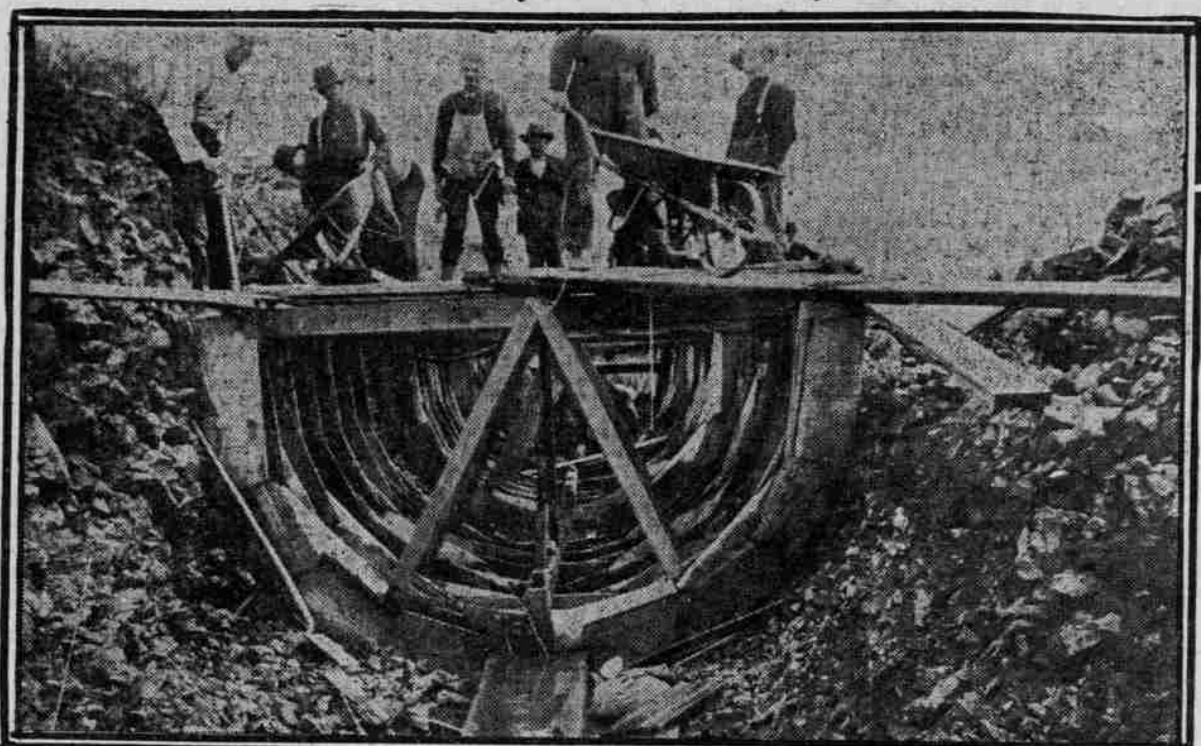
This work has stimulated the activities of the area to such an extent that its appearance has wholly changed within a year. In that time the town of Hermiston has sprung from the dry plain to a population of nearly 600 persons. Other towns have grown with great rapidity. Transportation facilities are the best being afforded by the main line of the O. R. & N., the north bank road of the Portland & Seattle, and the Columbia River.

The area to be irrigated lies south of the Columbia and east of the Umatilla River, in a triangular body between the towns of Umatilla, Hermiston and Cold Springs, stations of the O. R. & N. The soil consists largely of a sandy loam, at present almost wholly covered with sagebrush, having a somewhat broken, irregular surface. This irregularity of surface has probably been largely caused by the action of the winds, which for ages have swept across the area and drifted

Sound Bridge & Dredging Company, which has almost completed its work.

Reservoir a Huge Structure.

The storage reservoir into which the feed canal discharges will hold about 95,000 acre feet or as much water as would cover 50,000 acres one foot deep. It will be formed by building a dam between 3000 and 4000 feet long across the gorge at its lower end. The height of the dam will be 90 feet and its maximum width at base about 470 feet. It will be built wholly of gravel and soil with a heavy layer of riprap or paving on the side exposed to the action of the waves. Water will be drawn from the reservoir through a masonry conduit and gate tower, founded on solid rock, into the canal, which will distribute it over the irrigated lands. At the northern extremity of the dam, a waste channel will be constructed lined throughout with concrete and founded on hard pan or rock. It will have a capacity to discharge not less than 6000 cubic feet of water per second, in the event of heavy run-off from the lands which drain into the reservoir. This wasteway is of unusually large proportions, and to one not thoroughly conversant with the dangers of floods it might appear to be unnecessarily large. During the past Spring, however, a flood occurred within the area of unprecedented magnitude, and for a



MEN AT WORK BUILDING STORAGE FEED CANAL



FEED CANAL SAND GATE AND REGULATING WEIR

the loose sands and soils into long and mostly parallel ridges. Numerous desert entries were taken up in this area, of which one-half can be retained. The other half to be relinquished and will thus become subject to homestead entry. The farm units will range in size from 10 to 40 acres. The areas retained in private ownership are generally large and will undoubtedly be rapidly subdivided.

High Average of Sunshine.

The climatic conditions of this project are highly favorable for intensive cultivation, the elevation above sea level being generally only between 400 and 500 feet, and the proportion of sunny days during an average year being unusually high. While undoubtedly considerable alfalfa will be raised at first, it is certain that this area is destined to become a heavy fruit producer and that land value and population per acre will equal, if not surpass, those of the most favored spots in the Northwest. Transportation facilities are exceptionally favorable, the area being traversed by two main branches of the O. R. & N. Company and the new North Bank Road passing by on the opposite side of the Columbia. The Columbia River will afford ample water transportation and insure low freight rates.

The water is obtained from the Umatilla River, a large stream of very irregular flow. During the summer months in dry seasons the flow in the river is subject to prior appropriations for irrigating lands bordering upon the river. The flood flow of the river is exceptionally large, and the general plan adopted by the Government is to divert sufficient water during the period of flood to fill a large storage reservoir located near the southeast corner of the irrigated lands. This reservoir will be of sufficient size to hold about two-thirds of the total amount of water needed to irrigate the lands during an irrigating season, the remaining one-third being drawn directly from the river prior to the dry months. The headgates of the feed canal leading from the Umatilla River to the storage reservoir are situated about two miles above Echo on the river. They are built of concrete and steel and are well protected by riprap and paving.

Some little distance below the headgates on the canal there is another concrete structure called the sand gates, which are designed to check the passage of sand from the river into the lower canal. The canal is generally an ordinary earth ditch capable of carrying 300 cubic feet per second. Portions of it in the vicinity of Echo are built along steep, rocky side hills where it was necessary to line the canal with concrete. The total length of the feed canal from the diversion dam to the reservoir is about 25 miles. At one point it crosses the tracks of the Oregon Railroad and Navigation Company by means of a solid steel concrete culvert. Near the town of Echo there will be placed a steel gate so arranged that during times of emergency it may be rapidly dropped, permitting the canal water to waste into the Umatilla River, entirely shutting off the flow of the canal. The contract for building the diversion dam and feed canal was awarded by the Government to the Puget



VIEW AT UPPER END OF FEED CANAL; LOOKING NORTH TOWARD REGULATING WEIR

short time the volume of water flowing down the canyon at the dam site approximated closely the capacity of the proposed spillway.

To prevent percolation of water below the dam foundations, a trench has been excavated down to solid rock bottom. Concrete walls have been built on the ledge to act as cut-offs, and the entire trench, which is 20 feet wide on the bottom, is being refilled with carefully selected water-tight material. The Government engineers generally anticipate that the percolation or leakage through a dam of this kind will be comparatively low, possibly not appreciable, and will be confined wholly to subsurface flow. Construction at the dam is now being actively prosecuted by a large force of men in Government employ. A 70-ton steam shovel delivers gravel directly into railroad cars, which are hauled a distance of about one and one-half miles to the dam. The trains run over a 80-foot trestle and dump directly from it onto

the dam, where the material is rolled and spread. Soil to mix with the gravel and to add to the water-tight qualities of the dam is excavated by means of a large orange-peel excavator and loaded into dump wagons.

Leading directly from the dam and from the feed canal is a network of smaller canals and pipes, which convey the water to the lands irrigated. Many of these canals have already been built or are in process of building. Owing to the irregular surface of the irrigated lands it has become necessary to distribute a large part of the supply through pressure pipes or inverted pipe siphons. These pipes are now being manufactured at Hermiston of concrete reinforced with steel wire. The pipe is made up in 8 foot lengths and will be hauled from the pipe yards to the points on the work where it will be laid. The methods used in the manufacture of this pipe are of some extent novel and present many points of

interest. The pipe forms are of steel plate and are built in sections that can be readily put together. The steel reinforcement used in the pipe consists of a continuous coil of steel wire spirally wound, which is imbedded in the concrete. It is hoped by the Government officials that the cost of placing this pipe will be considerably lower than has been usually attained for similar work of this class. A number of concrete structures have been built or started over the irrigated lands to provide for drops and turn-outs in the various canals which intersect the area.

Headquarters at Hermiston.

The Government has established its headquarters building at Hermiston, where there is a well appointed office and several residence buildings and storehouses. There is another camp at Cold Springs dam site where build-

cost is, of course, greatly affected by the general rise in prices of material and labor during recent years. Construction work is being done with a special view to permanency and to reducing the subsequent maintenance expenses to a minimum. If construction proceeds as now planned, a small acreage may be put under irrigation during 1908, which will be added to heavily during 1909. The entire area will probably receive water during 1910. About 70,000 acres of similar land lying west of the Umatilla River is available for reclamation as a natural expansion of the present project. Preliminary plans for this have been prepared on the basis of utilizing the Columbia River as a source of supply, the water being raised by electric pumping plants; the power to be transmitted from a suitable power plant on the Deschutes River. Consideration of this addition to the Umatilla project must of necessity be deferred until additional money shall become available, dependent upon the contributions to the Reclamation fund from continued sales of public lands and from returns to the funds from lands placed under irrigation.

FRUIT GROWERS ASSEMBLE

WASHINGTON PRODUCERS HOLD CONVENTION.

Organization for Mutual Benefit the Object of Gathering at Granger.

GRANGER, Wash., June 9.—(Special.)—A delegate convention of the fruit and produce growers' associations of Zillah, Granger, Outlook, Sunnyside and Grandview was held in Granger last week. The following named, comprising three members from each association, were present: H. M. Harlan, H. H. Green, H. K. Rowland, Amos Bush, B. D. Thompson, George P. Egan, W. H. Norman, Yost, U. G. Prantz, Naaman Woodin, Carl Colvin, H. E. Nicolai, E. L. Stewart, C. R. Gillette and R. R. Cone.

Amos Bush was elected president and F. J. Hawn secretary. The object of the meeting was to discuss the plan of federation of the different associations so that all products of members may be handled under one management. It developed that the time is not yet ripe for a permanent federation, as several of the local associations recently started have not completed their incorporation. A plan was therefore formulated whereby each of the local associations was given representation in the management of the Yakima Valley Fruit and Produce Growers' Association of Granger, through which organization all products will be handled during the present year or until a permanent federation can be formed.

Mr. Roy C. Brock is now manager of the Granger association and has aroused the interest of the entire Sunnyside district in his plan for local organization confederated under one strong management. The meeting held today was very successful in every way and promises to work a revolution in the method of handling the farm products of the Sunnyside district.

The combined membership of the several associations represented exceeds 400 farmers, and is being daily increased by the work of collectors now in the field. The energies of the association this year will be devoted principally to the handling of prunes, peaches, pears, apples, hay and potatoes in straight car shipments. The question of a starting price on new crop alfalfa was discussed and the general sentiment seemed to favor a minimum of \$6 per ton in the stack, but no definite action was taken.

Will Have Street Carnival.

CHEHALIS, Wash., June 9.—(Special.)—Chehalis is to have a street carnival, beginning June 17 and ending the 23d, under the auspices of the Pacific Carnival Company.

CLACKAMAS CROPS THRIVING

RAIN BRINGS REJOICING TO HEARTS OF FARMERS.

Big Yield of Late Potatoes Assured, but Too Much Moisture Will Damage Early Cherries.

OREGON CITY, Or., June 9.—(Special.)—Light rains are falling in nearly every section of Clackamas County, and with a falling barometer there is prospect of wet weather continuing for several days. General satisfaction is expressed by farmers, as the rain of last week was not of sufficient duration to be of material benefit. Crops generally are in prime condition, and with favorable climatic conditions give forth every promise of a prolific harvest. June rains are always beneficial to late potatoes, and will be welcomed, as there is a heavy increase in the potato acreage this year. Farmers in the south end of Clackamas County have planted extensively, because of the late floods in the Sacramento Valley. Corn, tomatoes and other late vegetables will be improved by a moderate rainfall, which will also lay the dust in the county roads. Clackamas has more miles of roads than any other county in the state, and occasional summer rains are gratefully received.

The strawberry season is about at its height, and will soon be at an end, and while a few days' rain may interfere temporarily with the picking, it will have a tendency to prolong the season, as the berries will not ripen fast without plenty of sunshine. Many of the Clackamas County strawberry growers are turning their attention to a Fall crop, and last year several growers furnished berries to the local markets until the arrival of the late October frosts.

Some fears are entertained for the safety of the early crop of cherries, as at present time there is every indication of a record-breaking yield. The comparatively cool spring weather has given the early cherries a more insidious quality that cannot be surpassed, but their tenderness cannot withstand a heavy rain.

Hop vines are thriving and thus far have made an unusually rapid growth, and the rain will not be injurious to them. While the rainfall is generally appreciated, much rejoicing is expressed over the fact that Jupiter Fluvius retained one management, until the close of the Clackamas County Strawberry and Rose Show, which was successfully terminated last night.

QUILLY RODENT NEAR ALBANY

First Porcupine in Years Taken by Surveying Party.

ALBANY, Or., June 9.—(Special.)—The only porcupine ever seen in this vicinity was captured this week one mile south of Albany on the bank of the Santiam canal. County Surveyor H. G. Flaher and a party of men, while locating an addition to a county road effected the capture.

The animal was found by two dogs, who attempted to kill it and were promptly filled with quills from its body. The men then attacked it with clubs and stoned and captured it. The porcupine was severely wounded and has since died. Its skin will be stuffed by a taxidermist and placed on exhibition in the collection of curios owned by Dr. J. L. Hill, in this city. The only other porcupine seen in this county in recent years was found about eight years ago a short distance east of Lebanon.

Albany Schools Closed.

ALBANY, Or., June 9.—(Special.)—The Albany public schools closed their year's work last evening, after a successful term. There were no graduates this year from the High School, owing to the fact that the twelfth grade was added this year and the seniors of this year will become seniors in the higher grade next year.

