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### THE BEND BULLETIN

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CHARLES D. ROWE, EDITOR

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FRIDAY, JULY 5, 1907.

#### HOPE AND WORK.

While discussing railroad prospects for this section with a visitor to Bend, a Bend man recently stated that everyone here is enthusiastically hoping a railroad would reach us in the near future. The visitor replied that hope belonged to the ecclesiastics and that Bend people should get to work and by vigorous and well directed efforts induce capital to build a road into this section.

To a certain extent this gentleman's remarks contain wisdom. Bend people should do—and are doing—much to induce men to invest their capital in the long desired railroad. There is a goodly amount of this work that is going on under the surface and of which the general public is not cognizant. It can also be said it is very probable, indeed, that this labor will bear fruit. Indications now have that appearance. Others are speaking a good word for the country whenever they have an opportunity to do so and are thus aiding to place its good points and wealth and traffic possibilities before the man with capital. Still others are moving here, are clearing up ranches and putting them under cultivation, thus helping to develop the country and create more traffic for the railroads when they do come. We all have a part to do and are striving to do it.

We still have hope. And it is a mighty good thing that we do possess that encourage. Of course, people should not be satisfied with hope alone and put forth no efforts for more substantial results, but hope is a very necessary quality. If the pioneers who settled this country and if those of us who came along later to assist in its development did not possess hope that the future would bring development, how much development would there be here now, let us ask? Men do not follow a hopeless cause. We might have unlimited faith in the country—and we have—but we never would exert our efforts here if we did not hope for railroad transportation. So let us not disparage the spirit of hope that possesses us. On the contrary encourage it. The only danger to guard against is not to allow hope to usurp the place of more fruitful effort.

Apropos of the railroad question it might be well to add that The Bulletin has been booming the country and building railroads for the past two or three years and has not yet got one built out of the Deschutes canyon or across the Cascade range. It is now "up to" the capitalistic visitor and others of his class who are interested in this country to chip in and build the

railroad, while the rest of us supply the hope and its concomitant characteristics of local work and development.

Ranchers in the Arnold ditch district are having trouble in getting a road opened to Bend. The highway which they have been using has been closed recently by several fences built by those through whose land the road runs, thus making it necessary that a new road be opened. Those living in that district have asked that Bend take an interest in this road question, and help in getting one opened to travel. Their request is a reasonable one. One of the most important features tending to a town's prosperity is a system of good roads leading into it—roads over which travel is comfortable and over which heavy loads can be easily hauled. The Arnold ditch district is a populous and prosperous section and it behooves Bend people to see that good roads lead therefrom into Bend. This is a fine undertaking for our commercial club to consider. Let's see what it will do.

The cleaning up of Bend's streets and alleys during the past week has added wonderfully to their appearance. The town looks so much better that serious efforts should be made to keep the streets permanently clean. They should not be allowed to again get in the littered condition that they were in previous to the cleaning. A little precaution and effort toward keeping a town clean adds much to its appearance and to its health. Strangers visiting in the town are impressed by its neat and tidy appearance. It creates a good impression on their minds and good impressions are what we are striving for. Prineville has recently taken a commendable step in organizing a civic improvement league, which has done much to clean up their streets. A Prineville man says that since the cleaning their streets are wider—or at least appear to be—and that everyone is much pleased over the improved appearance of their town. Bend's streets are cleaned up very well now. Wouldn't it be a good plan to keep them in that condition?

#### Grover Should Fish Here.

Bend is to have a trout barbecue on the Fourth again this year. About 2000 fish will be caught for the feast and kept in cold storage until the day of days, when they will be prepared for the table by that expert chef in this line, Chas. Cottor. The law limits the catch to 125 a day for each fisherman, but it is an easy matter to string 10 men along the river at favorite spots for a few days. Where on earth could be found a more ideal spot for Grover Cleve, and than on the banks of the Deschutes?—Review.

#### Limburger Has Strength.

Limburger, cheese laid in a cupboard will drive away ants, says an Exchange and we have no doubt it told the truth. It will also drive away uncles, brothers, sisters, parents, and your best friend. It will drive a buzzard away from a juicy

## Problems That Confront The Irrigator.

### Soil Moisture Studies in the Deschutes Country.

BY ELIAS NELSON.

But a small part of the water applied in irrigation is actually used by the crop. Some runs off, much evaporates from the surface of the soil, and some may seep away beyond the reach of the roots. The amount of evaporation from the soil varies with the temperature, the velocity of the wind, the physical condition of the soil, and the amount of moisture that it contains. The exact amount lost from the soil under different conditions and its relation to the evaporation from a water surface is an interesting matter.

The writer conducted some experiments along that line in 1905 when in charge of the experiment farm of the Deschutes Irrigation & Power Company, near Bend, Or. These investigations were carried on in cooperation with the office of Irrigation and Drainage Investigations of the United States Department of Agriculture. Thinking that the results might be interesting I will give an account of them.

First, however, I wish to say something in regard to the character of the soil in that locality. It is a volcanic ash, which is not as fine or heavy as the volcanic soils in Idaho. It is an ideal soil to handle; does not bake or puddle readily and is quite retentive of moisture.

To ascertain the amount of loss of water by evaporation from the surface of the soil, six tanks were filled with soil in the spring, carefully weighed and then sunk into the ground. Different amounts of water were used in irrigation and at the close of the season the tanks were taken up and again weighed. We were thus able to get exact figures on the amount of surface evaporation. In the following tables are given the results of the experiment:

Tank No.	Applied depth in inches.	Evapor. depth in inches.	Evapor. from soil as per centage of water of surface.
Tank No. 1...	4	3.3	12.3
Tank No. 2...	6.8	5.4	35.0
Tank No. 3...	13.8	14.8	55.7
Tank No. 4...	27.3	21.0	89.5
Tank No. 5...	36.1	32.1	119.7
Tank No. 6...	43.0	32.9	122.7

The records extend over a period of 139 days, from May 1 to September 18. A measurement of the evaporation from a water surface was made in an additional tank. During the same period this amounted to 26.8 inches and averaged 1:35 inches per week.

When the soil was put into the tank in the spring it was quite moist. During the season the soil

was stirred to correspond with the cultivation that a root crop would receive in the field. At the close of the season the moisture in the soil was found to be as follows:

Tank No. 1, no traces of moisture until at depth of 15 inches. Tank No. 2 same as No. 1. Tank No. 3 dry to a depth of 2½ inches. Tank No. 4, soil moist one-fourth inch below surface, saturated below depth of 16 inches. Tank No. 5, moist throughout and saturated nearly to the surface. Tank No. 6 same as No. 5.

The tanks were 44 inches deep and the only loss of water was by surface evaporation.

The figures in the table show that evaporation increases with the amount applied. In tank No. 1 where practically no water was applied the evaporation was 3.3 inches, while in tank No. 4 where the irrigation amounted to 27.2 inches it was about seven times as much. The amount applied in tanks 5 and 6 was sufficient to keep the soil saturated all the time. It will also be noted that the evaporation in the two tanks where large amounts were applied was greater than that from the water surface. During irrigation and for a few hours or a day after an application of water, the evaporation from the soil or land that is not shaded by a crop may exceed that from ditches. Where flooding is practiced there is a great loss by surface evaporation, while with the furrow system it is considerably less.

Since there was no loss by downward percolation and no crop to use any of the water, it may be asserted that the results secured do not hold good for field conditions. The results, however, are not far from indicating what actually takes place in the fields as the following considerations will show. Much of the water that seeps away into the deeper soil may later be brought up by capillarity and become available to the crop. This may take place in any soil that is not underlain by gravel or coarse sand. Hence the upward movement of moisture during periods between irrigations may to a greater or less extent offset the percolation which takes place immediately after irrigation. Furthermore while any crop removes much moisture, it reduces evaporation by shading the ground. The amount of water that may be lost from a bare soil would in many instances be sufficient to nourish a crop.

To render the figures in the table more intelligible it may be well to state that the amount of water required for 40 acres of land in the Deschutes country will cover one acre of land to a depth of four inches in 10 hours.

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