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CHARLES D. ROWE, EDITOR

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FRIDAY, JULY 19, 1907.

SENATOR FULTON'S WORDS.

At the banquet tendered Vice-President Fairbanks at Astoria, Senator Fulton said: "If we are to have the splendid nation we deserve we must have the right leaders. No one is better fitted as a leader than our distinguished guest here this evening." Perhaps the senator's words were mere idle praise for the guest present. Or were they uttered after due consideration and did the senator mean to align himself with the Fairbanks boom for the presidency? If he does so intend it is time for Oregon to choose another senator. It is generally conceded that, if Fairbanks stands for anything, it is for those special interests and classes that have so vigorously opposed all reforms advocated by President Roosevelt. Fairbanks plainly showed his hand when, in referring to administrative policies, he said:

"We should follow the lamp of past experience. We can see but a little way into the future. We should be careful in this country to avoid hysteria, we should avoid rash, ill-considered action affecting our country. I say our country, for it belongs to all of us, it was bequeathed to us by our fathers and we should keep its greatness unimpaired."

The above is undoubtedly a sly dig at President Roosevelt. It is the same silly twaddle that was so prevalent at one time, when the trust magnates were wont to refer to Roosevelt as a rash, hysterical, unbalanced and untrustworthy individual.

Fairbanks is a creature of the trusts and a follower of their dictation. The nation wants none of his ilk. And neither does the state of Oregon want a senator whose support is given to such men.

The Bend Bulletin came to hand this afternoon, five days late. Everybody in town had been inquiring about The Bulletin. There is but one explanation about the delay. Too much Fourth of July.—Prineville Review.

We must admit that we celebrated. We could not have done otherwise when there were so many genial friends from outside points to help us in that celebration. But the mode and manner of our "good time" was not of the nature implied by the Review man. The Bulletin was mailed out of this office that week on Friday evening—its usual time. If it failed to make its appearance at Prineville the fault was neither with the postmasters or the stage drivers. And in this connection The Bulletin desires to register a vigorous kick. Numerous complaints have come to us in which subscribers stated they did not receive The Bulletin regularly—not on the day that it should appear. Many of these complaints have to do with mail that passed through the Prineville office. Whether that office is to blame for these delays or whether the fault lies elsewhere,

we do not know. But one thing we do know and that is that if these complaints continue to be heard, a determined effort will be made to locate the blame and as determined an effort made to see that it is corrected. There is no sufficient reason why it should require five days for The Bulletin to travel from Bend to its subscribers at Prineville. Why, that's as slow as the record the railroads make in moving freight.

A Bend man remarked this week that those of us who are now booming this country and who have great faith in it, will be greatly surprised to see what it will produce in 15 or 20 years. He implied that our prophetic vision was not strong enough to see the full development of future years and that we were only telling half the truth. He undoubtedly is correct. Practically every new country that is opened to settlement surpasses the fondest dreams of its most enthusiastic friends in the abundance and diversity of the crops that are produced on it in later years. This same result is already seen to some extent in the Bend country. Each year sees more tender vegetables, more fruit and better crops grown. This season promises to lead all others in that respect. Twenty years—yes, 10 years—will see a development in the Bend country of which none of us now dream.

The famous Haywood trial at Boise is drawing to a close. The defense has put forth a very weak case and has failed to overthrow Orchard's confession in any of its chief points. It is undoubtedly the belief of the majority of those who have followed the evidence closely that Orchard told the truth. What the verdict of the jury will be, it is impossible to foretell. If it is "guilty" this man Haywood should be hung as high as Haman. It is true that there is much injustice in our present economic system and that the laboring man most often receives but a small per cent of the profits due him from his labor, but it is likewise true that the nation has no time for a mistaken effort to correct these injustices by means of the bomb, shot gun, and poison.

The administration's forest reserve policy is receiving the support of local stockmen. Mr. Thos. Ryan says that the range is in the best condition it has been in for years. The reason for this he assigns to a wise supervision of the range under the forest service management.

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Problems That Confront The Irrigator.

Size and Capacity of Ditches

From "Practical Information for Irrigators in Irrigation," by S. Fortier, Irrigation Engineer.

CAPACITY AND GRADE.

The quantity of water which a ditch will carry depends fully as much on the fall or grade as on its size. The two elements should be considered together. When conditions are such that one can adopt a suitable grade the brief points in mind are the volume to be carried and the nature of the soil. The smaller the volume the greater the grade required. In a small ditch capable of carrying 50 miner's inches a fall of 2 inches to the rod would produce a velocity of 2 feet per second, while in a ditch capable of carrying 950 miner's inches the fall required to give the same velocity is only one-fourth inch to the rod. In fine sand or sediment a flat grade is required to prevent scouring. A mean velocity of one foot per second is sufficient for such material. In hard gravel or hard clay, or in a mixture of these, a velocity of 3 feet per second can be used without eroding the bottom. In ordinary materials, ranging from sandy or gravelly loams to clay loams, a grade may be safely adopted which will produce a mean velocity of 2 to 2½ feet per second. On a farm with little fall the grade of a ditch can not exceed

that of the land. On rolling land or where the slope is steep a suitable grade for ditches can usually be found by running them across the slopes rather than directly down them. When excessive grades can not be avoided by winding around the high places the speed of the water may be checked by the insertion of drops or flashboards at proper intervals. Checkboards are convenient to divert water into laterals, and at a slight additional expense they may be combined with a permanent drop.

FLOW OF WATER IN FARM DITCHES

In the table which follows, the flow in each of the five types of farm ditches has been figured for different grades. These grades are intended to cover ordinary conditions on most farms and are expressed in three ways: First in inches and fractions of an inch per rod; next in feet per 100 feet; and, lastly, in feet per mile. The mean or average velocity of the water in each kind of ditch having a given grade is also given, as well as the discharge in cubic feet per second and its equivalent in miner's inches under a 6 inch pressure head, about 40 of such inches being equal to 1 cubic foot per second. Thus in farm ditch No. 3 a grade of one-half inch per rod produces a discharge of 168 miner's inches, but when the grade is increased to three-fourths inch per rod the discharge is 207 miner's inches:

TABLE GIVING THE MEAN VELOCITY AND DISCHARGE OF DITCHES WITH DIFFERENT GRADES.

FARM DITCH NO. 1. 14 inches on the bottom, with 3-inch depth of water.					
GRADE			DISCHARGE		
Inches per rod.	Feet per 100 feet.	Feet per mile.	Mean velocity in feet per second.	Cubic feet per second.	Miner's inches under 6-inch pressure head.
1/4	0.25	13.33	1.01	0.67	27
1/2	.50	26.67	1.23	.81	32
3/4	.75	40.00	1.47	.95	37
1	1.00	53.33	1.75	1.15	43
1 1/4	1.25	66.67	2.04	1.35	54
1 1/2	1.50	80.00	2.28	1.50	60
1 3/4	1.75	93.33	2.50	1.64	66
2	2.00	106.67	2.70	1.78	71
FARM DITCH NO. 2. 12 inches on the bottom, with 6-inch depth of water.					
1/4	0.13	6.67	0.82	0.50	20
1/2	.25	13.33	1.16	.70	27
3/4	.38	20.00	1.43	.85	33
1	.51	26.67	1.64	1.00	40
1 1/4	.63	33.33	1.84	1.15	46
1 1/2	.75	40.00	2.00	1.30	52
1 3/4	.88	46.67	2.18	1.45	58
2	1.01	53.33	2.34	1.60	64
2 1/4	1.25	66.67	2.61	1.80	72
FARM DITCH NO. 3. 2 feet on the bottom, with 9-inch depth of water.					
1/4	0.06	3.33	0.70	0.40	16
1/2	.13	6.67	1.13	.60	24
3/4	.20	10.00	1.40	.80	32
1	.27	13.33	1.60	1.00	40
1 1/4	.33	16.67	1.80	1.20	48
1 1/2	.40	20.00	2.00	1.40	56
1 3/4	.47	23.33	2.20	1.60	64
2	.53	26.67	2.40	1.80	72
2 1/4	.60	30.00	2.60	2.00	80
FARM DITCH NO. 4. 4 feet on the bottom, with 1 foot depth of water.					
1-16	0.03	1.58	0.54	0.30	12
1/4	.06	3.13	0.85	.50	20
1/2	.13	6.27	1.24	.70	28
3/4	.20	9.40	1.50	.90	36
1	.27	12.53	1.70	1.10	44
1 1/4	.33	15.67	1.90	1.30	52
1 1/2	.40	18.80	2.10	1.50	60
1 3/4	.47	21.93	2.30	1.70	68
2	.53	25.00	2.50	1.90	76
FARM DITCH NO. 5. 6 feet on the bottom, with 1 1/2 feet depth of water.					
1-16	0.03	1.58	1.03	0.55	22
1/4	.06	3.13	1.48	.80	32
1/2	.13	6.27	1.82	1.10	44
3/4	.20	9.40	2.11	1.35	54
1	.27	12.53	2.35	1.60	64
1 1/4	.33	15.67	2.58	1.85	74
1 1/2	.40	18.80	2.80	2.10	84
1 3/4	.47	21.93	3.00	2.35	94
2	.53	25.00	3.20	2.60	104

The V-Shaped Flume.

For the conveyance of water from the source of supply to the ground to be irrigated, as well for its distribution thereon, the ditch is the prevailing agency. Their obvious advantages are cheapness and durability. The chief disadvantage lies in the loss of water by evaporation and seepage. Where the water supply is scant and where the soil is so open that the loss of water by seepage is likely to cause injury to good land on lower levels, the saving of these losses may justify the expenditure necessary to prevent seepage by paving or cementing the ditch, or to insure delivery of water without loss from any cause by the use of a pipe line. These are usually questions connected with large irrigation enterprises rather than with the use of a farm supply, and yet they sometimes arise in connection with the latter. In regions where the ground does not freeze a thin coating of cement or asphaltum on well made ditch banks and bottoms will prevent all losses from seepage. Where flat stones are plentiful they are readily made into a stone ditch with cement mortar. Such

ditch linings are, however, liable to be upheaved by freezing and are safe only in moderate winter climates.

The board flume is upon the whole the most available resource when the simple open ditch will not answer, and the cheapest flume for carrying a small stream of water is the V-shaped trough of two wide boards nailed together along two edges and bedded in the soil with short cross-pieces under the end joints. This prevents loss of water by seepage, reduces friction, and delivers the water rapidly with a very slight fall and escapes the erosion of a dirt ditch if the slope is sharp. Even where the water must be carried over an uneven surface in a flume supported by stakes and cross pieces, the bedded V flume is still desirable for the parts where a good grade in the earth can be found.—Farmers' Bulletin No. 138.

J. H. HANER,
ABSTRACTER OF TITLES
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