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FRIDAY, AUGUST 9, 1907.

NO GRAFT INVOLVED.

(Continued from page 1.)

we have made gives the board the power to say when and where land shall be sold and when it shall be deemed to be reclaimed. The company has been selling land without water within 20 miles of it. There will be no more of that.

"The new contracts make the settlers-owners of the reclamation system at the end of 10 years, and reduces the annual charge to 80 cents an acre in the meantime. The new contracts provide for the deposit of \$1 an acre, amounting in all to about \$100,000, as a guarantee that the system will be turned over to the settlers in good condition. As we have the power to say when they can sell land, and can insist upon their building the canal before they sell the land, it seems to me that the deposit is sufficient security."

Cannot Keep Land Themselves.

"The only way the reclamation company can get any money out of the project is by sales to settlers. If the new price is too high settlers will not buy and they will be compelled to sell for less. They can not refuse to sell to any settler who tenders them the purchase price, and they could have no object in refusing, for they cannot possibly get title to the land themselves."

"Of course it is possible that we placed the price too high, but after a careful and prolonged investigation we concluded that an average of \$25, or \$2.50 for waste land and \$40 for irrigable land, was reasonable. The raise, of course, affects only the land not yet sold."

"Since the protest has been made I have gone over the new contract carefully and can see nothing that I would do differently if I were doing it again. Thus far I have not heard one word of protest from a settler or an intending settler."

Investigating Party Will Come.

On Saturday a party of United States and state officials will start for this section to make a thorough examination of the Deschutes Irrigation & Power Company's reclamation system. The party will be composed of Thomas B. Neuhausen; John T. Whistler, expert hydrographer and in charge of the United States Reclamation Service in Oregon; Governor Chamberlain, State Engineer Lewis, and ex-State Land Agent Oswald West.

A WAGON ROAD TRAIN.

Traction Engine and Six Wagons Will Haul Madras Wheat to Railroad.

The Eastern Oregon Transportation Company has been organized at Madras to haul heavy freight to and from the railroad at Shaniko by means of what they call a wagon road train.

The equipment for the new company, says the Pioneer, will consist of a large 70-horse power traction engine and six large wagons built especially for that service. The road train will have a capacity of more than 100,000 pounds of freight or it will carry 2,000 bushels of wheat on each trip. The wagons will be equipped with auxiliary engines to be used in ascending steep grades, and the train will make

Problems That Confront The Irrigator.

Recent Progress in the Study of Irrigation.

King has found that even in favorable seasons in Wisconsin, which is in the so-called humid region, the rainfall does not supply sufficient moisture to produce maximum crops. During the season of 1896, in which the rainfall was normal in that state, a variety of crops was irrigated with profit, notwithstanding the fact that the irrigation plant employed was not used to its full capacity, and thus the cost of irrigation was higher than it need be. The profit on irrigation was on corn, \$2.16 per acre; potatoes, \$11.70; clover hay (irrigating second crop only), \$1.72; cabbages, planted thin, \$2.43, planted thick, \$2.9. "The great lesson," says King, "to be learned from these results is that we must have an abundance of water in order that our crops may avail themselves of the plant food stored in our soils; not that water is everything, but the fertility of the soil counts for naught without it."

The greatest profit is derived from irrigation where intensive farming is practiced. In fact, the practice of irrigation naturally leads to intensive farming. In such farming the aim should be to economize all the elements of fertility, to utilize water, fertilizer, labor, etc., to the best possible advantage. If fertilizers are used they will give the best returns if kept in the upper layers of the soil, where they can be fully utilized by the plant. If irrigation is practiced also, the amount of water applied should not be excessive, otherwise the fertilizing materials are either washed into the lower layers of the soil, where they can not be utilized by the plant, or are entirely removed in the drainage.

Edmund Gain, a French authority, has shown that the requirements of plants differ widely at different stages of growth. His observations show that it would be very injurious to the plant, even if it were possible, to maintain a uniform state of moisture in the soil. He observed for instance, that for the ordinary farm crops the optimum, or most favorable amounts, of moisture in the soil at different stages of growth were about as follows: At the time of planting the soil should have about 25 per cent of the total amount of water which it is capable of holding, then it should fall to 15 per cent and remain at this point until the first leaves are formed, when it should be raised quickly to nearly 40 per cent. It should be allowed to fall rapidly to about 25 per cent and remain at this point until shortly before flowering, when it may be raised gradually to 40 per cent and then allowed to fall rapidly to 12 or 15 per cent, where it remains during fruiting and maturity. Briefly, then, the soil should be only moderately moist at time of planting and comparatively dry thereafter until the first leaves are formed, when it should be thoroughly irrigated. It should then be allowed to become comparatively dry and remain so until the flowering stage, when it should have its most liberal irrigation. After this it should be allowed to become dry during fruiting and maturity. Of course this represents ideal conditions which can not be completely se-

submitted his final proof in 1905 and that this 20 acres was irrigated in 1904. Smith stated in his final proof that no person or corporation had any interest or title in the land and that he had a clear water right from the Columbia Southern Irrigation Company for 320 inches of water for this land; the evidence at the hearing showed that the Columbia Southern Irrigation Company was organized in the latter part of 1902 and that then Smith made his annual proofs and the evidence further showed that the Columbia Southern Irrigation Company had all the work on that tract done, that it paid for the work with company checks and that the tract was known generally as the "Company Farm"; the evidence further showed that the Columbia Southern Irrigation Company sold this tract of land to J. N. B. Gerking in December, 1904, and gave him a Bond for a Deed and a water right with the land, and represented to him that the land was the property of the company and that a warranty deed could be made at any time. Mr. Gerking did not agree to make the proof and payment nor had he any knowledge of the fact that the land was not already proved up and the title in the company until he discovered it by accident. This Bond for Deed was made in December, 1904, and Smith made his final proof in February, 1905, more than two months after

cured in practice, but it suggests how irrigation water may be greatly economized at the same time that the most favorable conditions of growth are secured for the crop.

This alteration of dry and wet periods has another important point in its favor on ordinary soils. Hilgard has shown that it furnishes the ideal conditions under which the soluble constituents of the soil rise to the surface. The evaporating water leaves the matter which it holds in solution at the place where it evaporates, i. e., at the surface of the soil. It thus keeps the valuable fertilizing constituents of the soil within easy reach of the crop. On "alkali" soils, however, under the above conditions the corrosive poisonous alkaline salts would accumulate at the surface to the destruction or great injury of the crop.

A question of the greatest importance in regions of deficient rainfall or where irrigation is practiced is the storage capacity of the soil for water. When the soil is thoroughly loosened up, the amount of water which it will hold is greatly increased, and the rise of water to the surface and evaporation are checked. Experiments at the Wisconsin and Nebraska experiment stations have shown the beneficial effects in these respects of subsoiling. On this point the Nebraska station makes the following suggestions:

Subsoil plowing, although a means of conserving moisture, does not produce it, and is, therefore, not a substitute for irrigation where the rainfall is too small to produce crops.

Where there is a hard, dry subsoil, subsoil plowing is to be recommended.

Where the subsoil is loose, gravelly, or sandy, subsoiling is probably unnecessary, or may even be injurious.

Do not subsoil when the soil is very wet, either above or beneath, as there is great danger of puddling the soil, thus leaving it in worse condition than before. This is one of the reasons why it is better to subsoil in the fall than in the spring.

If the ground be subsoiled in the fall, the winter and spring rains have ample opportunity to soak in, that being the season of greatest rainfall and least evaporation.

Subsoiling in the spring may be a positive detriment if the subsoil be extremely dry, as in that case the rainwater is partially removed from the young plant by the absorption of the bottom soil. If the spring rains were heavy, this would not be a disadvantage.

It is probable that the increased yields on subsoiled lands are mainly, if not entirely, due to the increased amount of water which such land is able to store up for the use of the crop. Subsoil plowing may thus be made the means of greatly extending the area over which crops may be successfully grown without irrigation, and when practiced in connection with irrigation may result in a great saving of irrigation water. As indicated above, however, before deciding upon the advisability of subsoiling it is necessary to ascertain, among other things, the nature and condition of the soil and subsoil.—Farmers' Bulletin No. 56.

the company, through its manager, W. A. Laidlaw, made the bond to Gerking. There was no evidence showing that Smith had a water right from the Three Sisters Company but on the contrary the evidence did show that Smith has no water right of record in this county and no evidence was submitted by him to show that he had any right or title to any water right of any character.

The evidence further shows that after the land had been sold to J. N. B. Gerking and the Bond for Deed given him (and not that he was to make proofs and payments) R. W. Wilson, president of the Columbia Southern Irrigation Company, successor of the Irrigation Company, filed a contest against Smith and according to his own testimony attempted to test Mr. Gerking out of the land while Wilson's company was bound to make Gerking title to the land and while the company had taken Gerking's money paid in good faith for this land and it was not until after Wilson had filed the contest that Grover Gerking, a son of J. N. B. Gerking, filed the present contest not only against Smith but against the company and against Wilson as president of the company.

Trusting that you will give these facts as great publicity as the article of last week, I am, Very truly,
W. P. MYERS,
Attorney for Contestant.

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It not only reports the news faithfully each week, but it also has an irrigation department in which much information is given of value to the man who irrigates. If you study these articles it may save you many dollars on a year's crop.

Can You Afford to Be Without The Bulletin?

Creamery at Prineville.

Construction work was begun the first of the week on the creamery that is to be established at Prineville. It will be rapidly pushed to completion. The work is in charge of L. B. Ziemer of Monroe & Shelton, creamery dealers, of Portland. Mr. Ziemer is an experienced man at the work of constructing creamery plants and his personal supervision will be given to the one to be built here.

The machinery for the plant has left Shaniko and will arrive here in a few days. The committee appointed by the stockholders to look up a site for the new industry decided on a place in the northwest part of town. The water supply and all details have been carefully worked out.

Considering the present prices of the creamery product it would seem that this enterprise should become a paying proposition from the start.

Mr. Ziemer expects to have the plant in running order in less than a month and a thorough trial will be given it before the autumn.—Journal.

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