STATE OF OREGON
DEPARTMENT OF GEOLOGY & MINERAL INDUSTRIES
329 S.W. OAK ST.
PORTLAND, OREGON

THE ORE.-BIN

VOL. 1 NO. 6 PORTLAND, OREGON June 1939

RE-SURFACING GOLD DREDGE MODEL COMPLETED

A working, scale model of a new gold dredge that, it is claimed, will not destroy farming land nor create unsightly piles of tailing gravel has been completed by Harry England, Oregon dredge operator at Prairie City. The completed all steel, 6-foot model of the radically new type "boat" will, if successful, resurface the ground that has been dug by putting the boulders and coarse material on the bottom and fines and silt in levelled-off fashion on the surface.

The finished model was examined in Prairie City last week by Earl K. Nixon, director, and John Eliot Allen, field geologist, of the State Department of Geology and Mineral Industries. "It looks as if England 'has something' here," Nixon commented. "Of course, there will be bugs to work out, but I believe both the design and basic idea are essentially sound. . . and if so, this new development may have a far-reaching effect on dredge practice, not only in Oregon and California but wherever dredges are used to recover mineral wealth."

England, operating a drag-line dredge near Prairie City, is a pioneer in the design of the common type of gold dredges, his experience dating from the birth of "doodlebugs", or drag-line dredges, near Oroville, California, about seven years ago. The present new model, a drag-line type, could be adapted to standard bucket line operation without impairment of its most desirable feature - re-surfacing.

New and unique features of the present design are: placement of the gold-saving apparatus above the screen so that the fine tailings will run out by gravity to a point some distance behind the boat; elimination of the stacker completely, with dumping of the boulders and oversize from the end of the screen directly into the pond where they form a dam to prevent the fines crowding under the boat; pumping of the fines from the sump under the screen, up to the recovery apparatus, and lowering by $7\frac{1}{2}$ feet the height to which all gravel as dug must be hoisted into the hopper.

It appears that the lowering of the screen and hopper by several feet will materially reduce the power consumption of the digging shovel, and also speed up the digging, thus increasing the capacity of the boat. Several innovations are incorporated in England's design. The screen, instead of being inclined, is horizontal and the passage of the oversize through the length of the screen is accomplished by a spiral flange welded to the inside of the screen. By using a sand pump to elevate the fines from the screen to the tables above, plenty of head room is available for rougher, cleaner, scavenger jigs, and amalgamator. Overflow devices are provided so that if any or all jigs plug, the gold-bearing fines are returned to the sump and back into the circuit where they cannot get away without going over the riffles. The main pump for supplying water to screen jets is submerged in a compartment in the hull where it is always in prime and requires no suction. There is practically no plumbing on the boat, as the supports and braces of the superstructure are hollow, being made of welded angle iron, and serve as piping. A by-pass in the tailings sluices permits the operator to control the amount of fines that are returned to the top of the tailings pile or to the pond.

Most important, of course, is the fact that England's dredge is designed to put the boulders and coarse rock back into the bottom of the tailings piles and the fines on top where little or no leveling should be required. The designer believes that, by proper control of the sluice by-pass, the land behind the dredge can be "made to order" by adjusting the deposition of the finer material. He believes also that by reversing the order of deposition, namely, placing the boulders and coarse material on bottom and the finer gravel and silt above, that the swell of the ground - the height of the tailings piles will be considerably reduced.

It is the designer's belief that the cost of operating a re-surfacing dredge of his new design will compare favorably with the cost of present types of operations.

England has taken steps to protect his design and process against copy.

Nixon stated that, although about 90% of the dredge land in Oregon is either waste or marginal land, a re-surfacing dredge would be a desirable development, especially in certain places in California and in certain parts of the John Day valley in Oregon. In the latter place, he stated, some of the land raises good stock feed and there is some basis for objection to dredging without resoiling; but, on the whole, he continued, dredging is opposed by a relatively few persons who are not well-informed concerning the economics involved, such as land values, financial benefits to the State of Oregon and local communities derived from dredge operations, and the very small percentage of farm land which may be comsidered as potential dredging ground. In this connection, Nixon said, the State Department of Geology and Mineral Industries has for several months been accumulating data and making a study of dredging economics in relation to land values with the idea of issuing a report dealing with the economic feasibility of re-surfacing where certain unusual conditions obtain.

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BORON AND FARM CROPS.

The use of boron in western Oregon soils and the necessity for its presence in order to produce certain crops successfully are subjects treated in two circulars recently issued by the Agricultural Experiment Station, Oregon State Agricultural College, Wm. A. Schoenfeld, Director.

Boron has been found essential to the nutrition of certain plants, notably alfalfa, celery, and beets. Its use in connection with various other crops is being studied. In these circulars recommendations are made and definite directions given for the application of boron to soils.

In Oregon boron in the form of borax is found in considerable quantities in the marsh deposits near Alvord Lake in Harney County. During the latter part of the last century and early in the present one a considerable industry in borax production was built up, but competition from the more favorably situated California deposits caused abandonment of the enterprise. A company called the Rose Valley Borax Company produced at the rate of about 400 tons of refined borax yearly. The finished product was hauled 130 miles by mules to the shipping point at Winnemuca, Nevada.

The deposit was described in U.S.G.S. Mineral Resources for 1901, as occurring in a ground layer several inches thick and consisting of sodium borate, sodium carbonate, sodium sulphate, and sodium chloride, together with small amounts of other salts. The boric acid content of the crude material is reported to be from 5 to 20 percent.

The Department of Geology and Mineral Industries is planning an economic survey of the occurrences of salines in southeastern Oregon. Such a study would include the economics of supply, manufacture, and markets of the various commercial products which could be made from these deposits.

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STRATEGIC MINERALS LEGISLATION

Communications just received from Washington, D.C., indicate that the strategic minerals bill now in Congress will be passed this session. It was thought originally that the total appropriation would be $40,000,000, but we learned that the conferees representing both House and Senate have agreed on the sum of $100,000,000, and that they have also agreed that the final bill shall contemplate purchases for stock piling of strategic minerals under the terms of the "Buy American" Act of 1933.

It is understood that a substantial allotment of the total appropriation will be made to the Federal agencies - the U.S.G.S. and the U.S. Bureau of Mines - for field investigation and process study of domestic strategic minerals. We also understand that if these allotments are received, that certain projects involving chromite investigation are slated for Oregon. This is indeed good news.

It seems proper to suggest that readers of the Ore.-Bin who are earnestly desirous of increasing or encouraging Oregon mineral industries, may do the state a good by writing to our Congressmen in Washington directly and asking them to lend their influence in seeing that substantial allotments out of the strategic mineral appropriation be made to the U. S. Geological Survey and the U. S. Bureau of Mines for their investigations.

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COAL SAMPLING PROGRESS.

The sampling of the more important Oregon coals by the U.S. Bureau of Mines engineers in cooperation with this Department is progressing nicely. The Coos Bay, Medford, Salem, Wilhoit Springs, Columbia county, and Morrow county areas have been visited so far. In some cases it has been impossible to take samples because the coal has not yet been properly opened up. Arrangements are being made for opening up the veins in these places so that later the coal can be properly sampled in the occurrences with the standard practice of the U.S. Bureau of Mines.

Dr. H. F. Yancey, Supervising Engineer of the Northwest Experiment Station of the Bureau of Mines at Seattle, spent a week recently with Earl K. Nixon,

going over the coal districts in Oregon and checking the samples being taken. Preliminary results in the way of analyses of the samples taken are beginning to reach the Portland office; the final results, however, will not be available for some time.

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CRESCENT CITY HARBOR IMPROVEMENT

On May 10th Director Nixon was present at a hearing of the U. S. Army Engineers in Crescent City, California, in connection with the proposed harbor improvement. Nixon gave evidence in support of the harbor plan as it might affect and favor the future of the mining industry in southwest Oregon. Heretofore, the lack of an adequate harbor at Crescent City has caused the Interstate Commerce Commission to object to approving a permit for the completion of the railroad from Grants Pass to Crescent City, and the lack of the railroad has been a drawback to the justification for harbor improvements.

It now appears that the Army Engineers are taking the lead in bringing about the harbor improvement. As present planned, a small but secure harbor of 20-feet minimum depth will be provided at Crescent City. No objection was expressed at the hearing to the plan as contemplated at present.

The completion of the harbor plan and the railroad from Grants Pass to Crescent City would be of very substantial value to the mining and mineral industry in southwestern Oregon and northern California. This is the essence of Nixon's testimony at the hearing. In addition to the testimony, a formal brief giving favorable facts, figures and estimates, was forwarded to Colonel Dorst, who was in charge of the hearing.

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A man in Portland has an assortment of engineering instruments and assaying equipment which he is willing to sell at a sacrifice price. Among other items are: a large bullion balance; a light mountain transit, English make; a Short & Mason aneroid, 8000 ft., new; a Troemmer, no. 3, button balance; another Troemmer button balance, needing some repairs; a Becker pulp balance; a light mountain transit, made by Leupold and Volpel, new; a Cooke F 4.5 camera lens in barrel; a prism compass with swivel head; hand crusher; steel tape; et cetera.

Anyone interested in purchasing this entire lot will be referred to the owner if they communicate with this office.

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