

Dredging For Gold.

Lawrence Iwell to The Rosary.

(Concluded.)

The conditions which exist in a much cooler land like New Zealand are, of course, very different. There the country is open, and most of the roads are good. Coal is used for fuel—

as much as a hundred thousand tons a year. In West Africa, on the other hand, there is enough wood (trees, etc.) at any rate in Ashanti, to keep fifty dredges working for at least fifty years.

It may be said that steam launch or tugs will do the transport work satisfactory in West Africa, but however careful those in charge of a dredge may be in the disposition of tailings, the scattered heaps of worked gravel left behind by a dredge make navigation very hard in the dry season, while in the wet season it is almost impossible to steam against the swift currents.

Gold dredges are very much like dredges that work in harbors and on river bars, with the difference that the idling appliances in the form of sluice tables, revolving screens and other apparatus are built into their end. They do not propel themselves, but are moved and steered by means of a steel beam, side and stern lines. Each dredge is fitted with a steam engine, and on dig to a depth of as much as forty feet, while pumps suck from the river and throw a constant stream of water on to the gold-saving tables, into which are emptied the contents of the buckets as they come up. These tables are about sixty feet long, and are laid at an angle. They are paved with steel riffle and coarse matting, the gold being intercepted by the former while it is in transit, and held by the latter. In ordinary circumstances these riffles and mats are taken up and washed about once a week. Some modern dredges are fitted with revolving perforated screens, into which the gravel is tipped and broken up, the gold falling through the perforations on to the tables, which in this case are immediately below the screen.

While actually working, the difficulties that are met with are sometimes enough to take all ambition out of a conscientious dredgemaster. He has always to be on the look-out for hidden trunks of trees, immense boulders and other impediments which, if dredged carelessly, would put his dredge out of action for a considerable period. There is always a great strain upon machinery which works a stable object, but which has not itself got a very stable foundation, and in Africa in particular the only practicable method of dredging makes a stable foundation impossible. Dipper links break, steel chains wear with extraordinary rapidity, and the engines themselves are always being subjected to sudden jerks and strains. Indeed, dredging for gold is a much more arduous procedure in West Africa and New Zealand than in California and Colorado. In New Zealand a crew of eight white men and one dog, and the ratio of accidents is small. But in a country like West Africa, where the cost of running dredges is high, and the white crew as a rule consists of only four men—a dredgemaster and three winchmen—natives have to be relied upon as grasshoppers and firemen, with the result that, where the white man is unable to supervise every thing, the boilers often get too much or too little steam in them, and often accidents are far from infrequent and often expensive.

In New Zealand one of the greatest problems with which the dredging-for-gold industry has up to now been confronted is connected with the dredging of agricultural land. Some experts consider that it is almost impossible to redevelop topsoil on top of dredged gravel, in sufficient thickness to make the land available for agricultural purposes almost immediately. All tested methods seem to be impracticable at present. Nature forms, inescapably and slowly, and by means of many contributory conditions, a combination of soils which we call fertile, and if we violently destroy that combination, nature's ideas cannot be artificially attained again in a few weeks or months. A New Zealand firm named McGregor has invented a contrivance by which the topsoil is separated from the gravel, and after passing through an extra shoot redeposited on top of the gravel. I believe, however, that some time must elapse before the land regains anything like its original value, and there can be no doubt that the permanent wealth represented by fertile agricultural land must always be greater and more important than the value of minerals that can be extracted from it.

Concerning the origin and formation of placer, there are a number of theories. One is that the gold-bearing mountain tops were converted into debris by glacial action, while immense floods, resulting from melting "seas of ice," washed the

lighter soil from the bed-rock, depositing in lieu of it, usually in the form of water-worn boulders and gravel, this heavier and auriferous mountain debris; and on a smaller scale the forces of nature and the elements are continually producing similar results. Another theory is that placers result from the deposition of the precious metal by water in suspension or solution, and that the larger particles and nuggets resulted from the action, by some law not yet fully understood, of a number of these minute atoms; that, instead of being sources, the rich leads and overflows are only the natural result of infiltration for countless ages of auriferous water between their walls. This theory has many earnest supporters, who quote in substantiation of it the fact that sea-water is sometimes impregnated with gold, and urge that gold is pre-eminently a surface metal, being rarely found, especially in a free state, except at or near the surface. Our present general system of mining is based upon the idea that gold is mainly coarse, while examination will show that the high percentage is in atoms finer than flour itself. It is a fact that nearly all lead or vein gold exists in particles so fine as to be entirely invisible to the closest scrutiny of its freshly fractured matrix, and, indeed, the cases in which gold can be seen in its ore, even when the latter is very rich, are few and isolated. It is speaking quite within the limits of knowledge, derived from extensive experiments and practical experience, to assert that three-fourths of all the gold found in leads and veins all over the world is much too fine to be saved in running water. Of course the gold is ground and worn still finer by the crushing, the pulverizing and distributing processes of nature necessary to deposit it in places, often many miles from its source.

Gold, as it travels from the veins of the mountains, becomes more finely divided, even coarse nuggets pieces being reduced by attrition to microscopic dimensions, and the evenness with which the fine particles are distributed through the gravel depends entirely upon arbitrary currents and eddies in the body of water carrying the material. The proportion of microscopic gold contained in placer ground is astonishing. Black sand from the waste from an underground or sluice, after all gold had been extracted that could be saved with riffles and quick-silver, as used in ordinary placer operations, almost always shows the presence of microscopic gold. Incomplete tests of surface gravel below the mills at Black Hawk, Colorado, indicated that nine-tenths of the gold was of microscopic fineness. The truth is that the bulk, certainly not less than seventy-five per cent of all the gold in alluvial deposits, consists of atoms so infinitely small as to be not only entirely invisible by any of the devices employed in the past, but, excepting perhaps a very small percentage, invisible to the human eye. The dredge and the modern separator are now extracting this gold and adding it to the world's supply of the precious metal.

The Lure Of The Far-Away. The Irish have a proverb: "Cows far-away wear long horns." A young man who held a responsible position at a good salary in the east, listened to tales of the "golden" West until at last he succumbed to the lure. He gave up position, home and friends, and with his savings and a large supply of hope he essayed to win fortune in the new life. After three years he related his experience. For half the time he worked at his own trade—stationary engineering; for the other half, mostly rainy or cloudy weather, he carried on my unwilling back wet lumber, in a sawmill, ten hours a day, at \$2.25 per day. In the sawmill I had as companions in misery men of nearly all trades and callings, including bookkeepers, clerks, stenographers, teachers, and one lawyer, many of them exceedingly well educated. To other young men who are tempted as he was by the glowing accounts of prosperity won almost without effort,—anywhere but where they are—the disillusioned fortune-seeker gives the warning:— "Say where you are known and where you understand conditions. If opportunity is denied you hunt for it. In no part of the country does opportunity lie waiting for the man. He must seek it. He must make it as best he can. . . . You will find as many opportunities in New England as in Washington or Oregon. Say where you have friends to lend a hand. Don't go where friends can not help if they would. Work in the place where God has placed you—and then work some more.—Stereé Hunt Review.

Can you give me a little breakfast, m'am? I'm hungry and cold. I slept out of doors last night, and the rain came down in sheets. "Faith, me moe, you should have got in between the sheets, then."

An Ancient Foe

To health and happiness is Scrofula—as ugly as ever since time immemorial. It causes bunces in the neck, disfigures the skin, inflames the mucous membrane, wastes the muscles, weakens the bones, reduces the power of resistance to disease and the capacity for recovery, and develops into consumption.

"Two of my children had scrofula sores which kept growing deeper and kept them from going to school for three months. Ointments and medicines did no good until I began giving them Hood's Sarsaparilla. This medicine caused the sores to heal, and the children have shown no signs of scrofula since." J. W. McGinnis, Woodstock, Ont.

Hood's Sarsaparilla

will rid you of it, radically and permanently, as it has rid thousands.

Pacific Coast, but does not appear to be known outside the United States and Canada. Before a dredge claim is definitely taken up and worked, there are many things to be done and considerable expense to be incurred. When the extent of payable gold has been ascertained, a systematic prospect should be made. By means of such devices as the keystone drill, a series of boreholes must be sunk. By these boreholes can be discovered the depth of "overburden," as the topsoil is called in New Zealand, the depth of gravel lying below the overburden, its richness found by panning the earth thrown up by the drill—and the average depth at which bed-rock is encountered. Rich patches or flats have probably formed along the river bank, especially in Africa, and these are likely to give good results, yet alluvial gold is such an elusive thing that a dredge which shaves the bank in order to prospect it while working a river-bed, will often miss the rich streak that exists only a few feet inland.

In tropical countries there is a good deal of clearing to be done, as the jungle grows in great profusion right down to, and overlapping, the water's edge. While actually working, the difficulties that are met with are sometimes enough to take all ambition out of a conscientious dredgemaster. He has always to be on the look-out for hidden trunks of trees, immense boulders and other impediments which, if dredged carelessly, would put his dredge out of action for a considerable period. There is always a great strain upon machinery which works a stable object, but which has not itself got a very stable foundation, and in Africa in particular the only practicable method of dredging makes a stable foundation impossible. Dipper links break, steel chains wear with extraordinary rapidity, and the engines themselves are always being subjected to sudden jerks and strains. Indeed, dredging for gold is a much more arduous procedure in West Africa and New Zealand than in California and Colorado. In New Zealand a crew of eight white men and one dog, and the ratio of accidents is small. But in a country like West Africa, where the cost of running dredges is high, and the white crew as a rule consists of only four men—a dredgemaster and three winchmen—natives have to be relied upon as grasshoppers and firemen, with the result that, where the white man is unable to supervise every thing, the boilers often get too much or too little steam in them, and often accidents are far from infrequent and often expensive.

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HAD VERY BAD COUGH

And Tickling Sensation in Throat.

Dr. Wood's Norway Pine Syrup Cured It.

Miss C. Danielson, Bowman River, Man., writes:—"Last fall I had a very bad cough and a tickling sensation in my throat. It was so bad I could not sleep at night, so I went to a drugist and told him I wanted something for my cold, and he advised me to try Dr. Wood's Norway Pine Syrup which I did, and after taking one bottle I was completely cured. Let me recommend Dr. Wood's Norway Pine Syrup to anyone who suffers from a cough or throat irritation."

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Minard's Liniment cures Dandruff. Mary Ovington, Jasper, Ont writes:—"My mother had a badly sprained arm. Nothing we used did her any good. Then father got Hagyard's Yellow Oil and it cured mother's arm in a few days. Price 25 cents."

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Mrs. John J. Downey, New Glasgow, N.S., writes:—"Just a few lines to let you know what your Milburn's Heart and Nerve Pills have done for me. I kept in a state of morbid fear of death, and palpitation of the heart, would have severe choking spells, and could scarcely lie down at all. I tried many remedies, but got none to answer my case like your Pills. I can recommend them highly to all having heart or nerve troubles."

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