

## The Old Camp of Ward, Nevada.

Written for the MINING AND SCIENTIFIC PRESS  
By H. R. PLATE.

Ward, in White Pine county, Nevada, has been deserted for the past 25 years, but owing to the development of the great copper deposits of Ely, it now exhibits signs of life.

The Martin White mine, which supported the town of Ward, was one of the large producers of Nevada during the '70s and early '80s, and is credited with a production of several millions of dollars in silver and lead. A brief description of its situation and a little of its history will be interesting and give one a better idea of the adverse conditions under which the mine flourished in those days.

The mine lies on the west slope of the Steptoe valley, in the Egan range, about 16 miles south of Ely. In the early days the nearest railroad point was Palisades, on the Southern Pacific, a distance of about 200 miles; machinery and supplies were hauled by teams from this point and the ore and bullion were hauled out in the same manner to be shipped to San Francisco. Under this handicap and a still greater one, of poor milling and treatment methods, which I will describe later, the mine prospered and declared dividends until it finally shut down when silver depreciated. From company letters and books found in the mine-office and bearing the dates of the '70s, the cost of mining and milling was approximately \$50 per ton, consequently ore running below that figure was left in the mine. The tailing from the mill ran about \$16 to \$20 per ton. The mine was not intelligently developed or prospected; a system of 'gouging' the richer ore, with no thought of tomorrow, was carried on. I am told that many thousands of dollars of rich ore and even bullion was stolen from the company.

With the above as a brief introduction to the conditions that existed in those early days, one can better understand the simpler problem that the operators of today have to contend with.

The geological formation of the district is limestone, stratified and slightly tilted from the horizontal; through the lime are numerous intrusions of porphyry. These dikes vary slightly in direction and thickness, but generally have a northwest and southeast strike and a dip to the southwest. The orebodies occur in a filling between the lime and the porphyry, and the mineralized solutions have penetrated the softer rock (porphyry) and deposited the sulphides for some distance from the contact. The ore varies in width from a few feet to nearly a hundred feet. The deposit, as a whole, resembles those of Red Mountain, near Ouray, in Colorado.

At, and near, the surface the ore was rich in silver, containing also lead and small amounts of gold and copper; as depth was gained the copper increased and the silver decreased; I am told that, in places, rich gold ore was found associated with wire silver and silver nuggets, some of the ore being almost solid metal. The length and depth of the orebodies were never actually established, I believe, for, as I have said before, the system of 'gouging' near the surface (150 to 200 ft.) predominated and systematic development was neglected.

The character of the ore, as shown at different points on the surface, varies greatly; at one point it will be entirely copper carbonate, and a few hundred feet away galena and lead carbonate; none of the rich silver or gold ore remains on the surface or dumps; lessees have removed it.

During the life of the mine, a lead smelter, of possibly 100 tons capacity, was built and operated for a short period; this was an unsatisfactory treatment, owing to the increasing percentage of copper. Next a lixiviation plant was erected, tried, and abandoned; finally a 20-

stamp mill was built and run irregularly until the mine was shut down (about 1883). The method of treatment, in this mill, was as follows: The ore was crushed and dried upon an open iron floor, then roasted in a revolving tubular furnace; from the roasters the ore was elevated to the stamps and crushed to 40 mesh and run to the pans to be amalgamated; the product from the pans went to the creek. From a study of the ore, which contained galena, copper sulphides, and carbonates, one can readily see why the tailing assayed so high. To do justice to the operators of those days, however, such a mill was practically the only type on the market and it was a question of making the ore suit the mill, if possible; today we have a wide choice and can design a mill or smelter to suit the ore.

As development progresses and the orebodies are opened to a greater depth, the ore is likely to become a copper sulphide with some gold and silver; in that case it will be a typical concentrating proposition and little trouble will be experienced in making a good saving.

The old workings consist of several adit levels, numerous shafts and open-cuts. All the adits and shafts are badly caved and little can be seen of the underground workings, but the dumps give mute evidence of what was encountered during the old days. Most of these dumps are covered with copper ore that had been sorted and thrown out to assist the treatment in the smelter and mill; the copper seemed to be the sole source of the trouble, and it was kept out of the ore in every possible way. The dumps from the mine, smelter, and mill have been sorted over and worked by lessees, who have made money from them, but there still remains a good profit for the company when it is ready to treat them with the proper methods of mechanical concentration. The product can, today, be shipped by rail to the custom smelters at Salt Lake, and be treated for a nominal figure, or later it can be treated at Ely, when the Nevada Consolidated Copper Co.'s smelter is completed.

The greatly improved methods of ore reduction, together with cheaper transportation, and the high price of lead and copper, will make it possible for companies to open and successfully operate properties of this type, which have lain idle for many years. Nevada has many such idle mines as the Martin White, and I shall not be surprised to hear that many of them will be re-opened and prove themselves far from worked out.

## The Prospector.

Enquiries sent to this department are answered free of charge, if submitted by subscribers who are not in arrears. The full name and post-office address of the sender must be given, otherwise no answer will be made. Those who are not subscribers must accompany their questions with a fee of \$3 for each question. No assays are made.

Specimen from Cedarville, Cal., marked F. A. E., is Quartz with galena.

Those from Orleans, Cal., marked C. S. L., are: No. 1, chloritic schist, with crystals of Pyrite; No. 2, altered Diabase; No. 3, brown Jasper.

The specimens from H. M. R. of Tonopah, Nev., are: No. 1, scaly talcose rock; No. 2, Mica-schist with pyrite; No. 3, Quartzite with Pyrite and stained with iron and manganese oxides; No. 4, Volcanic Breccia; No. 5, tufaceous Sandstone; No. 6, Chert; No. 7, vesicular Lava; No. 8, highly altered rock containing manganese oxide and limonite; No. 9, Basalt; No. 10, Pegmatite; No. 11, green Jasper; No. 12, Quartz containing Rhodonite; No. 13, missing; No. 14, Rhyolite; No. 15, serpentinized rock with dendritic manganese oxide; No. 16, Clay, stained by manganese; No. 17, altered Pegmatite; xy, altered Mica-schist.



### A Slag-Casting Machine.

Written for the MINING AND SCIENTIFIC PRESS  
By L. S. AUSTIN.

Mr. B. N. Bennetts, superintendent of the Garfield smelting plant of the American Securities Co., while in

device for the discharge of the matte or slag from the molds.

The machine consists of a continuous bed of molds resting on two 3 by 5 in. angle-iron rings, as shown in cross-section in Fig. 4, these rings being supported at every four feet by a pair of wheels and axle rolling on a circular

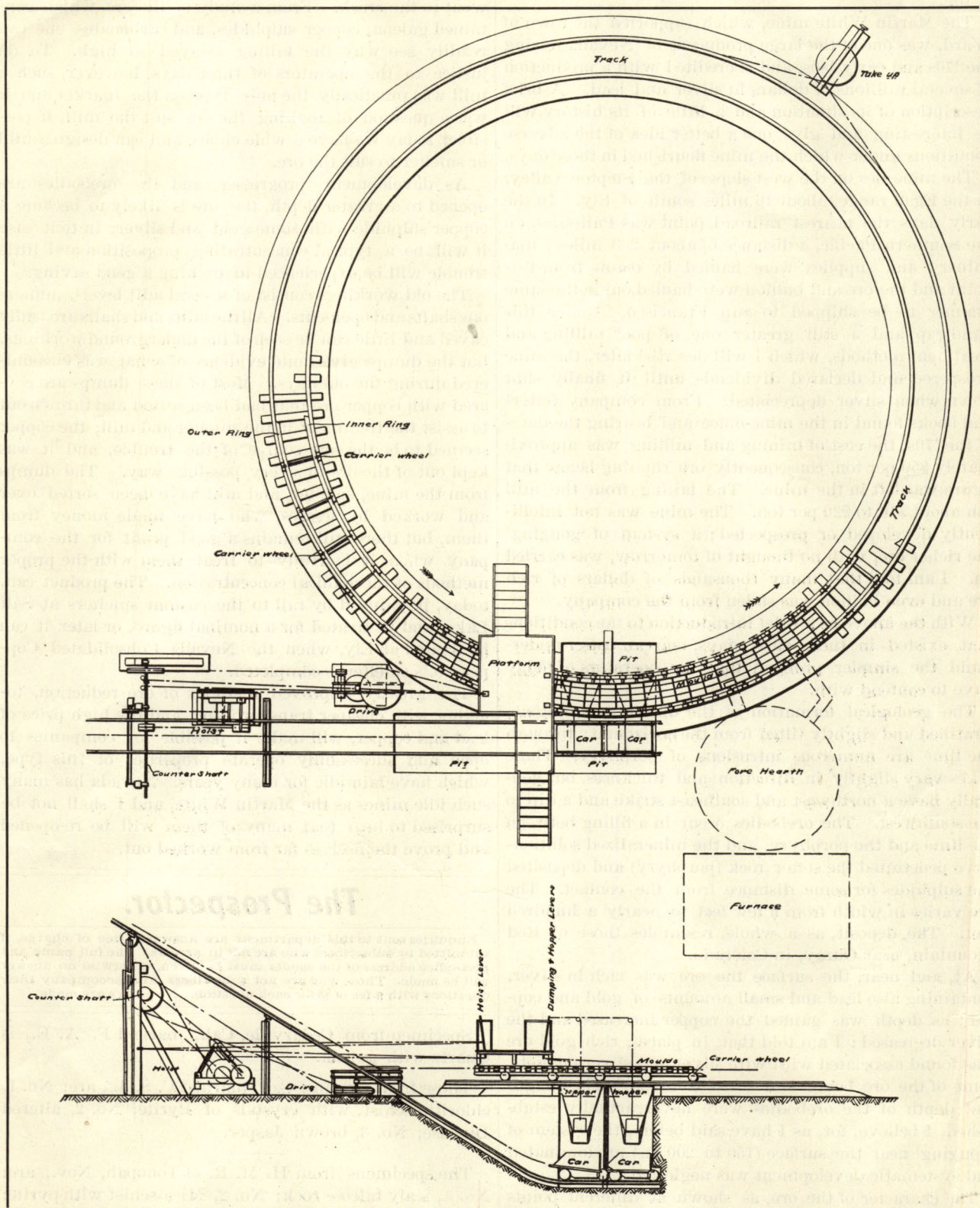


Fig. 1. Plan and Section of Slag-Casting Machine.

charge of the blast-furnaces of the Tacoma Smelting Co., at Tacoma, Wash., installed and put into successful operation the slag-casting machine shown in the accompanying illustrations. Fig. 1 gives, in plan and section, the general arrangement of the machine, the hoist, and the position of the furnace and fore-hearth supplying it. Fig. 2, 3, and 4 give the details of the automatic dumping

track of 3.6 ft. gauge and 62.5 ft. diam., centre to centre of the tracks, the molds moving in the direction shown by the arrows in Fig. 1. The molds are furnished with trunnions revolving in bearings attached to the angle-iron rings, so that they can be reversed in order to discharge their contents into hoppers set below them as shown in section. As the plan in Fig. 3 indicates, the inner trunnion