

a find of placer gold in the upper Tolovana basin, between Fairbanks and Rampart.

About 44 gold dredges were operated in Alaska for the whole or part of the open season of 1914. Preliminary estimates indicate that these dredges produced gold worth between \$2,050,000 and \$2,300,000. In 1913, 39 dredges were operated in Alaska with an output valued at \$2,200,000. The decreased output per dredge in 1914 is accounted for by the facts that in 1913 several of the dredges were working in very rich ground, and that several of the new machines were not completed in time to operate for more than a brief period in 1914. A further handicap to the dredges this year was the fact that the dredging season at Nome opened later than usual. In addition to the 44 dredges operated there were about half a dozen under construction.

Lode mines.—About 26 gold lode mines were operated in Alaska in 1914 and produced gold to the value of about \$5,100,000. In 1913, 30 lode mines produced \$4,814,813 worth of gold. The decrease in the number of mines is due to the fact that several which were operated in the Fairbanks district in 1913 were idle in 1914. Juneau is and will continue to be by far the most important Alaska lode camp. Important progress was made during the year in the Willow Creek district. The Port Wells district was added to the gold lode producers.

Copper.

The developments made up to midsummer gave promise that 1914 would be the most profitable year in the history of Alaska copper mining. The financial stringency and collapse of the copper market that followed the breaking out of the European war, not only closed down some of the producing mines, but also put a stop to some very important developments. Up to about the first of August seven copper mines were in operation, but at the close of the year only three were still working. Had it not been for the war at least nine copper mines would have been ready to ship ore before the end of the year. Probably the most important events of the year to the copper industry of Alaska were the re-opening of the Mamie mine, in the Ketchikan district; the installation of a shipping plant and the opening of the Midas mine, near Valdez; and the completion of aerial trams at the Jumbo and Mother Lode mines, in the Chitina district.

Tin.

The total production of Alaskan tin mines since the industry started in 1902 is about 550 tons of metallic tin, valued at \$432,000. In 1914 one dredge was operated on the Buck Creek placer tin deposits throughout the open season. Two others were operated for a part of the season on Anikovich river, working on deposits carrying both gold and tin. Operations were also continued and some tin was produced at the Lost River lode tin mine. All these localities are in Seward Peninsula. Tin was also produced from several deep placer mines in the Hot Springs district, operated chiefly for the recovery of gold. It is estimated that nearly 50 tons of stream tin was recovered from these placers in 1914. This output could be considerably increased, for only a few of the miners make a systematic attempt to recover the tin.

Southeastern Alaska.

Treadwell mines.—The four mines of the Treadwell group, in the Juneau district, were operated throughout the year on the same scale as before. In the Ready Bullion and Seven Hundred Foot mines of this group ore is being developed on the 2,200 ft. level.

The Alaska Juneau is the only other mine in south-

eastern Alaska which has reached a productive stage. At this property 50 stamps of the first unit were completed in the spring, and work on the installation of the rest of the 600 stamp mill was continued. The main adit tunnel and raise at this mine were completed in 1913, and the underground work in 1914 was therefore devoted to the opening of stopping ground.

Chisana District.

A large part of the stampers who went to the Chisana district in 1913-1914 returned without realizing their expectations in the new camp. Nevertheless some rich placer ground has been found in this district, though the total bulk of auriferous gravels so far developed is not large. The total gold output from the district in 1914 had a value of about \$250,000. It came chiefly from Bonanza creek, but there was also a considerable output from Little Eldorado and Skookum creeks.

COAL MINING IN CHINA*

By William Barclay Parsons.

China's mineral wealth is both varied and abundant. Coal is found in great quantities generally throughout the country; in fact, there is scarcely one of the eighteen provinces but that contains coal in paying quantities. Through lack of extensive railways and of power-consuming industries, except a few factories at Shanghai and other treaty ports, and on account of the great poverty of the people, consumption of coal per capita in China is very small. Nevertheless, something like 15,000,000 tons is produced annually from the Chinese mines. The coals found include lignite, bituminous and anthracite, with the intermediate grades of semi-bituminous and semi-anthracite.

At present the greatest producing districts are the metropolitan province of Chili, where the Kaiping mines are the largest and best known, and Shansi. The former field produces chiefly bituminous and the latter anthracite. Shantung, Hunan, and the province of a million tons each. In Kiangsi there are located the Ping Hsiang mines, producing an excellent grade of coal, which is coked on the ground and transported now by railway to the Hsiang River, and thence by boat down the Hsiang and Yangtze to be used in China's sole blast furnaces at Hankow. These mines are Chinese owned, but developed by foreign engineers, and are equipped with thoroughly modern and efficient machinery.

The mines worked by natives are very singular. The native attacks a vein at its outcrop and usually, for some unknown reason, at a point where the vein works down the seam. He drives simply a small tunnel not over five ft. high and not over four ft. wide, in order to avoid timbering, and carries this downward until he reaches a point where his native pump can no longer handle the inflow of water. When that point is reached the mine is considered as worked out and is abandoned. A Chinese coal mining district, therefore, presents a view on a larger scale somewhat like the mouths of the burrow pits of the western prairie dog, with a multitude of small waste piles dotting the hillsides. From this initial drift there are no side galleries and no rooms. On the floor of the drift are laid two longitudinal timbers, like rails. The coal is loaded into wicker baskets and then hauled up the drift on the rails by manual power. In the Hunan native mines inspected by the writer the only lighting system was that of joss sticks of punk, giving of course, nothing but a very faint glow.

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