



TREADWELL MILL—CHLORINATION WORKS.

with a steel shoe. A peculiar shape to the shoulder which raises the stamp causes it to partially turn around at each oscillation, thus wearing off the bottom regularly.

After the quartz is sufficiently pulverized a fine screen allows it to overflow upon silver coated copper plates containing mercury, which seizes all the free gold, forming an amalgam. The fluid sand next flows over fluted surfaces into which the iron sulphates, in which this ore is very rich, sink by reason of their greater fineness and weight. As these surfaces are revolved they empty their sulphates into boxes arranged on the under side. These concentrators, as they are called, are cleaned up once a day, the sulphates being shoveled into cars and conveyed down an incline to the chlorination works. Here they are dried and shoveled into bins situated over the roasting furnaces, and scattered regularly over revolving grates. Four grates are placed in each furnace and each revolution loads the upper one with fresh sulphate and empties the lower of those which have been roasted. Wood is used for fuel in this operation, it being the cheapest and furnishing a more easily regulated heat. A man called the salter, armed with a long spoon resembling a butter tester, empties a spoonful of salt on the lower grate at each revolution, through a hole in the furnace wall. The oxidized sulphates, after being removed from the furnace, are stored in tight vats and chlorine gas introduced from underneath. This gas seizes the remaining gold and forms a chloride of gold, which is removed from the sand by rinsing with water. The chloride is an amber-colored fluid, varying in tint with its richness. The gold is precipitated by the addition of sulphate of iron, made by pouring diluted sulphuric acid on old scraps of iron. The gas is made from common salt by the addition of the acid. Work

in the chlorination building is very unhealthful. The gas causes a tickling of the throat with a constant desire to cough, while the sulphur fumes escaping from the furnace kill all vegetation within their reach.

The copper plates in the stamp mill are cleaned up once a month. The amalgam, a bright looking paste, is placed in retorts and heated. The mercury

rises as a vapor and is conveyed by pipes to a condenser and used again, being none the worse for the wear. The gold is refined, melted into bricks and shipped in plain boxes to the mint at San Francisco.

Douglas City furnishes an excellent opportunity for the study of the Alaska Indian. From all parts of the territory Hydahs, Auks, Tlinkets and Sitkas congregate here. Some of them come in for a few days, bringing the season's catch of skins and furs to exchange with our merchants for blankets and rubber goods. Numbers of them work in the mine at packing and on the ditch. They soon learn the use of tools and are reasonably expert. While the men are thus



A GROUP OF ALASKA INDIAN CHILDREN