

The platiniferous alluvion is very variable in thickness and in richness, but always shallow, the placers being undoubtedly of quaternary age. These placers carry gold in addition to the platinum, but these metals did not occur together in primary deposits, and their presence together is due to the fact that the stream which formed the alluvial deposit, received the product of disintegration of rocks containing gold and of rocks containing platinum, the source of gold being traceable to quartz veins or to rocks of an acid type, whereas the platinum is derived from basic rocks.

PLATINUM.
Occurrences.

The thicknesses of the respective layers of overburden and platiniferous alluvion are also recorded, and are as follows: Overburden average 16 feet (maximum 63 feet, minimum $2\frac{1}{2}$ feet), pay gravel, average $3\frac{1}{2}$ feet (maximum 6 feet, minimum 1 foot). The average richness of these pay-sands being at present about 2 dwt., crude, to the ton. The yield of platinum to the ton of gravel washed was at first much higher, but has decreased considerably within recent years. According to private records the sands of the Gorablagodatsk district in 1870 yielded 1 oz per ton, in 1882 this fell to 9 dwt., in 1886 to $4\frac{1}{2}$ dwt. and in 1895 it was $1\frac{1}{2}$ dwt. In the Nishni Tagilsk district, the same decrease is noticeable. This progressive impoverishment is due to the fact that at first only the small shallow and rich placers at the headwaters of the smaller streams were worked; and as these were exhausted, gradually poorer and poorer deposits further down stream had to be attacked, till now there is nothing left but the more extensive low grade placers in the large valleys and the tailings of earlier washings.

Crude platinum, as obtained by washing of the gravels, is in the form of fine particles, grains and scales, of about the size of the finest gunpowder; its colour varying from light to very dark grey. Nuggets are occasionally met with, the largest found in the Gorablagodatsk district was $72\frac{1}{2}$ ozs, and in the Nishni Tagilsk 310 ozs.

Methods of Working.—The method of working the placer gravels is almost everywhere identical. There are two different labour systems in force in all the alluvial workings of Russia. The men are either day labourers receiving regular wages, or they are 'starateli' or free labourers. These latter are what the Cornish miner would call 'tributers'; they are allowed to work certain portions, in some cases the whole of a placer, practically as they please, and are in turn bound to sell the platinum they produce, to the individual or company owning the placer, at a fixed price, which is usually less than half its value. These men are said to be able to work gravels too poor to be worked by day wages.