

RUSSIA

For a long time, the existence of chromic iron in the Ural Mountains and the Caucasus has been known and, down to 1877, shipments were made to the manufacturers, but quite recently an establishment for the manufacture of bichromate, which uses up 2000 tons a year, has been opened near Elabourgi.

In addition to the foregoing countries, Silesia may be mentioned, where low grade ores have been found, the working of which has been abandoned. The mineral is also found in Greece and Hungary; also in Tasmania where there are iron ores containing some units only of chrome.

MANUFACTURE OF BICHROMATES

The principle of the manufacture consists in heating in a reverberatory furnace the pulverized ore mixed with a salt of potash or soda (carbonate or sulphate) and with slaked lime; the object of this last being to separate the mass and to prevent solidification. In the oxidating flame of the furnace, chromic acid is produced and with the potash forms a chromate. The product is then treated with boiling water which dissolves the chromate and this liquid is concentrated by heating it, when sulphuric acid is added to provoke the formation of bichromate and sulphate of potash. It is then left to crystallize when crystals of bichromate of potash are obtained, the liquid containing the sulphate of potash being treated to utilize that salt.

The treatment for bichromate of soda is the same, but this salt, being deliquescent, that is to say, easily absorbing humidity from the atmosphere and not crystallizing in the same fashion, the final operation has to be changed in consequence. This resumé will give a general idea of the operations to be performed but the work is very delicate owing to the proportions of the different materials employed, the action of the furnaces, the temperature, the filtering and the crystallization of the liquids and the proportions of water and of the reactive acids, &c. The limits of this work do not permit of development of this question, but I deem it right to call attention to the reasons which make high grade ores desirable in this industry.

The chromic iron is pulverized apart so as to pass through a mesh of 80 and mixed with a certain proportion of carbonate or sulphate of potash (an expensive article) and of lime. The great point is to transform in one opera-