

THE

HUNT AND DOUGLAS COPPER PROCESS.

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This is what is technically called a wet method, because the copper is removed from its ores in a dissolved state, the solvent employed in the present process being a watery solution of neutral protochlorid of iron and common salt. Most oxydized compounds of copper — whether obtained artificially by roasting sulphuretted ores, or found in nature in the forms of carbonates and oxyds, — when digested with such a solution are converted into a mixture of protochlorid and dichlorid of copper, which are dissolved, while the iron of the solvent separates in the form of insoluble hydrous peroxyd of iron. When the solution of the chlorids of copper thus obtained is brought in contact with metallic iron the copper is separated in a metallic crystalline state, while the iron passes into solution, reproducing the protochlorid of iron; thus restoring its solvent powers to the liquid, which we shall call “the bath,” and fitting it for the treatment of a fresh portion of copper ore. This process of solution and precipitation can, under proper conditions, be repeated indefinitely with the same bath, the only reagent consumed being the metallic iron.

The chief advantage which wet processes possess over smelting lies in the economy of fuel. To extract copper from a low grade ore by smelting, five or six furnace-operations are necessary, and about one ton of coal is consumed for each ton of ore treated; while for the various wet processes a single calcination,