

SCIENCE

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FRIDAY, FEBRUARY 12, 1897.

SOME PRESENT POSSIBILITIES IN THE ANALYSIS OF IRON AND STEEL.*

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To the analytical chemist there are few substances in nature more interesting than a piece of pig iron, few substances which have received more study, and few which present chemical problems more difficult of solution. The amount of work which has already been done in connection with this very common but very complex substance is something enormous. Indeed, if we add to the study which has already been put on pig iron itself the work which has been done on what may perhaps fairly be called its progenitors, *viz.*, the ores, the fuel, the flux and the refractory materials used in its production, and then consider still further the labor already expended in the analysis of what we may call the progeny of pig iron, *viz.*, castings, wrought iron, malleable iron and the numerous grades and kinds of steel, made by the various processes of the present day, we shall surely be safe in saying that more chemical work has been done in connection with pig iron than with any other substance in nature. Is it too much to affirm that at the present time one-third, possibly one-half, of all the chemical work done in the world is in connection with the iron industry, either in the solution of unworked-out problems, the

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