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58 Yonge Street, - **TORONTO.****NEED OF GREATER UNIFORMITY IN
PIG IRON ANALYSES.**

BY THOS. D. WEST.

Read before the Pittsburg Foundrymen's Association, March 28, 1898.

While the past four years have witnessed a greater revolution in foundry practice than any like period, methods of making mixtures were never in the plight in which we find them to-day. The recent introduction of chemistry in founding has brought a realization of the impossibility of accurately judging the grade of an iron from fracture; yet there is still a prejudice with many, against chemical analysis as a determiner of grades or as a basis for making mixtures. It is unfortunate that there are features involved in such analyses that give the opponents of chemistry some ground for throwing doubt upon it. All improvements have to combat with more or less prejudice and difficulty before they can establish themselves. For this reason those who know from experience the value of working by chemical analyses, should not be discouraged or sit still and let the retarding influences have full sway. The thing to do is to determine the factors that tend to prevent the general use of chemical analyses and work to correct what needs correcting. The writer knows from experience some agencies that retard the general utilization of chemical analyses in making mixtures and in connection with this paper will cite a few of them.

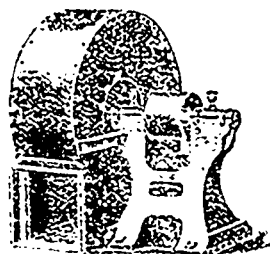
At the outset two considerations may be stated: First, the founder who continues to make mixtures by judging the fracture of pig metal, will find that the iron in his castings is not always what he would like to have it and will often cause him heavy losses. Second, the principles underlying chemical analyses are established and their correct application gives the greatest assurance of attaining desired ends.

What is best to do, retain the old practice, or strive to perfect the new? This is a question that interests the maker of pig iron, as well as the consumer; for if the blast furnaceman can remove thereby any of the grounds of complaint by users of his product, he certainly has much to hope for from any progress toward perfecting analyses in making mixtures of iron. In one sense, the use of chemical analyses is but a comparative method, a guide to desired ends in making mixtures. With a certain percentage of silicon, sulphur, phosphorus, manganese and carbon in iron, other conditions being alike, as to fuel, etc., the progressive founder knows very closely just what physical results he may expect from his mixtures. If all the procedures have been correct, he will get expected results, but the difficulty lies in the possibility of error. For example, if a founder has been receiving metal from one furnace that has a careful chemist and correct methods for determinations, he will obtain—providing no errors have been made in the shipment or charging of iron—the results he counted on, in making his mixtures. But should this furnace change chemists or the founder secure iron from another furnace—changes occurring every day—he then find conditions that may destroy the comparative results of past practice in making mixtures. Such changes often cause bad castings, or castings lacking in the physical properties desired, and may result in the furnaceman being censured or losing his trade. The trouble would have been avoided

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