WHAT IS IRON, WHAT IS STEEL?

New Short Definitions Offered in the Light of Modern Developments

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The incongruity of calling steel a product that represents the nearest approach to the element iron commercially obtainable is so glaring that it is easy to recognize that no one interested in the metal would have been disposed to object to the distinction at first proposed by Dr. Wedding to designate Bessemer steel and steel which has been produced in the open-hearth furnace. The term "ingot iron," however, which is the equivalent of the German term Flussisen, has been proposed by Dr. Wedding to designate Bessemer steel, and in Germany it has been applied to the product of the Bessemer converter, at least when not too highly carbonized. Instead of objecting to this iron being called "ingot iron," we should expel all low-carbon steels from that class and admit only Armco Ingot Iron or similar products. Indeed, is not this iron the only real ingot iron ever commercially manufactured?

Attempts have been made to distinguish between wrought iron and steel, (1) by classifying as steel all malleable ferrous products which could be hardened by quenching, and as wrought iron those which could not, regardless of the process of manufacture; and (2) by classifying as steel all malleable products obtained in a fused condition and as wrought iron those obtained in a pasty condition, regardless of their chemical composition and physical properties. The first classification prevails to some extent in Germany, where, however, as already stated, the mild varieties of steel—that is, those which cannot be hardened by quenching—are known as Flussisen. The second classification is generally followed in the United States, England and France, where it has been accepted not because it satisfies but as the only apparent way out of the difficulty.

As secretary of the international committee on uniform nomenclature of iron and steel, appointed in 1910 by the International Association for Testing Materials and of which Professor Howe was chairman, I took an active part in the deliberations, and in common with other metallurgists, in a spirit of resignation, I accepted the following definition proposed by the committee as the best solution it could offer:

Steel.—Iron which is cast from the molten state into a mass which is usefully malleable, initially at least, in some one range of temperature.

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