

THE ELECTRIC STEEL FURNACE.

It is probable that portions of the testimony recently given by Mr. Charles M. Schwab before the Ways and Means Committee at Washington will be very generally considered by those interested in iron and steel. Mr. Schwab pointed out the superiority of open-hearth steel, but affirmed the certainty of his opinion that within ten years, these furnaces would become practically useless because of the development of the electric steel furnaces. Naturally, much weight is attached to the evidence of such a witness before such a tribunal. The conditions may well warrant his conclusion. It has been recognized that there is sufficient difference between the value of the iron and other components of a high-grade tool steel and the prevailing price of the combination plus necessary labor, to pay for any electrical energy likely to be used in the electrical processes. There seems to be an essential disparity between the prices of a cent a pound for 97 per cent. iron and fifty cents a pound for 99 per cent. iron. Probably this difference, which is due to conditions inherent in crucible-steel manufacture, will be the first to attract the attention of the steel producers to the electric furnace. It was pointed out by Mr. Schwab that the electric furnace could be used for improving the quality of the lower grades of steel, such as rails. Here there does not seem to be a great chance for saving in cost of production of identical product. The refining of already molten open-hearth steel by treatment under the conditions supplied by the electric furnace (high temperature, slag- and composition-control, and reducing atmosphere) will doubtless not exceed a very few dollars a ton, if indeed it is not less than one dollar per ton.

Judging by the magnitude of the past fluctuations in prices of rail and structural steel, it would seem a small matter if the cost of production were even doubled, provided the quality was essentially improved. No one of our useful metals seems likely to be soon reduced cent per cent. by any conceivable change in the cost of production. Therefore, the premonitions of great reduction in cost of tool steel are particularly interesting. The open-hearth production is nearly one hundred times as great as the crucible steel production, so that any proportionately smaller ripple of improvement on the surface will represent a much greater real commercial wave of advance.

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AN AMERICAN INSTITUTE OF CHEMISTRY.

THERE is a real need for an American Institute of Chemistry. In any given trade or profession, it is impossible for any body to accurately estimate the fitness or capability of any particular member of it, except another and experienced member of that same trade or profession. All through human effort it is the case that it takes a fellow craftsman to judge intelligently a worker's efforts. Therefore, to safeguard employers, and at the same time help deserving workers, the principle of the proposed Institute of Chemistry is a principle that should be applied in every department of industrial activity, and doubtless in time will be so applied.

As a matter of fact, it is to-day applied in many lines: medicine, law, dentistry, civil and mining engineering, etc. The doctor's diploma for instance gives from experienced and able men in the same profession, assurance to the public that the holder has a good knowledge of the rudiments of his business. It serves exactly the same purpose and is based on exactly the same principle as a certificate later on from an Institute of Medicine, supposing there was such a thing. And it would be well if there were such a thing, because the original diploma certifies merely to the rudiments and gives no hint with regard to after-standing. Take two graduates in medicine and in ten years the one may far outstrip the other in knowledge and efficiency. Yet, as far as the information conveyed by the original diploma is concerned, they are still on the same level. But if an "Institute" would be a good thing in the medical profession, where there is always a diploma to start with, far more would it be a good thing in the chemical profession where there is no diploma at all—or rather, no diploma that corresponds to the medical diploma. The medical diploma certifies that the holder has spent a certain number of years in the exclusive study of his profession. The chemist's, on the contrary, testifies that he has not spent these years in the exclusive study of his profession, but has spent them in the study of science in general with chemistry merely as an appropriate (though it is true, an exaggerated) incident.

In other words, the chemist's degree certifies to employers merely that the holder is not a chemist but a general scientist who has made a specialty of chemistry. This is much but leaves plenty of room for the Ph.D. degree and the M.S. degree, and these latter in their turn, though far above the proposed Institute certificate in dignity and