

would be said to him? It would be said that his study of chemistry, etc., was all right, and excellent as far as it went (but that it did not go far enough), but that his trip to the North Pole, though a highly creditable performance in itself, yet viewed as a preliminary to the steel business it could not be considered as anything else than a piece of foolishness, because he could not possibly learn anything about the steel business at the North Pole.

But it is just as true that he could not learn anything about the steel business in the steel works laboratory. That is, of course, if he is conscientious, and steals no time from his work. Or even if he works overtime at learning the steel business, he is nevertheless taking time that belongs to analytical chemistry, time that he needs for his chemical journals and analytical books, or time that he needs to investigate the perplexing practical analytical problems that are always springing up, or that he needs to look to for the detection of error in his methods. The steel works chemist, if he has the love of his work that every worker should have, will have no time to learn the steel business, either in or outside the laboratory hours, unless, indeed, he is exceptionally able. Especially is this true if he, for his employer's benefit, takes up the study of metallography and of theoretical metallurgy in addition to analytical chemistry, and this latter is something that it is well for him to do, because nobody else around the works will do it—at least not systematically and thoroughly.

THE NEED OF THEORISTS.

Theorists at the works are just as scarce

as practical men are plentiful. So that in metallurgical theory the steel works chemist finds a genuine field of usefulness if he desires one outside of, and in addition to, analytical chemistry. But, instead of taking advantage of this opportunity for usefulness, he is hardly settled in his place before he bends all his energies to making a practical steel man of himself, a performance which for absurdity throws the familiar "carrying coal to Newcastle" completely in the shade. It is, indeed, like selling potatoes to get money to buy coal to carry to Newcastle at a time when Newcastle is suffering with a potato famine.

The chemist will find an abundance of practical men at the works who are amply able to hold up their end, and the chemist cannot hope to compete with them on their own ground, or to catch up to them, handicapped as he is with his laboratory duties, and in trying to do so he likely succeeds in merely falling between two stools and becoming a sort of a hybrid nondescript. His ambition to become a practical steel man prevents him from being much of an analytical chemist or metallurgical theorist, and on the other hand his analytical duties prevent him from becoming much of a practical steel man. So, as a result, he is perhaps apt to be not much of anything—neither fish, fowl nor good red herring.

But if the writer is wrong, as well he may be, in believing that this is not what the steel man wants when he employs a chemist; in other words, if it is a fact that the iron and steel trade all along has been expecting chemical engineers in response to its demand for analytical chemists, then of course the

writer's charge that the colleges here do not understand their business must be apologetically withdrawn. His guns must then be trained at the iron and steel employers instead, and it is against them then that the accusation must be made that in this particular they do not understand their business, and are like Charles Lamb's ancient Chinese, taking a wasteful, round-about way of accomplishing a simple thing. If the steel man's demand for an analytical chemist is merely a pleasant conceit, and what he really wants is a chemical engineer, then he is taking a very expensive and round-about way of getting him. Let him put his embryo chemical engineer in the office, or let him put him anywhere around the works except in the laboratory. The laboratory is the last place for the young chemical engineer—as well might he go in a grocery store. There is no resemblance or connection between the chemical relations of metallurgical processes and those of chemical analysis.

The probability is, as before stated, that the iron trade has been calling for analytical chemists simply, and the many cases where the chemist has developed into the manager are cases merely of the buoyancy of genius. That is, these chemists have risen to superintendency because they have had exceptional ability, and not because they have been analytical chemists. As blacksmiths they would have risen just the same. A long list could be given of men who were distinguished as analytical chemists and afterward distinguished as iron and steel metallurgists, but this proves nothing except native ability.—Iron Age.

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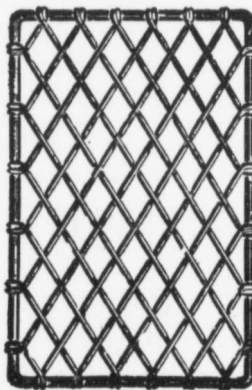
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