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The University and Industrial Chemistry.

PERHAPS it is too much to say that the Industrial Chemist is born, not made. It is certain, however, that with him, no less than with violinists and those who string pentameters, the mysterious inner ferment known as "temperament," is necessary to his success. To put it another way, Technical Chemistry (to use the wider term), should be more engrossing than any other subject of thought and work to the man who desires to pursue its practice; otherwise, he should try something else.

In order to comprehend the Relation of the University to Technical Chemistry it is necessary to partially answer three questions; these answers should indicate roughly how much depends on the school and how much on the student.

The first question is: What is the work of a Technical or Industrial Chemist? The reply is not easy to put in a few words. The popular conception of Applied Chemistry is that its pursuit is eminently materialistic, whereas the truth really is that the Industrialist often deals less with matter than with men, and less with men than with ideas. Thus, he must grasp the wants of the particular business in which he is engaged, in order to generalize on the previous methods of filling those wants, and to project improvements for the future; sifting the good from the bad, the practical from the visionary, the commercial and economical from the extravagant and the merely symmetrical. In this, imagination tempered by horse-sense are his most useful allies.

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In dealing with Men, the Industrialist most often falls into error. He sometimes appears to imagine at first that the so-called "practical man" is to be his pupil—that he himself has nothing to learn from the practitioner. Without dwelling on the fine irony of terming the empiric a "practical man" in order to differentiate him from the supposedly scientifically-trained individual, it is well to insist on the fact that each can teach the other much, and that the Industrialist's attitude towards the much-abused practical man may well be one of discriminating humility.

In dealing with Matter, a complete disillusionment is apt to overwhelm the aspirant, who has not unreasonably accepted the belief that he knows something of Applied Chemistry from a study of the text-books. He finds himself in a new world, where, in the examination of raw materials, stock in process of manufacture, finished products, waste and by-products, fuels and lubricants, and the thousand unexpected matters thrown in his way, it is well for him to remember that his chief aim must ever be to attack his problem boldly and fundamentally, root and branch, and to keep on keeping on until he succeeds in finishing his task. The "fiddler," the mere tester and prescriber of palliative measures, easily degenerates into what has been called "a hod-carrier of science."

The second question: What scope is there in Industrial Chemistry for the beginner? evokes the reply that there will probably be many opportunities in the near future for men who recognize that it offers them no royal road to success, but rather one of the most laborious long-distance chases that man can indulge in. In Germany there are single manufacturing firms which employ more Industrial Chemists than there are in all Canada. In the United States the practice of employing Industrialists is on the increase. Great Britain and Canada, as the pressure of competition increases, undoubtedly must follow this lead. Yesterday, the dazzling chances and mystery of Electricity attracted our young men, to-day its drawing power has lapsed, to-morrow it may be that Industrial Chemistry will be the Potosi—the Klondyke. It is needless to say that those who look at it thus will be deceived to-morrow as their brothers were deceived yesterday.

The third question is: What qualifications should the beginner have? He should have, of course, a good knowledge of Physical Science. By this is meant, not an incidental smear, acquired whilst following a curriculum of essentially foreign studies; but the product of an application as serious and prolonged as that which is considered necessary for the candidate for admission into the grand trades unions of Medicine and Law. In the second place, he should have a good mathematical training and a knowledge of the elements of mechanical engineering. These his University can give him. Exoterically, if he has time to learn to be a pretty fair pipefitter, plumber, glazier, blacksmith, glass-blower, and carpenter; if he can keep books, make costs, and often say "I don't know," he will find these to be very useful additional qualifications for his work. And if, after the contemplation of this list, he still desires to become an Industralist, his faith in himself is not unlikely to carry him through.

It is unnecessary for the commencing Industrial Chemist to possess a broken heart. He will be accommodated with that qualification soon and often.

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