The Application of Scientific Talent

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THE ULTIMATE ACHIEVEMENTS of a chemist depend upon a combination of many factors. Perhaps the most important are innate ability, personality, training, and attitude.

What is innate ability? In all lines of endeavor, not merely in science, innate or native ability represents those desirable characteristics which are born in the individual and which he cannot acquire through formal training or self-education. Intelligence or ability to learn is generally accepted as an inherited trait. Of the various segments of intelligence some of the most important are dynamic ambition, originality, and imagination. These characteristics may probably be enhanced or repressed by environment during the first 20 years of a man's life but in general I believe they cannot be cultivated. Some may dispute me, but in my long experience in teaching I have not encountered a graduate student who impressed me as becoming fundamentally more creative with maturity. The occasional student who is a genius may be assigned a high value on an arbitrary scale, the student who can barely make the grade a low value, and all others fall between. One of the objectives in a student's training is to help him to utilize the ability with which he is endowed to the fullest extent, regardless of where he falls on the scale. These endowed qualities are very significant in a man's success. . . .

After chemists have been at work in industry a few years, it should not be difficult to determine their strong and weak points and to adjust their assignments accordingly. Industry could well pay more attention to this in order to increase the efficiency of its staff. Industrial chemists, professors in chemistry—in fact, people in all walks of life—can be divided into three categories: (1) those who are blessed with many original ideas but who are too impatient or are inept at developing them, (2) those who are not clever at selecting or devising worthwhile problems but who excel in implementation of assignments, and (3) the small and unusual group who have brilliant ideas and the ability to direct their development to a successful conclusion.

A substantial proportion of the students who take Ph.D. degrees will never excel in research. It is unfortunate that the university does not teach the student something about the diverse operations of a successful chemical company. But it is not feasible in the university, first because the proper staff is not available, and second because the student is so deeply engrossed in the study of science and in his effort to get a degree that such a course would be looked upon as something extraneous, a course merely to pass, rather than an opportunity for acquaintanceship with potential lines which he might eventually wish to follow. Industry, on the other hand, could provide for its chemists an opportunity of attending a systematic course of lectures or seminars on the elements of accounting, public relations, patent law, market surveying, production, selling, the reading and significance of financial reports, and perhaps even on how to reach policy decisions. What is required of individuals in jobs in these fields could be brought out. The young men could thus better envisage how a company functions. Listening to such lectures would not be compulsory but the more ambitious chemists would gladly broaden their knowledge. A company at present selects technical men for transfer from research to one or another of its various units in a rather haphazard way. By a certain amount of formal instruction, industry could perhaps locate at a much earlier age men who might prefer and be better fitted for another field of specialization in which their scientific background would be desirable or essential.

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