

Dynamic Objectives: I.

The Importance of Chemistry

"Dynamic Objectives for Chemical Engineering," the report of a special A.I.Ch.E. committee, is a remarkably fine document which should be studied carefully by all of us who are interested in the future of our profession. The committee, under the cochairmanship of Donald L. Katz and Robert R. White, deserves particular commendation for a splendid accomplishment. The excellence of this report has received acknowledgment in the form of an Award of Merit from the United States Chamber of Commerce.

One of the many points made in the report is the importance of chemistry to chemical engineers. The committee strongly recommends a thorough grounding in inorganic, organic, physical, and instrumental chemistry. This recommendation is heartily endorsed here, and perhaps a few comments may be in order.

The new developments in chemistry are almost numberless. Inorganic polymers, corona discharge reactions, polyelectrolytes, high-temperature reactions, and nuclear chemistry are only a very few of the fields of great potential interest. The whole domain of biochemistry with its marvelous discoveries about enzymes and proteins must be especially noted. Some of these and other chemical developments will lead inevitably to commercial projects and tonnage manufacture of new chemical substances for the use of mankind, just as earlier researches in organic polymers, for example, have led to the enormous manufacturing complexes familiar to all of us. Such commercial development will require chemical engineering of the highest skill—the time-honored engineering approach with its emphasis on energy

and material balances, rates of reaction and transfer, the selection of process alternatives, the separation and purification of raw materials and finished products, the specification of equipment, the consideration of costs, etc.—in short, all the aspects of design. The opportunity to bring that skill to bear on the problems to be solved will be enhanced however, by our ability to speak the chemist's language through familiarity with his subject.

We are constantly improving the *methods* we use through the advances in our profession (many of which are first described in the pages of the *Journal*). It is, however, the *substances* with which we must deal that may be profoundly changed for us by the chemist. The early work of mechanical engineers on fluid mechanical and thermal behavior of water or air was broadened and extended by chemical engineers so that such behavior of almost any common liquid or gas might be predicted. The new work of the chemist may compel us to broaden again our field of interest to include molecular fragments, living systems, and indeed all sorts of strange and unusual substances. We must keep ourselves informed on these matters.

Quite apart from the subject matter of chemistry, we must not forget the chemist himself. We may differ with him on many occasions, but we are working the same side of the street. A friendly rivalry between us is probably a generally good thing for both our professions. Such rivalry and certainly lasting friendships among individuals often have their beginnings in college courses in chemistry.

H.B.