

## PROFESSIONAL PATTERN IN CHEMISTRY

What a chemist does professionally generally bears no resemblance to his formal education. This was not always so, but has become the professional pattern over the past 25 years. The changing pattern of professional activity among chemists is made quite evident by the recent results of the ACS data from more than 80,000 chemists who participated in the 1968 National Register of Scientific Personnel, sponsored by the National Science Foundation [see *Chem. Eng. News* **47**, No. 29, 102-105 (1969)].

The primary categories of formal education in chemistry are: analytical, inorganic, organic, physical, biochemistry, agricultural and food, and other, with organic as the major educational category. But of the approximately 45,000 organic chemists, 45% are actively engaged in some area of polymer chemistry; of the approximately 15,000 physical chemists, about 12% are concerned with polymer chemistry. Thus, there are about 22,000 chemists who consider themselves as primarily polymer chemists, yet only a very small percentage of them had any kind of formal education in what they are now doing.

Another interesting category of professional activity is that which includes those whose specialties are abstracting, indexing, information retrieval, library, chemical literature, nomenclature, and patents. The total number of chemists in these specialties is listed as 3100; the number of other, which presumably includes the specialties of chemical economics, technical writing, technical translating, etc., is listed as 4600. The number in marketing is listed as 3100. I wonder how many of these 10,800 chemists had even one course, let alone formal education, in their present assignments?

It is quite apparent that education is not restricted to four years of college and, for about 60% of today's

chemists, one to four years of graduate work. Those of us who are actively engaged in some activity of chemical documentation—presumably there are over 3000 of us—are particularly well aware of the continuing nature of education for the realization of one's own potentialities.

Relatively few of the people I know in chemical documentation planned for a career outside of the laboratory. Many of them discovered that their potentialities and range of abilities could be satisfied most realistically and beneficially in some area of chemical documentation. The potentialities and abilities of others were first recognized in and encouraged by their working environments. Others happened to be at the right place at the right time, and, in a large sense, chemical documentation became the career through progression, or via the path of least resistance.

As a chemist undergoes transformation from the laboratory to a nonlaboratory career, he tends to develop a somewhat different pattern of thought and behavior, but one which continues to remain pretty much in balance with his formal education and laboratory experience. The transformation is a combination of differentiation and integration. The differentiation process is one which puts him in tune with the demands and requirements of his new career. The integration process is one in which he maintains his professional growth as a chemist.

To disregard the differentiation process is to neglect the opportunities and challenges in the new career. To disregard the integration process is to assume that education is what one acquires only in college. To disregard both is to gamble with one's potentialities and career development.

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