

THE PLACE OF RESEARCH IN THE UNDERGRADUATE CURRICULUM

Research programs are a strong part of the curricula of nearly all of the NASTLAC colleges. With increasing interest in science and increasing numbers of good students majoring in this field and preparing for graduate studies, our research programs must grow.

The group discussed what calibre and level students should be included in such a program, assignment of research work, academic loads, financial support, and the values of the research project. All of our colleges experience similar problems in their research programs and a pooling of our experiences in this discussion group has proved helpful.

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Each member of the group after introducing himself summarized the research program at his institution. Almost without exception, research is conducted at each of our liberal arts colleges. These projects are partially supported by the schools with additional financial aid from Research Corporation grants, government aid, and private industrial support.

The values of research to teacher and pupil were outlined: keeping abreast of developments in the field, stimulation given to both student and teacher, additional beneficial background for advanced studies, reputation and prestige values, the fostering of an intellectual atmosphere, etc. Undergraduate research symposia sponsored by various AOS sections are exceedingly meaningful and exciting experiences for students. We feel that these symposia are doing more to encourage the young scientist than Academy of Science meetings and hope to encourage participation in and growth of such meetings.

Students come to college with the enthusiasm born of research projects encouraged by science fairs in high schools. A growing program is needed at the college level to sustain this interest and enthusiasm. We are getting increasing numbers of science students in college and increasing numbers of our graduates going on to advanced studies. Consequently our research programs must expand and include in their scope all of these various people.

Dr. Warren McMullen of Greenville College spoke to us of his program in the freshman laboratory. A list of some 100 problems is available to the student. A statement of the problem is given, and the student then must devise an experimental method for obtaining data and a probable explanation. Such an optional research program can give satisfactory results with good students, and may be a means of aiding and encouraging the superior

student. However, the program was not well suited for the poor student. Such a program is also very demanding of the teacher's time.

The problem of farming out the proper research problem to a student was discussed. Two opinions prevailed. Firstly, allow the student to suggest his own problem or possibly work on something of interest to the teacher. In this type of work individual effort is emphasized. A second group believed that the teacher should carefully assign work to students. Individual effort is not stressed here as much as team results. The student on an individual project may learn more of the frustrating nature of research, while the student with a team may not realize this frustration so completely. He will however experience with his team more sense of accomplishment since teams can necessarily produce more in a limited time than can a single individual.

Perennial unsolved problems of getting full cooperation from one's administration, time, money, student academic loads, etc., were mentioned with no very new approaches to these problems suggested.

Dr. Harry Lewis suggests a 1955 bulletin and its 1957 supplement describing research grants of many types, 'American Foundations and Their Fields.' This may be obtained from the American Foundations Information Service. It has been prepared by Raymond Rich Associates and Warts Lundy, Inc., 880 Broadway, New York, N. Y. Dr. Lewis points out that it is not easy for the teacher to go through such a source listing more than 5,000 foundations supporting many types of research other than chemical research. Dr. Lewis suggests the Petroleum Research Fund which at present has 52 grants in small colleges averaging \$3,100 per grant. The program administrator here is Dr. Karl Dittmer.

Dr. Lewis also indicates the Division of Chemical Education is considering preparing such a listing which might help college and university chemistry departments.

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