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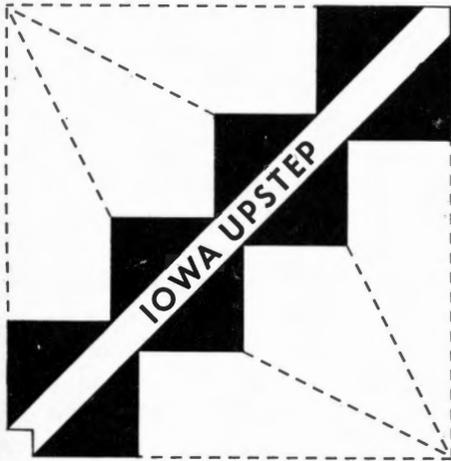
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Iowa UPSTEP: A New Program in Science Education

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At a time when knowledge is exponentially increasing and advances in pure science are being incorporated into an ever accelerating technological society, there exists a trend toward fewer and fewer adequately prepared science teachers. At a time when total enrollment in junior and senior high schools is reaching record breaking numbers, the enrollment in elective science courses is on the decline. At a time when a scientifically literate electorate is not only desirable but mandatory for survival, outmoded methods and facilities are being used to forcefeed isolated bits of knowledge to students who find little or no relationships between "school-knowledge" and the world outside of the school.

The National Science Foundation's concern for improving the teaching of science in elementary, junior high, and high schools is well known. For several years the Foundation has supported both the development of new science courses and the operation of supplementary training activities that increase the subject-matter competence of inservice teachers. The Foundation has come to recognize, however, that successful as these programs might be for the updating and the professional improvement of inservice teachers, it is also necessary to institute preservice programs—so that efforts toward long-range progress can be effectual.

The preservice science teacher has needs that go far beyond absorbing present knowledge in his content area and instructional methodology. The science teacher of the future must develop the ability to keep his teaching current—to maintain an awareness of new topics and discoveries and how they relate to his science courses—to adapt constantly his teaching to the student and his changing environment—to fulfill his role as the main and sometimes only link between the local community and the scientific enterprise—and to select and develop instructional material relevant to the

individual student and the modern world.

Undergraduate students have little or no contact with science education faculty prior to their senior year. Many bright science-oriented undergraduates whose character and innate abilities might be well suited to the dynamic changes now evolving in science instruction are never made aware of the new prospects in education. Most preservice science teachers enter the program either because of the influence of one of their own science teachers or by default if other plans do not materialize.

With such a system of filling the ranks of preservice science teachers, it is no wonder that the number of well-prepared science teachers is shrinking. The number of preservice biology teachers has decreased slightly over the last four years. The number of preservice chemistry teachers is steadily on the decline while preservice physics teachers are practically nonexistent. Perhaps the most critical area of science teaching, that of the junior high school science courses, is being taught by teachers whose preservice training was in a field other than science.

Thus not only is it essential to recruit intelligent science-oriented young people into the dwindling ranks of science teachers, but to provide them with proficiencies in both modern scientific investigation and knowledge while developing educational technologies.

The Undergraduate Preservice Teacher Education Program (UPSTEP), being developed by The University of Iowa and sponsored by the

National Science Foundation, is an attempt to interest bright science-oriented students in a career in science teaching. For the first phase of the program, the participants will make no long-range commitment. They will be enrolled in a series of specially prepared seminars which are designed to give them a firm basis upon which to make a decision for or against a career in science teaching. It is only after this initial phase that they will be asked to make a major commitment. Hopefully by then they will be equipped to make an intelligent decision about education as a career.

The activities proposed for the first two years of UPSTEP, and indeed the entire scope of the program, represent a radical departure from the traditional preparation of science teachers. From the beginning of their college career, participants will be in direct communication with some of the top people in the fields of science and science education. Hopefully this will be a two-way line of communication which will provide the program with some valuable feedback—information which is vital to the development of a meaningful program for the student. As a member of this highly select group of people, participants will enjoy a sense of identity far stronger than most entering students could expect. They will have available counseling services which no other program can match—people who have interest in them and in their individual needs. Activities including videotaping, autotutorial instruction, interaction between teacher and students, and computer programming are de-

signed to take advantage of valuable technological advancements which will ultimately change the entire field of science education.

Additional information and applications for the Iowa UPSTEP program may be obtained by writing:

Iowa-UPSTEP
Science Education Center
The University of Iowa
Iowa City, Iowa 52240

ESCP Field Study Guides

A new series of Field Study Guides which ESCP produced have just been made available for purchase. These guides are appropriate for college students as well as secondary school students. Copies may be ordered from the Houghton Mifflin Company, Boston, Massachusetts, or any of its regional offices. Individual copies are \$1.20 or the complete set of ten for \$10.50. Titles of the pamphlets are:

Field Guide to Rock Weathering,
by Robert E. Boyer

Field Guide to Soils, by Henry
Foth and Hyde S. Jacobs

Field Guide to Layered Rocks, by
Tom Freeman

Field Guide to Fossils, by James R.
Beerbower

*Field Guide to Plutonic and Meta-
morphitic Rocks*, by William D. Romey

Color of Minerals, by George Rapp,
Jr.

Field Guide to Beaches, by John H.
Hoyt

Field Guide to Lakes, by Jacob
Verduin

*Field Guide to Astronomy Without
a Telescope*, by William A. Dexter
Meteorites, by Carleton B. Moore

Mercury in Environment Subject of New Report

A report summarizing the abundance and distribution of mercury in the environment has just been published by the U.S. Geological Survey, Department of the Interior.

"The report," said Dr. William T. Pecora, USGS Director, "was prepared in response to the growing awareness and concern for the actual and potential hazards of mercury wastes in the environment."

"The discovery of abnormal amounts of mercury in fish and other foods, and in some of the nation's rivers and streams has raised many questions about this ubiquitous metal. Furthermore, mercury is of strategic importance because the United States produces much less of the metal than it consumes. A better understanding is needed about mercury—where and in what forms and quantities it is found; how it behaves in air, water, soil, plants, and rocks; the impact of man's activities on its distribution; and the effects of the element on our lives."

"This report," the Survey Director said, "consisting of a number of papers prepared by several Geological Survey scientists, will provide a useful reference for those agencies and individuals who must cope with problems related to the occurrence of mercury in the environment."

The report, "Mercury in the Environment," is published as U.S. Geological Survey Professional Paper 713, and is obtainable by purchase from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 at \$.70 per copy.