

at Duke and Berkeley, respectively. School systems in Connecticut, Indiana, Michigan, Minnesota, New Jersey, New York, Ohio, Oregon, Pennsylvania, Tennessee, Washington and Wisconsin, as well as California, are currently involved in SEED. In addition, a number of foreign countries have expressed interest in the SEED project.

Presently, most SEED instructors are industrial or university mathematicians; however, there is an increasing involvement of physicists. Many universities and corporations are encouraging involvement of their mathematically trained personnel. These include Rutgers and Yale, the Battelle Memorial Institute, IBM, Lockheed and New York Life Insurance, among others. The University of California has given top priority in its urban crisis package to the Community Teaching Fellowship Program, which is modeled after SEED. Some corporations are even providing paid release time to employees participating in SEED, and many college and university faculty members are including SEED classes in ghetto schools as a portion of their regular teaching loads.

The program is funded using federal, state, local and private sources, and the recommended salary for SEED instructors is \$2000-2500 per class, for an academic year. Although most prospective SEED instructors are well-versed in abstract mathematics, they usually have little or no experience with this form of teaching. Therefore, most new SEED instructors serve a one- to three-week classroom apprenticeship before classes are assigned to them.

Instead of lecturing to the class, SEED teachers use carefully chosen questions to spark the class's interest and to challenge the students to progress in a logical fashion, from one mathematical concept to another. To enhance the student's feelings of group participation SEED uses hand signals, which a student can use to indicate pleasure or displeasure with the trend of the discussion, and name cards, which identify the student to his fellow students and the instructor. Wrong answers are not treated as failings of the students. Instead, they are logically discussed and their implications on axiom systems are investigated.

Project SEED's basic purpose is to raise the intellectual confidence of culturally disadvantaged students by proving to them that they are as capable as middle-class students of handling difficult, "culture-free" subjects. Although there are still some unresolved problems, notably the high mobility of the poor, which removes the student from a particular group experience, Johntz noted that SEED project techniques and results have been received enthusiastically by instructors as well

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Project SEED director William Johntz teaches advanced mathematical concepts to a class of culturally disadvantaged elementary-school children.

as state legislators. Some concepts that undergraduate math majors seem vague about are apparently grasped intuitively by many SEED students. For further information regarding Project SEED, Johntz can be contacted at 1011 Keith Avenue, Berkeley, California 94708.

—GM

New faces at the Astrophysical Journal

The managing editor of *The Astrophysical Journal*, which is sponsored by the American Astronomical Society and published by the University of Chicago Press, will be Helmut Abt (Kitt Peak National Observatory), effective 1 April. At the same time Donald E. Osterbrock (Washburn Observatory, Madison, Wisc.) will become editor of *Astrophysical Journal Letters*. The two men replace S. Chandrasekhar, who has been managing editor since 1952.

Abt has been at Kitt Peak since 1959 and works in double stars, stellar rotation and motions. Osterbrock, who has been at Washburn Observatory since

1958, works on planetary nebulae and interstellar matter.

AIP and Columbia study high-school physics teaching

A study of the materials and methods of high-school physics teaching is underway at Columbia University Teachers College. Its aim is to compile and analyze data on the impact of physics curriculum innovations. Jointly sponsored by the university and by the American Institute of Physics, the project is supported by a \$48 600 grant from the NSF.

The main source of data will be an in-depth study of 45 high schools selected from questionnaires sent to all high schools in Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Delaware, Maryland and the District of Columbia. George Ivany, who heads the project, will work with two graduate students in visiting each high school for about one week to conduct classroom observations and interviews. The final report is scheduled to be completed by Spring, 1972. □