

Wayne State Physicists Help Disadvantaged Detroit Youth

Wayne State University has "the only physics department in the country with a poverty program." That's how Alvin M. Saperstein, associate professor at the university, describes an experimental laboratory-work program that provided jobs, training and encouragement for a group of Detroit's disadvantaged high-school students last summer. So successful was the program, for the teenagers, the physics department and the city, that it is being expanded this year to include the chemistry and biology departments.

In its first summer the program gave employment to 20 high-school students, of which 16 were boys and 16 Negro. They were paid \$1.25 an hour and worked at tasks ranging from reading chart recorders to manipulating pressure-adjusting valves during an experiment. The students, picked by their high-school physics and mathematics advisors, were already interested in physics or had demonstrated an aptitude for physics. On the job they had to be trained for specific assignments, but the program was not organized as a study program. Rather it was operated as a straight work program. "Thus a study and training atmosphere was generated without the appearance of its being contrived," says Leonard O. Roellig, associate professor at Wayne State, who ran last summer's program.

Just an idea. The project was born, says Saperstein, out of a feeling that the physics department and the university could and should do something for underprivileged youth in Detroit and so help the community. During a luncheon commemorating the opening of a new physics building, Saperstein mentioned this conviction to another person at his table. As it happened, his luncheon companion was Richard Strichartz, counsel to the university and a man active in civic affairs. Strichartz offered his help in obtaining both university and city backing if Saperstein could come up with some concrete proposals.

With the support of department chairman Melbourne G. Stewart, Sap-

erstein outlined a science-aide program for inner-city high-school students. Strichartz was instrumental in lining up the necessary funding to support the project. Wayne State paid the supervising professor's salary, and the city of Detroit, through various programs, paid the salaries of five graduate students and the 20 high-school students. However, the program, perhaps because of its newness, was not without some unexpected and worrisome financial problems. Some wage payments were delayed when it was discovered that the parents of several students earned too much for eligibility in poverty programs. Another ticklish question concerned who would pay for carfare.

These difficulties, which the program's personnel feared might sour the city on further participation, were cleared up, and Detroit officials expressed their eagerness to see the project continue this summer.

Two-sided program. The benefits of the program are both educational and social. It provides a new education opportunity to some youngsters who might otherwise have never

stepped inside a college building, let alone work in a scientific laboratory. It also provided stimulating, meaningful employment plus person-to-person contact with college-trained scientists, whose outlook is entirely different from that of the urban-oriented high-school students.

The students were assigned on a four-to-one ratio to advanced graduate students, under whose supervision they learned about the projects in the laboratory, the reasons for doing such projects and the techniques needed to help carry out the projects. The graduate students had the further responsibility of getting the high-school students to open up, to ask questions, to talk about themselves. At first the students were quite uncommunicative, but daily contact on common projects led to a freer exchange of thoughts and finally to a flood of questions from the teenagers.

The work assigned was quite varied. Some students helped build equipment, such as rotating helium equipment. Some of the construction involved the painstaking soldering of fine wires without burning them out. One student worked as an aide at the helium liquifier, helping transfer liquid



HIGH-SCHOOL STUDENTS WORKED IN PHYSICS LABS at Wayne State University last summer, helping with experiments and learning to use measuring instruments.

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helium and nitrogen. Others learned the intricacies of pressurized equipment and helped adjust valves during experimental runs. Data analysis, inventory and filing work, bibliographic searches, and equipment reorganization were other jobs done by the teenagers. Those jobs low in learning experience were only assigned for a short time, but students were kept on the more complex, stimulating projects

long enough to allow them to make useful contributions.

Person-to-person contact, the effectiveness of which is harder to gauge than achievements of learning, proved valuable. At least one student began taking college preparation seriously. He said, in evaluating the program at the end of the summer, "It has strengthened my decision [about entering college] by giving me a look into what I have to expect. It has also shown where I need to strengthen

my ideas about college and getting to work when I go back to school."

Last month the group was asked back for a discussion session. Of the 13 who would come, 12 plan on entering college this fall. More than half had received scholarships and called the program an important factor in the scholarship award. Six plan science majors and two plan to take physics because of the interest generated in lab work. A majority said the program helped them in high-school studies.

Draft Will Empty Graduate Classes, Says Betty Vetter

"The Domsday Machine for Physics—The Draft" is how Betty M. Vetter, executive director of the Scientific Manpower Commission, describes the new draft rulings on graduate student deferments. In five years annual physics PhD production will be only one third the number that would otherwise be expected, according to Mrs Vetter. The nation's technological superiority and military efficiency will suffer. Physics classrooms will be empty and teacherless. Research projects will have to be cut back. College training will be wasted and intellectual talent, a scarce resource, will be misused. When deferments are eventually restored, a double entering class, veterans and new graduate students, will crowd university facilities. The President and the National Security Council can still change the rules, but so far there is no indication they will act in time to avoid serious disruptions this fall, she said.

Mrs Vetter, in her "Domsday" speech before the American Physical Society Washington meeting, warned of serious consequences for physics

and the nation under the new draft rules, which end first- and second-year graduate deferments and maintain the policy of calling the oldest first (PHYSICS TODAY, April, page 89).

Taking a look at physics, Mrs. Vetter said there were about 4000 students in each of the first two years of graduate study now vulnerable to the draft because of the new Selective-Service regulations. Of these, one in four expects to go on to the PhD level. "The Scientific Manpower Commission and the Council of Graduate Schools in the United States have recently completed a survey of the impact of the draft next year across the nation on graduate classes. According to graduate deans, about 65% of the normal entering class in physics will be draft eligible; so instead of about 4000 first year graduate students, there will be about 1400 in physics. Five years later, this group will supply about 350 PhD's instead of the 1000 we expected.

"In addition to the teacher loss in the years ahead, research efforts will lag to some degree; and some research will be abandoned. Our national technological superiority may be endangered; and even our military efficiency seems likely to suffer as the services are required to mold a fighting force out of inductees who are both older and better educated than the Army says is optimal."

Mrs Vetter pointed out that the Army cannot even use the skills of all the physicists it will have in its ranks. "About one in 30 will serve his military career in a field related to physics," she said. Science-aide posts can include about 90 physicists. The Army can employ about 100 physicists as officers. However, the Army is expected to induct about 5500 phys-

icists next year under the new draft rules, she said.

Mrs Vetter strongly objected to the use of the word "fairness" to describe the new vulnerability of graduate students. "The simultaneous abolition of graduate deferments and occupational deferments based on the national needs will result in making available for the draft a group of about 300 000 men who have one or more college degrees, and from whom the draft will draw almost exclusively after this summer since they are older than the other available men in the draft pool. Because draft calls are not expected to exceed the number of available college graduates during the year beginning in late summer 1968, college graduates and graduate students will bear the entire brunt of the draft."

In fact Mrs Vetter feels that the draft laws contain some other strange inequities that work against college students. "Although we allow them to go to college (for four years only) we will promise them that if they choose to do so, they must serve the military obligation for all those who do not go to college. They will forfeit the right to be deferred if they become fathers although that right will be reserved to all other American men. Our 19-year-old noncollege men have fair warning that if they do not wish to serve, they have three years to become fathers and be exempted."

The consequences of the draft revision may be far reaching. Mrs Vetter listed empty classrooms, teacherless classrooms, loss of men to industry and a cutback in research efforts as some of the short-term consequences. "The long-term effect on the nation will be far more serious. Since the new rules will result in the elimination of half of three consecutive classes of entering graduate students (and almost two thirds of these classes in physics),

MITCHELL VALENTINE



BETTY VETTER