AAAS Project on Native Americans in Science

The needs of Native Americans for science education and scientific and technical manpower are being explored by the AAAS Office of Opportunities in Science Project on Native Americans in Science in a program initiated by the Office in January 1976. With support from the Educational Foundation of America and the Association, the Project undertook a 10-month effort which involved meetings of Native American scientists and educators; contact with Indian science and educational organizations; planning for educational institution needs assessment in science and mathematics; collecting and disseminating information on Native American science education and manpower development; and 6 weeks of field research, exploring the barriers to careers in science for Indian students.

The findings of this research are summarized in a published report, *The Barriers Obstructing the Entry of Native Americans into the Natural Sciences*. A comprehensive set of recommendations based on research and other activities of the Project has also been prepared and is being distributed to those best equipped to effect policy, implement programs, and remove the barriers. The "Barriers" study elucidates a number of significant areas for the improvement of science and mathematics education for Indians and the recommendations suggest strategies for effecting such improvement.

The study, which involved extensive interviews with American Indian college students, teachers, counselors, and program directors, indicates that poor precollegiate preparation in math and anxiety about abilities to succeed in math constituted a principal factor in choosing a career or college major as well as in general success in school.

The study suggests that

1) the Indian students rarely consulted high school counselors;
2) students had little remedial or advanced work available to them and developed programs of study on their own;
3) students rarely had Indian counselors or teachers; and
4) counselors rarely offered counseling services outside of disciplinary action.

The students who were science majors, particularly those in the allied health fields, had more role models, both Indian and non-Indian, than those not in scientific fields. Both their role models and their inspiration to enter a scientific field usually came with a work-related experience or activity. (For example, the men may have served in the Armed Services Medical Corps; the women in hospitals.) The study further indicates that most of the students, science and nonscience majors, preferred fields of study that were clearly work-related with cooperative or intern programs. They chose applied rather than theoretical or abstract disciplines and study problems, especially those that were of direct or indirect benefit to Indian people. Not surprisingly, it seems that those in special programs for Indians (e.g., biomedical sciences or engineering programs) with Indian counselors and staff support are more likely to graduate than students not in special programs. The research further suggests that serious conflicts between traditional Indian values and cultural factors such as sex role expectations and behavior tended to mitigate against choices of careers in the "hard" sciences.

While the barriers to Native American scientific education and manpower development are serious and extensive, a number of efforts to address the problems exist and are working. The AAAS Project

Graduate Students' Center Planned for Denver

Citing a need for wider student representation at AAAS annual meetings, the Office of International Science (OIS) is planning a special program for both foreign and U.S. graduate students at the 20–25 February Denver meeting.

A major activity of the program will be an OIS-sponsored workshop on Monday, 21 February, which will review and evaluate the relevance and effectiveness of U.S. graduate programs in training foreign students to meet the needs of their countries. Topics to be discussed will include the development of new graduate programs around the specific needs of foreign graduate students, the transfer of technology, and the identification of the roles of foreign graduate students in the overall development of their countries. A reception will follow the workshop and will provide students with the opportunity to meet with colleagues, the AAAS Board and staff, and other annual meeting participants.

A hospitality center, to be staffed by a joint student steering committee, will provide an informal gathering place for students, faculty, and other AAAS members throughout the annual meeting. Information on accommodations, ongoing panels and symposia, and other scheduled activities will be provided and meetings between students and scientists participating in symposia and panels will be arranged there.

The OIS will sponsor up to 20 foreign graduate students studying in the United States to attend the Denver meeting by providing grants of up to $200 toward travel costs to and living expenses in Denver. Free registration will be provided, and special student accommodations will be arranged. Students interested in applying for the OIS annual meeting grants should send a curriculum vitae and a short statement of approximately 300 words supplying the following information:

- focus of current research;
- career plans (that is, how training is expected to be applied both in this country and upon return to home country); and
- particular interest in attending the AAAS annual meeting.

Applications should be sent to the Office of International Science, AAAS, 1776 Massachusetts Avenue, NW, Washington, D.C. 20036, for receipt by the OIS no later than 10 December 1976.

on Native Americans in Science constitutes a major effort by a national organization to change the pattern of Indian underrepresentation in the sciences, and that Project is continually increasing its capacity to serve as a clearinghouse for information on Indians in science and science education. Other programs, based in national, state, and tribal institutions and agencies, also operate to address needs and an article in a future AAAS News section will discuss some of these projects.

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Project on Native Americans in Science

AAAS Section News

This announcement marks the beginning of an effort to disseminate Section information through the AAAS News section of *Science*.

Section W (Atmospheric and Hydrospheric Sciences) has arranged seven symposia for the AAAS annual meeting in Denver. These symposia will address droughts (21 February), weather modification and legal issues (22 February), Viking results (22 February), urban weather modification (23 February), Denver air pollution (24 February), and large-area air pollution (25 February). There will also be an open business meeting of Section W at 1 p.m. on 22 February. All Section W members are encouraged to attend.

Section W members are invited to submit news items to the Section W secretary, Stanley A. Changnon, head of Atmospheric Sciences, Illinois State Water Survey, Box 232, Urbana, Illinois 61801.

Manpower Data Supplement Released

The Scientific Manpower Commission has issued the second supplement to its book, *Professional Women and Minorities—Manpower Data Resource Service*, which was published in May 1975. The new 132-page supplement, prepared for insertion in the appropriate sections of the basic book, includes updated statistics on doctoral degrees granted in all fields through 1975, and introduces new data on both undergraduate and graduate degrees granted in architecture, law, business and management, social work, and education. New data on minority men and minority women in the professional work force also are included.

Published in loose-leaf format with appropriate subject divider tabs, the complete four-part reference book includes basic information on affirmative action; manpower data in all fields from more than 130 sources; recruitment resources; a bibliography; and a comprehensive cross-index. In the original volume, approximately 400 tables and charts include totals and breakouts for women and/or minorities in the areas of enrollments, degrees, and the general, academic, and federal work force.

The original 320-page volume is available for $40. The continuing subscription service which presently includes two supplements issued in February and October of 1976 may be ordered for the additional price of $25 per year.

The publication and its supplements are available from the Scientific Manpower Commission, 1776 Massachusetts Avenue, NW, Washington, D.C. 20036.

Educators Review Chautauqua Courses

How might the National Science Foundation Chautauqua-Type Short Courses Program better serve the needs of small colleges and their science faculty? This question was addressed at a series of four regional drive-in meetings recently held in Texas, Louisiana, Georgia, and North Carolina.

Participating were academic deans or their representatives from sixty small colleges and universities, AAAS staff members from the Office of Science Education and Office of Opportunities in Science, Chautauqua Field Center coordinators, course directors, and a representative from the NSF Faculty-Oriented Programs Group.

The AAAS Office of Science Education convened the meetings with the cooperation and help of the four host colleges—Austin College (Texas), Xavier University (New Orleans), Clark College (Atlanta), Bennett College (North Carolina)—and the North Carolina Center for Independent Higher Education.

The half-day meetings were crisp and well-spiced with ideas for improving the program. A variety of perspectives emerged amidst some fundamental shared concerns.

It was clear that some small colleges are struggling to keep their programs for physics or chemistry majors alive. Funding is difficult, especially if programs are kept up to date. And a science program with few majors is even more difficult to justify. Consortia are only one solution; other possible solutions are less clear at the moment. However, one department chairman reported that his school had recently terminated its program for chemistry majors. Another expressed the need for sound guidelines for physics programs at small colleges that no longer offer a major in physics.

Smallness of science departments also puts a constraint on faculty who might attend short courses. If an entire science department consists of only two or three faculty members, covering classes for faculty attending a short course is a major obstacle.

College policies for faculty development can also inhibit attending a short course. A budget may earmark money only for credit programs or only for tuition and not for travel. Or the program must be broadly applicable to the college and not narrowly tuned to the individual faculty member.

Participants frequently reported that inadequate travel budgets inhibit participation in the short course. In contrast, others reported that time, and not money, was the most important factor. Faculty could not afford to take the time to attend a short course. The AAAS might reach more teachers who are now very far from the current field centers with a "floating" field center that changes locations from year to year.

Alternatively, the AAAS might augment its present system of field centers with TV extension centers. Groups would receive a "live" short course via television with two-way audio. AAAS might also distribute the content of current courses more widely via videotapes. However, this procedure would result in diminished personal interaction—an often-praised feature of the short courses.

The content of the courses in the Chautauqua-type program stimulated a valuable interchange of ideas and differences of opinion. Some felt the course offerings were too narrow; others thought that more specific courses were needed. Some suggested less emphasis on human implications, whereas others felt the AAAS should continue the broad, cross-disciplinary courses. Some perceived the courses as "too much social science and not enough natural science." Some felt that the current courses were in the fringe areas of science; another suggested more emphasis on "what's hot" at the big universities.

Some argued for separate courses for 2-year faculty, who have different interests and needs. Their students are much

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