# Native Americans Project Finds Some

## **Barriers Breaking Down**

Though the barriers obstructing entry of American Indians into the sciences are formidable, a number of national, state, and tribally based efforts have been developed to break those barriers, according to studies by the AAAS Project on Native Americans in Science (see "AAAS News," *Science*, 5 November 1976, page 597).

Several programs for Indian students in the biomedical sciences are funded by the National Institutes of Health Minority Biomedical Support (MBS) program. For example, in programs at Haskell Indian Junior College and Southeastern Oklahoma State University, Indian students enrolled in various science and preprofessional programs participate with faculty in serious biomedical research. Counseling services supplement the highly successful and well-liked team approach, and the students' financial needs can be met by work related to their major field of study.

Another kind of assistance in the science instruction of Indian students is illustrated by the science/math enrichment program at Bacone College in Muskogee, Oklahoma, which is funded by the National Science Foundation Minority Institutions Science Improvement Program (MISIP). There, individualized basic science and math courses pair students with a student tutor, allowing the students to proceed through a course with help and at a pace suitable to individual needs and capabilities.

Yet another approach can be seen in the Indians Into Medicine (INMED) program, based at the University of North Dakota, Grand Forks. In this project, students are identified in high school and taken, with full support services, through pre-med, medical school, internship, and residency. Though only a small number of students can be handled in this very personalized program, the drop-out potential is minimized, and badly needed Indian doctors can be graduated with some predictable regularity.

All of the biomedical programs de-

scribed above are encouraged by two increasingly active and important professional organizations, the Association of American Indian Physicians and the American Indian Nurses Association.

The newly formed National Society of American Indian Engineers and the Council of Indian Architects and Engineers will help existing programs for Indians in engineering at institutions such as the universities of Oklahoma, New Mexico, and Utah and Northeastern Oklahoma University. The special programs are aimed at developing a pool of trained Indian engineers in a wide variety of specialties needed in Indian communities. The Native American Natural Resources Program at Humboldt State University and tribally based projects such as Lummi Aquaculture in Washington State train Native people in wildlife conservation and resource development and planning.

Most of the special programs in science which have been identified are in engineering and the biomedical sciences at the collegiate level. Few programs are directed at the critical precollegiate

years where early development of skills and career tracking begin. Some experimental programs in museum science, ethnoscience (culturally based science education using Native traditional scientific systems) and bilingual science and math curriculum development have offered such training at the elementary and secondary levels, but much more is needed if the general level of science literacy in Native American communities is to be reflected in their potential manpower pools. With the increasing level of resource development on Indian lands, a large number of trained Indian hydrologists, geologists, mining and petroleum engineers, and conservation specialists are needed to serve the best interests of Native peoples. In addition, these specialists and health personnel should be supplemented by science and math educators to supply a general education for all Native peoples.

The programs mentioned above are examples of the possible approaches to changing the level of scientific involvement in Indian communities and to changing the attitudes of non-Indians toward Native participation in the sciences. Other attempts to address the problem are placed in the larger context of "minorities in science" and are documented in a recent AAAS publication, *An Inventory of Programs in Science for Minority Students, 1960–1975* (1976), available from the AAAS Office of Opportunities in Science, 1776 Massachu-



are participants in the Minority Biomedical Support program at Southeastern Oklahoma State University at Durant, Oklahoma.

SCIENCE, VOL. 195

54

setts Avenue, NW, Washington, D.C. 20036. The AAAS Project on Native Americans in Science is one national attempt to affect a change in the pattern. It will continue to work with existing programs and to stimulate discussion and assessment of Indian science education and manpower development needs in the Native and non-Native worlds.

> Rayna Green Shirley Mahaley Malcom Office of Opportunities in Science

## Courses on Ethics and Values in Science to be Surveyed

A survey of college level programs and courses (both academic and nonacademic) in the field of ethics and values implications of science and technology (EVIST) has been initiated by the AAAS Office of Science Education. The study, which is supported by a grant from the National Science Foundation, is a follow-up to a similar study that was conducted a year ago by the staff of the Cornell University Program on Science, Technology, and Society.

The goal of the AAAS project is not only to provide access to information about the increasing numbers of educational and research projects in the EV-IST area, but also to facilitate communication between educational institutions that wish to develop new programs and persons involved in current programs. The survey will result in a directory of courses and programs in the EVIST area, to be published in the fall of 1977.

This month, the Office of Science Education will send a questionnaire to approximately 16,000 college and university departments to collect information

### Amendment to AAAS Constitution

In February 1976, the AAAS Council instructed the Committee on Council Affairs to establish (jointly with the Board) a Committee on Scientific Freedom and Responsibility, to formulate the Committee's charge, and to draft an amendment to Constitution Article II incorporating concern for scientific freedom and responsibility among the Association's objectives (see *Science*, 3 September 1976, pages 877 and 921).

The Committee on Council Affairs proposes amending Article II by adding the words in italics:

The objectives of the American Association for the Advancement of Science are to further the work of scientists, to facilitate cooperation among them, to foster scientific freedom and responsibility, to improve the effectiveness of science in the promotion of human welfare, and to increase public understanding and appreciation of the importance and promise of the methods of science in human progress.

In addition, the Board of Directors proposes that terms of members of the Board and Council expire on the last day of the Annual Meeting instead of on 31 December and that this information be given in the bylaws instead of in the Constitution. The specific constitutional amendments required are deletion of the material given below in parentheses.

Article VI, Section 1. ". . . The term of the President-Elect shall be three years (, beginning on the January 1 following election). . . . The terms of the Directors shall be four years (, beginning on the January 1 following their election)."

Article VII, Section 2. "The Council shall consist of . . . Delegates shall serve terms of three years (, beginning on the January 1 following their election). . . ."

This notice is published in accordance with Constitution Article IX, which calls for publication of proposed amendments at least 30 days in advance of the Council meeting at which they are to be presented. If a majority of Council members so votes at the meeting on 23 February 1977, the above amendment will be submitted to the AAAS membership for ratification by mail at the time of the 1977 election. In each case, a favorable vote by a majority of the membership, or by two-thirds of the members who return ballots, is required for adoption.

about current courses and programs concerned with EVIST. Questionnaires also will be sent to other organizations that conduct adult education programs. Copies of the 1975 listing prepared by the Cornell University group will be sent along with the questionnaire.

> ARTHUR H<sup>'</sup>. LIVERMORE Office of Science Education

### **New Publications**

An Inventory of Programs in Science for Minority Students, 1960-1975, compiled by Shirley Mahaley Malcom, John Cownie, and Janet Welsh Brown under a grant from the National Science Foundation, is a new publication from the AAAS Office of Opportunities in Science. The volume represents a compilation of projects which have been undertaken to improve the quality of science training for Black, Mexican-American, Native American, and Puerto Rican students, members of those racial/ethnic minority groups which are underrepresented in science, engineering, and the health professions. A limited number of single copies is available from the AAAS Office of Opportunities in Science, 1776 Massachusetts Avenue, NW, Washington, D.C. 20036.

Barrier-Free Meetings: A Guide for Professional Associations, developed as a result of efforts by the AAAS Project on the Handicapped in Science to enable disabled members to attend the Annual Meeting of the Association in Boston, February 1976, is now available. Copies can be obtained from AAAS, Dept. O, 1515 Massachusetts Avenue, NW, Washington, D.C. 20005, at \$4 each (\$3.75 for AAAS members).

### AAAS Section News

#### Section B–Physics

Because little specialized work in physics is presented today through the AAAS, the role of Section B (Physics) has become that of bringing into the Annual Meeting talks and symposia on physics for a general audience and other sessions in which physicists can bring their unique viewpoints to bear on more general problems of science and technology. Thus the sessions arranged by Section B at Denver will cover such topics as high energy physics, the frontiers of the natural sciences, the physics of everyday experience, the fusion program, and nuclear power and nuclear weapons.

(Continued on page 96)