

to initiate work with the institutions. To bring key personnel together to discuss requirements and design strategies, the Office's Project on Native Americans in Science called the Conference on Health and Science Education in American Indian Post-Secondary Institutions.

Faculty members and administrators from 21 of the Indian institutions participated in the conference, along with several distinguished American Indian scientists—Frank Dukepoo (Hopi) of California State University at San Diego; Clifton Poodry (Tonawanda Seneca) of the University of California at Santa Cruz; Jack Ridley (Western Shoshone) of the University of Idaho; and Albert Snow (Caughnawaga Mohawk) of the Eastchester, New York, Public Schools—and two science educators, James Rutherford of New York University and Robert Tinker of Springfield, Massachusetts, Technical College.

Also participating were staff members from the conference's co-hosts, the American Indian Higher Education Consortium and the Division of Planning Resources in Minority Education, Western Interstate Commission on Higher Education. Thomas Bowery, director of the Division of Research Resources at NIH, and Ciriaco Gonzales, director of the Division's Minority Biomedical Support Program, also attended. It was their interest in the Indian colleges as potential sites for biomedical research and for the training of Indian biomedical personnel that made this initial conference possible.



Photograph by Martha Ross Redden
Conversing over dinner during the Conference on Health and Science Education in American Indian Post-Secondary Institutions are Thomas Bowery (left), head of the Division of Research Resources, NIH, and James Tutt, director of the Shiprock Branch of Navajo Community College.

An overview of health and science education at Indian post-secondary institutions is complicated by the significant differences among them. (Perhaps their only common characteristic is that, with one exception, they are all 2-year schools.) They are spread from North Carolina to Alaska. Three are federal (Bureau of Indian Affairs) institutions; two are church-related schools; some few are satellite campuses of state college systems; and one is a unique Indian-Hispanic college. However, the largest and fastest growing number are tribally chartered institutions, mostly reservation-based and serving specific tribal populations. Of these schools, several have sought and secured affiliations with state community college systems and work in various ways with other educational agencies in and out of state.

The type and amounts of financial support—state, federal, and private—vary as much as the institutions' purposes and emphases. Thus, health and science programs range from traditional basic science and math courses typical of many junior colleges, to specific programs such as licensed practical nursing and single courses such as range management, field biology, or emergency medical techniques. Most schools have few or inadequate facilities for basic science programming, and few have special funding for such offerings. Most have difficulty obtaining faculty for health, science, and mathematics programs, and Indian teachers are rare in such fields. Yet several institutions have sought and obtained out-

side funding from the National Science Foundation and NIH. They have planned programs, adapted old facilities, secured faculty, and are busy preparing students in these crucial fields.

One priority need reflected in programming at these institutions and stressed by participants at the conference is for an educational program based on the resources of the Indian community, respectful and inclusive of Indian scientific systems of inquiry. Arctic biology, mathematics for daily reservation life, forestry based on traditional systems, and pharmacy courses which utilize knowledge about Indian medicines were projected as possibilities for these Indian college courses. It is expected that health and science programming will reflect tribal and regional differences as the schools grow and serve Indian peoples.

The AAAS Project on Native Americans in Science will compile information on the health and science programs in American Indian post-secondary institutions, and will work cooperatively with the federal and private agencies and schools to facilitate information interchange to support the kinds of strategies the institutions require. For further information, write to Rayna Green, Director of the Project on Native Americans in Science, AAAS, 1776 Massachusetts Avenue, NW, Washington, D.C. 20036.

Resource Management

Theme of Indian Science Congress

Glen V. Berg of the University of Michigan (Ann Arbor) and Cyril Ponnampereuma of the University of Maryland (College Park) attended the 64th annual meeting of the Indian Science Congress Association, 3-7 January in Bhubaneswar, India. Following is their report on the proceedings of the congress.

Few are the cities more delightful than Bhubaneswar in January. A treasure chest of Hindu architecture and culture, the city's Vani Vihar campus of Utkal University also provided the site of the 64th annual meeting of the Indian Science Congress Association, 3-7 January 1977. Fifty-one foreign scientists and more than 2500 Indian delegates assembled there to participate in the congress. The theme set for the meeting was the survey, conservation, and utilization of resources.



Photograph by Martha Ross Redden
Conference participant Frank Dukepoo of San Diego State University shares a light moment with AAAS Office of Opportunities in Science head Janet Welsh Brown.

Prime Minister Indira Gandhi gave the inaugural address, as she traditionally does for the annual meetings of the Congress, following in the footsteps of her father, Jawaharlal Nehru. She set the theme well, challenging the participants to help strengthen the self-reliance of India and develop a viable resource utilization strategy against a background of international forces to determine the best course for India: "Indian technology and Indian science must spring from Indian needs and priorities." However, she went on to say that: "The justification of science is not merely the removal of want. Moving on to a higher material plane does little benefit to a nation or mankind, if the people are not freed from fears inherited from the past and, even more, the fear of the future. To me the greatest value of science is its liberating force. . . . Our scientists are expected not only to show us how to conserve and utilize our national resources but to use their insight for the fuller development of the inner resources of our people."

H. N. Sethna, chairman of the Government of India Atomic Energy Commission and president of the Indian Science Congress Association, reiterated the danger of imitation: "The developing countries have given too little importance to the development of their human skills and knowledge and have over-emphasized on the physical investment, on the installation of plants and equipments." Speaking of power development in India, he said: "The current methods of cost-benefit analysis are somewhat inadequate to evaluate power system alternatives. These methods take into account only monetary cost and benefits and not social costs and benefits. . . . Current pricing policy of electricity undertakings, largely based on accounting data, does not reflect social priorities for the use of energy." Fuel for serious thought, indeed.

In addition to the inaugural and presidential addresses, general sessions of the Congress were held for one panel discussion, six general lectures, and special lectures and symposia arranged by 13 different technological sections of the Science Congress, some jointly, others individually.

What did the 64th annual Indian Science Congress accomplish? With hundreds of technical papers and thousands of delegates one could hardly expect a consensus. Newspaper editors were not universally kind. Said the editor of *The Statesman*: "Plenary meetings tend to be dominated by generalities. Though scientific papers are presented at sectional meetings, there is hardly the time or at-

mosphere for patient and careful discourse. . . . It is not surprising, therefore, that nothing of great scientific interest is known to have emerged from the recent Bhubaneswar congress." Later he relented a bit with the words "Yet it would be unfair to dismiss the annual exercise as a waste of time. Apart from the value of interdisciplinary contacts, certain broad ideas about the needs and direction of the country's scientific effort help in an informal annual review of policy and performance." This seems a reasonable appraisal.

Indeed, the scientific merit of most large scientific meetings may be argued. What transpires in the halls over a cup of tea is often more valuable than the meetings themselves, and the splendid opportunities to meet other scientists and exchange views with them are not insignificant. For the foreign participant the 64th Indian Science Congress also offered the bonus of a unique cultural experience. Should there be an opportunity to attend the 65th, we would seize it with eager anticipation.

Job Market Report Released by SMC

The current and future job market for scientists and engineers is the subject of a new report issued by the Scientific Manpower Commission (SMC). *Supply and Demand for Scientists and Engineers—A Review of Selected Studies*, by Betty M. Vetter, examines past, present, and future imbalances of scientific and engineering manpower and concludes that no crisis in science and engineering employment appears likely, either because of serious manpower shortages or surpluses. The author warns, however, that individuals in the technological manpower pool may face a "crisis of unmet expectations" if they have narrowed their opportunities for field switching or if their view of successful employment is too limited. Some underemployment appears likely.

The supply of scientists and engineers, including new graduates, immigrants, reentrants, and the existing technological pool is assessed by field and compared with current and short-range demand for new graduates and for experienced scientists and engineers. The report delineates and assesses the increasing participation of women in these fields.

An appraisal of important indicators for demand is supplemented by special sections on academic demand and de-

mand for scientists and engineers in research and development. Surveys projecting supply/demand imbalances over the next decade are examined, both for what they indicate and for the differences in their findings.

The report also provides an extensive bibliography of current science and engineering manpower data resources. *Supply and Demand for Scientists and Engineers* is available for \$1.50 from the Scientific Manpower Commission, 1776 Massachusetts Avenue, NW, Washington, D.C. 20036.

Women in Research to Be Studied by OOS

A study of the participation of women in scientific research is being conducted by the AAAS Office of Opportunities in Science (OOS) with support from the National Science Foundation (NSF). The principal components of this study are (i) collection and analysis of all available data on the participation of women in scientific research, (ii) a survey of the experience and perceptions of a selected sample of women and men in the early years of careers in scientific research, and (iii) a conference at which some of the participants will compare and assess the data collected in the preceding activities. It is expected that the reports emanating from the study will provide data, information, and recommendations of value to NSF for policy and program planning and increase public awareness of the present and potential participation of women in research. For further information contact P. Quick Hall, AAAS, Office of Opportunities in Science, 1776 Massachusetts Avenue, NW, Washington, D.C. 20036 (telephone: 202-467-5431).

Two Public Sector Books Out of Stock

The Office of Public Sector Programs regrets to announce that two of its publications—*Case Studies in Regional Energy Planning*, edited by William A. Blanpied and Gretchen Vermilye, number 76-R-6, and *Transdisciplinary Studies in Science and Values*, edited by William A. Blanpied and Betsy Kwako—are no longer available. Requests for these publications were overwhelming and the supply was soon exhausted.