Who Are the Handicapped Scientists?

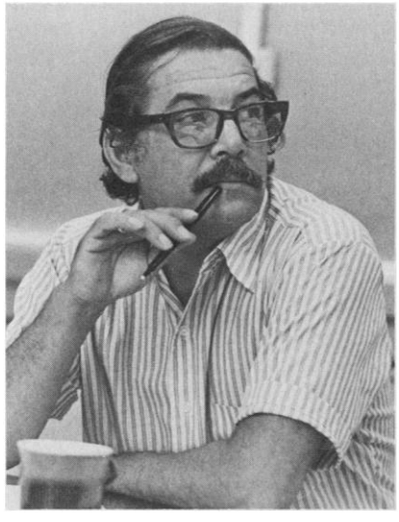
Who are the handicapped scientists? They include the head of a worldwide allergy research division of a large pharmaceutical company who is deaf, the professor of psychology who is blind, and the manager of a department in a computer firm who is quadriplegic. The AAAS Office of Opportunities in Science will undertake a systematic survey of this group later this year in order to produce a profile of the handicapped scientist. This profile will be instructive in developing programs and resources to help overcome the problems such scientists face.

The Office has already heard from more than a hundred scientists who are deaf, blind, or orthopedically or neurologically handicapped—in most cases as the result of an accident or illness. Some generalizations about these scientists are possible. They are to be found in all fields of science, working in research, teaching, and administration. Most of them were handicapped after their education was begun, assuring the acquisition of basic communication skills and recognition of their intellectual prowess. Most have supportive families, but had to struggle through educational institutions that were anything but supportive.

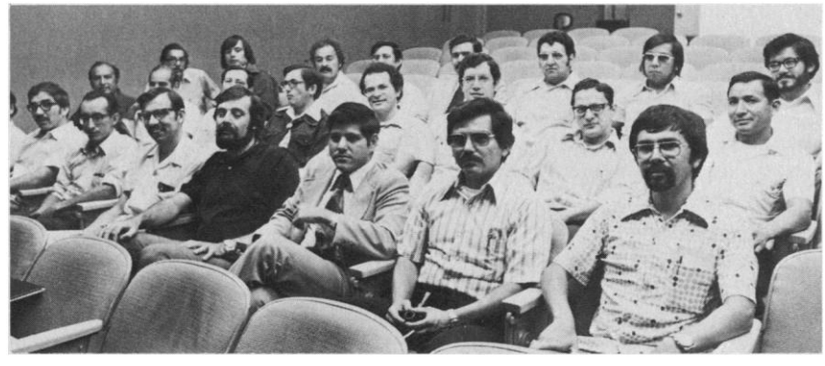
These successful handicapped scientists have required extraordinary, almost unbelievable, perseverence to acquire an education. The obstacles placed in their way by educational institutions were both physical and attitudinal. In a 1974 survey of ACE-accredited 4-year colleges and universities, 22 percent of the respondents reported that they would reject deaf applicants (*1*). Although there are now some happy exceptions, such as the University of Texas and the University of Illinois, most campuses are unnegotiable for the severely orthopedically handicapped. Nor do most offer any of the counseling and other services necessary to assure the handicapped an equal chance of success.

The psychological hurdles are also great; these people have had to prove themselves over and over again. All of them can tell stories of the professor who, having no experience with the handicapped, routinely dismissed their abilities on the assumption that these students "would not be able to keep up with the reading" because they

(Continued on page 593)



Chicano and Native American Scientists Meet



The Society for the Advancement of Chicano and Native American Scientists (SACNAS) held its third annual meeting in Albuquerque in August. At the meeting, members elected Alonzo C. Atencio (above left), of the University of New Mexico as president, Richard Tapia, mathematics professor at Rice University as vice-president, and Miguel Rios, physicist from Sandia Laboratories as secretary-treasurer. All of the new 1975 officers are members of the AAAS. Four of the six board members are also AAAS members.

Dr. Atencio has served on the AAAS Committee on Science and the Promotion of Human Welfare and, with three other SACNAS members, is presently on an advisory panel to the Office of Opportunities in Science.

The objective of the SACNAS is to increase the participation of Chicanos and Native Americans in science. The Society works with the National Institutes of Health and the National Science Foundation to that end. Individual members, most of whom are Ph.D.'s in the natural sciences, are all committed, either through personal endeavor or through established programs, to improving the scientific training and counseling that is available to Chicano students. At the meeting which was held in August, members approved the Articles of Incorporation and planned activities for the coming year that will increase the number of Chicanos entering science and the visibility of their accomplishments.

—JANET WELSH BROWN

RESEARCH NEWS

(Continued from page 543)

new machines will be speed, so that chest motion due to respiration will not degrade reconstructed images of the torso and so that an increased number of patients can be accommodated. For example, EMI now has in operation three prototypes of a body scanner that can accumulate the data for one cross-section reconstruction in 20 seconds, the length of time a healthy person can easily hold his breath.

The prospect of imaging cross sections of any part of the body is highly exciting (Fig. 2). Radiologists seem to agree, however, that the clinical efficacy of the available body scanners is still unproved. So far, these scanners have been used primarily in a research environment where their capability to detect abnormalities already located by more conventional means is being ascertained.

If the value of body scanners is yet to be shown, the demand for computerized x-ray scanners for neuroradiology is overwhelming. It is not uncommon for hospitals having CAT-scanners to operate them up to 16 hours a day, 5 or 6 days per week. For a basic study of three or four head scans, two patients per hour can be accommodated. Even so, waiting time to receive a CAT-scan can be as long as 4 weeks, and scheduling of emergencies is often a problem. The price for a CAT-scan varies from hospital to hospital and depends on such variables as whether contrast studies are done, but the average price for an examination is between $200 and $250.

The present scanners cost an average of $385,000 (plus a $25,000-per-year service contract to keep them operating), and the new fast body scanners may cost $550,000 or more. Because of this cost, observers say that as the scanners proliferate and as more and more normal patients (those in which no abnormalities are detected) are scanned, the cost of health care will rise, as reflected, for example, in the cost of health insurance. These observers question whether this cost will translate into a quantifiable improvement in health care, despite the acknowledged diagnostic capabilities of the brain scanners. To those who have to wrestle with health care planning and who do not see the patient on an individual basis, the issue may be a matter of balancing priorities. But to those who have suffered through pneumoencephalography, the value of the CAT-scanner may be more obvious.—ARTHUR L. ROBINSON

References

1. H. L. Baker, Jr., O. W. Hauser, J. K. Campbell, D. F. Reese, C. B. Holman, *J. Am. Med. Assoc.* **233**, 1304 (1975).
2. R. Gordon and G. T. Herman, *Int. Rev. Cytol.* **38**, 111 (1974).

AAAS NEWS

(Continued from page 546)

were blind, or "would not be safe in the laboratory" because a limb did not function. One deaf woman chemist was required to undergo an additional examination to get her Ph.D.—*after* she had completed with honors all the requirements demanded of her "normal" colleagues.

Landing that first job is another problem mentioned frequently by our respondents (*2*). One deaf physicist with a Ph.D. from Yale was told teaching was impossible and he should stick to research, while other deaf scientists have been told by employers that they would not be safe in a laboratory, or that they should stick to teaching the deaf "where they could really make a contribution. . . ." Although the myth that handicapped workers present additional safety hazards has been disproven in practice (*3*), this concern is still widely used by employers to reject handicapped applicants.

Advancement on the job is frequently not open to the handicapped on the basis of merit. They may be deprived of professional give-and-take in the laboratory or full participation in professional associations by colleagues who will not take the time and trouble to include them. Advancement to supervisory responsibilities is often especially difficult for those whose capacity to communicate is impaired. It is somehow assumed that the handicapped will not be able to administer, travel, and communicate with foreigners, although the AAAS file is full of examples of people who do all of these things.

The appeal that many handicapped scientists make is that the able handicapped persons of our society, who are often considered to be an added cost, should be valued as a human resource to be developed. They seek recognition that the patience, incentive, and self-discipline developed by the handicapped are of positive value to the employers of scientists. They hope that changing attitudes will make it possible for all bright, able, scientifically inclined youngsters to choose science without having to be super-achievers in order to reach their goals.—JANET WELSH BROWN

References

1. Guy H. Mahan, "Special provisions for handicapped students in colleges," *Exceptional Children* **41**, 51 (1974).
2. A. B. Crammatte, *Deaf Persons in Professional Employment* (Thomas, Springfield, Ill., 1968).
3. James H. Sears, "The able disabled," *Chemtech.* (December 1974), pp. 713–715. Reports a study of 1452 handicapped workers at DuPont.

Notes from Other Offices

Science Education: The sixth edition of the annotated bibliography, *Science for Society*, will be published in November. Like previous editions it will cover the interrelations of humankind, society, the environment, science, and technology. However, its structure will be different from previous editions. References will be indexed under 11 "science-society" issues—from aging and death through transportation. For each of these 11 issues, there will be a mini-course outline or framework. There will be some 2000 entries which include recent books and articles from a variety of periodicals during the past year.

* * *

Opportunities in Science: Wanted: Information leading to the identification of science education projects aimed at minorities. Ongoing or now defunct programs undertaken since 1960. All educational levels. Includes projects in engineering, agriculture, biomedical, technical, and related areas directed at minority students or teachers and counselors of minority students. The AAAS has received a grant from the National Science Foundation to prepare and publish a comprehensive annotated bibliography of science education projects for minorities. Please send information about projects (including the names and addresses of individuals involved in them) to: Shirley Mahaley Malcom, Office of Opportunities in Science, AAAS, 1776 Massachusetts Avenue NW, Washington, D.C. 20036.

* * *

Communications: Cancer, a four-cassette album of interviews with 19 recognized cancer authorities, is nearing completion and will be advertised soon in *Science*.

A revised edition of the study guide for the "Ascent of Man" series, as well as detailed guides for programs Nos. 4, 9, 10, 11, and 12, are available at 75¢ from the Communications Department, or from Professor Eleanor Webster, Department of Chemistry, Wellesley College, Wellesley, Massachusetts 02181. Films 4 and 10 stress chemistry; 9 and 12 biology; and 11 centers on philosophy. The series was written by Professor Webster, Professor Dorothea Widmayer, and Professor Maud Chaplin, all of Wellesley. The 75¢ fee purchases one set of six guides, and covers postage and handling. Supply is limited.