Annual Meeting Retrospective

Annual meetings, inter alia, give AAAS program offices a chance to display accomplishments, solicit reactions, try out some new things, and test the waters on incipient projects. New York was no different, and program offices arranged a mélange of symposia, committee meetings, informal discussions, and some novel experiments for gathering group thoughts on specific issues.

International Science

Four symposia were organized by the Office: "Economic Change and Family Size," intended as a reexamination of the demographic theory of transition; "The Chain of Communication in Population Studies," which looked at how population information is transmitted to and among pertinent audiences; "Frontiers of Population Research," whose subject matter ranged from hormonal fertility controls to the demographic potential of ERTS data; and "Western Standards and Stereotypes as Impediments to Development," which concentrated on the recurring issue of fitting development programs to the needs and culture of the recipient country.

Science and Society

The Office of Science and Society and the Committee on Science and Public Policy sponsored between them seven symposia of varying length: "Science Policy in a Changing Political Environment," "Science, Regional Environmental Management, and Policy-Making: Critique of the New York Experience," "Technology Assessment," "Science and Foreign Policy: The Food-Energy Relationship," "Project Independence: Environmental Bust or Boon?," "Citizenship Participation in Decision-Making," and "Science, Technology, and the Congressional Agenda."

A "Feedback Balloting" experiment was arranged by the Office, in cooperation with the AAAS Communications Department and in consultation with Dr. Chandler H. Stevens of Participation Systems, Inc., Troy, New York. Attendees were invited to mark ballots in response to questions on issues pertinent to science and its public involvements. The responses were tabulated, and posted the following day. Some 300 people took part in the experiment, intended as prelude to a fuller use of the technique at the AAAS 1976 annual meeting in Boston. A corollary effort, organized by Professor Thomas Sheridan of Massachusetts Institute of Technology, was an electronically aided dialogue method that enables a sizable group to register its responses to specific questions and see the results instantly displayed on a scoreboard.

Opportunities in Science

The Office sponsored two symposia: "The Physically Disabled Scientist: Potential and Problems" and "Genetics and Humanity" (with the Association for Women in Science). The first examined the needs of the disabled in attaining their individual professional goals. The consensus was that, no matter the particular disability, there are common problems and there should be some mechanisms for discussing these problems and exchanging pertinent information. The meeting on "Genetics and Humanity" examined in part the social and legal implications of applying genetic screening to both selected and random populations.

The Office also helped arrange a meeting of the Women's Caucus, an informal group that meets yearly at the annual meeting. The Caucus, headed by Dr. Beatrice Bain of the University of California, took a number of actions, including specific recommendations for strengthening affirmative action programs.

Science Education

The Office cosponsored two symposia: "Innovations in Education: Curricular and Technological" and "Contributions of the Visual Arts to Environmental Education." A predictable but still heartening result came in the form of specific suggestions on how the Office could carry on its concerns in these areas.

In a *Science* editorial (26 April 1974), Dr. Albert V. Baez commented on the reentry problems of foreign graduate students returning to their homelands after training in the United States. The response was significant enough that the Office of Science Education organized an informal meeting at Hunter College to discuss the issues raised by Dr. Baez. There was agreement that the AAAS, through its members, should organize an attack on the problem.

Communications

An informal gathering of people interested in or involved with public understanding of science programs met on Tuesday evenng, 28 January, at the invitation of the Communications Department. The meeting accomplished the intended dialogue among people and institutions who normally would not meet. Thus, among the 30 or so attendees, there were representatives from the Fernbank Science Center in Atlanta, the Alabama Environmental Quality Association, the National Science Foundation, and the Council for the Advancement of Science Writing.

National Public Radio

Often forgotten in the massive press turnout endemic to AAAS annual meetings—the news headquarters in New York had 600 registered—is the special effort made by particular media to give full and deep coverage to the annual meeting. Witness the efforts of National Public Radio (NPR), the ambitious, aggressive, but still insufficiently known (the perennial question at a NPR exhibit was "what channel are they on") radio network that comprises 176 stations and 43 states. NPR is best known for its nightly news program, "All Things Considered," and for the annual meeting a sizable portion of that program actually originated from the Americana Hotel. In addition, NPR provided uninterrupted, commercial free, live broadcast of three symposia:

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Pellas and Storzer find that in shocked whitlockites the density of etchable dislocations is so high that they cannot study fossil tracks. They then discount our evidence for ^{244}Pu fission tracks in a whitlockite from lunar breccia 14321 on the grounds that most of our etch pits may have been due to dislocations.

In many lunar rocks we commonly observe whitlockites so badly shocked that they do not etch properly. In contrast to Pellas and Storzer, we have chosen not to focus attention on the difficulties of determining fission track ages in shocked crystals but to search for unshocked crystals. In breccias as complex as 14321, and in many rocks from Apollo 16 and Apollo 17 boulders, there is a large variability of shock effects, and with patience one can usually locate a few large, unshocked crystals in a large volume of sample. In our study of breccia 14321 we were very fortunate to find a large (300 by 500 μm) whitlockite which, although partially fractured into several otherwise unaltered smaller pieces, was not strongly shocked. It was on this crystal that we made the measurements of ^{244}Pu fission tracks (*1*). Nowhere in that report did we refer to the crystal as shocked, in spite of the contrary statement in the second sentence of the comment by Pellas and Storzer.

We now discuss the evidence that etch pits in unshocked whitlockites, and their replicas, really correspond to fossil tracks and not to dislocations, as suggested by Pellas and Storzer. [Our concern about the distinction between etched fission tracks and etched dislocations and other defects goes back a decade (*2*).] In rock samples 14321 and 72255 we have observed variations in the track density within whitlockites and apatites which mirror variations in the induced fission track density in adjacent Lexan maps. The density of the etch pits in these grains thus varies with the uranium content, as it should if the etch pits correspond not to dislocations but to fission tracks. Our studies of the distributions of etch pit diameters and of track lengths in whitlockites from four lunar rocks reveal a distinctly bimodal character. We can attribute the large pits (long tracks) primarily to fission with a small contribution from iron-group cosmic rays, whereas the small pits (short tracks) are almost certainly due to spallation recoils. The density of the small pits is proportional to the cosmic-ray exposure age of the parent rock and semiquantitatively agrees with the production rate of about one track per square centimeter per year determined by Crozaz *et al.* (*3*). It is not plausible that etched dislocations would have a bimodal length distribution or that the density of "underetched fission tracks" (that is, dislocations; see Pellas and Storzer) should correlate with the cosmic-ray exposure age of the whitlockite. In an igneous clast that had accumulated a high density of iron-group cosmic-ray tracks in the lunar soil before it was incorporated into breccia 14301, we measured about the same track density in a whitlockite grain and in an adjacent feldspar grain. The cosmic-ray tracks in the whitlockite became visible after a 70-second etch in 0.1 percent HNO_3, claims of Pellas and Storzer to the contrary not withstanding.

The strongest evidence that our interpretation of the etch pits as ^{244}Pu fission tracks was correct is the independent confirmation by isotopic rare gas analysis. Marti *et al.* (*4*) analyzed xenon isotopes in their sample of rock 14321 and attributed excesses of heavy xenon isotopes to the fission of ^{244}Pu. Their inferred initial Pu/U ratio of 0.02 is in good agreement with the value 0.017 from our track analysis. Recently Braddy *et al.* (*5*) have derived a fission track age of $\sim 3.94 \times 10^9$ years for rock 72255, based on our analysis of ^{244}Pu and ^{238}U fission tracks. Reynolds and his co-workers (*6*) have since determined a ^{39}Ar-^{40}Ar age of $4.00 \pm 0.03 \times 10^9$ years for the same rock. In these two whitlockites from different rocks, the ratio of the fission track density to the uranium concentration is virtually the same, even though the uranium concentrations differ by a factor of about 4.

We conclude that meaningful fission track ages can be determined in unshocked whitlockites without interference from dislocations.

I. D. HUTCHEON, P. B. PRICE
Department of Physics, University of California, Berkeley 94720

References and Notes

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"Aging and the Quality of Life," "Information Technology and Individual Privacy," and "Can Arms Control Succeed?" In all, NPR broadcast 12 hours of programming from the meeting.

Indubitably, the subject that pleased NPR the most, being a perfect marriage of content and media, was Professor Thomas Stockham's presentation on his work in recovering and simulating the voice of Enrico Caruso.

AAAS Board Urges Continuation of ERTS

On 23 January, the AAAS Board of Directors issued a statement urging the continuation of the Earth Resources Technology Satellite (ERTS) Program at least through the launch and operation of a third satellite. The statement pointed out that "A promising but exotic technology such as ERTS requires a number of years of experimentation and refinement to define the range of opportunities, stimulate utilization mechanisms, perfect the technology, . . . [and] provide a base for future operational systems funded appropriately by private and public sources."

The ERTS satellites are essentially orbiting platforms which are equipped to observe and map the resources and topography of Earth. The first satellite, ERTS 1—recently renamed LANDSAT 1—was launched in July 1972 and has returned more than 100,000 images to Earth. LANDSAT 2 was launched January 22 of this year. A third LANDSAT is in the planning stages. At the time of the Board's statement the funding of the third LANDSAT and further ERTS efforts was in question.

The statement, sent to Chairman Moss of the Senate Space Sciences and Aeronautics Committee and Chairman Teague of the House Committee on Science and Technology by AAAS President Margaret Mead, points out that this program "could lay the foundation for an informational tool and utilization system of unparalleled value to the entire world," but that "further innovations and technical advances are required" especially the improved use of the ERTS "information in earth resource decisions, management, and policy." For further information or a copy of the Board statement, contact Dr. Richard Scribner, AAAS.