

where were represented. Included were four scientists from China who had quickly made plans to attend after receiving invitations from Seaborg in Peking less than a month earlier.

Most participants seemed to delight in this meeting and the chance to meet colleagues from throughout the hemisphere. A session on volcanism in Mexico and Central America was the first chance for many of the volcanologists to get together. A session on archaeoastronomy in pre-Columbian Mesoamerica was the first such meeting ever held. Sessions on nutrition and new food technology and on earthquakes and earthquake engineering ended in congratulations over their success.

Not everyone was happy with the meetings. Half a dozen or so persons from the Science for the People organization in the United States set up a small table with literature branding the conference "a perpetuation of U.S. economic and cultural expansion into Latin America." Their presence was low-keyed, however, and they made no attempt, at least during the meeting the first week, to disrupt sessions as they had at previous AAAS meetings.

One irony was that the meeting itself contained sessions related to such matters. There was an entire four-day session devoted in part to a critical examination of the role of multinational corporations in the economies of foreign nations, a timely and politically important issue in Latin America.

CONACYT's Bueno spoke out on a related matter: "Up to now, technology transferred from rich countries to poor nations . . . often has been uneven

for the latter. . . . Generally, technologies have not been adapted to the standards of the developing countries. . . . Science and technology in the Third World should be used for their own interests and be independent of those followed by industrialized countries. This implies the adoption of a different pattern, with little or no importance to expensive research with military goals and those devoted to encourage a consumption society."

Other sessions dealt with such important matters in Latin American countries as population, ocean resources, the development of arid land and energy for development.

In a major address to the conference, Seaborg called for putting "science and technology to work more constructively and humanely on an international scale." He suggested that AAAS might join with its sister associations of science in Latin America "to create a true American Association for the Advancement of Science—an association in which the term American represents a broader and true meaning."

Reiser, the current AAAS president, has also proposed such a move. He told SCIENCE NEWS he hoped the AAAS could have a special meeting in Canada in the next few years and then plan inter-American meetings every two to five years. "I think the AAAS would make a greater contribution to science if we interpreted 'American' broadly."

*This and the following article and the articles on page 423 open our coverage of the meeting in Mexico City. Further reports will appear in later issues.*

## New treaty facilitates joint atomic installations

A new, 10-year treaty of atomic energy cooperation signed last week by President Nixon and Secretary Brezhnev provides for construction of jointly administered installations and greatly expanded technology and personnel exchanges between the United States and the Soviet Union.

Taking the place of a series of two-year, ad hoc agreements between the two countries, the new treaty emphasizes cooperation in the areas of controlled thermonuclear fusion, breeder reactors and fundamental particle research.

Previously, joint atomic projects have been administered solely by the Atomic Energy Commission and its Soviet counterpart, but now the National Science Foundation, the National Bureau of Standards, universities and private, nonprofit organizations will also play an active role.

AEC Chairman Dixy Lee Ray briefed newsmen in Washington on the treaty's

implications, calling it a "significant milestone" in cooperation between the two countries. The magnitude and expense of conducting atomic and high-energy physics research has become too great for any one country to bear, she said, adding that joint, permanent installations, such as particle accelerators or reactors, could help ease the burden.

She was particularly optimistic about cooperation in the field of controlled thermonuclear fusion where both the United States and the Soviet Union can learn from each other's experience. "Scientific feasibility" of the fusion process may be demonstrated within a matter of months, she said, but cautioned that even with international cooperation, thermonuclear reactors would probably not go on-line until after the turn of the century.

(By "scientific feasibility" is meant the point at which more energy comes out of a controlled fusion reaction than was put into it to get it started. Several generations of successively larger-scale experiments will lie between the feasibility demonstration and

## A calendar mosaic from 1000 B.C.

Almost two years ago Alexander Marshack's book *The Roots of Civilization* burst upon the archaeological world with its thesis, based on detailed analysis of markings on bone artifacts, that paleolithic peoples in Europe had highly developed skills of cognition and of lunar notation (SN: 2/19/72, p. 124).

Now Marshack, who is a research associate at Harvard's Peabody Museum of Archaeology and Ethnology, has turned this analytic method to a New World artifact and found that it "documents the presence of prehistoric arithmetical, geometrical and technical skills of surprisingly high order. He believes it probably represents the symbolic lunar year, perhaps a particular year in some astronomical or ritual conjunction.

Marshack's subject is a unique mosaic pendant made of precisely shaped pieces of pyrite arranged in a geometrical pattern over a ceramic base. The mosaic was excavated illegally about nine years ago from the Olmec site of Las Bocas in West Puebla, Mexico. It is now in the St. Louis Museum of Art.

The mosaic has been dated at about 1000 B.C., making it the earliest Mesoamerican mosaic excavated so far. It is the most complex mosaic to come from Mesoamerica and is, surprisingly, also one of the most complex artifacts to come from a prehistoric context.

Olmec skill in carving and sculpting

a practical thermonuclear reactor.)

Laser-induced fusion research was pointedly left out of the treaty. Though some scientists believe this approach would be faster in attaining a workable fusion reactor, some of the technology involved has serious military implications and is highly classified. Some informal information exchange between American and Soviet experts in the field has taken place, however.

The Soviet Union is considered to be far ahead of the United States in some aspects of breeder reactor technology, having constructed a 600-megawatt prototype in the Urals. Ray explained that the American approach has been to conduct development in sequential steps while the Russians have tried—apparently successfully—to solve the numerous engineering problems involved while actually constructing the reactors. Britain and France also have plants in operation.

At present, 10 American and Soviet scientists are working on atomic projects in each other's country. The new treaty should increase that number by a factor of four or five. □