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COVER

Comparison of body shapes. The half chimpanzee-half human drawing illustrates the morphological differences between ape and human. The half *Xenopus*-half *Rana* diagram illustrates the morphological differences between representatives of two different suborders of frogs. The ape-human difference is at least as large as that between the two frogs. This contrasts with the biochemical picture. Biochemically, the two frogs are at least 30 times further apart than humans are from apes. See page 209. [Diagram, S. L. Washburn, University of California, Berkeley]
Energy and Development

The United Nations Conference on Science and Technology for Development to be held in Vienna in September 1979 could be an important constructive event. Many observers, however, fear that it will be just another confrontation of politicians from developed and less developed countries. Transfer of science and technology cannot be accomplished by the interaction of politicians or by gifts of black boxes or tons of blueprints—a prerequisite is human interaction at an expert level.

The organizers of the U.N. conference might well draw lessons from a symposium entitled “Energy and Development in the Americas,” held from 13 to 17 March near Santos, Brazil.* Participants came from 16 countries and included about 110 scientists, engineers, and government representatives. They brought to the meeting different backgrounds of knowledge and experience, and found mutual pleasure and benefit in friendly interchanges. Topics covered included nuclear energy, oil, oil shale, coal, synthetic fuels, hydropower, windmills, hydrogen, solar energy, biomass, efficient use of energy, and energy for rural peoples. The participants shared the belief that the days of cheap oil are over and the conviction that each country must survey its own energy resources and move toward an energy independence based on indigenous supplies.

For Latin America in general, this means an emphasis on solar energy, biomass, and the development of large hydropower potentials. Venezuela has a great oil resource in its Orinoco tar sands; Brazil, oil shale; Colombia, substantial coal reserves; and Mexico, newly discovered oil; but the region as a whole is lacking in fossil fuels.

A problem much on the minds of participants was the continuing crowding into cities of the peoples of Latin America. There was a search for a means of slowing this trend by making rural life more attractive. Ways of creating cheap, small, practical energy sources were discussed. A problem of the cities is to provide electricity. Today, Argentina, Brazil, and Mexico are proceeding with nuclear power plants. Some of their neighbors are considering following this path.

From the standpoint of energy research programs, the United States is clearly the leader in terms of quantity and scope. This country is also becoming expert at building “demonstration plants.” But with respect to converting research into production facilities that make a difference to the country’s energy supply, the United States lags.

Brazilians are moving ahead with the production of alcohol for motor fuel and of charcoal from eucalyptus trees for steel mills. The use of palm oil to supplement diesel fuel is on the horizon, and the development of hydropower is continuing.

Two speakers from outside the Western Hemisphere provided additional perspectives. The French are proceeding with the operation of a nuclear reprocessing plant and with practical means of disposing of nuclear wastes. They have developed and are implementing long-range plans for their energy future. If one takes into account the skimpy resources of the Indian subcontinent, the United States is put to shame by the Indians. They are building a large number of biomass converters to produce methane from cow manure. The heating value of the methane is five times that of the cow dung. Sludge from the digesters makes excellent fertilizer.

This international meeting, sponsored jointly by the Brazilian Society for the Progress of Science and Intericiencia, was organized in less than 6 months. In the year and a half remaining before the Vienna meeting, the United Nations still has time to create sessions and an atmosphere in which significant interchange can occur.—PHILIP H. ABEIISON
