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# EDITORIAL

## Pan-American Science Collaboration

Scientists of the Western Hemisphere have been constructively interacting for decades. Owing to a constellation of changing circumstances, the intensity of collaborative activities is likely to increase. The factors include globalization of industry and concerns about the environment, biodiversity, and the future of planet Earth. Relevant is the revolution in electronic communication that made possible new forms of collaboration. To explore the feasibility of enhanced hemispheric scientific cooperation, the American Association for the Advancement of Science (AAAS) was host on 28 and 29 May to a conference* in which many of the leaders of science in Latin America were participants. Much of the agenda was devoted to descriptions of the state of education and attitudes toward scientific research of industry, the public, and politicians. Also provided were inventories of the numbers of scientists and their rates of publication.

World-class scientific research is being conducted in Latin America. However, both the number of scientists and support for them are limited. Together Latin American scientists publish about 1.3% of the world's scientific literature, and nearly all of the publications originate in Argentina, Brazil, Chile, Mexico, or Venezuela. A larger share might be expected from the more than 300 million inhabitants in the region. Delegates to the conference cited a number of factors to explain the relative paucity of scientific research. One influence is cultural. There has not been status for the kind of knowledge created by the scientific method. Related to this has been a relative absence of industrial research. Thus, the public and politicians could not readily visualize that scientific research in their country could bring national benefits. A consequence of the absence of high technology has been limited gross national products and a lack of funds for research in most of the countries. Insofar as research has been conducted it has taken place at some government-supported facilities, but mainly at universities. Salaries and facilities there are often inadequate. As a result, Latin American scientists seek training or positions in the advanced countries. Those that return to their homelands are especially capable of collaboration with scientists in the institutions where they studied or worked.

The emergence of global competition has not been lost on Latin America. Politicians there have long understood the role of high technology in advancing national incomes and standards of living. But they have lacked an understanding of science and engineering. Often they have behaved as if they assumed that technology was something that came in black boxes. There were many demands that technology be transferred. Those demands were disregarded. Technology is created and best transferred by people. If a country has little or no indigenous scientific and engineering capabilities, it can expect to be out-maneuvered in any purchase of technology. The realities of strong global competition foster changed attitudes toward increasing local capabilities.

While most of the efforts to improve a nation's economy must be made by its citizens, there are roles for scientists in fostering international science and in turn creating potentials for improvement in living worldwide. Already hundreds of scientists from Canada and the United States have engaged in collaborative research with colleagues in Latin America. For nearly 20 years, the AAAS has had a limited but useful role in interactions with scientific communities of the Western Hemisphere. It has participated in Interciencia and furnished support to the executive secretary of that organization. Interciencia is primarily a nongovernmental organization composed of associations for the advancement of science of 14 countries of the hemisphere. During its existence, Interciencia has sponsored more than 40 symposia on important topics. Annual meetings of the board of directors have included many of the leaders of Latin American science. They have served as nodes for communication to, and identification of, other key scientists in their respective countries.

The AAAS is not a granting agency. But occasionally it has served as a catalyst to channel funds from private foundations and governmental organizations to meritorious scientific activities in Latin America and elsewhere. The recent conference could mark the beginning of enhanced efforts to identify and foster crucial areas for hemispheric collaboration.

**Philip H. Abelson**

*A detailed report on the conference will be published later by AAAS.