

GENERAL SCIENCE

Science in Chilean Life

Eminent Chilean and North American scientists gathered together in Washington to discuss scientific education and research and the role of science in the development of nations.

► SCIENCE AND DEVELOPMENT in Chile was the theme of the 1964 Image of Chile program that brought eminent Chilean and North American scientists together in Washington for a series of discussions (Oct. 5). The program was jointly sponsored by the Embassy of Chile and the National Academy of Sciences, and was an outgrowth of the 1963 Image of Chile, which last year brought a representative cross-section of Chilean music, art, poetry, literature and drama to U.S. audiences.

Participants in the discussions touched on a wide range of scientific and technical matters relating to geology, geophysics, ocea-

nography, agriculture and animal husbandry, with special reference to Chile. There was a general discussion of the role of science in the development of nations, a symposium on scientific education and research, an illustrated lecture on Chile and an exhibit on Chilean geography and natural history.

The program began with a plenary session addressed by Ambassador Sergio Gutierrez; Dr. Frederick Seitz, president of the National Academy of Sciences, and Dr. Donald Hornig, White House Science adviser. Secretary of State Dean Rusk addressed the final session.

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Dean Rusk Analyzes Alliance Science Progress

Excerpts of Remarks by Dr. Dean Rusk, Secretary of State, at the Conference on Science and Development in Chile

► WHEN THE UNITED STATES pledged its commitment to the Alliance for Progress in 1961, it recognized the central role science and technology must play in the economic and social transformation envisioned under the Alliance.

The experience of the first years of the Alliance has not lowered our assessment of the importance of science in this development process. But it has refined thinking on how scientific endeavor most usefully can spur economic growth.

In Latin America generally, scientific talent is limited in quantity—indeed only 2.3% of the population is classified as professional or technical in any field. It has been necessary to establish priorities.

This has led to extensive discussions between scientists and technologists, on the one hand, and those responsible for allocating national resources. And, as a rule, the result has been the sound conclusion that short-range scientific and technical projects however interesting in and of themselves, are less urgent than research and teaching institutions capable of promoting science and technology.

Much has been done, and is being done, in improving curricula, strengthening faculties, equipping laboratories with the most modern and sophisticated research devices, and providing interchanges between the United States and Latin-American scientists. This symposium is symbolic of these efforts.

There is general agreement, I believe, that most of the Latin American countries need to put more emphasis on improving their agriculture and on making their rural

areas a more active market and stimulus for manufacturing. Indeed, this is true of most of the developing areas of the world.

Agricultural production in the developing areas, particularly in Asia and Latin America, is growing less rapidly than population—and if current trends continue, the point will not be too far off when world food stocks will simply not be enough to meet minimum needs in the deficit areas.

Although Chile has a rich agricultural potential, it has been a net importer of food for some years and presently imports about 20%, or \$125 million, of its food needs. Every dollar of increased food production has the potential of freeing a dollar of valuable foreign exchange to buy goods and services needed for Chilean development.

The Agricultural Development project now being initiated in Chile is a good example of how applied science contributes to a total development strategy. This project seeks to increase farm production through research activity and improved rural educational institutions.

Closely correlated activities seek to stimulate food output and exports through changes in the agricultural credit and marketing systems and in overall national agricultural policy.

Another effective application of science to Chile's economic priorities is the Maule River project, so reminiscent of the Tennessee Valley Authority development in this country. By late 1967 a comprehensive regional development plan will be created for the Maule River Basin, to include an integrated and coordinated construction and financial schedule for individual projects.

The multi-purpose water resource plan will include uses for agriculture, industry, power, recreation, flood control and conservation. Related projects will cover agrarian reform, transportation, marketing, education and training, housing, urban growth, community development and public health.

The Manpower and Educational Plan-

ning project is key to assuring that, in the future, human resources will make their optimum contribution to Chile's economic and social goals.

I believe these three projects, among the other technical assistance activities with which we are concerned in Chile, are excellent examples of the cooperative endeavor we share under the Alliance.

They are being implemented by Chilean institutions in collaboration with the Chile-California Program and the USAID Mission in Santiago, with funds provided both by the Government of Chile and AID. And they are utilizing more fully than ever before the scientific capability of our two countries in the service of Chile's economic and social development under the Alliance for Progress.

Cooperation between Chile and the United States extends over a wide range of scientific subjects, including the sleep-wakefulness mechanisms. This has a somewhat special appeal to me. I have been told that science may make it possible for us to get on with less sleep at night.

I know some government officials who, of necessity, have made considerable progress in that direction.

I now turn to the second main discipline of these seminars, earth sciences.

The same force that caused so much destruction in Chile during 1960 manifested itself in Alaska only last year. This awesome power of nature disdains international boundaries.

Studies carried out in Chile on earthquake resistant construction can have universal application. Development of techniques and instrumentation which can sense the early on-rush of earthquakes is as im-

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Science Influences Foreign Relations

Excerpts of Remarks by Ambassador Sergio Gutierrez-Olivos of Chile at the closing session of the Conference on Science and Development in Chile.

► A GENERAL BELIEF exists in developing countries that only the foreign policies of the great powers are influenced by science and technology.

There is some justification for this belief, because the interrelationship of science, foreign policy and government is tangible and clear to the man in the street every time he opens his newspaper.

Even though the relatively underdeveloped countries do not face problems requiring foreign policy alternatives fixed at a given moment by the balance of space and nuclear progress; even though the day is still remote when such countries must resort to higher mathematics to interpret and predict the course of international relations, there is ample evidence, as even a rapid and objective survey reveals, that the interrelationship of science, foreign policy and government has a concrete and decisive effect on the theory and practice of foreign relations of even minor powers.

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