Science and Man in the Americas

Consejo Nacional de Ciencia y Tecnologia Mexico City

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AAAS American Association for the Advancement of Science Washington, D.C.

Problems of Population

Problems of population in the Western Hemisphere will be one of the central themes discussed 26–28 June. The writers of 16 papers, and an equal number of discussants (divided between North Americans and Latin Americans) will take part in eight panel discussions, each lasting from 2 to 3 hours. Two of these panels will deal with problems of urbanization and internal migration; three with economic and social problems of population growth; and the remaining three with questions of population policy.

Overall population densities in most of the countries of the Americas are low, averaging only 13 per square kilometer in Latin America and 10 in the United States and Canada, compared to 109 in Middle South Asia, 62 in Southeast Asia, and 150 in Western Europe. The population problems of the hemisphere do not arise from high population densities, but from unprecedentedly high rates of population growth in tropical South America and Middle America, high levels of internal migration, and extremely rapid growth of cities. At present growth rates, the populations of tropical South America and Middle America will double in about two decades. Cities of more than 100,000 in tropical South America are doubling in population every 10 years, and in Mexico and Central America every 12 years. More than half the growth of larger cities in tropical South America results from migration out of the countryside, even though the number of people in rural areas is also rapidly increasing.

In both North and Latin America, all the larger cities have serious problems of poverty and socio-economic inequality; poor housing; inadequate transportation and traffic congestion; pollution of water, air, and land; crowded, unsatisfactory schools; and un- and underemployment. In the United States these problems are exacerbated by racial conflict; in Latin America by the difficulties of assimilating the waves of rural migrants. Rural-to-urban migration also weakens the countryside, because the migrants tend to be the younger, better educated, more vigorous adults.

Undernutrition and malnutrition are widespread among the children of the poor in Latin America, particularly among children in the large families which characterize rapidly growing populations. Economic growth in the modern, industralized sector is unable to keep up with the tide of young people entering the labor force and seeking employment. In many countries, two societies exist side by side, one modern and industralized with rapidly increasing levels of income and welfare, the other backward and impoverished, lacking in modern skills, living by subsistence agriculture in rural areas and by poorly paid jobs in the cities. The rapid increase in the numbers of children, combined with gross inequalities of income, creates severe problems for educational institutions. Resourses are strained to increase the number of teachers in schools and to distribute them more equitably.

The governments and private institutions of the Americas have attempted to develop policies and programs to cope with the problems of migration, urbanization, and rapid growth in human numbers, but these differ widely in intent, scope, and effectiveness among different countries. In some Latin American countries with large land areas and low population densities, governments are less concerned with the penalties of rapid population growth than with the benefits that might come from attaining a larger population. In others, notably Costa Rica, Mexico, Chile, and Colombia, governments are moving as rapidly as they can to slow down the growth rate. In the more developed countries of the Americas, rates of growth are already low and the population-related policies of governments are aimed at reducing the numbers of hazardous illegal abortions or the rate of illegitimacy, improving maternal and child health, and enhancing the ability of individual couples to regulate the size of their families. The confrontation between these different policies will be one of the important aspects of the sessions on population in Mexico City.

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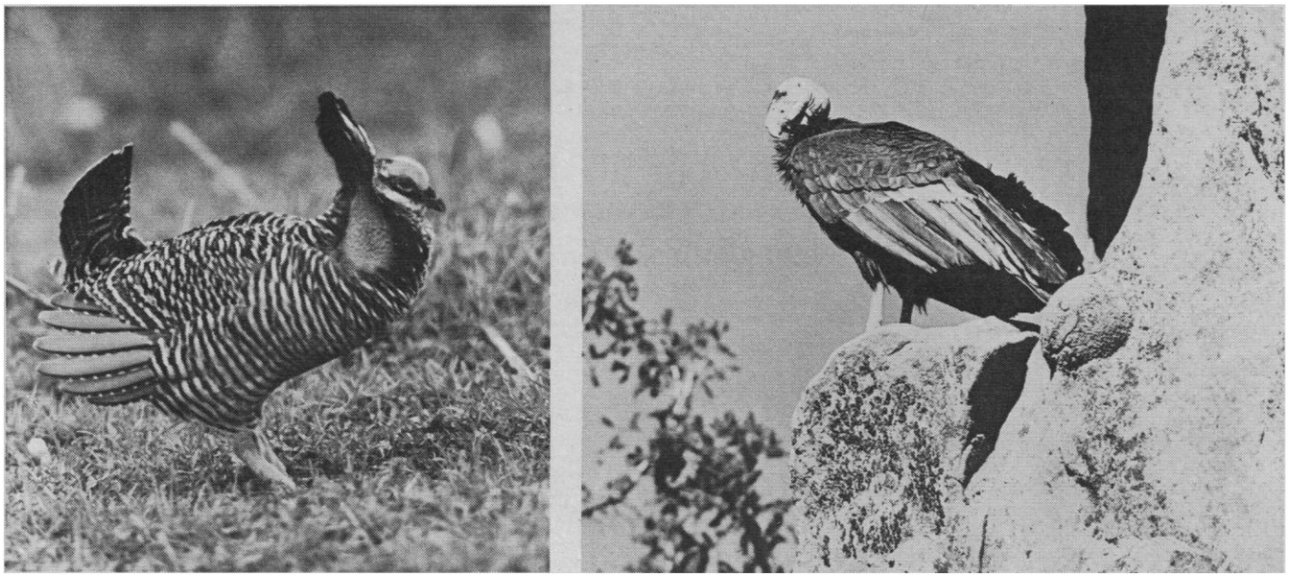
Wildlife and Its Environments in the Americas

The expansive land mass of the Western Hemisphere is situated so that most of North America is located in either middle or high latitudes while most of Middle America and South America are within the low latitudes and, consequently, tropical and endowed with a richer species component. Environments in Middle and South America are favorable not only for resident wildlife species but also for a host of migratory organisms which breed in the higher latitudes but winter in equatorial areas. Latin America thus occupies a place of special interest in a hemisphere characterized by a great variety of environments, which support a diverse assemblage of wildlife.

This symposium has been designed to examine the biota of the Americas (using a few selected examples) emphasizing its diversity, how little we



(Left) Attwater's Prairie Chicken, Texas [Luther Goldman, U.S. Fish and Wildlife Service]. (Right) California Condor in Los Padres National Forest [Carl Koford, U.S. Fish and Wildlife Service]

know about it, its commercial exploitation, its food and sporting qualities, its interaction with introduced species, its deterioration through man-environment-wildlife conflicts, and, finally, to suggest ways that this biota might be sustained in spite of the ever-increasing, human-induced environmental changes. Since wildlife resources are distributed ecologically instead of politically, it is hoped that this symposium also helps bring into focus the need for each American state to show progressively greater concern for endangered environments and their characteristic plants and animals by:

1) Taking steps to complete the necessary inventory of this vital endowment and provide for continually monitoring its status.

2) Devising methods to conserve cherished and rare species uniquely restricted to habitats found solely within its political boundaries.

3) Joining with other American states in establishing cooperative programs to conserve and manage compatibly those environments and their wildlife resources which these countries may share in common.

The symposium was arranged by Rollin H. Baker (United States) and Bernardo Vill Ramirez (Mexico).

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Impact of Range Science in the Americas

Much of the land area of the Americas (40 percent or more) consists of rangeland ecosystems—for example, prairie, shrubland, savanna, desert—which, since the advent of Europeans, has been generally subjected to exploitative pastoralism. Additionally, some rangelands that are not suited for sustained economic crop production because of climatic or edaphic limitations have been put into cultivation. The latter has come about in the United States often as a result of short-term market considerations. In some Latin American countries cultivation of land has resulted from land reform programs which, although politically necessary, frequently have resulted only in a marginal subsistence agriculture. Such land use practices, due in large part to a failure to properly assess the inherent capabilities of rangelands, have in many cases resulted in a deterioration of ecosystems and in concomitant social and economic problems.

Over the past four decades, however, a substantial body of knowledge and technology has been developed concerning rangeland management. This symposium, related to the central theme "Deserts and Arid Lands" and consisting of two half-day sessions on 30 June, is designed to explore the potentially very significant impact of this technology on the development, use, and productivity of natural grazing lands and, consequently, on the economic and social future of the peoples of the Western Hemisphere.

Co-arrangers are Harold F. Heady (University of California, Berkeley) and Martín H. González (Instituto Nacional de Investigaciones Pecuarias-Secretaría de Agricultura y Ganadería, Chihuahau, Mexico). Six formal presentations—by Mariano Segura (Peru), Jorge Brun (Argentina), Pedro Ruíz González (Mexico), Martín H. González (Mexico), J. J. Norris (United States), and Thadis W. Box (United States)—will be interspersed with planned discussions involving scientists, technicians, politicians, economists, and sociologists from Mexico and the United States.

Particular emphasis will be given throughout the symposium to the application of underlying principles in the development and management of rangelands for the very necessary production of food, fiber, and water for human use and for the enhancement of other values beneficial to man's well-being.

On 1 and 2 July there will be a field trip to the state of Zacatecas to observe the first phase of Mexico's recently initiated National Rangeland Improvement Program which is designed to reestablish rangeland ecosystems on *ejidos* (land reform farms) that have been seriously depleted by 60 years of continuous cropping to corn and beans.

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