
REPORTS

RESEARCH ON GEOGRAPHY PRESENTED AT LATIN AMERICAN REGIONAL CONFERENCE*

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THE FIRST LATIN AMERICAN REGIONAL CONFERENCE OF THE INTERNATIONAL Geographical Union, held in Mexico City, August 2–8, 1966, was the third regional conference held by that organization, which has a membership of 62 countries and promotes the knowledge of geographical problems, both of general and local character. Regional conferences are held (as at Tokyo-Tenri in 1957 and at Kuala Lumpur in 1962) to focus attention on research and teaching in geography, especially in developing continents and countries. The invitation of representatives of the Mexican Society of Geography and Statistics for a regional conference was accepted at the London World Congress in 1964 by the IGU, which meets every four years. In addition to the regular meeting of the regional conference, special meetings of IGU commissions were held and their proceedings published. These were the Commission on Medical Geography, Commission on the Teaching of Geography, and Commission on Agricultural Typology. The Conference was preceded by a Special Meeting of the Committee on Geomorphology of the Pan American Institute of Geography and History and by a UNESCO Symposium on Geo-Ecology of Mountain Regions of Tropical America.

1. LATIN AMERICAN PARTICIPATION

Participation in the Latin American Regional Conference by geographers from Latin American countries was large; and many geographers, most of whom were Latin Americanists, from other parts of the world attended as

* Papers of the published proceedings are listed at the end.

well. A total of more than 500 were registered, of which about 30 per cent of those attending were from the host country. A few more than 100 in total came from other Latin American countries, about 100 from Europe and about 110 from the United States. Best represented Latin American countries, other than Mexico, were Argentina, Brazil, Peru, Chile, and Venezuela, with more than ten each; while independent American nations not represented were Haiti, Honduras, Jamaica, Trinidad, Guyana, Bolivia and Paraguay.

Active participation in the form of presentation of papers was high. Of the 240 papers included in the published volumes, 83 were presented by Latin American geographers. As a natural consequence of the fact that the Conference was held in Mexico and that a special symposium on Mexico was held, 41 of the papers were presented by Mexican geographers; and the remaining Latin American contributions were divided among Argentina (13), Brazil (8), Chile (7), Cuba (4), Venezuela (2), and El Salvador (1). Among the remainder, 61 were presented by Europeans and 60 by geographers from the United States.

2. BRANCHES OF GEOGRAPHY EMPHASIZED

Geography, an extremely broad subject, is divided into a number of branches or major divisions, and geographers more or less specialize within the discipline, particularly in the case of research, though teaching may cover a number of branches. The broadest categories generally recognized are human geography, economic geography, physical geography, and regional geography. These, in turn, may be subdivided. With regard to the regional division of geography, it is interesting to note that one-third of the papers did not deal with Latin America. A few of these may have some application to the Latin American scene or may be of some interest to Latin American geographers in terms of techniques that may be applied to their situations, but the great majority of these more than 80 papers were not "Latin American." This is not to infer that a regional conference should deal exclusively with substantive reports about that region, because some reports on methodology and on generalities can also be useful contributions.

Of the 156 published papers dealing with Latin America, 17 dealt with or had some relationships to the geography of Latin America in general, while others dealt with smaller realms, such as South America or major parts thereof other than individual countries (6), Middle America—meaning Mexico—Central America (3), Central America in general (4), and the West Indies in general (1). The remaining 125 papers dealt with subjects within individual countries, including 15 on the valley and city of Mexico given in a special symposium. As would be expected, a large share of the papers (48 including the 15 already mentioned) dealt with aspects of the geography of

Mexico, partly because of the large number of Mexican geographers in attendance and partly because of the number of United States geographers who find Mexico most accessible for field research and contacts, in contrast to distant Argentina, for example. This is evident from the fact that United States geographers presented 14 papers on Mexico and none on Argentina nor Brazil. By countries other than Mexico, published papers dealt with Argentina (14), Chile (13), Brazil (12), Peru (9), Venezuela (4), Cuba (4), Ecuador (3), Colombia (2), Guatemala (2), El Salvador (2), Costa Rica (2), British Honduras (2), Barbados (2), and one each with Hispaniola, Dominican Republic, Jamaica, Puerto Rico, French Antilles, and Bolivia.

The topical classification of papers on geography outlined in the first three volumes of the publications revealed strong emphases on Geography and Population Problems, which were represented by 56 papers (22 on population problems in general, 12 on colonization, and 22 on urban geography); on Economic Geography, represented by 74 papers (14 on geography and development problems, 14 on applied geography, 14 on land utilization, 8 on general and regional economic geography, 9 on agricultural geography, 12 on industrial and transportation geography, and 3 on agricultural typology); and on Physical Geography, represented by 40 papers (27 on geomorphology, 5 on hydrology, and 8 on climatology). Also included in the classification were Air-photo Interpretation (9 papers), Cartography and Geographic Names (8 papers), and Geographic Methodology (8 papers). One problem of topical classifications is that not all papers fit into the categories chosen. Moreover, not all geographers can agree on the exact nature of sub-divisions of the field. Nevertheless, the general picture reveals considerable attention being given to economic development and population problems.

3. POPULATION PROBLEMS

Social and economic consciousness were especially evident in the papers presented at the Conference. Part of this awareness stems from the image of Latin America as a region that poses great social and economic problems and is in need of assistance to develop its potentials. And this awareness is coupled with the attitude of a number of geographers, academicians as well as those working in government and business, that their studies should be applied to specific problems.

The general nature of the problems of population growth and economic development was presented by Alfonso Gonzales. Citing Latin America as the region with the most rapid demographic growth and at the same time the most advanced in terms of lower death rate, more literacy and higher per capita income among underdeveloped areas of the world, the author stated that the stability of Latin America rests eventually on the solution of two inter-

related problems—population growth and economic development; and national decisions are needed immediately. Basically, the conflict between population growth and economic development is between those who believe that by improving efficiency and technology they will provide sufficient goods and services for the population, in spite of its rapid growth, and those who see birth control as the only possible solution to the fact that the population will exceed available resources, in spite of technical innovations.

Population problems were viewed in terms of food supply, by Anastasia Van Burkalow, in which Latin America as a whole is not considered presently to be in the area that suffers the greatest food deficit in the world. At present, qualitative deficiencies are common, and many areas suffer food shortages, but only in a few places are shortages critical. Nevertheless, the problem in the future will be much more serious, since Latin America has some of the highest rates of population growth; and a tripling of food supply between 1960 and 2000 will be necessary in Latin America just to maintain present levels of nutrition. Geographers can contribute on a large scale to studies of man-land relations in order to help alleviate the hunger that threatens the growing populations. A study of nutrition in three communities in Guatemala was the subject of a paper by Nancy E. Rozman, which explored some of the relationships of environment, culture, diet and nutrition.

An example of man-land relations in a small valley in northwestern Argentina was presented by Alfred S. Bolsi. He makes an analysis of a natural landscape whose equilibrium is unstable, with man himself contributing in large part to accentuate instability, with resulting increase in erosion and natural exodus of inhabitants in order to maintain an optimum relationship between cultivated area and population density. Charles F. Bennett's paper had as its principal objective the discrediting of the persistent belief that Latin America is a kind of *El Dorado* and to assert that the New World is not as new in an ecological sense as has been thought previously. Emphasis was given to the effects that man himself has brought about in changing the environment through alteration of vegetation and animal life.

Geographers can contribute on a large scale to studies of man-land relationships in order to help alleviate the hunger that threatens the growing populations of Latin America. Zenzo Miyakawa focused on the ability of the tropical forests of Middle America to serve as sites for relatively advanced civilizations in pre-Columbian times making one wonder at man's ability to occupy seemingly difficult environments. Robert C. West and James J. Parsons, in separate papers, indicated evidence exists that modern recuperation and advances can be accomplished through such measures as flood control, disease eradication, and improved transportation in tropical lowlands. At the other extreme in temperature and elevation are the high Andean environments that

are viewed generally as over-populated, but Emilio Romero shows that these too need to be reevaluated scientifically. That man needs also to consider his effects on other men in the matter of diseases and cultural conflicts, especially with native peoples was shown by Carlos Saenz de la Calzada and Luella N. Dambaugh. William Smole referred to regions of primitive culture which still exist but are expected to disappear or be greatly altered by colonization efforts.

Four papers showed that the interrelationships of population growth, migration, and economic development are receiving more attention, particularly as geographic distributions are changed and adjustments to new environments, whether urban or frontier, must be made. (David A. Preston, Andrzej Bonasewicz, Robert P. Stevens, Eusebio Flores Silva). Population problems also stem from regional isolation, according to Daniel W. Gade, and changes in international boundaries may pose strange problems (James E. Hill). A basic tool for planning is the population map, which has a number of important applications, such as that reported by María Teresa Gutiérrez de MacGregor, for minimum salary zones in Mexico.

4. DEVELOPMENT PLANNING

Development problems and planning received considerable attention at the Conference, but papers dealing specifically with Latin America were few. Peter R. Odell commented on economic integration through ALALC. He pointed out the necessity to consider more than simply customs unions and international commerce for locating industries in member countries, and the need to consider particularly those factors of a spatial nature. Two comparative studies of economic development from geographic points of view were presented. One, by Gustavo Fochler-Hauke, analyzed the geographic conditions and general advantages and disadvantages contributing to economic integration in Latin America and Europe, among which were raw materials, energy resources, languages, and "the business spirit." The other comparative study, by Paul Moral, posed questions of whether West Africa or tropical Latin America was the most under-developed and in what ways they were similar or different, using such indices as: climatic conditions, land forms, colonialism, income, electric energy, urban-rural relationships, and coffee economies of the Ivory Coast and Brazil. He noted the cases of "alarming" under-development of Haiti and Dahomey. The heritage of past geography was considered essential to planning in Barbados (Frank C. Innes).

A presentation of a program of data collection by Leon Laitman, was concerned with development problems and their applications to Latin America. This report outlined the system employed by the Division of Natural Resources of the Inter-American Geodetic Survey. A well-documented paper on vegetation-geographic studies that could be used as the basis for agrarian planning

was presented by Wilhelm Lauer. It consisted of an analysis of the natural vegetation of El Salvador, its land uses and forest exploitation, its population and land tenure, and possible agrarian and forestry planning of the country's resources. Mapping and population distribution was cited by Robert E. Nunley as essential to regional planning in Central America.

5. APPLIED GEOGRAPHY

The subject of applied geography has come into mode in recent years. Although in a sense applied geography cannot occupy a separate subdivision within the discipline because all branches can exhibit applied aspects, the idea has captured a number of disciples (Jean Tricart). J. Granville Jensen stresses the need to train geographers to apply their research talents in collaboration with other professionals. Also, a worthy goal for the field of geography should be that of bringing each person to recognize that he has a personal share in mankind's heritage of natural resources of the earth which he and his society may handle in conservative, destructive or improved ways. Although man does not have unlimited control of his environment, nevertheless his attitudes toward his natural and cultural environments, as well as his technical abilities to modify them to suit his desires and his objectives in life combine to bring about profound alterations in the original state.

Two studies on mineral resources in Mexico were presented by Genaro Correa Pérez and Esperanza Garza de la Torre. Related to this applied orientation is a project of biological-environmental study in Central America as basic to the selection of possible routes for a new sea level, inter-oceanic canal (F. Webster McBryde). Examples of broader application to development problems have been the experience of a Center of Applied Geography in the Costa Rican Institute of Lands and Colonization (Gerhard Sandner) and an international interdisciplinary project in the Puebla-Tlaxcala region of Mexico (Franz Tichy).

The position of geography in a socialist country was presented by Salvador Massip. He reviewed the history of geographic knowledge in Cuba from the discovery through the visit of Humboldt in 1800 and his subsequent writings, through the work of Esteban Pichardo and others in the 19th century who were influenced by French culture, and through the first half of the 20th century in the so-called "bourgeois republic" (which was characterized by the author as a period of United States "capitalist imperialism"). The paper emphasized the establishment of the teaching of geography as a separate field in the University of La Habana in 1925, its expansion to secondary schools and other universities but without the employment of geographers in the service of the State, although the Institute of Geodesy and Cartography has been established and succeeded in mapping the entire country at large scale. The revolution that

triumphed in Cuba in 1959 brought with its change to a "Marxist-Leninist culture" a change in the field of geography with attention on applied geography, as well as pure science, and with the assistance of Soviet, Czech, and (East) German geographers, whose activities have been developed primarily in the Institute of Geography of the Academy of Sciences (especially in the National Atlas project) and in the School of Geography of the University of La Habana. Applied geography in the Department of Physical Planning of the Central Planning Board, in the Institute of Soils and Institute of Meteorology of the Academy of Sciences was also cited.

6. ECONOMIC GEOGRAPHY

The field of economic geography covers a broad spectrum of man's economic activities in earthly spaces, probing inter-relations with natural resources. In addition to describing and analyzing "problems" of population and development, as mentioned above, research in geography deals with the task of identifying and describing man's economic regions and of developing significant patterns of spatial interactions.

Studies of economic-geographic regions in Mexico, Argentina, Chile, and French West Indies demonstrate varying degrees of detail that can be employed. In the first, Angel Bassols Batalla delimited Mexico in eight "geo-economic" regions, and divided them into 104 sub-regions and four special regions where the zones are in active process of creation and change, due to powerful impacts of agrarian reform, construction of better transportation facilities, development of river basins, and development of the northern border regions. For Argentina, Osvaldo Inchauspe defined seven large regions with an appeal for harmonious development of all members of the "country organism" as integral pieces of the whole through economic regionalization that would reduce the disequilibrium that has developed because of the transcendental importance of Buenos Aires and the Pampa.

In the Chilean study, Manuel Concha M. outlined seven major land-use regions, within which have been recognized twenty-eight sub-regions. Guy Lasserre, in a report on Martinique and Guadeloupe, brought out the fact that, in spite of small areal extent, considerable regional diversity in landscapes and agrarian structure and economies can be recognized. Strictly agricultural sub-regions of the Argentine Pampa were delimited and described from the point of view of "pure geographic analysis" by Federico A. Daus.

Regional aspects of agricultural land use were evaluated on both large and small scales. Different types of agricultural holdings in the Rio de la Plata region (Herbert Wilhelmy) and geographic aspects of the food supply of Rio de Janeiro (Bertha K. Becker) represent large regions; whereas, land-use mapping of small areas in the São Paulo plateau of Brazil (Elsa Coelho de

Souza), and in the Puebla basin of Mexico (Silvana Levi de Lopez) are representative of small regions. Rayfred L. Stevens argued that the capability of land to support its inhabitants, though conditioned by a number of factors, has been based primarily on the soil as brought out in a study of indigenous peoples in Mesoamerica. Soils capability studies, such as those realized in British Honduras, were explained by A. J. Crosbie and P. A. Furley as needed to plan the most effective use of the land. One way to intensify land use and at the same time control soil and water has been the use of agricultural terraces which was the theme of separate papers by Lawrence Harold and Chris Field.

Analysis of change in land use of regions can reveal significant relationships, such as in the dry Northeast of Brazil (Nilo Bernardes), and in the "banana" lowlands of Costa Rica (Pierre A. D. Stouse, Jr.). Speculative, one-crop agriculture in a heterogeneous and climatically vacillating environment in Argentina also was the subject for Romain Gaignard's critical regional analysis. Agrarian reform is becoming a popular subject in Latin America and figured in some geographic studies, such as "over-population" in Barbados (David Watts), cultural obstacles (latifundia, monoculture, favoritism) in Guatemala by Melvin J. Frost, technological improvements in Mexico (Samuel N. Dicken) and the need for overall agricultural planning in Ecuador by Wolf Dieter Sick.

Industrial development based upon mineral resources has been traditionally the subject of a number of studies because of the fairly clearcut geographic factors involved. Papers on the iron and steel industry of Minas Gerais in Brazil by John Dickinson, of Chile by Nancy Arancibia Diaz, the petroleum industry of Brazil by Jacqueline Beaujeu-Garnier and of Chile by Gilbert J. Butland, the cement industry of Chile by Jean Cermakian, and the tin industry of Bolivia by David J. Fox are recent examples of this interest. Departures from the more or less classical approach were the emphases given in the studies on the steel industry of Chile and on the petroleum industry of Bahia in Brazil on the impacts that the development of industry have had on the population of the region itself. A method of quantitative analysis applied to an evaluation of the accessibility of productive resources for industrial development has been applied by Robert Tata to Mexico; and Francisco Rodriguez Miramontes presented a less sophisticated cataloguing of resources for potential industrial development in the Mexican state of Durango.

7. COLONIZATION

Colonization has attracted the attention of geographers writing about Latin America for many years, and studies of frontier settlement and migrations are of continuing interest. The so-called "empty heart" of South America has been cited as a potential refuge for the crowded Andean highlands, but its

development poses a combination of regional factors that need to be considered carefully, such as the development of productive land use and accessibility both within and to and from the colonized region as brought out in a paper by David E. Snyder and Medina Valderrama. Craig L. Dozier showed that effective colonization of new lands in the Andean countries would require both an evaluation of the humid lands to the east and of the desert lands along the Pacific. In contrast to the relatively slow settlement of new lands on the Amazon frontier of the Andean countries, the western frontiers of Brazil have experienced rapid development (Gottfried Pfeifer and Pedro Pinchas Geiger). Colonization in Brazil also has been successful in the north, as reported by Valverde and Catharina Vergolina Dias in a study of Japanese settlement near Belem. The importance of adequate road systems in the success of new settlements has been pointed out in studies of humid lands in Colombia by James J. Parsons and in Costa Rica by Ulv Masing. In a broad study of agricultural colonization in the Dominican Republic, John P. Augelli emphasized the need to consider national economic development in its totality as related to planned colonization and agricultural reform. That technical assistance in agriculture for agrarian reform projects is vitally important was once again emphasized by Jesus S. Silva Calvo, drawing from the Venezuelan experience.

8. URBAN GEOGRAPHY

Reports on urban geography in Latin America covered a wide range but were especially concentrated on Mexico and Argentina and considered geographic patterns of distribution of urban centers, processes of development, and problems. The most general was one by John P. Cole which outlined general features of the 50 largest cities in Latin America. Processes of urban development and growth were popular subjects for four studies of Argentine cities. In the first, an analysis was made by Mariano Zamorano of the factors entering into the development of a network and hierarchy of Argentina's urban pattern. A second paper by Mabel G. Gallardo Fiegel dealt with the importance of the factors of colonization, construction of railway lines and ports, and growth of industry and trade in the urban growth of the Pampa region. The classification and regionalization of cities in the province of Cordoba were presented by Roberto A. Miatello; and the factors of pioneer frontier fortification, development of irrigation, railway construction, and mineral exploitation analyzed in the historical development of San Rafael and its region were discussed by Paul-Ives Denis.

Studies of the urban geography of Mexico ranged from general growth and distribution to specific cities. The relationships of urbanization and population growth within the dramatic increase in numbers and profound modifications in population distribution between 1910–1950 were observed by David

E. Snyder, who pointed out the rapid increase since the Mexican Revolution of the frontier cities of the north, along with the continual growth of Mexico City. Emphasizing the relationships between water resources and population growth, Maria Teresa Gutiérrez de MacGregor cited the basic requirement of water in the development and distribution of urban population and analyzed its growth and distribution in terms of three great regions based upon water divides to the Pacific, Gulf of Mexico, and interior and subdivided into zones, sub-zones, and hydrographic basins (139 in total). In a more limited study of Mexican urban geography, Erdmann Gormsen, focused on the differential developments of three groups of small cities in the states of Tlaxcala and Puebla between 1900 and 1960, on the basis of their patterns of population growth or relative decline. An analysis of the growth of the population of Puebla, fourth city of Mexico, was presented by Zaida Falcón de Gyves; and a brief description of Tampico was given by Renato Gutiérrez-Zamora. A study of the urban centers in Brazil was done by Lysia M. Calvalcanti de Bernardes.

Urban geography studies in other countries were somewhat diverse. Town planning problems were discussed in considerable detail by Colin G. Clarke. They stem essentially from the fact that population has been increasing much more rapidly than the capacity of the city of Kingston, Jamaica to employ and to house it. A similar situation was presented by Raul Guerrero and Hilario Hernandez, who focused attention on the industrial workers' suburbs of the rapidly-growing city of Concepción in south-central Chile. A somewhat rambling presentation of the changes that have been occurring in the movement from a predominantly rural life to urbanization in Venezuela was made by Marco-Aurelio Vila Comaposada who suggested the necessity of transforming the rural population into an urban life by providing modern facilities of medical assistance, education, electricity, water supply, market, etc. to the people in the country, and the need of geography to contribute to making this process viable. An urban-regional study of Cuzco was presented by Olivier Dollfus who considered Cuzco, in the southern Andes of Peru, in terms of a modern regional capital in an underdeveloped country sufficiently different from a regional center in industrial countries. The matter of internal organization of cities of Brazil, viewed in terms of varying degrees of complexity and of differentiation of functions, was outlined by Maria Therezinha de Segadas Soares. The Amazon region was characterized by either simple or complex forms of Manaus and Belem without intermediate degrees of urban development; the predominantly rural northeast characterized by simple internal organization with an ever-increasing number of cities with differentiated forms and with the two metropolises of Recife and Salvador of complex internal organization; and the Central-South with large areas of industrial development that run the gamut of simple internal structure through intermediate differentiated forms

to the complex metropolises of Belo Horizonte, Curitiba, and Porto Alegre and the greatly complex internal organizations of the two giant centers of Rio de Janeiro and São Paulo, comparable to the large metropolises of industrialized countries.

9. PHYSICAL GEOGRAPHY

Research dealing with the physical or natural features of Latin America were grouped under geomorphology, or the land forms of the earth, hydrology, and climatology. The attention given to geomorphology, especially by European geographers and to a lesser degree by Latin American geographers, has always been high. Geomorphic regions of the islands of Cuba and Hispaniola (Santo Domingo) have been delimited and described by E. Sarah Ysalguede Massip and Felipe Guerra Peña. Those processes operating in the geological history to form Central American and West Indian land forms were outlined by Richard H. Weyl. More detailed analyses of morphological features in regional settings have been made of the Pampa of Argentina by Pierina Pasotti and Alfredo Castellanos; and of the Tabasco area of Mexico by Norbert P. Psuty. Comparative studies of South America's arid regions with similar lands in the United States by Jean Dresch and of land forms of semi-arid regions of Brazil and West Africa by Suzanne Daveau produced interesting observations.

Geomorphological studies of small regions or of specific types of topography have ranged widely. Studies of mountain regions in Colombia (Sierra Nevada de Santa Marta) by John Frank F. Cunningham, and in Argentina (Sierra de San Luis) by Ricardo G. Capitanelli have been concerned not only with natural features but also human occupancy. Piedmont features in western Argentina (Alberto C. Regairaz and J. R. Videla Leaniz) and characteristics of the Valencia basin in the Andes of northern Venezuela (Leo Peeters) have been shown to be intimately tied to geological history. Topographic features also are related to differences in rocks, as shown in a Puerto Rican study by Watson H. Monroe. Volcanoes exhibit interesting details in connection with eruptions and with extensive glaciers in Chile (Eugene J. Wilhelm and Rómulo Santana). Topographic development of valleys in the Andes of Peru by Shuko Iwatsuka and in northwestern Argentina by Paulina Quarleri have been described. In two reports Roland Paskoff briefly sketched the lower courses of rivers in north central Chile. Chile also has provided the settings for studies of the changes occasioned by a 1960 earthquake and for analyses of the kinds and extent of erosion in south central Chile (Reynaldo Borgel O, José Francisco Araya and Donald R. MacPhail). Mexico and Central America (Henri Enjalbert) and the West Indies (Helmut Blume) have been areas of interest

for the study of terrain features that have developed in regions of extensive limestone formations.

Water resources are basic to man's existence, and studies of their occurrence occupied the attention of Eduardo J. Rodríguez Pujadas in Mexico (including a map showing 14 hydrological regions) and of Laura Elena Maderey R. in western Argentina. Possibilities of utilization of water resources have been made—critically in the case of Lake Titicaca by Albrecht Kessler and Felix Monheim, and non-critically in the case of Argentina's Río Bermejo by Zulma Lagrange Costabile. Also of considerable basic importance to man is climate, which has been described regionally for the Lerma-Santiago basin by Ernesto Jauregui O., and analyzed in terms of precipitation patterns in Mexico by Pablo Guzmán Rivas, Pedro A. Mosino and Enriqueta García. Climatic limitations to agricultural development in the Galapagos Islands have been analyzed by Leo Alpert with particular attention to precipitation and elevation. The overall relationships of rainfall to elevation in the Andes were presented by W. Weischet and D. Havlik.

10. VALLEY AND CITY OF MEXICO

A symposium on the Valley and City of Mexico resulted in the preparation of fifteen papers on various aspects of the geography of the region. A general description of the basin's setting, landscapes and boundaries was introduced by Berl Golomb. This was followed by descriptions of specific aspects of its physical geography, with three studies on climate by Pilar Vásquez Zepeda, Enriqueta García and Gilberto Hernández Corzo. Drainage problems in the basin were discussed by Rosario Ruipérez and John P. Cannon. A plea for a complete geomorphological study of the basin was made by Ruben López Recéndez.

Studies of economic and human geography ranged from a full description of the region by Angel Bassols Batalla to a detailed description of the central business district by Clyde E. Browning. Other studies of the basin itself were an examination of the growth of urban centers by Hector Sanchez Campero, and an outline of the agricultural regions of the Federal District by Reynaldo Mauricio Aceves García. Problems of circulation within the city in relation to growth patterns were analyzed by Manuel Rejón Núñez; an historical view of the locations of Mexico City's public markets was presented by Jane Pyle; and some economic-geographic aspects of the suburban zones were described by Claude Bataillon. The last paper of the symposium by Berl Golomb summarized some of the geographical changes in the Valley of Mexico.

11. SPECIAL MEETINGS AND ADDRESSES

Papers presented in the special meetings on the teaching of geography in

Latin America and on medical geography, as well as addresses by the principal officers of the IGU were published in Volumes V-VII. A general paper on the teaching of geography in Latin America was presented by N. V. Scarfe. Pedro Cañas Abril, Francisco Iglesias Blanco and Emilio Rodríguez Busto described the teaching of geography in Cuba. Two papers dealt with Peru (Teodoro Casana Robles and Nelly de la Cruz Llanos). Three papers dealt with Mexico (Antonio Sánchez Molina, José Chávez Flores and Dolores Riquelme de Rejón).

Papers on medical geography were mostly concerned with topical rather than regional subjects, though five dealt specifically with Mexico. These were devoted to the geography of leprosy by Fernando Latapi, dermatology and geography by Yolanda Ortiz, the medical geographical work of Domingo Orvanaños; weather charts and medical geography by Carlos Saenz de la Calzada; and 17th century Mexican astrologists and medical geography by German Somolinos d'Ardois.

Among the special addresses by the IGU President and Vice-President, only the one by Ferdinando Gribaudi was specifically related to Latin America. It examined the history of Latin America as a whole with Europe. The presidential address by S. P. Chatterjee of India cited a few examples in Latin America in its analysis of developing countries of the world.

12. RESEARCH TRENDS

In evaluating the overall results of the Regional Conference on Latin America of the International Geographical Union, one is confronted with the question of whether the papers that were presented and published really represent research trends on the geography of Latin America. A broader evaluation of such evidence as geographic publications within each country, of course, would need to be made in order to arrive at an even more representative evaluation. Nevertheless, the branches of geography emphasized by the papers do represent in a general way the research trends in Latin America, with more attention being given in recent years to the human side of geography, particularly as related to man's relationships to his resources and to problems of development.

In view of the vast field of Latin America—both in terms of area and of topics—and of the relatively small number of geographers doing research, big gaps exist and will continue to exist. The resume of papers in various branches presented in this paper reveals the limited coverage, both topically and regionally. Quite encouraging, however, were the number and quality of research efforts that were reported by geographers from the Latin American countries themselves, as well as those from the United States, from European countries—especially Germany, France and the United Kingdom—and from other parts

of the world. Increasing attention is being given to this extremely interesting and important part of the world.

LIST OF CONTRIBUTIONS

- ACEVES GARCÍA, REYNALDO MAURICIO (Universidad Nacional Autónoma de México). Regiones agrícolas del Distrito Federal. Tomo 4, 137–154.
- ALPERT, LEO (Army Research Office, Washington). Limitaciones climáticas al desarrollo agrícola en las islas Galápagos. Tomo 3, 485–499.
- ARAGONES, RUIPÉREZ ROSARIO DE (Universidad Nacional Autónoma de México). El sistema actual de drenaje de la ciudad de México como sustitución al sistema hidrológico del valle. Tomo 4, 100–112.
- ARANCIBIA DIAZ, NANCY (Universidad de Concepción). Impactos geográficos de la industria del acero en Chile; la siderurgia de Huachipato. Tomo 2, 659–676.
- ARAYA, JOSÉ FRANCISCO (Universidad de Chile). El sistema de erosión lineal en el clima templado cálico transicional de Chile. Tomo 3, 226–243.
- AUGELLI, JOHN P. (University of Kansas). Aspectos de la colonización agrícola y del desarrollo económico de la República Dominicana. Tomo 1, 278–290.
- BASSOLS BATALLA, ANGEL (Universidad Nacional Autónoma de México). La ciudad de México y su región económica. Tomo 4, 113–136.
Factores generales de población e históricos en la formación de las zonas y regiones geoeconómicas de México. Tomo 2, 425–434.
- BATAILLON, CLAUDE (Institute des Hautes Études pour l'Amérique Latine, Paris). Estudios sobre la zona urbanizada de la ciudad de México. Tomo 4, 205–211.
- BEAUJEU-GARNIER, JACQUELINA (Université de Paris). Efectos de la implantación de la actividad moderna en el seno de una estructura tradicional en países en vías de desarrollo: el ejemplo del petróleo en Bahía, Brasil. Tomo 2, 734–745.
- BECKER, BERTHA K. (Universidade do Brasil). Desenvolvimento do mercado interno e transformações recentes no sistema de abastecimento do Rio de Janeiro. Tomo 2, 489–504.
- BENNETT, CHARLES F. (University of California, Los Angeles). Algunas consideraciones sobre el hombre como agente ecológico en América Latina. Tomo 1, 22–30.
- BERNARDES, CALVALCANTI LYSIA M. DE (Universidade do Brasil). Circulação e rede urbana no nordeste do Brasil. Tomo 2, 505–514.
- BERNARDES, NILO (Conselho Nacional de Geografia, Rio de Janeiro). Tradição e evolução nos modos de utilização da terra no sertão do nordeste. Tomo 2, 414–421.
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