GEOGRAPHICAL RECORD

NORTH AMERICA

TRENDS IN MOBILE AND MODULAR HOMES. In 1940 there were fewer than 200,000 mobile homes in the United States, but since World War II more than 2.5 million of these dwellings have been produced. During the 1960's the West had the largest percentage of housing units that were mobile homes, followed by the South and then the North. Of the nine census subdivisions, the Mountain West led (4.2 percent); the Pacific West and the South Atlantic were next, with 2 percent each (Robert Mills French and Jeffrey K. Hadden: An Analysis of the Distribution and Characteristics of Mobile Homes in America, *Land Economics,* Vol. 41, 1965, pp. 131–139). Once truly mobile homes, units have become increasingly larger and are now more likely to be semipermanent than mobile. They tend to congregate in parks within urban fringes and adjacent rural areas. Since 1940 the distribution of parks outward from urban cores has paralleled the flight of urban dwellers to the countryside. Individuals who could not otherwise afford it have been able to attain suburban living; for many mobile-home dwellers reside in parks located where land costs less, where taxes are lower, and where official controls are less binding. Changes in the distribution of mobile-home parks are discussed by Richard L. Dunn (The Distribution of Mobile Home Park Development in Vigo County, Indiana, *Proc. Indiana Acad. of Sci.,* Vol. 80, 1970, pp. 362–364), who points out that not only did the number of mobile-home parks increase rapidly (from six in 1950 to fifty-two in 1970), but the average distance of the parks from the Vigo County courthouse in Terre Haute doubled. The state's 1955 enforcement of a sanitary engineering code and the city council's 1967 approval of a zoning ordinance that prohibited additional mobile homes and parks within city limits no doubt influenced the changes in location.

Living conditions inside mobile homes are somewhat cramped but usually not substandard, compared to other low-priced housing. Most mobile homes are owned by their occupants. Young, lower-middle-class working families, including many without children, probably form the overall majority of mobile-home occupants, but in some areas (parts of California and Florida, for example) retired persons are the largest group. In educational centers many students live in mobile homes. This is evident in Columbia, Missouri, where Columbia and Stephens colleges and the University of Missouri–Columbia are located. In 1968 about 7 percent of the area's residents lived in mobile-home parks, and almost half of these were college students (C. Taylor Barnes: Mobile Home Park Survey [City of Columbia Planning Department, Columbia, Mo., 1969]). In recreation areas mobile homes are grouped in parks or are dispersed in larger, individually owned plots. Many of these are second homes, used seasonally or on occasion throughout the year.

Mobile-home parks are often overcrowded, and mobile homes are characteristically poorly designed. Many city ordinances permit a maximum of eight mobile homes per acre, but in unregulated parks there may be sixteen or seventeen units per acre. Park owners who profit from rented spaces tend to emplace as many mobile homes as possible. Some of the more desirable qualities that improve

small-home living are discussed by Vernon D. Swaback in "Production Dwellings: An Opportunity for Excellence" (*Land Economics*, Vol. 47, 1971, pp. 321–338). A mobile home is usually "still a box, divorced from its setting and imprisoning to the senses." According to Swaback, Frank Lloyd Wright envisioned "the destruction of the box" by creating cantilevers and features to replace enclosing walls. Home colors should blend with adjacent environmental colors, but most mobile homes have shiny metallic exteriors which clash with their surroundings. A home should convey a closeness between its occupants and the environment and should never seem temporary or awkward. Yet normally when we visit mobile-home parks, whether they be old or new, the transient and incongruous appearance of the homes is immediately evident. Efforts should be made to enhance individuality, but on mobile-home exteriors we notice the use of unrelated and poorly designed features.

Because fewer than one in six mobile homes are moved again after their first emplacement, many occupants may soon prefer to move into permanent and more attractive dwellings at comparable or somewhat higher prices. The high fees for moving mobile homes aid this tendency. Also, hauling large units in congested areas and over high-speed arterial highways is undesirable. As the number of new housing units increases, it becomes easier for occupants to sell their small permanent home and move across country to another. Although the demand for mobile homes will continue, production of the units may decline in the next decade, owing to the increase in small permanent homes. The production of small modular homes (mini-mods) is rising. On-site teams who use conventional structural materials are incorporating modules into an impressive variety of small houses. In the future we will see more on-site assembling of finished compact items and of floor, wall, and roof sections which have arrived in repeating nesting units. For aesthetic and daily recreation reasons, we would hope that soon the new mobile and permanent small homes will be surrounded by more open land. Without national and local planning and without more responsible federal governmental actions, however, we may assume that there will be undue crowding in the new housing developments.—WILLIAM A. NOBLE

SOUTH AMERICA

COLONIZATION IN BOLIVIA. Colonization projects in Bolivia are no new feature of the country's development program. They have a long history and an extensive literature, in which the catalogue of grand design but recurrent failure spans the 148 years of Bolivian independence. The first phase of projected agricultural colonization in the Oriente was the most ambitious, for it was dominated by speculative foreign companies that sponsored European and North American immigrants. These large-scale ventures, involving (on paper) thousands of square miles, began in the early 1830's and ceased to be widely popularized only in the late 1920's. Sooner rather than later, however, the homesteading, canal, and railroad schemes for the virtually unpopulated savannas and forests of lowland Bolivia failed, through ignorance, isolation, and political obstruction. Foreign syndicates and individual pioneers alike became disillusioned by costs, hardships, and limited prospects; for the most part, only German and German-Swiss commercial enterprises in the few small towns of the Oriente survived.

Bolivia's own efforts to colonize the lowland, however, had already begun—

a plains movement dominated by plainsmen. By tradition, the old city of Santa Cruz de la Sierra possessed the manpower, the will, and the knowledge of the environment needed to pioneer the interior. *Cruceños* and *benianos* spread themselves sparsely across the eastern two-thirds of Bolivia, ranching on the Chaco fringe and in the Beni, growing sugar and dry rice, colonizing the small river ports and service centers, and advancing into the Yungas and the rubber forests of the far north.

In many respects the years 1952 and 1953 marked the beginning of a completely new phase of agricultural colonization. The Bolivian social revolution, with its program of agrarian reform, sponsored colonization as one important means of implementing new land policy: the subdivision of large estates and the distribution of small lots to peasant owners. But colonization was to be more than a sociopolitical device. The settlement of new areas was seen as a genuine attempt to relieve population pressure and miners' unemployment in the highlands, to boost agricultural production in the lowlands and lowland fringes, and to forge economic and transportation links between the "two Bolivias." Planned colonization of the eastern slopes of the Andes and of the Santa Cruz region accelerated after 1954 and involved, in addition to groups from other parts of the Americas and from overseas, Bolivian Indians from the Andean valleys and basins and from the Altiplano. Since the late 1950's many studies of the colonies have been published or lodged in typescript at the library of the Ministry of Agriculture in La Paz. There are field reports and articles by writers such as A. Torrico Arce (1956–1966), O. E. Leonard (1957), S. Sariola (1960), J. C. Crossley (1961), M. Arce Vargas (1962), R. W. Patch (1962), A. Linares (1962, 1964), B. Fricke (1966), R. E. Crist (1966, 1967), R. Henkel (1966), K. Wessel (1966), A. Edelmann (1967), J. V. Fifer (1967), and C. L. Dozier (1969). Extended studies and data have come from J. W. Marus and J. Monje Rada (Estudios de colonización en Bolivia [La Paz, 1962]), F. Monheim (Junge Indianerkolonisation in den Tiefländern Ostboliviens [Braunschweig, 1965]), and D. B. Heath, C. J. Erasmus, and H. C. Buechler (Land Reform and Social Revolution in Bolivia [New York, 1969]).

Wolfgang Schoop (Vergleichende Untersuchungen zur Agrarkolonisation der Hochlandindianer am Andenabfall und im Tiefland Ostboliviens, *Aachener Geographische Arbeiten, Heft 4,* Wiesbaden, 1970) has presented further commentary on Bolivia's colonization program in selected studies of highland Indians in the Yungas and the plains of Santa Cruz. Basing his report on a fifteen-month tour in 1966 and 1967, Schoop investigates the Caranavi district of the Alto Beni, part of the Santa Cruz region, and the Chapare zone below Cochabamba. He identifies three types of colonization in these areas: spontaneous (that is, not government sponsored), independent (formerly government sponsored), and directed (presently under the control of the national colonization institute). The Caranavi district is the most deeply dissected of all the areas studied, and unchecked clearing of narrow plots running upslope from roads and rivers by about 5000 families has already caused severe erosion. Spontaneous colonization remains popular here because of its relative cheapness and the ease with which homesickness can be relieved by maintaining family contacts on the Altiplano. Distance from "home" continues to be important: isolation from relatives and traditional social gatherings, particularly in the early stages of colonization, is

often harder to bear than any other change experienced in a new environment, in terms of unfamiliar landscape, climate, or different agricultural techniques. In the initial phase, nearly one-half of the women and the children of school age stay behind in the La Paz–Lake Titicaca region, where land rights are often retained. The independent colonies studied are those of Aroma and Cuatro Ojitos, two of the oldest in the Santa Cruz region sponsored and directed by the Bolivian development corporation and also partly by the army (between 1954 and 1964). Of the colonies under government supervision, exemplified again in the Alto Beni, in the Chapare, and at Yapacani, those presently directed by the Instituto Nacional de Colonización y Desarrollo de Comunidades (established 1964–1966) are the most fully documented, and they mark a new phase in planned settlement with special financial and technical assistance.

In all, Schoop has assembled and mapped considerable detail on local conditions. Relative costs, the degree of abandonment, land use, village morphology, transportation and market problems, and colonists' attitudes, anxieties, and prospects are examined and assessed in their geographical contexts. So far, the limited eastward migration has proved ineffective as a means of reducing population at the pressure points of the highlands. Although an estimated total of 85,000 colonists had left the Altiplano and principal intermontane basins at the time the study was made, the population in the highlands had increased by at least 800,000 between 1950 and 1967. Yet the eastward movement, though relatively small in scale, still attracts significant numbers of highlanders, and it now appears that it will continue to do so. Finding an acceptable compromise between the costly organized colonization and the cheaper, but often destructive, spontaneous settlement remains a formidable and increasingly urgent task.—J. VALERIE FIFER

AFRICA

PAST CLIMATES OF THE TIBESTI MOUNTAINS, CENTRAL SAHARA. The Saharan highlands stand out as topographical and ecological islands in the middle of a vast desert belt. They are better watered than the surrounding areas are; they harbor decimated remnants of a former Mediterranean flora; and they have facilitated mobile subsistence patterns by human groups since prehistoric times.

In 1967 Pierre Rognon published a massive geomorphological study (Le Massif de l'Atakor et ses bordures [Sahara Central], [Paris, 1957]) of the high Hoggar (2918 meters, 23°20′N), which demonstrates a surprising array of Pleistocene cold-climate forms. These do not include true glacial features, but firn and snowpatch erosion at 2400–2600 meters are convincingly recorded by nivational niches, firn moraines, and protalus ramparts. Recently, Bruno Messerli (Formen und Formungsprozesse in der Hochgebirgsregion des Tibesti, *Hochgebirgsforschung,* Vol. 2, 1972, pp. 23–86) has opened similar vistas for the Tibesti (the highest peak of which is Emi Koussi, 3415 meters, 19°50′N). Although nivational traces are absent on Emi Koussi and questionable on Tarso Ahon (3325 meters, 20°23′N), they are well developed on Mouskorbé (3376 meters, 21°21′N). The clearest nivational niches of the Mouskorbé are at 3000 meters; although detailed mapping was precluded when Messerli's field work was terminated by the political unrest of 1968, the photographic documentation of the firn moraines and/or protalus ramparts, including large blocks that once slid over large snow masses or

avalanched into place, is particularly convincing. These nivational processes were paralleled by large-scale mechanical weathering of crude talus, by rock falls, and by mass movements that, farther downslope, antedate early Holocene (Carbon-14-dated) lake beds.

Although quantitative paleoclimatic deductions are impossible, significant climatic changes are implied. The Tibesti today appears to experience between fifty and seventy freeze-thaw days a year; and, although minima of −10°C. are known above 1000 meters, daytime insolation is intensive, whereas any nightly frost penetration into the soil is minimal (see Karlheinz Kaiser: Über Konvergenzen arider und "periglazialer" Oberflächenformung, *Abhandl. 1. Geogr. Inst. Freien Universität Berlin,* Vol. 13, 1970, pp. 147–188; and D. Indermühle: Mikroklimatologische Untersuchungen im Tibesti-gebirge (Sahara), *Hochgebirgsforschung,* Vol. 2, 1972, pp. 121–142). Also, precipitation is sparse, for the high country receives no more than 100–250 millimeters annually (M. Winiger: Die Bewölkungsverhältnisse der zentralsaharischen Gebirge aus Wettersatellitenbildern, *Hochgebirgsforschung,* Vol. 2, 1972, pp. 87–120). Snow rarely falls.

Evaluation of other so-called periglacial phenomena of the Tibesti is more problematic. Some authors with limited arid-zone experience have claimed the existence of modern patterned ground and other specific soil-frost phenomena above 2000 meters (J. Hövermann: Hangformen und Hangentwicklung zwischen Syrte und Tschad, *in* L'Evolution des versants [edited by P. Macar; Liège, 1967], pp. 139–165; and Horst Hagedorn: Landforms of the Tibesti Region, *in* South-Central Libya and Northern Chad: A Guidebook to the Geology and Prehistory [edited by James J. Williams; Tripoli, 1966], pp. 53–58). Both Messerli and Kaiser, however, show that soil moisture is inadequate, that needle ice and soil frost are absent, and that patterning is in fact related to sheetwash or to swelling and contracting of clayey or salt-rich substrates.

Messerli believes that dissected, brown, silty sediment mantles as low as 1300–1500 meters reflect Pleistocene frost-generated solifluction, and he emphasizes the subhorizontal interlayering of crude angular detritus as well as apparent field relationships with massive talus developments (above 1800 meters). Messerli also describes a 2-kilometer-long "rock glacier" between 3000 meters and 2200 meters on the slopes of Mouskorbé, and he attributes this badly eroded "stream" of crudely stratified, partly lenticular but in general poorly sorted detritus to freeze-thaw dynamism, facilitated by a clayey substrate. Because angles exceed 20° at the upper terminus and drop below 13° at the lower terminus, correlation with "older" nivational forms at 2700 meters is suggested. Although Messerli's interpretations of these disparate features may be correct, the case for periglacial origins is inconclusive. Similar soil and scree mantles in Spain (Karl W. Butzer: Pleistocene Cold-climate Phenomena of the Island of Mallorca, *Zeitschrift für Geomorphologie,* Vol. 8, 1964, pp. 7–31; *idem*: Geomorphology and Stratigraphy of the Paleolithic Site of Budiño (Prov. Pontevedra, Spain), *Eiszeitalter und Gegenwart,* Vol. 18, 1967, pp. 82–103; and *idem*: Environment and Archeology: An Ecological Approach to Prehistory [2nd edit.; Chicago and New York, 1971], pp. 297–299 and 306–311) and southern Africa (K. W. Butzer: Pleistocene "Periglacial" Phenomena in Southern Africa, *Boreas,* Vol. 2, 1973, pp. 1–12) are better attributed to sheetwash and creep, with or without frost-generated motions, regardless of whether the crude detritus owes its origin to frost shatter-

ing. The "rock glacier" is highly suggestive of frost dynamism, but it is difficult indeed to accept Messerli's implicit argument for permafrost. Similar reservations apply to Rognon's "periglacial" phenomena in the Hoggar. Seen in isolation from the nivational evidence, the case for two episodes of cold Pleistocene climate is plausible but not unequivocal.

Of equal interest but less novelty is the increasingly substantial record for ancient lake or marsh deposits in several Tibesti valleys. Messerli's observations are complemented by those of Karlheinz Kaiser and S. H. Jaeckel (Quartäre Seebildungen und ihre Mollusken-Inhalte im Tibesti-Gebirge, *Zeitschrift für Geomorphologie,* Vol. 16, 1972, pp. 182–234), which include a fine molluscan study and a large suite of radiocarbon dates ranging between 15,000 and 6000 B.P. Hopefully, a more detailed stratigraphy, comparable to that of the extensive late-Pleistocene to mid-Holocene lakes of the Chad Basin (see Michel Servant and Simone Servant: Les formations lacustres et les diatomées du quaternaire récent du fond de la cuvette tchadienne, *Rev. Géographie Physique et de Géologie Dynamique,* Vol. 12, 1970, pp. 63–76) can be achieved in future work. Preliminary pollen work in lacustrine beds of the Tibesti (J. Maley and others: Quelques formations lacustres et fluviatiles associés à différentes phases du volcanisme au Tibesti, *Cahiers O.R.S.T.O.M., Serie: Géologique,* Vol. 2, 1970, pp. 127–152) now shows that all "exotic" arboreal pollen grains were derived from older Pliocene beds and that only tamarisk and subdesert shrubs were actually coeval with the ancient lakes. Consequently, a cautious hydrological budget needs to be attempted, as it was for the "high" East African lakes (see Karl W. Butzer and others: Radiocarbon Dating of East African Lake Levels, *Science,* Vol. 175, 1972, pp. 1069–1076) to determine just how moist the early- to mid-Holocene "pluvial" episodes really were. Finally, the Tibesti materials now available require synthesis and evaluation, within the data framework of other, better-known areas between the Atlantic Ocean and the Red Sea.

These recent studies in the Tibesti, no matter how exploratory, show dramatically how desert landforms and biota can be understood only in a proper historical perspective.—KARL W. BUTZER

ASIA

RECENT SOURCES OF DATA ON AFGHANISTAN. Long neglected by American social scientists, Afghanistan is currently inundated with requests from American scholars for permission to do field research there. Several factors account for this awakened interest. Many South Asian scholars who formerly concentrated their efforts on India and Pakistan now find it difficult to gain entry to these countries. Consequently, they are turning their attention to the peripheral South Asian countries, such as Afghanistan and Nepal.

The dilemma of including Afghanistan in an area studies group has finally been resolved. Heretofore, Afghanistan was part of South Asian, Central Asian, or Middle Eastern area study groups. Early in 1972 an Afghanistan Studies Association was formed in the United States, and the South Asia Regional Council of the Association for Asian Studies accepted a petition by this group to be included as its Afghanistan Committee. An Afghanistan Studies and Research Program was created at the University of Nebraska at Omaha. Thus a forum has been created for scholarly exchange and debate on Afghanistan.

Unlike other countries of South Asia, Afghanistan lacks a corpus of published aggregate data, such as censuses, district handbooks, and government documents, which aid the social scientist in field research. However, in the past two decades the government of Afghanistan, largely under the aegis of international sponsorship, has undertaken several projects to obtain census materials. The country has now been surveyed and topographically mapped at scales of 1:250,000, 1:100,000, and 1:50,000, under the supervision of the Soviet and United States governments. However, the two larger scaled topographic series could be purchased only during the early 1960's, and they are not currently available from the Afghan Cartographic Institute. A set of 1:250,000 maps is deposited in the Department of Geography, University College London, and a few American scholars possess maps at larger scales. More complete sets of 1:100,000 maps are available in geography departments of several West German universities.

The emergence of scholarly research is also evident in the contributions by German social scientists, whose studies of Afghanistan are considerable in scope, areal extent, and number. These are cited in the most exhaustive bibliography on Afghanistan to appear thus far: Ernst A. Messerschmidt and Willy Kraus's "Bibliographie der Afghanistan-Literatur, 1945–67" (2 vols.; Hamburg, 1968), which complements an American bibliography by Donald N. Wilber (Annotated Bibliography of Afghanistan [3rd edit.; New Haven, 1968]). Several nineteenth-century classics on Afghanistan are now available in reprints, including Mountstuart Elphinstone's "An Account of the Kingdom of Caubul" (Graz, 1969) and John Biddulph's "Tribes of the Hindoo Koosh" (Graz, 1971).

Of significance to social scientists working in Afghanistan is the publication of the "Historical and Political Gazetteer of Afghanistan" (edited by Ludwig Adamec; Graz, 1972), an updated and edited version of the "Gazetteer of Afghanistan," which was compiled in 1914 by the General Staff of British India and was until recently a secret classified document. The first volume of the gazetteer, "Badakhshan," bodes well for the subsequent volumes, which are to be published in the next two years. Despite its new designation as "historical and political," which may reflect the editor's academic proclivity, the gazetteer will become the basic contemporary reference source on Afghanistan until that distant time when Afghanistan conducts a population census. The approximately one thousand entries in the "Badakhshan" volume contain primarily cultural, ecological, and geographical descriptions, population data for settlements, and information on strategic physical features, such as prominent mountains, mountain passes, and rivers. All entries are provided with locational coordinates and spellings in Perso-Arabic script, and most entries on settlements have a brief description of the number of houses, the ethnic and/or tribal affiliation, and the principal occupation of residents as of fifty years ago. A word of caution is in order at this juncture, for several entries do not correspond to the standard romanized transliteration system (U.S. Board on Geographic Names and the Permanent Committee on Geographical Names for British Official Use 1958 System for Persian) used in a contemporary place-name gazetteer ("Afghanistan: Official Standard Names" [Geographic Names Division, U.S. Army Topographic Command, Washington, D.C., 1971]). Nor do the locational coordinates always coincide. A valuable addition to the new gazetteer is the inclusion at the end of the volume of the Afghan Cartographic Institute's 1:250,000 maps of Badakhshan, reduced to 1:300,000.

Regrettably, a cumbersome cross-reference system is employed. The simple addition of map number and quadrant (such as 504 S.E.) to each place-name entry would greatly facilitate the use of the topographic sheets listed in a nonstandardized fashion at the end of the volume.

Some other minor improvements could have been made in the revised edition of the gazetteer. Afghanistan has rarely used the English system of measurement, so it would have been more appropriate to convert all distances and elevations in the revised edition to the international metric system. Vernacular terms for measurement, including the elusive *farsakh* (12,000 paces), are defined in the comprehensive glossary, but metric measurements are increasingly used in urban and rural Afghanistan. For strategic military reasons, the British methodically collected information on mountain passes; many passes are cited in the gazetteer although they are not named on the 1:100,000 Afghan Cartographic Institute topographic maps, especially the passes between Badakhshan and Nurestan.

The gazetteer will be an indispensable reference guide to all social scientists working in rural Afghanistan. If the field researcher uses it in conjunction with other gazetteers ("Qamus-e Jughrafiya-ye Afghanistan") and with an unpublished agricultural census (1967 Nationwide Agricultural Survey), which covers 15,000 villages, he will gain considerable insight into the cultural and ecological aspects of rural Afghanistan. At present the revised gazetteer complements other notable standard reference works on Afghanistan, such as N. I. Vavilov and D. D. Bukinich's "Agricultural Afghanistan" (*Bull. of Applied Botany, of Genetics, and Plant Breeding, Supp. 33*, Leningrad, 1929); "Dictionary of the Pathan Tribes on the North-West Frontier of India" (India, Department of the Army, Calcutta, 1910); J. Humlum's "La géographie de l'Afghanistan" (Copenhagen, 1959); and "Afghanistan: Natur, Geschichte, Gesellschaft, Staat, Wirtschaft und Kultur" (edited by Willy Kraus; Tubingen, 1972). A forthcoming book by Louis Dupree (Afghanistan: Land of Insolence [Princeton, N.J., in press]) promises to be the best general reference work in English on Afghanistan.—NIGEL J. R. ALLAN

SETTLEMENT PATTERNS IN LUZON. Even a casual observer of settlement in the central plain of Luzon could easily discover two distinctive settlement types which exist side by side throughout the region. The more striking of these is characterized by a central plaza bordered by a church, a market, administration buildings, and perhaps the homes of a number of leading citizens. The spatial arrangement reminds the native New Englander of the village green near his ancestral home. Instead of maples, however, the Philippine plaza is frequently surrounded by acacia trees, which provide both shade and, at the appropriate season, magnificent splashes of orange or red. A line of small *sari-sari* shops and a bus terminal mark the front of the public market and face the plaza, with its statue of José Rizal. Jeepneys, buses, carriages, motorized pedicabs, vendors, shoppers, and bicycles slow traffic on the adjacent main street to a crawl. Opposite the market the impressive stone church, of a design reminiscent of Spain, appears out of place. The plaza complex provides a central focus for the rest of the town, which crowds in on it from all sides. This highly nucleated settlement type, known as *cabecera,* often lacks the rectangular grid but is otherwise similar to towns built by the Spaniards in the Western Hemisphere.

More commonly, a row of homes is strung along the sides of a road or water-

way, with no apparent focal point, no plaza, no stone church, and no large market. Some of the homes are shaded by banana plants and mango trees; some have small vegetable gardens at the side. Others maintain a repair facility for jeepneys or offer a few staples for sale. Behind the homes is the leading edge of a sea of cultivated paddies or cane fields which extend, unbroken, to the horizon. The end of one settlement and the beginning of the next may be marked by a somewhat lower density of buildings or even by a few hundred yards devoid of habitation. Settlements such as these are often called shoestring villages or are classified by the German term, *Strassendorf.*

What cultural and physical phenomena caused such distinct settlement types to develop? If these patterns have not existed from the earliest times, when and where was change introduced and what pattern did the elaboration follow? A thesis by Daniel Frederick Doeppers (Hispanic Influences on Demographic Patterns in the Central Plain of Luzon, 1565–1780, *Journ. of East Asiatic Studies,* Vol. 12, 1968, pp. 11–96) directs attention to such questions. It is concerned with patterns of the distribution of people and settlement types on the central plain of Luzon and emphasizes the attributes of location, extent, and density. By studying the changing patterns over time, the thesis effectively attacks the question of succession, both of settlement type and of population change.

In 1571, when Spain's hegemony in Luzon's central plain began, population density and settlement forms were different from those of today. Permanent settlements were limited to the immediate hinterland of Manila Bay, where speakers of the Tagalog and Pampango languages had already separated themselves along a transition zone that persists to this day, and to the coast of the Lingayen Gulf, where Pangasinan was the dialect, as it is today.

In their new colony the Spaniards found a number of small hamlets, with an average population of perhaps 400, and a few larger trading settlements. The local economy depended on the cultivation of rice in flooded fields, with fishing a vital subsidiary occupation and with hunting of only secondary importance. Most settlements consisted of a single string of homes near the bank of a river. Alluvial land beyond the stream apparently provided the most suitable sites for the production of wet rice; the rivers themselves were sources of fish, were arteries of transportation, and supplied water for domestic consumption. Clearly the Strassendorf preceded Spanish influence in Luzon.

Early Spanish exploration also revealed that Luzon was not replete with the gold and other valued items so easily acquired in earlier Spanish conquests of Mexico and Peru. A successful Philippine venture would have to be derived from the collection of tribute through the *encomienda* system and from the salvation of souls through the diffusion of the Roman Catholic faith.

Spanish resources and personnel were sorely strained in the last decades of the sixteenth century, and relatively few settlers, soldiers, or friars could be diverted to the Philippines. The lack of large agglomerations of "heathen" was a serious handicap to the missionary effort, since much time and energy was expended in travel from village to village. To help solve this problem, in 1585 the Spanish Crown advocated the concentration of the population in focal settlements. The new settlements were to be formed around a plaza and were to be built by conscripted native labor. By 1590 inhabitants of the thirty-one hamlets of Bataan had been concentrated in the two new villages of Abucay and Samal. Other cen-

tral towns were built north of Manila Bay and south of the Lingayen Gulf. However, the effort "to convert and settle [the natives] within the sound of the church bells" met resistance in parts of the central plain, and many shoestring hamlets persisted.

Several of the new central villages showed a remarkable population increase, but others grew slowly. Irrespective of population dynamics, each new central town, with its regularly attended church, its central plaza, and its concentration of public buildings, was characterized by a marked elevation of functional prominence which persists today.

By 1640 settlements such as Mexico, Malolos, Apalit, Gapan, Lingayen, and twenty-five others in the central plain had been replanned and rebuilt under the direction of Augustinian, Dominican, and Franciscan missionaries. During the next 120 years at least fifty additional cabeceras were built, mostly in the present provinces of Tarlac, Nueva Ecija, and the northern half of Pampanga.

The earliest changes had permanent effects. Each of the thirty cabeceras dating from 1640 or earlier has risen at least to the level of municipal capital (*población*), and one, Malolos, served briefly as the national capital. Those cabeceras dating from the eighteenth century include Tarlac and Cabanatuan, both currently provincial capitals, and a host of widely known municipal capitals, such as Paniqui, Camiling, San José, and Baliuag.

Four hundred years after the first Spanish attempts at consolidation the village is still a part of the landscape in central Luzon. Despite the apparent advantages of the town's church-plaza complex, villages, many of which maintain the Strassendorf form, outnumber the cabeceras by at least fifteen to one and still house at least 85 percent of the population. To the casual observer, however, the cabecera appears to dominate the scene because it is a focus of trade, transportation, religious activity, higher education, and government administration.—ROBERT E. HUKE

ECONOMIC GEOGRAPHY

INFORMATION FOR REGIONAL DEVELOPMENT. Regional development efforts, from the least to the most technically advanced countries, continue to be frustrated by constraints on information. Regional development means a rise in the per capita magnitude of production, income, and social well-being and a concomitant change in the structure of the society and the economy. The traditional approach of applying economic analysis to particular problem regions has gradually given way to concern with the structure and balance of all regions, successful or not. Information consists both of the knowledge of the real world necessary for evaluation and decision making and of the decisions, preferences, directives, and innovations by which the world is transformed.

Information on regional stocks (characteristics of people and activities) and on flows (transactions between people and activities over space), which together define the interindustrial and interregional structure of an economy, is essential to a realistic evaluation of the nature and severity of regional problems, to the identification of appropriate strategies to deal with these problems, and to the estimation of probable subsequent impacts on all regions. However, this final predictive step assumes that information, consisting of directives, innovations, and opportunities, is successfully transmitted, interpreted, and accepted. Even in

highly developed societies, with excellent transport and communication systems, the diffusion process is imperfect; in less developed socieites the problem is all the more severe.

The foregoing suggests a set of questions, simple to pose but apparently most difficult to solve. How can we describe and model the dynamic space-economy (changes in the interregional structure of activities, people, and flows), and how can we most effectively induce "regional development"? What spatial levels, time intervals, and kinds of data are required for these tasks, and how can we collect, analyze, and present the data? How can we most effectively disseminate the necessary changes in attitudes and the desired innovations? In "Information Systems for Regional Development—A Seminar: General Papers," edited by Torsten Hägerstrand and Antoni R. Kuklinski (*Lund Studies in Geography, Ser. B. Human Geography No. 37,* Lund, 1971) the first question, the nature of the space-economy, is addressed by J. R. Lasuén, C. Jaumotte, J. Paelinck, and Olof Wärneryd; the second, the problem of information, is the concern of Tormod Hermansen, Charles L. Leven, Owe Salomonsson, Helmer Wallner, and Jean Forbes; and the third, the diffusion of information, is treated by Poul Ove Pedersen, R. P. Misra, Peter Gould, and Gunnar Törnqvist.

With respect to the interregional economy and the process of regional development, it is reassuring to see the realistic emphasis on regional interdependence. The warning that knowledge of regional growth processes and change is necessary before regional planning can be effective is well taken, as is Lasuén's demonstration of the increasing scale and industrial and spatial complexity of enterprises and of the greater speed of technological and other changes. Misra and Leven show well the importance of the social aspects of development, but their suggestion that social concerns should take precedence over economic investments is not convincing. Undue faith may have been placed in the ability of government decisions and investments to effect change (at least in the Western economies). Growth centers, growth poles, and growth foci are frequently invoked, but with no clear sense of their effectiveness in regional development.

The models of regional development and planning are ingenious: Lasuén argues that in the short run regional shares change according to invariant allometric rules, but that in the long run exogenous decisions also alter regional structure. However, I wonder whether empirical allometry masks vital heterogeneities in regions, which may lead to unsuspected change, and whether the conclusion that less developed regions must adopt innovations in even shorter times than more developed areas is so felicitous. Will this aggravate the dualistic character of such regions? Jaumotte and Paelinck present the model we seem to need—an interindustry, interregional dynamic programming formulation; but we lack the data to run it and the knowledge of the relations to structure it. The formulation also demands expanded awareness of growth processes to self-correct it and enlightened values to judge it. Wärneryd provides a comforting operational model that allocates activities with respect to population and the spread effects of these decisions by knowledge of interregional migration.

I am forced to conclude, on the basis of not just this valuable work but of any and all contributions to regional development, that we do not know enough about the spatiotemporal structure of any economy to describe the local, regional, and national impacts of location decisions, to determine which activities

or investments would be "best" for an area, or to determine whether the "regional development" decided on will result in system gains or losses. Nor do we know whether growth centers work, or how; what the real economics of varying degrees of concentration and dispersion of people and activities might be; and just what information is needed to be able to answer these questions or, in regions, to implement planning decisions most effectively.

On the information side, the understanding, if not the practical implementation, is clearer. Hermansen outlines well the kinds of information and their roles: real-world data, control information, technical information (including innovations), and the importance of expanded and better data on flows and other transactions and of preferences, prejudices, and other kinds of control information. He argues the virtues of a unit area spatial grid for data registers as a neutral or value-free and unchanging vehicle for enumeration. Salomonsson and Wallner explain the continuing Swedish experience. Leven eloquently presents a two-level regionalization consisting of the real daily urban system (labor commutation–daily transaction region) at the lower level and "life adjustment space" at a broader level; and he reveals his preference for more smaller planning areas over fewer, larger ones. Forbes notes that little agreement exists on even the definition of socioeconomic variables across cultures. Not surprisingly, the unusually talented participants did not attempt to reach a consensus on the ideal regionalization, either for development or for information banks. Misra observes the strong cultural and physical barriers at the village level in India to the diffusion of information (innovations), and in the most effective integration of the twin themes of information and regional development suggests the role of growth foci (really local central places with a special function of information spread). Pedersen recognizes the distinction between household innovations (durable consumer goods and attitudes) and entrepreneurial innovations (new businesses), and he points out the greater importance of "contagious diffusion" along transport and communication systems in less developed countries and of hierarchical diffusion in more developed ones. Gould and Törnqvist note the dominance of vertical hierarchical information flows, the concentration of innovation and decision making, and the major role of leadership in the diffusion process. Paelinck's call for more information for evaluation and guidance is certainly timely, but Hermansen's "prospective" data (forecasts) presuppose an understanding of the development of the space-economy that we do not yet possess.

Where do we stand with respect to "information for regional development"? Since the seminar, which was held in 1969, regional planning and regional development have become increasingly concerned with environmental criteria and consequences and with citizen participation (including some shifts in criteria from efficiency to equity and from the preferences of enterprises to those of people). In more developed countries the simplistic goal of growth and development defined as increase in per capita income is now doubted. These concerns also define changes in the kinds and sources of information required for decision making. In my own participation in regional development and planning, the following kinds of information have proved necessary, if admittedly not fully achievable: the extent of the region as determined by the problem (such as metropolitan health care); definition of system structure (the degree to which local resources meet local needs; internal activities and transactions; external transac-

tions—export specialties or the role in the national and world economy; and imports and flows of funds and of people); identification of the processes regulating change in this structure; identification of citizen, government, and business goals, preferences, and conflicts; and identification of feasible alternative approaches to regional needs and estimation of their relative effectiveness, acceptability, and impact on the entire national system.—RICHARD L. MORRILL

CULTURAL GEOGRAPHY

EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT GOATS BUT WERE AFRAID TO ASK. The origin of goat domestication is unclear, but most evidence indicates that the practice began between 7000 and 10,000 years ago, in the part of southwestern Asia inhabited by wild Bezoars *(Capra hircus)*. In addition to the Bezoars four fairly distinct groups of wild goats now exist. The ibex group *(C. ibex* and *C. pyrenaica)* occupy mountain habitats from Spain to Soviet Central Asia to Ethiopia. The Turs *(C. caucasica)* are heavy animals found only in the Caucasus Mountains. The Markhors *(C. falconeri)* are encountered in the high country from Afghanistan to Kashmir. The Tahr group, which belong to a different genus *(Hemitragus)*, are scattered in mountains from Arabia to Tibet. The Bezoar is considered to be the progenitor of most domestic goats, with some contribution from the Markhor and the Abyssian ibex.

The variety of domesticated goat breeds is bewildering. Most European breeds are primarily milch goats, but on other continents, particularly Asia and Africa, meat-producing types are emphasized, and a few varieties—most notably Angoras and Kashmirs—are bred for their wool. The total world population of domesticated goats (1965–1966 estimate) is considered to be 380,000,000; the goat:sheep:cattle abundance ratio is calculated to be 1:2.7:2.8. More than half of the world's goats live in Asia, mainly in India and China, and another fourth live in Africa, especially in Nigeria and Ethiopia.

Despite the vast extent of goat keeping in the world, it is probable that goats are the most maligned of all herbivorous mammals. They have a reputation for an unpleasant odor, a capricious nature, and an indiscriminate appetite, but it is their alleged proclivity for overgrazing that gives rise to the worst blemish on their reputation. Their association with the deterioration of vegetation has led the caprine tribe to be blamed for a wide variety of world problems, from accelerated erosion and denuded forests to increased aridity and pauperized societies. Several countries have attempted to reduce substantially or even to eliminate goats, at least in certain localities and under certain circumstances.

However, a recent United Nations publication (M. H. French: Observations on the Goat, *FAO Agricultural Studies No. 80,* Rome, 1970), signals that goatdom now has a champion. The author, chief of FAO's Animal Production and Dairy Service, brings the prestige of that position to bear in a spirited defense of the animal that is perhaps the oldest form of domesticated livestock and is the most dispersed of contemporary farm animals.

An array of evidence can be presented in support of goats and goat keeping. They are small animals, with relatively low maintenance requirements, but are noted for high productivity in poor habitats. Goats are resistant to diseases and to parasites, are easy to rear and manage, and are extremely adaptable. They are adept at scrub clearance, and their browsing habits are well suited to increasing

the productivity of rangeland for more discriminating grazing animals. Moreover, the varied products that can be obtained from goats (milk, meat, leather, hair) are valuable at almost any scale of husbandry operation.

French's monograph provides a wealth of detail about goats and goat management, some designed to give luster to a tawdry image. The bibliography is splendid and varied, but the reference value of the volume is severely curtailed by the lack of specific citations: there is not one footnote.—TOM L. MCKNIGHT

THE PILGRIMAGE TO MECCA. The Muslim pilgrimage to Mecca, the *hajj*, is one of the most remarkable of population movements. Although other pilgrimages involve greater numbers of people, as for example in India, the annual pilgrimage to Mecca stands out for the breadth of the area from which pilgrims come—from the eastern shore of the Atlantic Ocean to East Asia—and for its thirteen centuries of history. "The pilgrimage is one of the world's greatest gatherings of different races and languages" and has tremendous impact, not merely on Mecca and Al Ḥījaz of Saudi Arabia, but also on the economic well-being of cities elsewhere on the pilgrims' routes and on the entire transportation network of the area. Russell King, in "The Pilgrimage to Mecca: Some Geogfaphical and Historical Aspects" (*Erdkunde*, Vol. 26, 1972, pp. 61–73), has assembled information on the hajj from a variety of sources and has provided especially useful information on the contemporary pilgrimage. Data are given regarding port and airport construction at Jiddah, local transportation, and health measures and shelter provisions undertaken by the government of Saudi Arabia. Large sums of money are invested in these facilities, although the pilgrimage is no longer the dominant factor in the country's economy, thanks to the oil industry.

The pilgrimage to Mecca cannot be understood purely in theological terms; it must also be viewed in the sociopolitical context of Arabia and other Muslim areas. From this standpoint King's omission of a discussion of the pilgrimage as a device for religious politics throughout the history of Islam is disappointing. Among educated classes which incline toward agnosticism or atheism and for which Islam has lost its content, the pilgrimage is now in the ascendancy in places as far apart as the Maghreb and Iran. In the Persian realm the political aspect of the pilgrimage has survived; in fact, it has been strengthened by prolonged interaction with the West. Contact with the West contributed at first to a decline in participation in pilgrimages and in the religious devotion of the educated segments of modern society. In recent decades, however, attitudes have changed, notably in relation to the hajj. In northwestern Africa the hajj is undergoing an upward valuation, if for no other reason than its possible political utility. Unlike semisecular Western intellectuals, who have tended to form quasimystical or existential versions of their historical religions, Muslim intellectuals, with a few notable exceptions, have turned sharply to a political conception of Islam as a means of nation building and as a vehicle for ideological influence.

Despite the political prominence of the hajj, Mecca, save for the earliest period, has never become the political center of Islam. It was neither a political capital of an important Arab-Islamic state nor an outstanding center of Islamic thought and theology. The reason is partly environmental: the towns of the Ḥījaz were surrounded by relatively empty areas, in contrast to the populous and more advanced countries of the Islamic perimeter. Also of note was the hostile attitude

of the Bedouin tribes that inhabited most of the Hījaz and adjacent regions and habitually attacked and plundered the pilgrim caravans. These Bedouin—overwhelmingly adhered to their pre-Islamic beliefs, as William Gifford Palgrave pointed out in his discussion of Bedouin religion (Narrative of a Year's Journey Through Central and Eastern Arabia, 1862–1863 [2 vols.; London and Cambridge, England, 1865], Vol. 1, pp. 8–11). Ironically, after some Bedouin tribes were completely converted during the Wahhabi reformation of the eighteenth century, they posed a more serious threat to the pilgrimage than they had before their conversion. In the Wahhabi view the pilgrimage was tainted with *bida* (impermissible innovations), and the beliefs and practices associated with the pilgrimage and the sacred places of Mecca and Medina were marred by *shirk* (the association of persons and things with God). Muslim reformist zealotry thus further interrupted the pilgrimage. Had Islam been a stronger force in the Arabian peninsula, Mecca might have become an important political and certainly a major theological center. Or had Arab political power retained its ascendancy in Islam, Mecca might have retained its greatness. But the leadership of Islam rapidly fell into non-Arab hands. As early as 1377, ibn-Khaldun wrote, "The days of Arab rule were over. . . . The power was seized by others, by non-Arabs like the Turks in the east, the Berbers in the west, and the European Christians in the north (The Muqaddimah [translated by Franz Rosenthal; 3 vols.; New York, 1958], Vol. 1, p. 57).

The rise of strong non-Arab Islamic states and the de-Arabization of Islamic power fostered and protected the pilgrimage, which had political value for Islamic sovereigns. King describes the political significance of the *mahmal,* the ruler's tribute which was sent to Mecca as a sign of respect by Muslim countries, as "an attempt to establish suzerainty and protective responsibility over the holy city on the part of the sender." Suzerainty was valued because it was thought to confer religious legitimacy, the only possible legitimacy in Islam, on an imperial ruler. Muslim theology has never defined what constitutes political legitimacy in a sovereign. The control of the pilgrimage, the fragile link with the geographical center of the faith, supplied a quasi legitimacy which the doctrine of the various Muslim schools could not provide. Thus for territorial rulers the pilgrimage assumed a critical political importance far beyond its significance as a meritorious act. At the same time, rulers did not confuse the legitimacy of power with its reality, and challenges from Mecca and the Hījaz were countered in the instance of Selim I, who asserted his universal caliphate over the whole Islamic community by transferring the prophet's cloak and other relics to Istanbul. On the other hand, the Ottoman Turks protected the pilgrimage routes, especially the Istanbul-Damascus-Mecca one. Although complete security was rarely achieved, the safety of those routes stood in stark contrast to conditions in other areas, such as Palestine, which was devastated by Bedouin raids as late as the eighteenth and nineteenth centuries.

King's discussion of the origin of the hajj is weak. He merely mentions that the sanctity and importance of Mecca had roots in pre-Islamic times (Mecca "had long been a holy city of sorts"), that Mecca had "foreign communities including Christians and Jews," and that it was a prominent commercial center as well as a significant regional ceremonial and cultural center for pagan Arabs. All these factors are important, but they do not justify the summary judgment that "the

moslem pilgrimage had its origin as a pagan institution of the surrounding Arabs." King assigns too much weight to attributes that Mecca shared with other ritual and trading centers of Arabia and not enough weight to Islamic writing and historiography. Many places had *mahram,* or sacred enclaves controlled by "holy" families who possessed nobility, or *sharaf,* and virtue, or *fadl,* and who expounded laws and tied tribal groups to the sanctuary by treaties. These treaties maintained the inviolability of the *haram,* or sacred place, by force of arms, if necessary, and in turn extended protection to others. The site of Mecca did not favor it as a pilgrimage center over any number of similar places.

More weight should have been given to the process by which Mohammed assimilated, or rather adopted, primarily Jewish but also Christian concepts and to Mohammed's conscious reversal of his political attitude to the older faiths when he was confronted with a discrepancy between his expectations and the actual religious and political responses of these groups. Biblical teachings (primarily the Old Testament), rabbinical doctrines, and the doctrine of Jewish sectarians are indelibly printed on the Koran. The three annual biblical pilgrimages and the devotion of the Jews of Arabia to Jerusalem and the Holy Land cannot be ignored in the development of the hajj. One cannot escape the conclusion that the choice of an Arab sacred center by Mohammed was a political, quasi-religious decision, part and parcel of the thought that made him change the direction of prayer from Jerusalem to Mecca.

The history of the pilgrimage reflects a complicated interaction of politics, economics, and religion. King describes the effects of the pilgrimage on the reorientation of the route system: "Previously the transport network consisted of transit routes across Arabia, now all routes led to Mecca." However, in Arabia itself no new routes emerged, and the caravans to Mecca followed ancient, well-trodden paths. The abandonment of segments of the old route system in Arabia and the decline of ancient trading centers (in Najrān, for example), were attributable to inter-Arab warfare, not to the pilgrimage. On the other hand, King does not tell us much about the effect of the pilgrimage on the intercontinental routes outside Arabia. New routes (like the one through the Sudan) appeared there. The effect of the pilgrimage on the trade routes, both new and old, through three continents was of immense commercial and political importance. Use of these routes by pilgrims was added assurance of their preservation; for despite the fissiparous nature of Muslim territorial rule, few governors or aspiring rulers dared place obstacles in the way of the pilgrimage. Both Egypt and Syria freed pilgrimage merchandise from duty and inspection, whether it came by land or sea. When an overly rapacious eighteenth-century Egyptian emir broke with this tradition, retaliation was swift. The sultan of Morocco prohibited the pilgrimage one year, and his complaint to the *ulama* of Egypt led to the execution of the emir.

Thus pilgrimage and trade went hand in hand with benefits, not only for Mecca but for the countries along the route as well. Almost all pilgrims traded on their way to and from the Hijaz. Slave trade was also encouraged by the pilgrimage; until recently slaves, chiefly though not exclusively from Africa, comprised a large part of the caravans (Allan G. B. Fisher and Humphrey J. Fisher: Slavery and Muslim Society in Africa [Garden City, N.Y., 1971], pp. 145–146). Religious prescriptions had an indirect influence on the African caravan routes;

for in order to satisfy the demand for eunuchs in the Ottoman realm the caravans aimed for Coptic areas (particularly Abū Tīj, near Aswan), where the operation was performed by Copts, since it is forbidden by Islamic law. The hajj is a learning experience, too, especially for pilgrims from sub-Saharan Africa, whose pilgrimage King describes as "a continuous and inexorable movement of people travelling to and from Mecca." Not only do they learn about Islam, but, what is even more important today, they receive indoctrination in the ideologies and political methods of the modern Arab world. This pilgrimage, whether by truck or on foot, may take many years, and many pilgrims settle temporarily to earn money.

One can only speculate about the remarkable popularity of the hajj with Africans. There is no simple correlation between the level of Islamic practice and knowledge and the pilgrimage. In West Africa, for example, where Islam claims about half the population, Islam is compatible with all kinds of cults and forms; but even there the pilgrimage to Mecca is widespread. Perhaps it is the absence of knowledge of Islam and recency of "conversion" that makes the pilgrimage, as an easily grasped religious prescription, popular. On the other hand, in areas where Islam has been established much longer, the hajj is often dormant and not much pilgrim traffic is generated. The Tuareg are a striking example of such religious marginality; they carry with equanimity the widespread belief of other African Muslims that they have apostatized no fewer than fourteen times. Should Islamic fervor revive in such areas, it will be as a result of political education, attributable to the official radio stations of Cairo, Algiers, and other cities.

Although King is ready to accept the thesis that the hajj developed from local Arab pilgrimages, he does not examine the relationship between the hajj and Muslim pilgrimages, both Arab and non-Arab, to local holy places. In some areas, such as North Africa, which abounds with sacred tombs and living saints (*marabouts* and *shorfa*), the habit of local pilgrimage has at times preempted devotion to the hajj. Significantly, the Sudan and West Africa, which generate heavy pilgrim traffic, have neither living saints nor venerated tombs. But given the proper political climate the multiplicity of local centers of piety in northern Africa stimulates rather than inhibits the hajj by zeal and "consciousness raising" and by encouraging the crowds to disregard the more onerous conditions of the pilgrimage. Where regional schismatic trends have been important, pilgrimages to local centers have often tapped the pilgrim flow and have encouraged detours or cul-de-sac to regional sacred centers. Thus although both in Iraq and in Iran the pilgrimage to Mecca is considered, in principle, the crowning performance of the religious life, the pilgrimage to Najaf, Karbalā', Sāmarrā', or Al-Kazimayn in Iraq or to Meshed and the holy city of Qom in Iran has a great attraction for pilgrims, for these centers and the numerous smaller ones are felt to bring the blessing of Mecca to the outer territories.

Even these brief comments illustrate the complexity of the hajj. Until recently pilgrimages, including the hajj, as well as population movements induced by war or by political causes have received little attention from students of migration, in spite of their quantitative importance and geographical salience. The focus of concern has been on population movements touched off by urbanization and industrialization. These processes, in part because of attendant social and economic dislocations, have all but usurped the empirical and theoretical in-

terests of population geographers. At the same time, the mathematical-analytical orientation of current population theory has directed attention to the more regular circulation phenomena of developed societies or to flow patterns generated by the process of modernization. Thus King's paper on the hajj, despite its flaws, is a welcome contribution to the literature.—ERICH ISAAC

GEOGRAPHICAL NEWS

PUBLICATIONS OF THE TWENTY-FIRST INTERNATIONAL GEOGRAPHICAL CONGRESS. It is worthwhile now and then to sit back and reflect on recent worldwide trends in geography. An excellent opportunity to obtain this perspective is provided by a series of post-Congress publications comprising papers prepared for the Twenty-first International Geographical Congress held in New Delhi, India, December 1–8, 1968.

"Selected Papers" (edited by S. P. Chatterjee and S. P. Das Gupta; 4 vols.; Calcutta, 1970–) is a four-volume collection issued by the Indian National Committee for Geography of the International Geographical Union. The volumes deal with "Physical Geography" (Volume 1), "Economic Geography" (Volume 2), "Population and Settlement Geography, Political and Historical Geography" (Volume 3), and "Regional Geography and Cartography" (Volume 4). They are hardbound and may be obtained ($12.50 each, post free by surface mail; $40.00 for the set) from the Chairman, National Committee for Geography, c/o National Atlas Organization, 50A Gariahat Road, Calcutta 19. At the time of this writing, however, only the first three volumes are available.

Although the original intent of the committee was to publish all of the papers accepted for the Congress, along the lines of "Comptes rendu du Congrès International de Géographie, Paris, 1931" (3 vols.; Paris, 1932–1934), fewer than one-third of the papers for which précis were given in the pre-Congress "Abstracts of Papers" (edited by Sivaprasad Das Gupta and Teresa Romanowska-Lakshmanan; Calcutta, 1968) are included. Some papers do not appear because their authors failed to provide full texts; others, because their authors intended to complete further research or field work before publishing or to publish their studies elsewhere. (Lists of these publications are provided at the end of each volume.) Also, most of the "Selected Papers" were prepared for the nine sections of the Congress, not for the commissions and symposia. Careful comparison of the volumes with the program of the New Delhi Congress and with the abstracts, furthermore, reveals that almost one-half of the papers in each of the volumes were selected to be read at the Congress. Since only about four hundred of the more than one thousand papers accepted were actually read before the Congress, these volumes presumably contain much of the cream of the crop and indicate the consistency of the cream in 1968.

The volume that seems to have suffered the most from discontinuity is the one on economic geography, the smallest of the four. Unlike the twentieth and twenty-second congresses (held, respectively, in London in 1964 and Montreal in 1972), where physical geography was dominant, the New Delhi Congress accepted more papers on economic geography than on any other subject. The focus of the Congress on developing countries is evident, even though only 62 of the 213 papers accepted on this topic appear in the volume.

Judging from the abstracts and from these volumes, interest in historical and

regional geography, glaciology, and oceanography seems to have declined since 1964; in the case of the latter two subjects, though, this may represent the growth of disciplines now largely separate from geography. At the Montreal Congress, for example, approximately 34 percent of the papers presented were on geomorphology, climatology, or biogeography.

The emphasis on economic geography at the New Delhi Congress seems to indicate a departure from an overall trend toward physical geography. The post-Congress publications, however, are in harmony with the trend, since the volume of "Selected Papers" on physical geography contains the largest number of papers. Physical geography also leads in the number of papers published elsewhere since the Congress.

The only selection process evident in the "Selected Papers" is the grouping of papers in the appropriate volumes and under the proper sectional headings. Aside from six papers on maps, which might more judiciously have been included in the fourth volume, on regional geography and cartography, than in the physical geography volume, the grouping is logical. The volumes are fairly well edited, despite a few unfortunate changes in titles and the questionable deletion of the names of some coauthors, possibly owing to the fact that not all of the authors had an opportunity to see their edited papers before publication. Abstract numbers are provided for all of the papers for which abstracts were published, but no indication of which papers were presented at the Congress is given in the volumes. The lack of a complete table of contents in the abstracts volume and the absence of abstract numbers in the author indexes of the "Selected Papers" render comparison of these publications difficult. Nevertheless, the quality of the papers as well as of the maps, diagrams, and illustrations contained therein is generally high, and bibliographies have been provided in most cases.

To single out only a few of the 249 papers in the first three volumes is, at best, an arbitrary and subjective procedure. Nevertheless, the reader may benefit from the mention of some of the more significant papers. In Volume 1, R. F. Peel's "Landscape Sculpture by Wind" is a well-documented argument for the minor role played by wind in the erosional evolution of desert landforms. Indexes of maritimity or continentality that are provided by potential evapotranspiration and temperature-range data in tropical and polar regions are questionable, according to Howard J. Critchfield's study of "Graphic Determination of Maritimity and Continentality from Potential Evapotranspiration Data." Bertha K. Becker's "Changing Land Use Patterns in Brazil," Alexander R. Gassway's "A Field Method: Estimating the Total Size of Reindeer Herds in Northernmost Norway," and Koloman Ivanicka's "Growth Centres of Slovakia" are only three of the many solid studies found in the economic geography volume.

The volume on population and settlement geography and political and historical geography, which might more appropriately have been titled "cultural geography," accents developing countries, particularly India. Among the many provocative papers in this volume are J. P. Haughton's "The Government Reservation as a Town Planning Factor in Tropical Africa," E. Willard Miller's "Pioneer Settlement in the Western Llanos of Venezuela: Problems and Prospects," Kirk H. Stone's "Norwegian Fringe of Settlement Zones," Eugen Wirth's "Westernization and Re-Orientalization in the Modern Near-Eastern City," and

Julian V. Minghi's "The South Tyrol: Spatial Patterns of National Integration and Cultural Survival in a Border Region."

The "Selected Papers" are especially invaluable to the student of Indian geography. The numerous topics on India include trends in mortality and fertility, the role of the Badaga entrepreneurs, the location of holy sites, cash crops and industrial growth in the Punjab, Himalayan glaciation, agroclimatic factors of rice production, Indian soils classifications, gully erosion, nutritional deficiency in northern India, the tourist industry, land use and the functional classification of towns in West Bengal, and spatial patterns of literacy in Andhra Pradesh. Additional data on India can be found in the pre-Congress publications and in other post-Congress publications. The proceedings of twelve of the thirty-three Congress symposia (paperback, $3.00 each), under the general editorship of S. P. Chatterjee, and a volume of proceedings of the Congress, edited by S. P. Chatterjee and S. P. Das Gupta (hardbound, $10.00), are also available from the address given above. Symposia proceedings comprise the following subjects: erosion surfaces, problems of metropolitan growth and planning in developing countries, arid zones, humid tropics, phytogeography and vegetation mapping, population geography, climates of tropical countries, Indian Shield, quantitative geography, political geography, regional planning, and urban land use.—MARY P. DONAHUE