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"LANDSCAPES OF LATIN AMERICA" SERIES

COLLECTION No. 4

**CITIES AND CAPITALS
OF THE CENTRAL AND SOUTHERN ANDES**

by

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CITIES AND CAPITALS OF THE CENTRAL AND SOUTHERN ANDES

The colonial cities of the Andean region were established as instruments of conquest, colonization and evangelization of the New World. They were the seats of viceroyalties, of captaincies-general, of universities, even of Courts of Inquisition. In addition to the major cities, a network of provincial capitals and market towns was established throughout the conquered territories. The new cities were often erected on the ruins of towns built by the indigenous peoples. Like the cities of Spain, they were invariably laid out following the traditional Spanish grid pattern (CASCO). Lima, the seat of the Viceroyalty of Peru, was the principal Spanish city of South America, its influence extending south along the coast of Chile to about 45° latitude and inland to include the territory of present-day Bolivia. Lima later became the capital of Peru, one of the last colonies of South America to declare its independence from Spain (1821). Santiago, a former captaincy-general within Lima's orbit, became the capital of Chile and La Paz, a provincial capital, eventually (1898) was named capital of Bolivia, although it shares some of these functions with Sucre, the most important centre of "Upper Peru" at the time of independence.

Lima, Santiago and La Paz are the three largest agglomerations of the region examined in this collection. The coastal agglomeration of Lima-Callao now has a population of close to five million, Santiago and its port city of Valparaíso have a combined population of about 4 700 000, and the altiplano city of La Paz, the highest capital in the world, had roughly 700 000 inhabitants in 1980. The importance of these three cities within their respective countries is such that the development of secondary centres has been inhibited. Virtually all important functions (political, administrative, financial, commercial, religious, educational, etc.) are concentrated in the capital cities. They are the hubs of the internal transportation and communications systems and the principal centres for tourism and for foreign investment. The cities are modern, at least in part, whereas the rural areas are more traditional and often backward, although this comment does not apply to every sector of the Andean region and especially not to Chile. The large cities are the homes of the privileged classes of society but have long served as magnets for the small

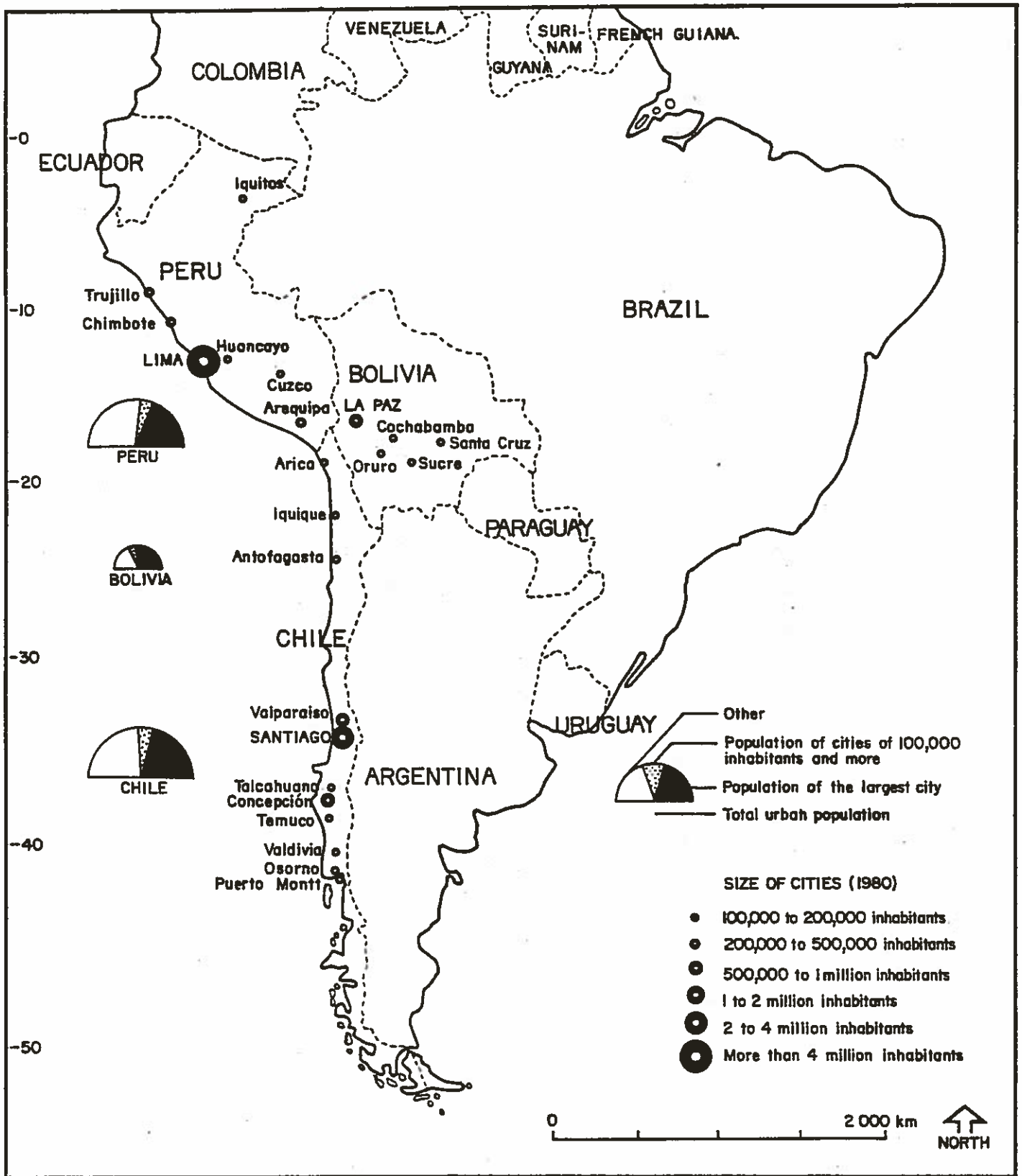
tradesman and the rural poor. In recent years the large agglomerations have grown especially rapidly although employment cannot always be found for all newcomers. Slum districts have multiplied and many urban dwellers live under appalling conditions.

The various functional zones of the major cities remain surprisingly well-defined. Central business districts, industrial zones and residential areas generally occupy distinct sectors of the city. The old historic city centres have remained more or less intact (notably La Paz) but modern office and apartment blocks have sprung up on their margins. The slum districts are found in a variety of locations, for example, along the banks of Lima's Rímac river, on the steep hillslopes overlooking the centre of La Paz (BARRIADAS) and along the outer margins of the agglomeration of Santiago (CALLAMPAS).

Map I shows the principal urban agglomerations of Peru, Bolivia and Chile with populations of 100 000 and more in 1980. Almost all the large cities of Peru and Chile have coastal or near-coastal locations; those of Bolivia are grouped in the west and southwest of the country. The off-centre location of the principal cities of Peru and Bolivia has proved an obstacle to the development of backcountry and other isolated regions and their integration into the national economy. The map also emphasizes the importance of the population of these cities relative to the total urban population. In Chile and Bolivia more than half of the total urban population is found within cities of 100 000 and more; in Peru the proportion is somewhat smaller but nonetheless important. We also note that in Peru and in Chile the capital cities account for a surprisingly high proportion of the total urban population and that secondary cities are of little importance; this observation applies also, although not to the same degree, to Bolivia.

The first fifteen slides of this collection deal with Peru and the urban network of the Sierra, Costa and Montaña regions. Special emphasis is placed on Lima, capital of this highly-centralized state, and the BARRIADAS which surround it. Slides 16 to 26 focus on the high-altitude colonial cities of Bolivia and notably its capital, La Paz, situated in an amphitheatre-like basin at the foot of the Cordillera Real. Slides 27 to 40 show facets of the urban geography of the principal agglomerations of Chile but focus on Greater Santiago and its window on the sea, the Valparaíso-Viña del Mar agglomeration.

PERU, BOLIVIA, CHILE.
 POPULATION OF CITIES OF 100,000 AND MORE INHABITANTS
 RELATIVE TO THE TOTAL URBAN POPULATION.



1 TO 15. PERU: SMALL PROVINCIAL CITIES AND A BOOMING CAPITAL

Like many other developing nations, Peru is characterized by a high birth rate and by major displacements of its rural population toward the city. It is the Sierra, where the thin soils do not lend themselves to mechanization or to modern agricultural techniques, which supplies the bulk of the migrants to the urban areas and it is the cities of the coast, notably Lima, which are the principal beneficiaries. Over the past twenty-five years these population shifts have become increasingly pronounced, facilitated by improvements to the transportation network, and the gulf between city-dwellers and the isolated and backward inhabitants of the Sierra has widened. In contrast, agricultural colonization has intensified on the far side of the Sierra and in the Amazon basin. Here there is considerable potential for plantation agriculture and even greater potential for the discovery of mineral resources, notably oil and gas. However, despite the progress now being made in eastern Peru it is the coastal region, and particularly Greater Lima, which is now experiencing the lion's share of urban growth. Peru is a highly centralized society and all major functions have long been concentrated in its capital; it is therefore likely that Lima will continue to expand at the expense of the other cities of the country's urban network.

1. CUZCO, CAPITAL OF THE INCA EMPIRE

Cuzco, situated in the high Sierra at 3 400 m above sea level, was the capital of the vast but short-lived Inca empire (ca. 1440-1540) which, at its maximum extent, stretched from Colombia to central Chile. SLIDE 1, taken from the walls of the great Inca fortress of Sacsayhuamán, offers a panorama of this city of 150 000 inhabitants, one of the leading tourist attractions of Peru. The Plaza de Armas (middleground, slightly right of centre) is the city centre, just as it was at the time of the Inca empire. On the far side of the square is the Church of the Compañía (sunlit), built by the Society of Jesus on the ruins of an Inca palace. To its left, and also facing the square, is the Cathedral, erected in the second half of the 16th century on the site of an Inca temple and one of the few

buildings of the city to survive the earthquake of 1650. Although the Spaniards dismantled almost all of the old Inca city after the conquest there are nevertheless many interesting vestiges of the Inca period (walls, arches, pillars, etc.) which have survived as a result of being incorporated into the colonial architecture. Note the grid pattern of the streets, typical of Spanish colonial cities, and the sea of red tile roofs.

2. MACCHU PICCHU: LOST CITY OF THE INCAS

MacchuPicchu, situated on a steep mountain slope 80 km northwest of Cuzco, was probably an Inca staging post along one of the main roads running from Cuzco into the SELVA region. It was probably not known to the Spaniards, which would explain why it survived the conquest more or less intact. It was rediscovered by Professor Hiram Bingham in 1911 and excavated by a team of archaeologists from Yale University. Macchu Picchu stands 2 300 m above sea level and overlooks the gorge of the Urubamba river on the left; it was undoubtedly a superb defensive site. The city and the terraced slopes which surround it cover an area of approximately 13 km². Its walls, towers and temples were constructed of granite blocks shaped to fit tightly together without mortar, an important characteristic of Inca architecture. The peak of Huayna Picchu looms in the background.

3. JESUIT CHURCH ON THE PLAZA DE ARMAS, AREQUIPA

Arequipa is the second largest city of Peru (Pop. 400 000) and the centre of a prosperous agricultural area almost totally dependent upon irrigation. It is situated back of the coast at about 2 300 m above sea level and stands in the shadow of a great snow-capped volcanic peak, El Misti, whose meltwaters help to irrigate the Arequipa oasis. This is one of the driest areas of Peru, with only 110 mm of rainfall per annum and about 360 days of sunshine. SLIDE 3 shows the intricately carved facade of the Church of the Compañia, built by the Society of Jesus in 1698 and restored only recently. The church gives on the Plaza de Armas, the old city centre. The traditional building material in Arequipa is a soft, white volcanic tuff (SILLAR) quarried near the city and which is easily worked by sculptors; for this reason Arequipa is often called the "White City".

4. SUNDAY MARKET AT HUANCAYO, SIERRA REGION

With a population of over 140 000, the old city of Huancayo, 3 000 m above sea level, is one of the largest communities of the Sierra. Huancayo is an important commercial centre and its Sunday market, primarily for handcrafted goods, is well known throughout the region. *SLIDE 4* shows some of the agricultural produce sold here: citrus and deciduous fruit, vegetables and even sugarcane (in truck). The cane has almost certainly been transported some distance, either from the coast or the far side of the Eastern Cordillera. In the area immediately adjacent to the city small communities of Indian farmers produce roughly 40% of all of the wheat grown in Peru, on land which was held in great *LATIFUNDIA* (estates) before the agrarian reforms of the late 1960s.

5. IQUITOS: PRINCIPAL CITY OF THE MONTANA (PERUVIAN AMAZONIA)

SLIDE 5 provides an aerial view of Iquitos (pop. 150 000), principal city of the Montaña and capital of Loreto department (*DEPARTAMENTO*) but accessible only by boat or plane. Iquitos is the effective head of deep-water navigation on the Amazon and a free port. Although it is 4 000 km upriver from Belém (Brazil) it is visited regularly by cargo ships of up to 4 000 tons but only when the river level is high. There is also a steamer service down the Ucayali river from the Peruvian town of Pucallpa but the voyage may take up to a week. Iquitos specializes in the export of forest products, notably lumber, and is the principal redistribution centre for goods brought into the Montaña region.

Iquitos is perched on a low terrace on the left bank of the Amazon. The river level is high and the floodwaters are presently sapping the base of the terrace slope; several buildings are threatened. Almost all of the buildings of Iquitos are low-lying, even those housing the department administration. In the late 19th century Iquitos was the Peruvian centre of the wild rubber trade and, like Manaus in Brazil, was a boom town until the beginning of World War I. It is for this reason that such a large town so totally isolated from the rest of the country was established in

the heart of the Peruvian *SELVA*. Tourism and oil exploration are the new boom industries of Iquitos; the city is now the third most important tourist attraction of Peru after Lima and Cuzco.

6. MODEST NEW RESIDENTIAL DISTRICT IN PUCALLPA, AMAZONIAN PERU

Pucallpa (pop. 80 000) is the only large town of Amazonian Peru located on a road; as a consequence it is the fastest-growing community in the region, its population having quadrupled between 1960 and 1980. Pucallpa is the transshipment point between the road from Lima and the steamer to Iquitos; it is also a major sawmilling centre. The modest residential district shown in *SLIDE 6* is typical of much of the town. Some of the houses are perched on stilts because they stand on the floodplain of the Ucayali river.

7. CONSEQUENCES OF AN EARTHQUAKE AT CASMA ON THE PERUVIAN COAST

The Peruvian Cordillera is a geologically active area and several major earthquakes have occurred here in recent years resulting in much loss of life. In 1970 an earthquake in the Chimbote area measuring 7.4 on the Richter scale levelled much of the oasis town of Casma, only 55 km to the south. The shock waves from the quake were felt throughout the northern Cordillera Occidental and as far south as Lima. The Peruvian *ADOBE* house, constructed of sun-dried brick (*SLIDE 7*), offers little resistance to such a severe quake.

8. LIMA: THE CITY CENTRE

SLIDE 8 emphasizes the clutter of the city centre of historic Lima, founded by Pizarro in 1535 and now the home of 5 million people. Lima is a sprawling, fast-growing metropolis consisting largely of small, one-family dwellings and now occupying a total area of about 500 km². It straddles the Rímac river and stands several kilometers from the sea; however, its seaport of Callao is now a functional part of the Greater Lima area. Note the plaza, the large church and the colonial-style building in the centre of the photograph, surrounded by modern but very plain office blocks designed and strengthened so as to be earthquake-proof.

It almost never rains in Lima but over most of the year the humidity is high and the weather unpleasant because of the fogs (NEBLINA), GARUA (mists) and overcast skies associated with the cold Peru coastal current.

9, 10, 11 AND 12. RESIDENTIAL DISTRICTS OF THE LIMA-CALLAO AREA

SLIDE 9 provides an aerial view of San Isidro, an attractive residential suburb south of the city centre and where the population density is relatively low. Note the grid pattern of the tree-lined streets and the broad, Parisian-style boulevard which slices diagonally across them. Apartment buildings, flats and private homes are seen within the city blocks (MANZANAS) in the foreground and middleground. SLIDE 10 shows a more modest residential district of Lima. Land use is varied in such neighbourhoods, generally consisting of a mix of modest homes and apartment blocks, schools, stores, shops, small manufacturing plants, offices of neighbourhood professionals such as lawyers and dentists, etc. Note the crowd of people around the stalls and stands of the open air market. SLIDE 11 shows a zone of transitional land use on the margin of the city centre where apartments, stores, warehouses, small office buildings and hotels all compete for space. SLIDE 12 shows a new residential district which is presently taking form next to an industrial park in the west end of the agglomeration. The broad boulevard on the left leads to the port of Callao. Developments such as these are springing up all around the city's margin to accommodate the thousands of new arrivals. It is estimated that the population of the agglomeration has increased by at least 1 800 000 since the official census of 1961.

13, 14 AND 15. THE BARRIADAS (SHANTY TOWNS) OF LIMA

Lima has experienced enormous growth in recent years and continues to attract great numbers of impoverished migrants from marginal areas such as the Sierra. A consequence has been the rapid expansion of the slum areas (BARRIADAS) of the city, notably along its hilly eastern margin where there were large tracts of vacant land. The original slum-dwellers were squatters and the BARRIADAS were totally unplanned. Now a major effort is being made to improve the quality of life in these sectors:

streets have been laid out, municipal services are now provided, schools and hospitals are being built. Municipal authorities now refer to these rejuvenated slums as *PUEBLOS JOVENES* (new towns), undoubtedly in an attempt to improve their image. It has been estimated that the *BARRIADAS* of Lima now have a total population of one million; one Limeño in five, then, is a slum-dweller.

SLIDE 13 shows a *BARRIADA* which sprang up in the early 1950s on the steep slopes of the Cerro (hill) El Agustino northeast of the city. The population density here is very high. Note the nature of the materials which have been utilized to construct the shanties: bricks, bamboo mats, plaited straw, odd bits of wood and metal, etc... in short, anything that comes to hand. Little attention is paid to the quality of the roofing (foreground) for it almost never rains in Lima. Municipal services (water, electricity, sewage disposal, garbage collection) are now offered to a certain number of the residents. *SLIDE 14* shows a small street market at the summit of El Agustino hill where farm produce from the coastal area is sold. Note that the population of this *BARRIADA* is largely Indian. *SLIDE 15* shows a construction site on the urban-rural fringe near Callao where houses and small apartment blocks are being built. A small *BARRIADA* has sprung up on the site and serves to lodge the construction workers.

16 TO 26. LA PAZ AND THE SECONDARY CENTRES OF BOLIVIA

The urban network of Bolivia is not as extensive or as impressive as that of Peru and Chile but is nevertheless characterized by the same fundamental elements of disequilibrium. The capital, La Paz, is by far the largest city with some 700 000 inhabitants. But, as in Peru, there are no cities of intermediate size to counterbalance the capital. Bolivia's second city, Cochabamba, has a population of only 200 000 and Oruro, Sucre, Santa Cruz and Potosí are much smaller. All of Bolivia's cities are situated in the southeast, either on the altiplano (La Paz, Oruro) or in the Eastern Cordillera (Cochabamba, Sucre, Potosí). The rapidly-expanding town of Santa Cruz, situated on the western margin of the lowland zone (the Oriente region), is the only exception. La Paz, Oruro and Potosí owe their origins to the exploitation of the country's mineral wealth, notably silver and tin but also tungsten, antimony, lead, zinc, etc., and the continued

growth of Santa Cruz is linked to the fortunes of the oil and gas industry in the Oriente region.

16. LA PAZ: A PANORAMA

SLIDE 16 provides a panoramic view of La Paz, founded by the Spanish in 1548 and the world's highest capital city. La Paz is situated at the foot of the Cordillera Real (Royal) in the amphitheatre-like basin of the Choqueyapu (La Paz) river. The glacier-capped Illampu and Illimani mountains (left and right respectively) stand 6 400 m above sea level and provide an impressive backdrop for the city. Almost all of La Paz stands well below the general level of the altiplano. Its built-up zones range in elevation from 3 500 to 3 900 m, with the Indian quarters occupying the higher parts of the town and the business and administrative districts in the valley.

17, 18, 19 AND 20. THE OLD COLONIAL CENTRE OF LA PAZ

SLIDE 17 provides an aerial view of the old colonial heart of La Paz (right hand side of the photograph), a quarter which is still in many respects the functional centre of the city. Note the quadrangular street pattern, a characteristic of almost all the colonial cities of Hispanic America. In the middle of this checkerboard (centre right) is the Plaza Murillo, the heart of the old city. On the south side of the square and to the left is the Cathedral, its dome clearly visible. Immediately to the right is the Presidential Palace, gutted by fire twice over the course of Bolivia's stormy history and the scene of the lynching of President Villarroel in 1946. The large building on the right (east) side of the square is the Congreso Nacional. The broad, sinuous boulevard at the bottom left of the photograph is the Prado (or Avenida 16 de Julio), the principal artery of the city and laid out in part along an old river bed; the old city centre slopes down steeply toward it. The Prado widens appreciably (lower centre) to form the Plaza San Francisco, situated directly in front of the 18th century church of the same name (note the bell tower). On the north side of the city residential districts straggle up the steep hillslopes, separated one from another by dry V-shaped ravines.

SLIDE 18 shows the massive facade of the Cathedral, a relatively new building and giving on the attractively landscaped Plaza Murillo. Note the residential districts on the south slope of the basin and the surface of the altiplano behind it.

SLIDE 19, looking south along Sacarnaga street from the Plaza San Francisco, shows Spanish colonial architecture in the old section of the city. The massive stone buildings, ornate facades, tiled roofs and cobblestone streets are all typical of this quarter. This once residential street has been largely given over to stores and shops where clothing and handicrafts are sold. The large building at the top of the hill is a museum. Note the steepness of the slope which forms the southern limit of the city. *SLIDE 20* shows modern office towers along the Prado between the Plaza Venezuela, with its equestrian statue of Simon Bolivar, and the Plaza San Francisco. This complex, no more than fifteen years old, replaced colonial-style buildings similar to those shown in *SLIDE 19*.

21. RESIDENTIAL SUBURBS NORTH OF THE CITY CENTRE

SLIDE 21 shows an attractive and well laid-out suburb north of the city centre and much favoured by the wealthier residents of La Paz. The parkway running north is the Avenida Busch. The blocks here are rectangular rather than square and are much larger than those of the old city. In the vicinity of La Paz Stadium (bottom) a number of streets and boulevards slice diagonally across the city grid. A steep-sided, seasonally-dry valley separates the pleasant suburbs of Avenida Busch from an area of more modest homes on the right.

22 AND 23. WORKING-CLASS SUBURBS OF LA PAZ

The *BARRIADAS* of La Paz are perched high on the steep hillslopes overlooking the city. Most of the residents are Aymara Indians from the altiplano who now work as tradesmen, clerks or labourers in La Paz. Unemployment does not appear to be a major problem here and life in the *BARRIADAS*, although simple, is not unpleasant. The houses are generally constructed of sun-dried brick (*ADOBE*) and are roofed with sheets of galvanized metal. They are well-spaced and clean. A variety of public

services, including electricity, are offered. Some of the houses have been constructed on extraordinarily steep slopes (far background).

In some areas (*SLIDE 23*) the modest residential districts of the hill-slopes of La Paz have spilled over onto the barren surface of the altiplano, 4 000 m above sea level. Note the plain, brown *ADOBE* houses, the broad, unpaved boulevard, the treeless altiplano surface and the snow-capped peaks (6 000 m) of the Apolobamba Cordillera.

24 AND 25. ORURO, CENTRE OF BOLIVIA'S TIN INDUSTRY

SLIDES 24 AND 25 show landscapes of the mining centre of Oruro, situated on the eastern margin of the altiplano at 3 700 m above sea level. For the past 80 years the economy of Bolivia has been centred on the mining and smelting of tin, its principal export, and Oruro is the centre of this industry. More than half the country's tin comes from mines within 100 km of Oruro and is smelted in the large refinery here. Silver and tungsten are also mined in the Oruro area. Because of the importance of the mining industry Oruro has become a rail centre of some note, with connections to all the major mining districts of the country and direct lines to the port of Antofagasta (Chile) and to Argentina.

SLIDE 24 shows a section of central Oruro looking west toward the shallow and salty lake Uru Uru, a widening of the Desaguadero river. Oruro's tin refinery is situated on the outskirts of the city immediately to the right of a drainage channel which runs across the flat alluvial plain to the lake. The city square (conifers), surrounded by churches and administrative buildings, is seen in the lower right. *SLIDE 25* shows a working-class district close to the city centre. The houses are constructed largely of brick, with roofs of tile or galvanized metal. A Saturday street market is in progress in front of the parish church.

26. COCHABAMBA: BOLIVIA'S SECOND CITY

With a population of 200 000, the industrial and service centre of Cochabamba is Bolivia's second largest city. It is situated in a fertile basin close to the eastern margin of the Cordillera Oriental and stands roughly 2 500 m above sea level. Its sunny, subtropical climate has proved ideal for the cultivation of grain, vegetables and fruit, including grapes, and for this reason Cochabamba was long an important centre of plantation agriculture. The low-lying urban skyline of the city is similar to that of Oruro and contrasts strikingly with that of downtown La Paz.

27 TO 40. SANTIAGO, ITS PORT CITY OF VALPARAISO AND THE OTHER CITIES OF CHILE

Chile now has slightly more than 11 million inhabitants (1980) but 9 million of these live in the central third of the country, in the sector contained between the Aconcagua valley in the north (33°S) and the Puerto Montt area in the south (roughly 42°S). In this zone, which contains Chile's fertile Central Valley and all of its largest agglomerations, the population density is about 50 inhabitants per square kilometer whereas in the rest of the country it averages only about 2 inhabitants/km². Chile is a highly urbanized society and four out of five Chileans now live in cities or towns. More than half of these live either in the capital, Santiago, the port agglomeration of Valparaíso-Viña, the industrial centre of Concepción-Talcahuano, or in other cities whose population exceeds 100 000 people. But the high degree of urbanization of Chile's population is a source of weakness rather than of strength. The unemployment rate in the cities is high, both in the capital and the provincial towns, the tertiary sector accounts for almost half of the labour force and is obviously overdeveloped, and the slums of Santiago are among the worst on the continent.

Chile's cities are surprisingly uniform, with the same basic elements prevailing in their land use patterns: small, well-defined city centres, extensive areas of old, low-lying buildings which have been replaced here

and there by modern office blocks and apartment buildings (often in areas of earthquake damage), extensive suburbs consisting of modest one-family dwellings, and rapidly-proliferating slums and shanty towns on the margins of the principal agglomerations.

27. ARICA: PORT CITY OF THE NORTHERN ATACAMA

The port city of Arica (100 000 pop.) is in Tarapacá state at the north-west corner of the harsh Atacama desert. It is only 20 km from the Peruvian border and, along with the rest of Tarapacá, formed part of Peru until the War of the Pacific (1879-83), when Chile defeated both Bolivia and Peru in a struggle over the rich nitrate deposits of the Atacama. It is linked by rail to La Paz and serves as a port for the Bolivian capital. Arica is Chile's showpiece manufacturing centre, with motor vehicle assembly plants and other factories; the city is nevertheless 2 000 km from its principal market, Santiago. The fishing industry is also important here. *SLIDE 27* shows Arica's low, sprawling townscape, the dry Atacama back of it and a slum area perched on the barren terrace to the right.

28. IQUIQUE AND ITS IMPRESSIVE PORT INSTALLATIONS

The port of Iquique, its back to the Atacama, is the centre of Chile's rapidly expanding fishing industry (deep-sea fishing; production of fish meal from anchovies, etc.). Iquique also specializes in the export of sodium nitrates mined in the Atacama and owes its origin to the development of this industry. *SLIDE 28* shows the port installations of Iquique, sheltered behind a small tombolo. The city now sprawls almost to the foot of the steep coastal escarpment. The climate is bone-dry and there are no springs so fresh water must be brought in by pipeline from the foothills of the Chilean Cordillera. Note the attractive (and popular) ocean beaches at the top of the photograph.

29. ANTOFAGASTA: PORT CITY AND RAILWAY TERMINUS

The port city of Antofagasta (pop. 160 000) specializes in the export of nitrates and copper from the great mining camps of the Atacama and the Cordillera. It is also the terminus of rail routes from La Paz and from Salta, Argentina and has developed into an important international port; a large proportion of Bolivia's trade passes through Antofagasta. A world-wide decline in the demand for nitrates and the increasing mechanization of this industry have resulted in much unemployment among the miners. Many of these have moved from the interior to the cities of the coast, notably Antofagasta, where they live under difficult conditions. Antofagasta is perched on the margin of the Atacama desert and *SLIDE 29* emphasizes the extreme aridity of this area. Fresh water for the city must be brought in by pipeline over a distance of 300 km, almost from the Bolivian border.

30, 31 AND 32. THE COASTAL CONURBATION OF VALPARAISO - VIÑA DEL MAR

Valparaíso is the chief port of Chile and the window on the sea for Santiago and its hinterland. It is also an industrial centre of considerable importance. Its population, together with that of the nearby resort community of Viña del Mar, numbers about 700 000 (1980) and so the conurbation is the second largest urban agglomeration of Chile. Its rate of growth is nevertheless much lower than that of other large Chilean cities, including Santiago.

SLIDE 30 provides a high-level aerial view of the Valparaíso-Viña conurbation. The port of Valparaíso is seen in the left centre (ships at anchor and a mole are only just visible) and the beaches of Viña del Mar are on the far right. Back of the conurbation is a crescent of low, partially-forested hills which tend to inhibit the expansion of the built-up area. However, there are extensive slum areas on some of these hillslopes. Because building space in Valparaíso is at a premium much new residential development is now taking place in Viña del Mar.

SLIDE 32 shows the central business district of Valparaíso, dominated by office buildings and condominiums. Much of Valparaíso was destroyed in the disastrous earthquake of 1906 so most of the houses and flats seen in the foreground were built after that time. Until recently all buildings were low because of the danger of earthquakes. The last serious quake was in 1971 and caused severe damage to the city.

33. CONCEPCION-TALCAHUANO: INDUSTRIAL CENTRE OF THE SOUTH

Concepción and its port city of Talcahuano, 450 km south of Valparaíso, have a combined population of about 600 000 (1980) and now form the third largest agglomeration of Chile. Concepción is situated close to the mouth of the Bío-Bío river, the traditional frontier between Central and Southern Chile. The region is rich in energy resources (hydro-electric power, coalfields) and the agglomeration is now highly industrialized (steel, oil refining and petrochemicals, textiles, shipbuilding, etc.). *SLIDE 33* shows the business district of Concepción with its monotonous gridiron street pattern and its broad avenues extending to the very margins of the city.

34. VALDIVIA, MANUFACTURING CENTRE OF THE WET SOUTH

Valdivia has a population of only 100 000 but is nevertheless Chile's fourth most important industrial community and the centre of a prosperous agricultural area. The earthquake of 1960 and the tidal wave which followed caused severe damage to the city and so many of the buildings shown in *SLIDE 34* are new. Rainfall is very heavy here (2 300 mm of precipitation per annum) and as a consequence the roofs and walls of many of the buildings (eg., foreground) are covered with sheets of galvanized metal.

35, 36, 37 AND 38. SPRAWLING SANTIAGO, CHILE'S LARGEST CITY

Santiago, capital of Chile and a metropolis of more than 4 million inhabitants, is situated in the Central Valley of Chile more than 100 km from the coast. It was founded by the conquistador Pedro de Valdivia in 1541 and was the seat of the colonial government until 1818 when it became the capital of the new republic of Chile. It is admirably situated for this function for it lies in the heart of the most fertile and densely populated area of Chile and also serves as a bridge between the sharply contrasting northern and southern regions of the country. Santiago is a capital in all senses of the word: it is the industrial, financial, commercial, cultural, educational and religious centre of Chile, the hub of the nation's internal communications network and the uncontested administrative (military) centre.

SLIDE 35 provides a panoramic view of the sprawling metropolis of Santiago as seen at sunset from the 300 m San Cristobal hill, a popular urban park. The landscaped banks of the Mapocho river can be seen in the foreground and the Coastal Cordillera forms an impressive backdrop. The site of Santiago is flat, the city is low-lying and its checkerboard plan of rectangular city blocks is monotonous. Its setting between two mountain ranges (the Coastal and Chilean Cordilleras) is nonetheless spectacular although poor air circulation and a high degree of atmospheric pollution, including smog, are problems here.

SLIDE 36 looks east across downtown Santiago from the slopes of yet another wooded and landscaped urban park. The centre of Santiago is a peculiar mix of government and office buildings, historic churches, department stores, hotels, stately homes, low income housing developments and tenements (*CONVENTILLOS*). *SLIDE 37*, also taken in downtown Santiago, shows the Plaza de la Libertad, which gives on the capital's principal artery, the Avenida Bernardo O'Higgins (or *ALAMEDA*). Office buildings are seen on the far side of the boulevard and Santiago's first subway line, completed in 1975, lies underneath it.

SLIDE 38 shows a section of the downtown area where an urban renewal project is underway, with modern office towers replacing smaller apartment blocks and office complexes. The four- to six-story buildings in the foreground are good examples of the undistinguished early 20th century architecture which characterizes much of the centre of Santiago.

39. MODERN MANUFACTURING PLANTS ON THE NORTHERN FRINGE OF SANTIAGO

Santiago, Chile's most important industrial centre, has approximately 50% of the nation's manufacturing capacity. The industrial base is varied but textiles, clothing, leather goods, consumer goods, chemicals, metallurgy and the processing of foodstuffs are its principal elements. Downtown Santiago is still an important manufacturing district (mainly textiles and clothing) but the preferred sites for the establishment of modern plants and factories are now along the northern and southern fringes of the city. Here land for industrial expansion is readily available (although factories often encroach on market gardens and vineyards) and there is good transportation to the city (SLIDE 39).

40. SHANTY TOWN ON THE SOUTHERN MARGIN OF SANTIAGO

The slums (CALLAMPAS) of Santiago are found along the northern, western and southern margins of the agglomeration and are surprisingly extensive. Their inhabitants are generally impoverished migrants from the outlying regions of the country. The CALLAMPAS are overcrowded, sanitation is poor and few public services are offered. However, efforts are now being made to improve living conditions in these areas. For example, the family living in the wooden shack shown in SLIDE 40 (note the privy on the right) will soon move into the modest brick house now being built immediately behind it, thanks to the efforts of a local building cooperative.

