

Orașele gigant ca  
porți maritime

# GIANT CITIES AS MARITIME GATEWAYS

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*Most of the  
contemporary 300 giant  
cities of the world have  
been built long ago  
as small towns  
on a navigable water.  
They have become  
extensive networks  
of railways, motor  
highways or airports,  
because of breaks  
in transportation  
at the intersection  
between road, river, sea  
or airtraffic.*

How many of the world's giant cities are located on waterways? The main difficulty in analysis does not come from the ubiquity of the phenomenon across all continents, but from its historical dimension. Giant cities do not fall from the sky as giants. All great cities of today were born as villages or towns a long time ago. They grew over decades, centuries, or millenia. Thousands of fishermen's villages have not become giant cities.

Why did one site grow rather than another? For many cities of today, the reason remains a mystery; for many others the reasons are known. The Romans built a bridge at the Thames' lowest bridgeable point, so it was there, and not 20 miles farther east or west that London arose. Bishop Absalon built a castle on a little island in 1167 for protection against a Slavic tribe. He was unaware that his fortress was destined to become Copenhagen. Often the official history of a city bears little resemblance to the actual circumstances of its founding. Thus, the site of some ancient cities is attributed to a mythological founder guided by angels in the selection process. The histories of cities too old to have reliable records are steeped with imagination. For example, Romulus, founder of Rome, was said to have been suckled by a she-wolf. Those cities which appear to have recorded their origins accurately, such as colonial cities, reveal what was important to their founders in the way of location.

By location, we should understand not only the site where the old core of the city was established, but also the larger ecological context, considering an area of a diameter of two or three hundred kilometers surrounding the original site. Such a large environment is best perceived in images taken by 'satellites like the

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Landsat spacecrafts, flying at a height of 917 kilometers (570 miles). A single Landsat scene covers a ground area of more than 33,000 square kilometers and more than 30 million numbers must be processed before the image can be created (Sheffield, 1983: 5). Looking to these spectacular images, we understand more rapidly than by using classical maps the rationality of the location of Cairo at the head of the delta which includes nearly half of the agricultural area of Egypt. No description could be as explicit as the Landsat scene of Rangoon, Shanghai, Stockholm, Jakarta, Tokyo, Montevideo, Khartoum, Istanbul, Leningrad, or Montreal (Sheffield, 1981, 1983; Short et al., 1976).

These large ecological contexts help us explain why a particular fishing village became a giant port and why thousands of other villages did not. If the time dimension is taken into consideration (i.e., technological development), most of the cities of the world appear to be built in the "right" place and not, as Charles Sheffield believes, in the "wrong" place (Sheffield, 1981: 44), except those in Africa.

For most giant cities, a variety of factors played different roles at different moments. What was important in growth of a city at a certain moment might cease to be the reason for continued growth later. Even if it were possible to analyze the factors of growth for each city – and there is an enormous literature on this topic – it is more difficult to make comparative generalizations.

In addition to the historical dimension, there are difficulties in interpreting seemingly straightforward, physical facts. A physical fact is not a sociological fact. It is not obvious, for instance, what defines navigable waterway or access to navigable water. The Seine and the Mississippi were more "navigable" in earlier periods than they are today. There are numerous examples of rivers that have lost some of their navigable quality. Navigation at the time of the Roman Empire implied a different technology than that in

ancient Greece. At the time of Socrates, the "civilized" world, in the Western tradition, was limited to the Aegean Sea. Later, the Mediterranean Sea became the *mare nostrum*. Nearly two thousand years later, the Atlantic became a lake that could be crossed in less time than was required earlier to cross the Mediterranean from Syracuse to Carthage. Thus, navigable water does not have the same meaning at all times.

What is a port? From a geographical point of view, a port is a harbor. But a deep harbor is not enough for growth of a giant city. Hundreds of spectacular harbors are devoid of significant populations because they lack rich hinterlands. Many giant cities are ports without being on sea coasts: they have satellite ports. One could not conceive of these cities as not being seaports. Their economies would decline or collapse if they lost access to the sea. Already in ancient time, Athens had the port of Piraeus. Today the two cities form one giant agglomeration. And, although Rome is located 20 miles inland, the Roman Empire was a maritime power, since the nearby port of Ostia was able to receive the sailing ships of that time. Tokyo has the port of Yokohama; Seoul has Inchon; São Paulo engendered Santos; Lima integrated Callao; and Caracas, Guaira. I consider as a seaport any giant city having functional access to a harbor of sufficient size to serve its needs. In some cases, the giant city and its port do not constitute a single metropolis; between the two, there is a rural area. For instance, Santiago and Valparaíso are not a compact agglomeration.

Giant cities are defined, for purposes of this analysis, as cities or metropolitan areas with more than one million inhabitants. In 1985, there were, according to the most recent estimations by the United Nations, 285 such cities. More recent statistical information for some countries requires us to raise the number of giant cities to nearly 300 by 1986 (see table 1).



TABLE 1

## Cities of Over One Million Inhabitants (1985)

	<i>Navigable Waterfront</i>	<i>Others</i>	<i>Total</i>
Old Countries			
Western Europe	32	15	47
India	3	21	24
China	23	3	26
Japan	10	1	11
USSR	11	10	21
Eastern Europe	3	3	6
Middle East and South Mediterranean	12	6	18
Subtotal	94	59	153
New Countries with Early Urbanization			
United States	26	10	36
Canada, Australia, New Zealand	7	—	7
Mexico	1	4	5
Subtotal	34	14	48
Former Colonial Countries			
Africa	25	5	30
Southeast Asia	15	2	17
South America	15	9	24
Central America	9	—	9
Other (Korea, Sri Lanka, etc.)	3	1	4
Subtotal	67	17	84
Total	195	90	285

### Estuaries, Deltas, Bays, Isthmuses, and Archipelagos

From ancient times, history has navigated – so to speak – on great and prestigious rivers. Everyone knows that Egypt and Sudan – particularly Cairo and Khartoum – are gifts of the Nile. The Euphrates and Tigris rivers were the playground of ancient civilization. Western European history is inconceivable without taking into consideration the transportation function played by the Rhine.

The same may be said of the Mississippi in American history. The Danube ties together four capitals: Vienna, Budapest, Bratislava, and Belgrade; at the end of the 19<sup>th</sup> century, it was the grand avenue of central Europe. The Dnieper and

Volga played a role in unifying Russia. The Ganges, Amazon, and the Yangtze are the arteries of continents. The symbol of many great cities, Paris and London among them, is a ship on a river.

Many giant ports are located on estuaries (where an ocean's tide meets a river current). Geologically, an estuary is usually associated with a submergent coastline in tectonically stable areas. For example, many more estuaries are on the east coast of the United States than on the west. If they are deep enough, estuaries make fine harbors, as evidenced by the high proportion of large cities located on them. Within an estuary, cities tend to be located where water deep enough for navigation meets firm land. Most of the factors conditioning where in the estuary the city is located are local in origin,

making it difficult to reach generalizations. Land near the mouth of estuaries is usually low, swampy, and saturated with saltwater.

Most of the largest ports in Europe are on estuaries: London, Glasgow, Liverpool, Hamburg, Kiel, Rotterdam, Antwerp, Amsterdam, and others from Lisbon to Leningrad. Many great Asian ports are deltaic: Karachi, Rangoon, Calcutta, Bangkok, Canton, Jakarta, Shanghai. Other ports are located on archipelagos: Vancouver, Rio, Singapore, Sidney, Stockholm, Izmir, Copenhagen, and Lagos among many others.

Cities with riverine harbors tend to be smaller than coastal cities.

Although often closer to their hinterland sources, their finished products must travel farther to reach the sea lanes. Because it is often easier to transport finished products than the raw materials required to manufacture them, an inland location minimizes transport costs. An industrial city which produces bulky goods tends to locate closer to its markets and farther away from its source of raw materials. Obviously these remarks apply only to cities primarily engaged in manufacturing. Only cities engaged in providing goods or services for regions besides their own reach large size. Transportation is essential for them, and water provided the earliest means of bulk transport.

Cities producing only for their own surrounding area are limited in their growth to the needs of the area they serve.

It is useful to distinguish four types of countries. First are countries without access to the sea, as in Europe: Switzerland, Czechoslovakia, Hungary, and Austria; in Latin America: Bolivia and Paraguay; in Africa: Sudan, Nigeria, Mali, Chad, Burkina Faso (formerly Upper Volta), the Central African Republic, Zimbabwe, Zambia; in the Middle East: Jordan and Afghanistan.

Some of these countries benefit from important navigable rivers. Only 16 among the 150 independent nations (excluding ministates) belong to this category of countries deprived of a seacoast.

Second are the large continental

countries, with enormous populations and coastlines relatively limited in comparison with their surface: China, India, the Soviet Union, and the United States. In these four countries, many giant cities began as riverine ports. Mexico is also a continental country, but without navigable rivers.

The third category is comprised of the coastal countries that, in contrast to the continental states, are open to the sea: the two great islands, Britain and Japan; the less populated islands: Madagascar, Sri Lanka, Cuba; the countries elongated on the coast: Portugal, Chile, Norway, Denmark, Vietnam, and Senegal; and the archipelagic countries, like Indonesia and the Philippines.

The fourth category includes all other countries where there is a kind of equilibrium between coastline and land surface.

Let us take an imaginary round-the-world trip, like Jules Verne, and sail from continent to continent, collecting empirical evidence.

The first evidence, so patent that it tends to be neglected, is that Europe is the only continent without an empty interior. All others have enormous deserts at their centers: the Sahara, the Gobi, the Gibson Desert, the Rocky Mountains, the Cordilleras, the frozen interior of Canada, the Arabian desert, and two green, tropical deserts: the Amazon and the Congo. On a world scale, this configuration contributes among many other factors of a different kind to explain the coastal orientation of so many giant cities.

### Western Europe

Among the 47 European cities with more than one million inhabitants in 1985, 18 are seaports and 14 riverine ports. If many contemporary European giant cities are not ports today, this does not imply that some of them have not had a navigable waterfront in the past, either by river or canal. Berlin, Frankfurt, and Hanover are examples of cities with



historical ports which are no longer active.

The proportion of ports is higher when one considers only the 20 largest cities: London, Athens, Barcelona, Glasgow, Hamburg, Lisbon, Marseilles-Fos, Naples, Stockholm, and Porto. To this list we could add several riverine ports on the Rhine and Danube, and Paris, which by tonnage is the third largest French port. The Rhine, together with its effluents and associated network of canals, is the artery of the Rhine-Ruhr megalopolis (nine million inhabitants). Nevertheless, in comparison with other continents, Western Europe appears to be centripetal, in the sense that the largest portion of its population lives in the central part of the continent, not along the coasts.

To understand the social geography of contemporary Western Europe it is necessary to take into consideration the past. As Paul White (1984:3) observes, "the origins of most European cities are unknown and cannot be dated. Few cities have been created as urban places on virgin territory: most have evolved from rural settlements through long processes of economic and population growth and the accretion of new functions." The ancient Greeks founded tiny cities which are today the giant cities of Naples, Bari, Marseilles, and Valencia, to name a few. Other pre-Roman settlements include Barcelona, Milan, Trieste, Bologna, and Palermo. "By the end of the Roman Empire a high proportion of Western Europe's largest present-day cities were already in existence" (White, 1984:3). Of the major cities of Italy, only Venice is a post-Roman creation, and in Spain, only Madrid and Bilbao.

Not all the towns of previous centuries or millennia later became giant cities, but most of today's giant cities were already in existence before the industrial revolution. A town is like a tree – it grows where the seed was planted; only in exceptional cases can a previous population center be shifted elsewhere.

The European map of great cities can be read not only in ancient history, but also, and to an even greater extent, in the

economic history of the last century and a half. Coalfields and river, road, and railway transport played a role in the growth of many cities. Even today, and in contrast to the United States, railroads and motor roads – in part because of the smaller size of the European countries – are serious competitors to waterways (except for oil transportation).

Some cities are giant today because for a long period they were capitals of smaller states, before the unification of territory into nation-states, like Naples or Munich.

Many historians have demonstrated the importance of ports and maritime trade in Europe's economic development. But Europe has been a continent of colonizers, not a continent to be colonized. Europeans have founded colonial ports in many parts of the world. Their own ports have benefited from trade with other continents, but modernization and innovation did not penetrate Europe through its ports. Europe is the only continent which never had colonial ports.

Today, trade among European countries represents the largest part of the foreign trade of each European country. This fact was so even before creation of the European Common Market. Consequently, Europe does not need seaports to the same degree as other continents. Most of the traffic is inland.

## The United States

Among the 36 cities in the United States with over one million inhabitants in 1980, only 10 have no waterfront, and only one of them has a population surpassing two million (Dallas). All metropolises over four million are seaports or on the Great Lakes: New York, Los Angeles, Chicago, Philadelphia, Detroit, and San Francisco.

Many of the 26 ports are riverine ports, founded before the advent of rail transportation. At that time, the Mississippi-Ohio water route system comprised "more than 35 rivers aggregating over



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12,000 miles of navigable water, spread like a tree across the most fertile part of the nation" (Mackenzie, 1933:130). Another important waterway system was the Hudson River-Erie Canal-Great Lakes.

American cities grew at points of intersection between water and land transportation. The railways and the motorways have not determined the initial location of the giant cities, even if they have contributed to their continuing growth. The most famous case is Chicago, strategically located near the southern tip of Lake Michigan and the terminal point of railways reaching into the interior. Chicago is one of the best examples of how a break in transportation favors growth of a city. Cities at junction points became gateway cities. As McKenzie (1933) notes, the motor vehicle and motor highway have not created new large cities. They have only contributed to further growth of existing large cities, born during the era of waterways and growing during the development of railway transportation.

### Mexico

Mexico is a mountainous country, crossed along the Atlantic and Pacific by two chains of mountains which meet in a volcanic axis. Between the Sierra Madre Occidental and Sierra Madre Oriental lies the Mexican Plateau, the country's most densely populated region: 90 percent of the Mexican population lives on the plateau, at more than 500 meters altitude, where water is scarce. Areas of temperate climate are determined by altitude rather than by latitude. The presence of mountain ranges is one reason why Mexico lacks large rivers; no stream system has yet eroded a sizable watershed. Climatically, the upland areas are called the *tierra templada* (temperate land). It is not surprising, then, that we find Mexico's three largest cities located not on the seaboard or lowlands, but in the *tierra templada*. The climate explains why, in spite of ten thousand km of coastline, Mexico has few important ports.

Located on the southern end of the Mexican plateau, Mexico City, with its suburbs, is one of only two megalopolises in the world without direct access to the sea or an important river passing through it (the other is Teheran). Historically, the Aztecs founded the first settlement on an island in a shallow lake. The lake's location, at an altitude of 7,350 feet, gave it a moderate climate. Well before European colonization, the upland Mexican plateau areas had been the country's most productive region. The Aztecs exercised hegemony over the other aboriginal groups. Their selection of the central plain freed them from many of the unwholesome attributes of the tropical lowlands and must be considered influential in their creation of a great civilization. In contrast, rival groups inhabiting the humid lowlands did not achieve the level of society that the Aztecs did (except the Maya of Yucatan). Consequently, the only Indian concentrations which could be termed cities before the arrival of the Spanish were high above sea level in the *tierra templada*. When the Spanish conquistadors invaded Mexico, they quickly recognized the benefits of residing on the plateau rather than in the coastal lowlands. On the coast, the soil was leached, an unsatisfactory condition for growing crops. The humidity was extremely uncomfortable and fostered the presence of disease-carrying insects and parasites. For the same reasons, subsequent invading armies, such as the French and the American, also sought to avoid the coastal lowlands as much as possible. During the warm season, yellow fever would ravage any army foolish enough to remain in the lowlands. Mexico is unique because most nations of the tropics do not possess easily accessible highlands, and are therefore forced to build their cities in the coastal lands.

The port city of Vera Cruz, on the Gulf of Mexico, prospered as Mexico City grew, but its generally unhealthful climate in the yellow fever-ridden lowlands prevented it from reaching a great size. Moreover, it is located relatively far from the plateau, connected by a road which tra-



verses two mountain passes. Today, Vera Cruz ranks as one of Mexico's leading ports, but still remains relatively small.

In contrast, Guadalajara and Monterrey were not established cities prior to the Spanish Conquest. They are located in the *tierra templada*, although they are both on the seaward side of the crest of the mountains. Only after construction of a railroad terminus from Laredo did Monterrey show signs of growth. The completion of the Pan-American highway in 1930 further benefited the city, until its growth was checked by lack of an adequate water supply. Today, Monterrey is the chief beneficiary of the Falco Dam on the lower Rio Grande, and for the present sufficient water is available. The city has industrialized.

Guadalajara, on the other hand, grew immediately following its founding, chiefly as a center for the Indian slave trade. The lands surrounding Guadalajara are among Mexico's most fertile and productive, enabling the city to grow as an agricultural center. During the postwar period, the Mexican government encouraged capital investment outside Mexico City, and as a result, Guadalajara has enjoyed rapid industrialization. The city is near enough to Mexico City to receive capital, but far enough away to avoid being swallowed into the megalopolis.

## South America

Of the 24 cities of South America with a population of more than one million inhabitants in 1985, 14 are seaports (considering Sao Paulo-Santos and Santiago-Valparaiso as metropolitan areas at the sea). Only Bogota, Medellin, and Cali in Colombia; Rosario and Cordoba in Argentina; Brasilia, Belo Horizonte, and Curitiba in Brazil; Quito in Ecuador, and La Paz, capital of a country without seacoast, are not ports. Of these inland cities, only three have three million or more inhabitants: Bogota (3.8), Medellin (3.0), and Belo Horizonte (3.8).

Five of the ten capitals of this continent are seaports: Buenos Aires, Santiago, Lima, Caracas, and Montevideo. All except the last one are enormous metropolises. Only one of the capitals that are not ports is a metropolis (Bogota); the others have one million inhabitants (Quito, La Paz) or less (Asuncion, river port capital of a country without a coast). It is significant that in Ecuador the seaport of Guayaquil is larger and growing faster than Quito, the capital.

One case in this picture merits particular consideration: Sao Paulo, one of the greatest metropolises in the world, located 30 miles from the ocean on the coastal ridges of the Brazilian highlands. By choosing a location above the coastal lowlands (at about 2,600 feet) the Portuguese settlers sought to avoid the humid coastal climate. Sao Paulo grew without any plan into a congested colonial city. As the population of Brazil grew, Sao Paulo kept pace until the 1930s, at which time its population began to increase far more rapidly than Brazil's. Such a booming metropolis needed a port, and it effectively engulfed the port of Santos, now a suburb of Sao Paulo, just as Tientsin is becoming a suburb of Peking, as, in the past, Yokohama became a suburb of Tokyo, Callao a suburb of Lima, and as Inchon became integrated into the metropolitan area of Seoul.

In contrast to the unplanned explosion of Sao Paulo, Belo Horizonte was Brazil's first planned city. Located on the western slopes of a range in the Brazilian highlands, Belo Horizonte's altitude confers on it a moderate climate. The city was planned to be the hub of the large agricultural region north and inland from Rio de Janeiro. The city itself was laid out on a grid modeled after Washington, DC, and La Plata in Argentina. Still relatively isolated, however, the area appears to be undergoing a period of mild growth. Such virtues as a relatively dry climate and uncrowded conditions could, however, be an advantage for future growth.

Three Brazilian cities, Porto Alegre, Recife, and Salvador are located

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on estuaries: Rio de Janeiro on a fine natural inlet, Fortaleza on a semiprotected bay at the mouth of the Rio Pajeu. The estuarine cities were founded on good harbors and have since grown steadily along with the rest of the country. The physical setting of Rio is a densely built-up enclave rimmed by steep mountains. The bay on which Rio lies has the advantages of deep water and enormous size. Historically, Rio has grown steadily since its founding as a Portuguese port. "Rio does not present the radial distribution of many European and American cities. As its expansion was barred by the mountain and the swamps, it was forced to extend along the seacoast, stopped only by the hills".

Comparatively, these tropical cities are not as uncomfortable climatically as their Indian or Indonesian counterparts. Although they are indeed humid, they are not as inundated with water as many Asian cities, because of the moderating effects of the offshore winds.

Buenos Aires is located on the broadest river in the world, and on one of the deepest bays. Its growth has been favored by this excellent location, but historical, economic, cultural, and political factors have also played a vital role. Rosario is the only city of over one million in South America which is a riverine port (Manaus has not yet reached one million).

In contrast to the relative emptiness of the interior, there are large urban concentrations along the Atlantic and Pacific coasts of South America. The wild interior of Brazil, while rich in natural resources, has prevented widespread implantation of European immigrants. Currently, the upland areas of the Brazilian highlands are undergoing population expansion. These areas are near enough to the coastal centers to avoid isolation, while at the same time they enjoy a more moderate climate as a result of the altitude. A similar expansion can be observed in Colombia.

To explain this maritime orientation, the historical dimension must be added to the geographical features already discussed. Today's giant South American cities were born as colonial towns for

colonial overseas transport, founded by Spaniards and the Portuguese – people whose cultural traditions favored monumental capitals. The foreign trade of these countries and the technological development of maritime transport contributed at a later stage to growth of these maritime gateways.

Today, more than three-quarters of the imports and exports of these countries are channelled through their ports, inland trade among the countries being minimal and air transport being limited to certain light goods. For transporting people, South America has moved from maritime traffic directly to air traffic, even for internal travel, skipping, like Africa and Australia, the railway network. To the giant harbors have been added giant airports.

South America has in the year 2000, 45 "million" cities.

### Japan

Japan is a chain of islands. It is today a nation oriented toward the ocean, to an even greater extent than England. Almost all important Japanese cities are situated on the coast, partly because the inland is mountainous. The mountains, covering 70 percent of Japan, rise abruptly. River valleys are steeply cut and the terrain is rugged. The few level areas of any size occur when rivers enter the sea in protected bays, thus enabling their sediment to accumulate without being swept away. These delta plains are highly prized lands in Japan and are the foundation for such large cities as Osaka and Nagoya. Climate also plays a role in favoring Pacific sites, as there is a considerable climatic difference between the Pacific Ocean coast and the Japan Sea coast. Tokyo's average sunshine during July is 175 hours compared with 75 hours for Niigata opposite Tokyo on the Japan Sea coast. Eight of the nine Japanese giant cities are located on coastal alluvial plains, while one occupies a flat saddle between





two mountain groups.

Demographic pressure has resulted in the urbanization of virtually all delta lands. The three largest coastal plains are located relatively near each other; their cities have now expanded to the point where they meet each other along the mountainous divides which separate them. Because they are tied together by transportation and communication routes they have formed a megalopolis along central Japan's Pacific coast. Within this metropolitan area lie what were originally six autonomous urban centers. Although still administered individually, they are more and more being recognized as merely components of what has been dubbed the Tokaido Megalopolis.

*Tokaido* means in Japanese "east coast road." The approximate figure for the population of the megalopolis would be more than 60 million people. The three core areas have stretched "out towards each other, with more and more residences climbing up into the hills as the flat land becomes increasingly scarce" (Nagashima, 1981:283). Within the megalopolis lie the component cities of Tokyo, Kawasaki, Yokohama, Osaka, Kyoto, Nagoya, and Kobe. The three plains on which these cities lie are within 600 kilometers of each other. Each plain meets the sea in a bay, providing the urban center with a good harbor.

Settlements have been located along the Tokaido since feudal times. In fact, with flat land so scarce, it seems inevitable that they were destined to become enormous urban centers. With the advent of industrialization, the Tokaido cities were in the forefront, accelerating their growth even more. Growth in the Tokaido area has been planned to some extent. Unlike the cities of the eastern seaboard of the United States, which haphazardly grew into each other, the Japanese have sought to make the Tokaido component cities complement each other in a productive manner. This concept has been termed the Pacific Belt, a plan that calls for concentrated capital investment in the Tokaido cities to create a polynuclear urbanized system. Although it has become common in the United States to associate

the notion of megalopolis with the excesses of capitalism, Japanese theorists have taken a different approach. Urban thinkers view the megalopolis as an "alternative growth pattern suitable for a densely populated society, linear and efficient compared with the metropolitan concept, which is centripetal, and therefore inefficient with respect to information links" (Nagashima, 1981:282).

Fukuoka and Kita Kyushu are physically similar to the plains of Tokyo, Nagoya, and Osaka. Both of these ports have used all their available flat land and are currently expanding gradually into the surrounding hillsides.

The only large Japanese city which is not a seaport, Sapporo, occupies the only sizable expanse of flat land not composed of alluvium. Located on a saddle between two mountain chains, Sapporo is the largest city on the island of Hokkaido. The factors for its growth can be assumed to be the same as for other large Japanese urban centers: availability of sufficient flat land to allow a city to grow.

## China

In China in 1995 there were 40 cities of more than one million inhabitants. In relation to the size of its population, China has proportionately fewer giant cities than any other major area in the world. Almost all of the giant cities have a waterfront. Some are seaports, other riverine ports, and some are reached by canals.

China's coastline forms a large curve stretching 8,700 miles from the Yalu River in the north to the Gulf of Tonkin in the south. Some of China's largest cities are located where the major rivers reach the ocean, situated slightly inland on large estuaries which make fine harbors.

Shanghai (13.5 million inhabitants) is located on the left bank of the Huangpoo River at its junction with Suchon Creek and between the mouth of the Yangtze River to the north and the

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bays of Hangchow and Yu'pan to the south. The city stands on hardened silt deposited by the Yangtze, forming a flat alluvial plain approximately 15 feet above sea level. The metropolitan area has expanded its total area by setting up state farms around the coastal areas to desalinate the soil and extend the usable land by means of dikes. Shanghai's early population first increased substantially with the influx of refugees during the Mongol period. In more recent times, it was one of the first Chinese cities to be opened to Western commerce after its capture by the British in 1842. The British recognized the advantages of Shanghai's deep water harbor and her strategic location at the mouth of the Yangtze, the natural gateway to the agricultural hinterlands. The area around Shanghai has grown so that, structurally, the Yangtze delta is a metropolis with Shanghai at the center surrounded by satellite cities (Nanking, Suchou, Wuhsi, Changchou).

Similarly, Canton (Kuangchou) is located inland, lying 90 miles from the South China Sea on the Chu Chiang River. The coast around Canton is low and swampy, so the city was located inland on firmer ground, but still within easy navigating distance up the estuary. The Chu Chiang River drains the vast Kwangtung province that provides the products for Canton's commerce. Like Shanghai's, Canton's population grew enormously under European influence and it is now the major industrial center for southern China, forming a metropolis with several other moderate-sized cities.

Many Chinese inland cities have harbors on one of the great river systems of China, like the Yangtze, the Hwang Ho, Huai Ho, Chu Chiang, and the 12 other important waterways. Like the large estuarine cities, these cities appear to be located as compromises between being accessible harbors and being located on firm land and high enough to avoid swamps and flooding. They show some interesting similarities.

To the navigable rivers should be added the famous Grand Canal, running

north to south through the river basins from Peking to Hangchow. Nowhere in the world is there so much traffic on canals between major cities as in China.

Nanking, Wuhan, Chungking, and Chengtu lie within the Yangtze watershed. All were originally agricultural centers, although they now have diversified economies. The most distinctive feature of the Yangtze valley is its low gradient. Wuhan, 580 miles upstream from Shanghai, is less than 100 feet in elevation. As a result, the Yangtze occasionally shifts its course, despite age-old attempts to prevent it from doing so. Consequently, towns are often located on slightly higher ground when it is available. And in fact, the core areas of the large cities are located on such places, although they may have since expanded beyond them. For example, Wuhan is actually located slightly south of the Yangtze on higher ground, and Chungking occupies a land prominence between the confluence of the Yangtze and the Kialing.

Wuhan is the head of navigation on the major east-west route through the middle of China. It can be reached by ocean-going ships of up to 10,000 tons. At Wuhan the north-south land routes meet the east-west water route and the river must be crossed. The Yangtze is nearly 1.5 kilometres wide at this point.

Some Chinese giant cities lack a harbor. With the exception of Kunming, all are on the Manchurian or North China plain. Their location appears to have been influenced by such factors as availability of water, overland trade routes, and strategic considerations. Of these cities, the most prominent is Peking.

Located at the northern apex of the triangular North China plain, Peking is the most northerly major settlement of China. From here, the ancient land routes left the plains for the high northern plateaus and mountains. The Yen Shan mountain range forms a physical and cultural barrier between China and the Manchurian and Mongolian plains. The two major passes are situated so that roads leading south from them naturally converged where Peking stands today. As China was



periodically invaded by hordes from Mongolia and Manchuria, each of these invading groups fortified the area around Peking to serve as an outpost on the southern side of the mountains. As a result of its strategic location, Peking was chosen as the political nexus for China during the last 700 years, despite having had many different ruling dynasties.

As the city grew, the need for a harbor was recognized, and the port of Tientsin was built. Tientsin, at the head of the Gulf of China, developed as a coastal port for goods coming by sea en route to Peking. The city is about 60 miles from Peking, and about 35 miles from the sea. Ships reach Tientsin via the Hai River, a slow-moving, meandering waterway which deposits a good deal of sediment into its riverbed. As a result, the river remains shallow and brackish, permitting ships of only 3,000 tons or less to pass. Constant dredging is necessary.

Tientsin itself is subject to frequent flooding because, although located some distance from the ocean, it is a mere three feet above sea level. Salt water intrusion into the fresh water supply has also been a problem for drinking water and agriculture. The generally unwholesome attributes of Tientsin's location illustrate that the harbor is to a great extent an artificial one, designed to serve Peking. Traffic between Peking and Tientsin by road, railway, or river is the heaviest in China. The peripheries of Peking and Tientsin tend to penetrate each other. Peking (over 11 million inhabitants) and Tientsin (over 6 million) might together become one of the largest megalopolises of the world.

The histories of Fushan, Anshan, Changchun, Shengang (Mukden), and Harbin on the Manchurian plain are more obscure than that of Peking. The Manchurian plain is fertile and productive. Since the Japanese occupation, all the Manchurian cities have grown to be large industrial centers and are well-served by railroads. The one exception to their lack of harbors is Harbin, which possesses a dredged one on the Sungari River.

In terms of structural problems

and pathologies, and in spite of the enormous differences between the economic systems of China and Brazil or India or Indonesia, there are many significant ecological analogies among Shanghai, Sao Paulo, Bombay, and Jakarta.

## Southeast Asia

Similar to South America and Africa, most of the giant cities of Southeast Asia were founded by the European colonial powers. The birth and growth of these cities are inscribed in the history of economic colonialism, which explains why they are ports. In this part of the world, as in all others, most seaports are located on estuaries, a deltaic site, or close to the mouth of a navigable river.

Following the coastline we find the following ports with more than one million inhabitants: Dacca and Chittagong in Bangladesh; Rangoon in Burma; Bangkok-Thonburi in Thailand; Singapore; Ho Chi Minh City, Hanoi-Haiphong, and Danang in Vietnam; Hong Kong and Taipei. During this voyage we would leave out only a few inland "million" cities, like Khulna, a river port in Bangladesh, or Kuala Lumpur. (Phnom Penh has been reduced to less than a few hundred thousand inhabitants.)

The River Irrawaddy makes Rangoon, the natural outlet of the central region, as the only real link with the outside world. The Irrawaddy is navigable 1,500 kilometres from the sea. The lower delta region of the Irrawaddy is a maze of shallow, winding distributaries. The city is on the left bank of the River Rangoon, about 35 kilometres from its mouth.

Sailing on, we come to two archipelagic countries. First is Indonesia, composed of dozens of islands characterized by rugged volcanic mountains covered with dense, tropical forest. The coastal plains are narrow, often covered with swamps and saltwater marshes. The islands are generally surrounded by reefs extending dangerously near the surface of the shallow

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seas. The most densely populated island is Java where Indonesia's three largest cities are located.

Indonesia's cities have all experienced rapid population growth. Only Jakarta and Surabaya have the heterogeneity of true cities. The rest are large villages. Of Java's three large cities, Jakarta-Togjakarta and Surabaya are ports; Bandung is an agricultural center located inland in the mountains. Jakarta's core area is slightly inland on a low, flat alluvial plain, extremely swamp-ridden and easily flooded during the rainy season. As a result, shortages of fresh water occur frequently. Jakarta's port, Togjakarta, is about a mile from the city. The Jakarta plain is one of the most fertile areas along Java's northern coast. Surabaya, also located along the coastal alluvial plain on a delta, is densely populated in its core areas around the harbor. Otherwise it exhibits much of the mixed character of built-up rural Javanese villages interspersed with rice fields. In contrast, Bandung is located at the edge of a plateau at an elevation of 2,400 feet, which gives it a somewhat more moderate climate than the coastal urban centers. The farmlands of the central plain support a considerable population. Indonesia's port cities exhibit many of the same traits as the tropical lowland cities of China and India, except that they lack the urban industrial concentration, and their climate is on the whole more humid.

Indonesia is dominated by one of the largest megalopolises in the world: Jabotabek, centered on Jakarta and including the cities of Bogor, Tangerang, and Bekasi, with a population of over 20 million, in 1995. Two other Indonesian cities, not seaports, are more modestly sized, at about one million inhabitants: Palembang and Semarang.

The second archipelagic country is the Philippines, dominated by a single megacity, Manila. Like Jakarta, Manila is located on the most highly developed island, Luzon, and has a deep harbor at the mouth of the Pasig River.

The two island cities of Singapore and Hong Kong are the best examples of

the importance and potential of seaports in our world today.

### India and Bangladesh

Most Indians make their living from agriculture; therefore the bulk of the population lives in the countryside rather than in cities. Except for a few mountainous areas, India is well settled throughout, as evidenced by the central Deccan plateau's being only slightly less densely settled than the coastal areas.

India has, in 1995, 40 metropolitan areas with populations over one million. Of these, only two are seaport cities: Bombay (12 million inhabitants), and Madras (9 million). The first two are located on estuaries. Unlike China, India is not penetrated by rivers. Only the Ganges and Brahmaputra systems can be commercially traveled for any great distance.

Bombay occupies a group of islets lying adjacent to the shore. Into the bay formed by the islands run several small rivers that provide water for the city and also increase the usable size of the harbor. Bombay is one of the world's most densely populated cities. Blessed with an excellent deep water harbor, the best on India's west coast, Bombay's early growth was triggered by the great cotton/textile industry exploited by the British. As labor was needed, the population swelled. Today, the cotton industry is still important, but the city's economy is more diversified now. Because of the physical constraints of an island location, Bombay's public transportation is chaotic. To alleviate some of the pressure, Indian authorities have begun constructing a twin city to Bombay on the opposite side of the harbor.

Calcutta, capital of Bangladesh, is built on the Southeast bank of the River Hooghly, an arm of the Ganges, 80 miles from the Bay of Bengal. The British chose this site largely for its defensibility because it is protected by the Hooghly River on the west and impassable salt lakes on the east. Although commercially well





located at the head of the Ganges and Brahmaputra hinterlands, Calcutta is plagued by many common problems of tropical estuarine cities. Because of its low elevation, saltwater intrusion into freshwater sources is a frequent problem. This intrusion is aggravated by the excessive groundwater pumping. Moreover, Calcutta's climate can be extremely uncomfortable, with extremely hot and humid summers. The Howrah Bridge on the Hooghly River, with traffic jams at both ends, is, like Shinjuku Metro Station in Tokyo, one of the busiest transit points in the world.

In contrast to Bombay and Calcutta, Madras is located on a straight coastline without an estuary. As a consequence, it handles far less shipping traffic than either of the two larger cities. Madras was the site of a British India Company. Originally lacking a good harbor, the British built an artificial one. Had an artificial harbor not been feasible, the city probably would not have grown as large as it has, especially considering that its most rapid growth followed expansion of the port.

The other 22 largest Indian cities – none as large as these port cities – have no waterfront.

The fourth largest Indian city, with over eight million inhabitants, in 1995, is Delhi, a distinctly different type of city from either Bombay or Calcutta. The city is located near the watershed divide between the Ganges and Indus river valleys. (Between Delhi and the latter lies the Thar desert.) To the north are the Himalayas, to the south are the Avaralli hills. This corridor running east-west in northern India is important as a fertile agricultural area and a strategic zone for control of northern India. Because of its location, Delhi has been a constant target for invaders into the subcontinent. Delhi has been sacked seven times, with each rebuilding using the debris of the prior city. Thanks to its inland location, Delhi's climate is somewhat less humid than Calcutta's.

The cities of the central Deccan Plain, Bangalore (5 million) and Hydera-

bad (6 million), are located at sufficient elevation to avoid the worst of the Indian summers. Along with Ahmadabad to the west of the plain, these cities were important points for overland traffic. Today, they are prominent railroad centers. These cities are distinctly native in character rather than British, as they were of lesser importance to the colonial power than the seaports.

Several cities have over 3 million inhabitants: Poona, Ulhasnagar, Kanpur, Nagpur, Madurai, Jaipur, Coimbatore.

## The Middle East

From our focus of interest, there are two distinctive kinds of countries in the Middle East region. First are the southern Mediterranean countries with a series of important ports with more than one million inhabitants: Casablanca, Rabat, Algiers, Tunis, Tripoli, Cairo, Alexandria, Tel Aviv, Beirut, Izmir, and Istanbul, as well as many other smaller ports. Second are the non-Mediterranean countries: Iran, Iraq, Pakistan, Afghanistan, Jordan, and Saudi Arabia with several giant cities: Teheran in a site similar to Mexico City's; Baghdad, a riverine port and Lahore, Lyallpur, Mashhad, Basra, and an important seaport, Karachi (about 8 million).

## Africa

In 1995, Africa had 40 cities with more than a million inhabitants: most are seaports, 2 are riverine ports (Cairo and Khartoum), and one is located on the border of a great lake, actually an internal sea (Kampala/Entebbe). Only five giant cities are not ports: Addis Ababa, Johannesburg, Lusaka, Nairobi, and Antananarivo. Africa is a centrifugal continent: the major cities are at the edges. Few African countries without access to the sea have cities of over one million, except Zambia – its capital, Lusaka.



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In West Africa, the largest city in each country is located on the coast. This coastal orientation is also a peripheral location and results from colonial economic and administrative structure. The coastal cities were, at the time of the export-oriented colonial system, "the terminal points of transport links which pushed inland to sources of exportable products.

The same phenomenon can be observed in East Africa where major seaports emerged as the basic points for colonial penetration and as the centers for the export of commercial products from the interior. Mombasa grew as a major port for Kenya and Uganda. In Tanganyika, Dar es Salaam, chosen by the colonial power because of its harbor, became the terminal point of a railway line. Nairobi is one of the few great African cities which is not a port. Nairobi started as a small railway depot and, because of its climate, became a center for European settlements in the Kenya Highlands.

Nigeria contains about half the population in West Africa and its major port city, Lagos, has been termed the most chaotic city in the world. The Niger River flows through the west central zone, the lifeline for several West African states of the sub-Sahara in addition to Nigeria. Climatically, Nigeria generally experiences hot and wet conditions, with the bulk of the precipitation falling in the southeast and Niger delta regions. The swamps fringing the coastlands and delta plain were havens for parasites and diseases that have been largely controlled. The most densely populated area is the southwestern territory around Lagos, situated on the Niger delta. Population densities along the coast reach 500 people per square mile and represent the most populated areas of Africa south of the Sahara. The north and the industrializing area around Lagos are experiencing the greatest growth. The core area of Lagos originally occupied a low sandy island at the mouth of a large estuary. The lagoon is shallow and its water circulates poorly. Lagos has expanded to the western shore of the lagoon, where many businesses have relocated to

escape the extreme congestion of downtown Lagos.

As the Niger River is too narrow to permit any but the smallest ships to navigate it, the European influence in Nigeria was largely restricted to the coastal regions and Lagos. Had the Niger been navigable, it is probable that a port would have developed along it, for such a location would have given it favorable status in trade. As the Niger was not penetrable, Lagos, with its large harbor, remained the center of commerce. The Lagos port authority has the reputation of being among the worst in the world. As people from the countryside continue to flood the city in search of work, Lagos and the surrounding area face continued difficulty with slums.

Most of Africa's major seaports and some inland cities are located on sites many geographers and sociologists consider mediocre. Today, problems are generated by this initial site selection. The original location was determined by considerations which several decades later had lost any significance. Many African seaports had as cradles a small island, easy to protect against attacks from the sea or from the continent. Lagos was born on Lagos Island, situated in a lagoon; Dakar on the island of Goree; Konakry on the island of Tombo; Abidjan on the island of Petit-Bassam in the lagoon of Ebrie and on a peninsula between the bays of Banco and Cocody; Port-Harcourt, protected by water on all sides, on the border of the Bonny River; Mombasa on an island four kilometers in diameter; Monrovia between the ocean and an enormous swamp (Vennetier, 1976, chap. 5). Libreville in Gabon, Douala in Cameroon, and Freetown in Sierra Leone are also situated in lagoons.

Zaire has little coastline, so its capital, Kinshasa, is elongated on the river Zaire for 70 kilometers at the point where the river becomes navigable for oceanic ships. It represents a break in transport between water and land. On the other side of the river is Brazzaville, capital of Congo.

South Africa has four important ports: Cape Town, Durban, Port Elizabeth,



and East London. A new port, Saldanha, located in the deep water bay of the same name, services the adjacent rich mineral area. Saldanha is the prototype of an important modern harbor which is not an important population center, and performs functions similar to oil ports.

## Russia

Although an enormous country, Russia has a very limited navigable coastline at the Baltic Sea, the Black Sea, and the Japanese Sea. Its northern frontier is near the pole, so northern waterways are unnavigable much of the year. The Caspian Sea is a great lake without maritime connections. No wonder that among the Russia major cities only three are seaports: St-Petersburg, Odessa, and Baku (Vladivostok and Tallinn are small). Nevertheless, Russia does have a dozen riverine ports of some importance, such as Volgograd, Rostov, Kiev, Donetsk, Dnepropetrovsk, and even Moscow, which has access to efficient canals for part of the year.

Most of the continental cities on the European side of Russia were founded early in the country's history. They were distributed fairly evenly since there are no mountains or deserts between the western frontier and the Ural Mountains.

There is an analogy between the transport systems of the United States and the Soviet Union. Most of the rivers in the Soviet Union run north-south. The oldest cities were located on the rivers. Later, the railway system connected the existing cities, crossing the rivers east-west, creating junctions in transportation, and favoring the growth of particular cities.

Geographically, economically, and politically Russia is not and has never been a major maritime power. In no other region of the world has the sea played so modest a role as for Russia.

The situation is similar in neighboring countries. Czechoslovakia and Hungary have no coastlines. Poland, Romania, and Bulgaria have no single seaport of great importance. Their capitals, Prague, Warsaw, Bucharest, and Sofia have no navigable waterfront. Only Budapest is privileged from this point of view.

## Two Empty Countries with Giant Ports: Canada and Australia

On an isotropic map, Canada looks like a serpent attached to the United States' northern frontier. There are three giant cities – all important ports. Toronto and Montreal together represent one quarter of the Canadian population. They are situated on the St. Lawrence-Great Lakes waterway. Vancouver, on Canada's west coast, is the third largest port in North America in cargo tonnage, exceeded only by New York City and Norfolk, VA. Vancouver is a perfect example of a "break" in transportation.

In Australia, only a narrow strip of land is suitable for settlement; population of the interior desert is very sparse. The urban centers are located on the coast. Sydney has a magnificent natural setting. Not only does the harbor have an enormous capacity, but rivers and lakes surround the area. The second largest Australian port city is Melbourne, the third is Brisbane. There are no important inland cities. These three cities are Australia's centers of international trade.

In neighboring New Zealand, Auckland is located on an isthmus and Wellington is on a strait between two islands – also an example of a break in transportation.

## Why Most Giant Cities are Ports

Our world is built in historical layers, like geological sediments. We are living at a time when transporting people among the 300 largest cities in the world is done more by air than by sea. Today, more goods are transported by train, truck, or pipeline than by ship. Nevertheless, most giant cities are still located at the seacoast or on navigable rivers. They have not moved. On the contrary, many of the most important seaports have meanwhile become the focus of extensive networks of railways, motor highways, and electronic communication.

Historians, geographers, urbanists, and sociologists agree that most of the important cities in West Africa, Southeast Asia, South America, Australia, and many on the east coast of the United States and on the China coast, and other cities like Calcutta, Bombay, or Madras began as trade ports founded by European colonial powers. Traditional Asia, before the 18<sup>th</sup> century, was composed primarily of inward-facing states and empires. The great cities, and indeed nearly all of the important urban centers, were inland. In present terms, virtually all of the largest coastal or near-coastal cities owe the bulk of their growth and most of their essential nature to Western traders. The same phenomenon occurred in West Africa, where growth of urban systems and transport networks reflects their heavy dependence on foreign markets and sources of imported goods. The English, French, Spanish, Portuguese, and to a lesser extent, the Dutch, Belgians, and Germans decided a long time ago, without being conscious of the long-term consequences of their choices, where more than one billion metropolitan people would live in the World at the start of the 21<sup>st</sup> century.

The theory of colonial ports amply confirms an older one about the location and growth of cities, formulated in

1894 by Charles Horton Cooley and buried in the recesses of libraries, forgotten by most contemporary scholars of urbanization. To my knowledge, none of the contemporary scholars writing on colonial ports has mentioned the principle of a break in transportation. According to Cooley (1894:75-76):

*Population and wealth tend to collect wherever there is a break in transportation. By a break is meant an interruption of the movement at least sufficient to cause a transfer of goods and their temporary storage. If this physical interruption of the movement is all that takes place, we have what I may call a mechanical break; but if... this physical interruption causes a change in the ownership of the transported goods, we have a commercial break... Where a break of this sort exists on an important line of transportation... there must be a commercial city. (The breaks arise) at the junction of land transportation with water transportation, or one kind of water transportation with another, or of one kind of land transportation with another.*

The colonial port is the perfect example of a commercial break in transportation, of the intersection between road or river and the sea. Cooley gave few examples outside the United States and none for today's Third World countries, in large part because most seaports in these countries became giant after 1894, when he wrote.

Does the thesis of break in transportation help us to understand better the location of the 300 largest cities of the world? A distinction between three types of countries, based on the age of their urbanization, is useful:

(1) New countries, independent and already advanced economically and relatively urbanized when railway transport expanded during the nineteenth century – typically the United States. In this country



the junctions between water transport and railway transport tended to generate large cities. Later, the automobile came where the city was, as did the airplane in turn.

(2) Colonial countries, heavily rural and agricultural at the time of the European penetration – particularly Africa, South America, and Southeast Asia. The colonial port represented for them much more than a break in transportation: it was a gateway. The notion of gateway seems for those underdeveloped countries at a certain time more appropriate than the notion of a break in transportation.

(3) The old countries, urbanized long before the technological changes came in land and maritime transport – Western, Central, and Eastern Europe; India, China, Japan, the Middle East. No doubt the development of maritime trade since the first industrial revolution had an impact on the growth of many coastal cities but, except for the Chinese trade ports, for most of the contemporary giant cities in these old countries, the notion of break in transportation helps to explain their growth at a certain moment, rather than their location.

The picture is particularly clear for some continental countries. Among India's largest cities, only three are ports. Most of the cities without waterfronts are very old cities, today connected by one of the densest railway systems in the world. The railway arrived where the great city was, rather than the opposite. In the Russia, most cities have no deep harbor. In this part of the world, too, the train, automobile, and airplane came to the great old cities, despite well-known antimetropolitan policies.

In their useful book, *3000 Years of Urban Growth*, Tertius Chandler and Gerald Fox offer no explanation for the rise and decline of the world's largest cities at various epochs. They seem to have ignored Cooley's theory and have not even observed that a high proportion of the largest cities they mention were ports. Such an analysis is not difficult, but of course, the largest cities at the end of the Middle Ages were not "giant" according to

present day standards. Of the 25 largest cities Chandler and Fox list for 1750, ten were seaports, eight riverine ports, and three were located on navigable canals. Of the total of 78 cities listed for 1750, two-thirds had access to navigable water.

The proportion of ports remains about the same for the 75 cities listed in 1825, even though some appear to us as tiny ports. For instance, Cairo probably had then about 260 thousand inhabitants; Shanghai, 115 thousand; Calcutta, 250 thousand; Constantinople, 675 thousand; and New York, 170 thousand. In 1925, among the 25 largest cities, only two were not sea or river ports: Manchester and Birmingham, both fed by maritime transport followed by short land transport. Only two of the largest ports were outside the Atlantic *mare nostrum* – Calcutta and Shanghai.

Sixty years later, in 1985, among the 35 largest metropolises in the world, only Mexico City, Milan, Delhi, Teheran, and Madrid are not ports, and only Cairo, Paris, and the Rhine-Ruhr are riverine ports. The other 26 are seaports (considering Peking-Tientsin, Sao Paulo-Santos, and Seoul-Inchon as ports).

All important seaports or river ports have also become important airports. The inland giant cities, particularly those in the middle of a desert like Mexico City, Teheran, and Tashkent, today have important airports. We live in a world of giant seaports and airports.

Why are some giant cities not seaports or riverine ports? It is relatively easy to find an acceptable explanation for each particular case, but not easy to make generalizations. Sometimes the location was determined primarily by military and security reasons. For instance, Ephesus, near Izmir in Turkey, which is probably the best conserved ancient city, and which was a flourishing mercantile city, had its power based on maritime traffic. Nevertheless, the city concealed behind a hill so as not to be seen by pirates, was not a port. Military preoccupations played a role in the location of many inland cities which later became giant cities, and this is also

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true for many cities born on small islands, in estuaries, or in bays.

Some giant cities are not on the coast because climate was a prior criterion and a plateau was preferred. In some countries, the coast is inhospitable for human habitation. Many examples could be given. It will suffice to point to Antananarivo in Madagascar and, particularly, Mexico City.

There are few coastal cities on the Pacific side of Latin America. A look at the map instantly offers the explanation: the Cordilleras are too near the coast, depriving the incipient port of a hinterland.

Dozens of pages could be written in the attempt to explain why Milan, Dallas, Addis-Ababa, Madrid, Bogota, Atlanta, Nairobi, Warsaw, or Delhi are where they are, and not on the water.

A basic fact must be stressed. Among the 300 million cities, between 190 and 210 are seaports or riverine ports. The ambiguity in the number comes because it is sometimes difficult to estimate the importance of the harbor to the economy and for the historical growth of some cities.

It is obvious that the harbor has not the same importance for the economy of Los Angeles and Singapore, for Lima and Bombay, for Athens and London, for Barcelona and Manila. In the same city the function of the harbor might have, over the years, declined, as in Antwerp, or might have increased, as in Caracas. To establish that among the 300 giant cities of the world more than two-thirds are on the water is a significant fact, which helps us to understand better how our world is built.

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