ECONOMIC GEOGRAPHY

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PREFACE

THE general plan of the organization of the great amount of material that constitutes the subject matter of *Economic Geography* is by types of activities or industries: hunting, fishing, gathering of forest products and lumbering, grazing, farming, mining, manufacturing, transportation and trade. The details of the organization and presentation of subject matter within this general scheme have been developed and tested with each repetition of the course in economic geography over a period of eighteen years.

In organizing and presenting the subject matter of economic geography, writers and teachers have followed three general plans: regional, commodity and occupational. Throughout this book the occupational approach is followed. The chief reason for using the occupational approach in a subject so vast and complex is to obtain a natural and simple organization that will give most readily a working knowledge of the production and distribution of the chief commercial products of the world. This plan has merits not found in either the regional or commodity approach. Especially is this true if the basic organization be by occupations and the sectional divisions be by commodities or industries of a related nature. A leading advantage of the occupational method of organization is that it avoids the old, encyclopaedic enumeration of facts for one region after another or for one commodity after another. It makes possible the natural grouping of related activities or industries and facilitates obtaining a working knowledge of the subject matter of this discipline. In this method the commodities or activities that are naturally related may be treated as a unit. For example, in the farming of the corn belt of the United States corn, oats, winter wheat and hay are closely related in a distinct type of farming. This type also embraces the rearing and fattening of beef cattle, swine and chickens in large numbers. The crops are used chiefly for feed, whereas animal products provide the cash income of the farmer. A study of these separate items on a purely commodity basis for the world as a whole disassociates items that are naturally closely related in the activity of the peoples of this area. The problems of these farmers cannot be readily understood without an analysis of the associated items of this type of farm adjustment. In contrast, the corn farmer of Argentina is primarily a cash-grain farmer, producing chiefly for export.

Meat animals play little part in the life of the corn farmer of Argentina. An analysis of the fundamental conditions of these two types helps greatly in understanding why Argentina is able to supply two-thirds of the world's exports of corn even though the country is not the greatest producer of corn. The occupational method also allows a logical arrangement of the subject matter of economic geography. It favors the discovery, statement and analysis of general principles, which provide the student, long after details have been forgotten, with important general concepts that make for him a working knowledge of the constantly changing commercial world in which he must live.

In the use of statistics, which necessarily constitute an important basis for the formulation and understanding of so many of the general concepts or principles of economic geography, relatively few have been embodied in the textual materials. On the other hand, they have been presented chiefly in the many maps, cartograms and graphs, especially constructed for this volume. In compiling the statistics, a recent pre-war, three-year average has been made in most cases and the facts are presented in percentages in cartograms and graphs. In the use of statistics it has not seemed advisable to attempt to adjust the statistics of the countries of Europe to conform with recent political changes. Regardless of the final outcome of the war, some time will elapse before satisfactory statistics will be available. Averages and percentages overcome the disadvantages of using statistics for one year only because of striking yearly fluctuations. From cartograms and graphs students can readily obtain general concepts not easily gained from statistical tables alone. In the bar graphs the individual countries are not arranged in the order of importance in all cases; instead the countries are grouped by major regions to aid the student in obtaining quickly a knowledge of the outstanding regions of the world.

In a subject with such a wealth of data it has seemed inadvisable to analyze fully all the subdivisions of the several occupations. For instance, although the occupation of hunting is carried on in many parts of the world and although it is of great importance to small groups of people in remote areas, the treatment of this activity occupies relatively little space because hunting is not of great economic significance for the world as a whole. Market gardening and truck farming are well developed in many areas with large urban populations, but they have not been analyzed as separate types of farming. A discussion of some mineral products has been omitted either because the products are of little importance or because an analysis of them would involve considerable repetition of geographic relationships or of methods of mining and preparation. Although the chemical industry is important in many regions of modern manufacturing, it has not been analyzed partly because of the lack of space and also because many of its raw materials are by-products of other establishments. On the other hand, while many persons may consider the methods of tilling crops, of

preparing minerals and of manufacturing outside the field of economic geography, a brief discussion of methods has been included in several instances in order that the student may better discover and appreciate the geographic relationships of the activity involved.

In analyzing the activities of economic geography, emphasis is placed upon the relation of physical factors and economic conditions to the production and distribution of the world's leading commercial products. The physical factors—relief, annual precipitation, seasonal distribution of precipitation, temperatures of the growing season, soils, flora, fauna, drainage, mineral resources, and pests—and the economic conditions—character of population, unit of organization, stage of development, capital, labor, and government aids or hindrances in the form of tariffs, subsidies or valorization schemes—are not treated separately. That the activities of man in providing his six major classes of goods—food, clothing, shelter, fuel, tools and materials of industry, and luxuries—rest on a physical basis is axiomatic. Thus, the student of economic geography necessarily approaches the activities from the point of view of the relation of the occupations to the elements of the natural environment. On the other hand the student, if he is to understand and to explain the production and distribution of the necessaries and luxuries of life, cannot ignore the many economic and political conditions in foreign countries as well as in his own country. He must take cognizance of them in nearly all activities at home and abroad. He must maintain a world point of view rather than a local or regional point of view. Improvements in transportation and communication have overcome some of the disadvantages of distance. They have brought man in all parts of the world closer together and have made people in different parts of the world interdependent. They have caused man's economic and political horizon to be extended far beyond the environs of his own immediate activities. Today no great nation can be completely self-sufficient. Since the peoples of the world are highly interdependent, most of the problems of the businessman and politician in one country can be solved only with knowledge of activities in other regions. It is hoped that the study of economic geography will aid the future businessman or politician to guide the destiny of his nation in coöperation with those of foreign countries.

ACKNOWLEDGMENTS

This book is an outgrowth of research, lectures, and class and seminar discussions directed by the author over a period of eighteen years and by the collaborator for a period of six years. Often in classes a keen student has raised a question or presented an idea that has become part of this volume. We regret that we cannot make personal acknowledgment to each student from whom ideas may have been obtained. We are greatly in-

debted to many writers who have recently added to our knowledge of economic geography; many small detailed studies of a particular activity or industry have been very helpful.

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Chapter One
THE FIELD OF ECONOMIC GEOGRAPHY

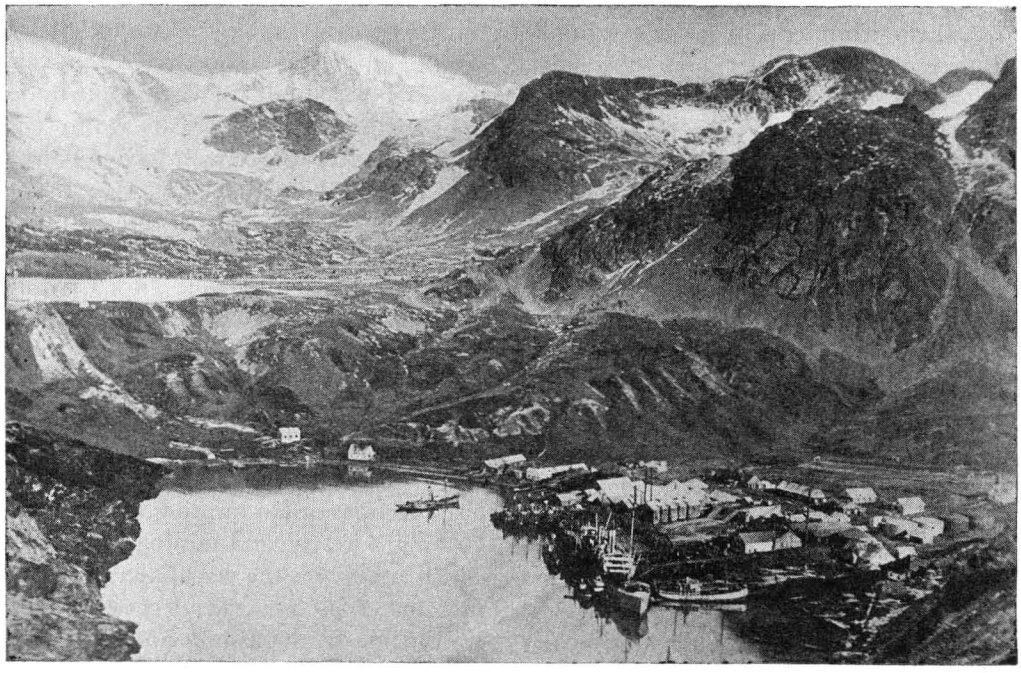
WHETHER people pursue the occupation they prefer depends upon many conditions, but especially upon the nature of the region in which they dwell and upon the number, energy, and ability of their neighbors. Some regions offer a choice of only a few occupations, whereas others offer a choice of many. Let us illustrate these two extremes.

In the rugged, cold, cloudy, rainy forested lands of southernmost South America dwells a remnant of Yahgan Indians, who are still primarily a hunting and fishing people. They spend much of their time and energy in trying to satisfy a few primitive wants, such as food, shelter, raiment, fuel, tools or implements, and artifacts for personal adornment. In this stern environment young Yahgans have little choice in the type of work they may do. They cannot look forward to becoming financiers, engineers, doctors, lawyers, police, teachers, actors, or even social and business secretaries. Unlike many primitive peoples they cannot become farmers, because short, cool summers, heavy rains, cloudy weather, and thin unproductive soil preclude the cultivation of cereals and man's chief fruits and vegetables. They cannot raise animals because suitable grasses are lacking. To live the native must become skilled in hunting, fishing, and gathering, or in fashioning crude implements to be used in these basic occupations. The flora and fauna of forest, stream, and coastal waters provide the bare necessaries of his life. The Yahgan's food, although consisting chiefly of abundant marine life, such as fish, shellfish, and seals, also includes birds, land animals, eggs, and several edible fungi. During seasons of plenty, the food is dried and stored in caches. Conical huts of sticks, covered with grass and ferns, partially shelter the people from the cold, damp weather. Their scant raiment consists chiefly of animal pelts and bark. For fishing and travel, bark canoes are used. Implements include shell scrapers, spears of wood pointed with shell or bone, bows and arrows, and simple clubs. But these people do not make use of all their resources. For instance, little use is made of stone and few of the trees are exploited to advantage. The nutritious wild celery is neglected. This simple subsistence economy of the Yahgans is probably very old. These people undoubtedly began thousands of years ago to stagnate at a low cultural level and have for the most part remained isolated (Fig. 1).

In contrast to this simple subsistence economy are the occupations of the highly mixed population of New York City, an agglomeration of about seven million inhabitants living on a tiny spot of the globe (Fig. 2). In this beehive of activity more than three million persons are engaged in gainful occupations, but less than ten thousand of the gainfully employed are engaged in the basic occupations of hunting, fishing, grazing, farming, forestry, and mining—the activities which supply for the world as a whole all the raw materials for the necessaries of life. Every state in the Union and many foreign countries contribute food and other materials for consumption by New York City's mil-

FIG. 1. Yahgan Indians at Mission Station, South Chile (above), and Whaling Station, Strongness, South Georgia (below).

People in the rugged, cold lands of southern South America and the southernmost islands have a choice of only a few occupations, chiefly hunting, fishing, and trading. (Courtesy of American Museum of Natural History and Bryns, Sandefjord, Norway.)



lions. Large fleets of trucks, many rumbling freight trains, and numerous heavily laden ships enter the city each day bringing an almost inestimable supply of materials. The breakdown of these transportation facilities for even a few weeks would cause not only great suffering, but starvation and wholesale exodus from the city. To one accustomed to taking abundant supplies for granted such a calamity would seem well-nigh impossible. Nearly 11 per cent of the gainfully employed of the city are in various transportation services; 25 per cent are in exchange services or in buying and selling; and 35 per cent are in the varied manufacturing industries of the city. An additional 20 per cent or more provide personal services for others. Consequently, about two-thirds of those gainfully employed in the city receive the varied raw materials and partially manufactured products from widely separated parts of the world. These they process and sell to millions of people of metropolitan New York and to both near-by and distant markets as well. It will be realized at once that in large urban areas the interrelationship of the different occupations is inevitable. This interrelationship is an outgrowth of man's increasing desire and ability to make use of the natural resources of the world.

Evolution of Commercial Economy. Throughout early human history peoples lived chiefly from their own lands, exchanging the little surplus they had with their neighbors. For food and other commodities they were dependent on the areas in which they dwelt. However, commercial activities are not new. Most early civilizations, for

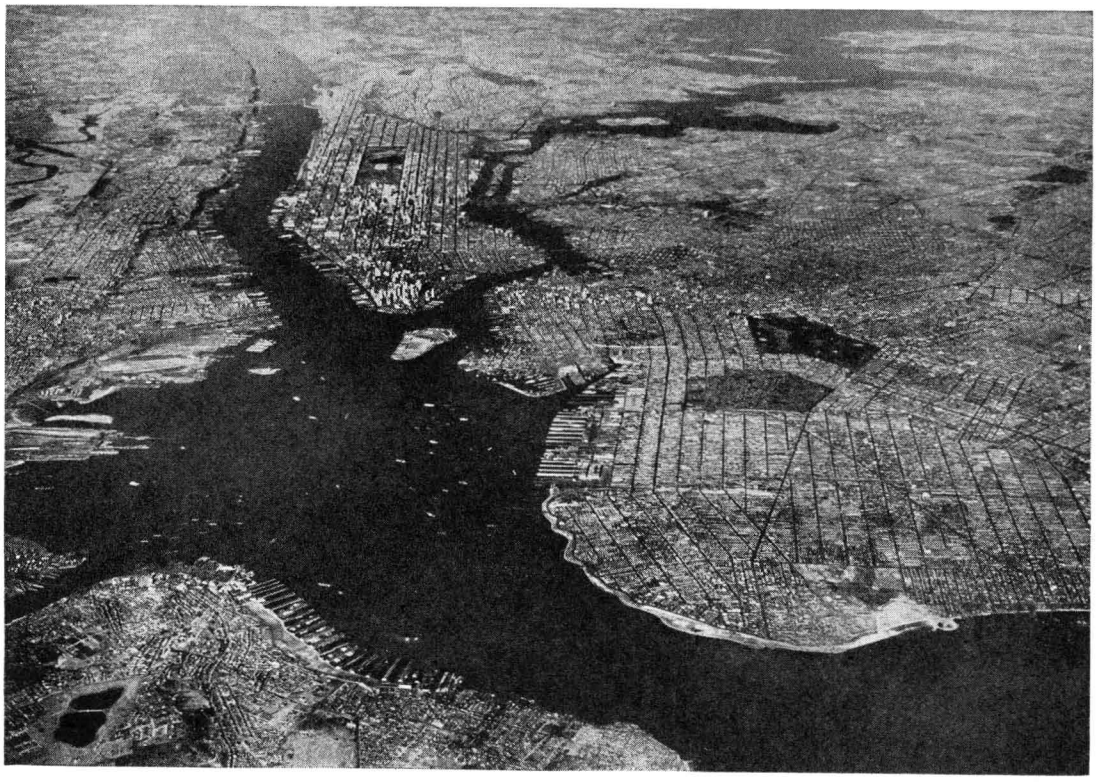


FIG. 2. The Metropolitan Area of New York City.

This photograph, taken from an airplane at 26,300 feet above the city, shows an area which includes about 10 million people. Note the financial and business district with its tall buildings and numerous piers in the left center. (Courtesy of United States Army Air Corps, Official Photograph.)

example, the Egyptian and Mesopotamian in the Old World, and the Aztec, Mayan, and Incan in the New World, developed rather extensive systems of exchange. Even so, their whole economy was primarily for subsistence. As early civilizations advanced from western Asia to the western Mediterranean and northwestern Europe, marked changes took place in fishing, tending animals, tilling crops, manufacturing, and trading. After the breakup of the early commercial powers of the Mediterranean—Phoenician, Cretan, Grecian, Carthaginian and Roman [1]—and following the pall of the early part of the Middle Ages, the Crusades (1096–1270 A.D.) revived interest and trade in the Mediterranean and western Asia. During the latter part of the Middle Ages, Venice and Genoa, two city-states of northern Italy, rose to great commercial importance. On the routes of their predecessors their commercial fleets touched all parts of the Mediterranean; at its eastern ports they received from the overland routes of Asia and the Indian Ocean-Red Sea route spices, pearls, precious stones, silks, carpets, dyewoods, and perfumes from the Orient. These they distributed throughout the Mediterranean or deposited at northern ports, whence they were moved with other Mediterranean products overland to northwestern Europe. At the time the two city-republics were most flourishing, Hanseatic towns of the Baltic and North Seas brought many inland and coastal settlements into contact by serving as collecting and distributing points for products which filtered through from the Mediterranean shores and for products from northern and western Europe, such as timber, hides, furs, fish, meats, iron, copper, and grain.

Though these developments gave the people of Europe an abundance and variety of products hitherto unknown and unavailable to them, the interchange of goods was relatively insignificant compared with that brought about by the changes in activities ushered in by the age of exploration and by the Industrial Revolution. In the early part of the fifteenth century the two groups of commercial cities faced increasing difficulties in obtaining the products of the Orient. Long before the development of the Turkish navy and its capture of Egypt in 1516–1517, which greatly hindered Oriental trade, frequent political disturbances and delays in transit on the overland routes of Asia had caused trade to decline markedly and prices to mount greatly. Owing to difficulties in securing the coveted articles of the Orient, traders of Europe gazed longingly and despairingly toward the old routes to the East. At first hopelessly, then reluctantly, they turned toward the Atlantic, asking the momentous question whether the unknown ocean could possibly furnish a new way to secure the products of the Orient? Portugal and Spain, which had felt the influence of Oriental trade for centuries and had contacts on the Atlantic, led in the venture of finding a new route to the Indies, and thus ushered in the age of exploration. In exploration and trade they were followed, during the sixteenth and seventeenth centuries, by the English, French, and Dutch. In spite of wars and piracy, an ever-increasing volume of gold, silver, hides, dyestuffs, tobacco, ships, forest products, furs, and fish from the Americas, and the aforementioned articles from the Orient flowed into western Europe. At this same time in parts of Europe seeds were being sown for the growth of modern industry and commerce. In various branches of manufacturing, guilds of craftsmen developed special skills, and manufacturing gradually shifted from the home to workshops, and later to factories. At first the wind and streams were harnessed for power to run factories; then coal, earlier used only for heating and smithing, became a source of

[1] Merchants of these nations traded in (1) salt, wine, grain, olive oil—all produced close to the seacoast in many parts of the Mediterranean basin; (2) some lumber products from local forests; and (3) gold, silver, and tin mined in several areas of the basin. They went to the western and northern shores of the Black Sea to obtain salt, fish, wheat, flax, hemp, lumber, tar, and charcoal. They also got tin from Cornwall and the Scilly Islands, amber from the Baltic coast, and timber from central Europe. The latter two products came chiefly by overland trails.

power. The use of coal, iron, and other minerals and the application of many inventions to transportation, mining, and manufacturing ushered in the Industrial Revolution, which increased specialization and concentration of people in small areas. This in turn led herders and farmers of Europe not only to produce for their own use, but also to feed the laborers, industrialists, and merchants, and also to supply the ever-growing factories. Similar changes took place in eastern North America. Stimulated by demand, commercial grazing and farming entered the vast grasslands and other areas.

Along with this enormous increase of trade and industry, the world's population mounted rapidly. In 1700 there were about five hundred million people in the world. With abundance of food and raw materials and outlets for employment this number has increased until now the total world population is more than 2 billion. The chief basis for this great increase was the development in many parts of the world of activities arising from commercial exchange.

The Dynamic Nature of Economic Geography. In the evolution of commercial economies man has discovered the resources and laws of nature and with great advantage to himself has adjusted his activities to them. Not only do man's activities change but his natural environment also changes. For example, periodic fluctuations in climate and frequent variations of weather occur and to these changes plant and animal life respond. In cycles of wet years man moves into the semiarid grasslands, plows them and plants grain; a cycle of dry years brings dust storms and ruin, causing thousands of farmers to abandon their farms (Fig. 3).

Man may overcome the handicaps of nature. He drains swamps, irrigates deserts, fertilizes unproductive soils, even grows plants in hothouses, digs canals, tunnels through mountains, and flies through the air (Fig. 4). However, environmental handicaps are not overcome without cost. Only when prices are high does it pay to pursue agriculture in the face of great natural handicaps. Likewise, only when the saving of time and distance is great does it pay to dig huge canals and to tunnel through mountains. Modifying the environment necessitates readjustments. Man exhausts fish, forest, and mineral resources, causing fishing villages, lumbering towns, and mining camps to decline and disappear. He introduces new plants and animals; through selection and breeding he changes the character and limits of original species. While these and other examples indicate his ability to overcome nature's handicaps, he necessarily adapts himself to environmental conditions. To the primitive and civilized man alike, the tropics and the tundra are still the tropics and the tundra in spite of all he can do. It is impossible to grow bananas in the tundra or graze reindeer in the tropical forest. The Eskimo considers himself fortunate if, by hunting and fishing, he can get sufficient food, raiment, and warm shelter. In contrast, the native of the tropical rain forest struggles to protect himself from wild animals, insect pests, diseases, and enervating heat and humidity.

Man's ability to make efficient use of the earth's resources changes. In early days bodies of water supplied some food and water but were definitely barriers to population movements. With the development of boats and ships they became important highways. Later in human advance they became sources of water for irrigation, power, and industrial uses. For eons mineral resources lay dormant in the areas where they are found. Before they became significant, man had to develop uses for them. Marked adjustments are still going on as man finds new uses for these minerals, and learns to utilize new minerals and new deposits, with varying production costs.

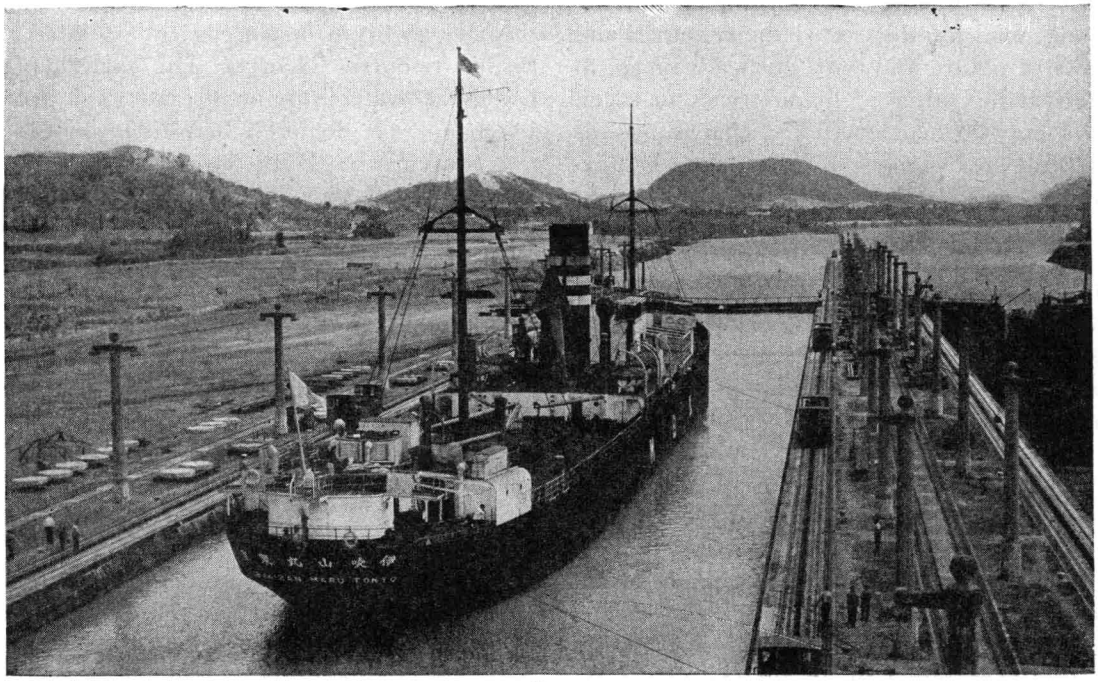
A specific example will serve to illustrate the changing role of the environment in the economy of a people. Less than one hundred years ago Japan was a nation of about thirty million people, most of whom were

FIG. 3. Abandoned Farmstead in Morton County, Kansas.

A characteristic feature of climate in semiarid plains is cyclical variations in precipitation. Dry years give rise to dust storms and drifting sands that force many people to better watered lands. Only by returning the land to grasses or by following scientific methods of tillage to arrest the movement of drifting soil materials can such lands be reclaimed. (Courtesy of Soil Conservation Service, USDA.)

FIG. 4. Ship in One of Panama Canal Locks.

The Panama Canal, one of the engineering feats of the world, is an illustration of man's ingenuity in overcoming handicaps of nature. (Courtesy of Pan American Airways.)



self-sufficient farmers, fishermen, and handicraft workers. Japan had almost no foreign trade then. By agreement in 1853 the nation opened its doors to foreign commerce. Today Japan proper has more than seventy million people and its colonial empire, not including the population of Manchukuo and captured portions of China, has an additional twenty-eight million. The local environment is much the same as it was one hundred years ago, but through trade it now plays a different role, and the Japanese are adjusting their economy to a world environment. Terrace tops and the more gradual slopes, little suited to the growth of rice and other food crops, grow mulberry trees and tea bushes that supply the two great agricultural exports. Many short, swift rivers, formerly rushing unharnessed to the sea, and now supplying abundant power and water for industrial use with small supplies of coal, iron, and other minerals and an abundance of cheap labor, constitute the bases for Japan's significant industrial development of the present century. Imported cotton, wool, minerals, and other raw materials are fabricated and re-exported to many parts of the world. This changing economy has made Japan the one great world power of the Far East and brought it into conflict with the powers of the western world. The full effect of Japan's changing industry and commerce on the world, even if China were excluded, has not been reached.

What Is Economic Geography? Economic geography embraces a consideration of hunting, fishing, grazing, forest industries, mining, manufacturing, transportation, and trade. Not all types of work are included in the field of economic geography. Many people—doctors, teachers, ministers, politicians, bankers, writers, musicians, etc.—obtain their living through other types of work. Economic geography deals with the productive occupations, and attempts to explain why certain regions are outstanding in the production and exportation of various articles and why others are significant in the importation and utilization of these things. The statement that the occupations or activities of man in providing his six major classes of goods—food, clothes, shelter, fuel, tools and materials of industry, and luxuries—have physical bases, called the factors of the natural environment, is axiomatic. A hunter will not seek polar bears in the tropical savannas or lions in the tundra; a desert region, without water secured from elsewhere, cannot grow crops. But men seek shallow waters near continents for abundant fish; coal beds and oil pools to obtain coal and oil; temperate forests for wood pulp; level, fertile plains for extensive machine agriculture. The economic geographer necessarily approaches these activities from the point of view of their relation to the physical factors of the natural environment. However, if he is to understand and explain the occupations of different regions and peoples, he cannot ignore the many economic factors but must take cognizance of them. In addition, he will realize that inherited racial traits and customs influence activities; the artistic ability of the French, the leisurely habits of the Latin American, and the patient work of the Chinese laborer greatly influence farming, manufacturing, trade, and other occupations in their respective areas. In the production and distribution of commodities the advantage of an early start, availability of capital and labor, accumulated technical knowledge and skilled management, efficiency and stability of government, as well as government aids or hindrances in the form of tariffs, subsidies, or valorization plans may be no less significant than natural elements. Therefore we may say that economic geography is the study of the relation of the physical factors of the environment and of economic conditions to the productive occupations and the distribution of their output.

Moreover, people nearly everywhere today are influenced not only by their local environment, but also by the environment and economic conditions in diverse and distant

parts of the world. This interrelationship is well illustrated by the demand for foodstuffs and raw materials of many nations, especially the so-called "have not" nations that aspire to the status of world powers. The bid for world power being made today by Italy, Germany, and Japan has an economic basis. The recent acquisition of new territory by these nations has not placed them on a firm economic basis. Nearly nine-tenths of the industrial power, by political possession or commercial control, is centered in east-central North America, western Europe, and Russia. The greater part of the mineral resources of the world is tributary to these regions or is controlled by them. An attempt to equalize these resources by shifting control of this territory means a change of sovereignty on a scale considered inconceivable by the democracies. Will war solve these problems? Can students of today solve the world problems of tomorrow?

Chapter Two
THE HUMAN FACTOR IN ECONOMIC GEOGRAPHY

MORE than two billion persons inhabit the earth. From the standpoint of economic geography, man is the dominant factor. He produces, manufactures, distributes, consumes, and also destroys. Constantly active, he occupies many parts of the earth and uses its resources to satisfy his needs; hence the number of individuals within a given area is of great importance. However, number alone does not constitute the most important consideration; if such were the case the approximately four hundred and twenty million inhabitants of China would be of greater economic significance to the world than the one hundred and thirty million inhabitants of the United States.

The population of the world is very unevenly distributed. Virtually all people live on the land, even though the water surface comprises nearly three-fourths of the earth's surface. On the land the distribution is complex, ranging from desert areas, where hundreds of square miles are practically uninhabited, to such densely populated areas as Manhattan Island, where sheer lack of space forces people to expand upward by means of skyscrapers. Almost half the people of the earth dwell in southeastern Asia and on adjacent islands, areas comprising less than 14 per cent of the world's land area; while five hundred and ten million live in Europe on about 7 per cent of the world's total land area. Though the Western Hemisphere has as much land as Asia, it is populated by only a fourth as many people.[1]

Factors Affecting the Distribution of Population. The population distribution and density for the world as a whole, as well as for any part thereof, are the result of a complex of physical and economic factors. In general, three types of factors affect the distribution of people and the occupations which concern economic geography.

The first type of factor includes climate, location, and relief, or the degree of unevenness of the land's surface. These three influences, called persistent and universal, are present in every part of the world at all times, and affect the work of people in many ways. Both directly and indirectly they play a sig

[1] The following data are taken from the *Statistical Yearbook of the League of Nations*, 1938–39, pp. 13–22.

WORLD AREA AND POPULATION

Hemisphere	*Land Area (square miles)*		*Population*	
Western Hemisphere	16,000,000		272,000,000	
North America		9,000,000		182,000,000
South America		7,000,000		90,000,000
Eastern Hemisphere	35,500,000		1,955,000,000	
Europe		4,000,000		510,000,000
Asia		16,000,000		1,280,000,000
Africa		11,500,000		154,000,000
Oceania		4,000,000		11,000,000
Antarctica	5,000,000		Few	
Total	56,500,000		2,227,000,000	