



USA

*its Geography
and Growth*

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La Société Historique de Québec

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USA

its Geography and Growth

LIVRE ÉLAGUÉ - SHQ

NOTE

As indicated in the Forward, this edition of *USA - Its Geography and Growth* is a "simplified English" version, which provides flexibility for use by children if desired (class sets are available upon application to the United States Information Service, 69 Sparks Street, Ottawa).

Actually, the simplified English version was prepared by the United States Information Agency in Washington mainly for persons studying English as a second language. This does not cancel its value for certain levels of school work in English-speaking countries however. For your information, the vocabulary is limited to 3000 words.

U.S. Information Service
Ottawa

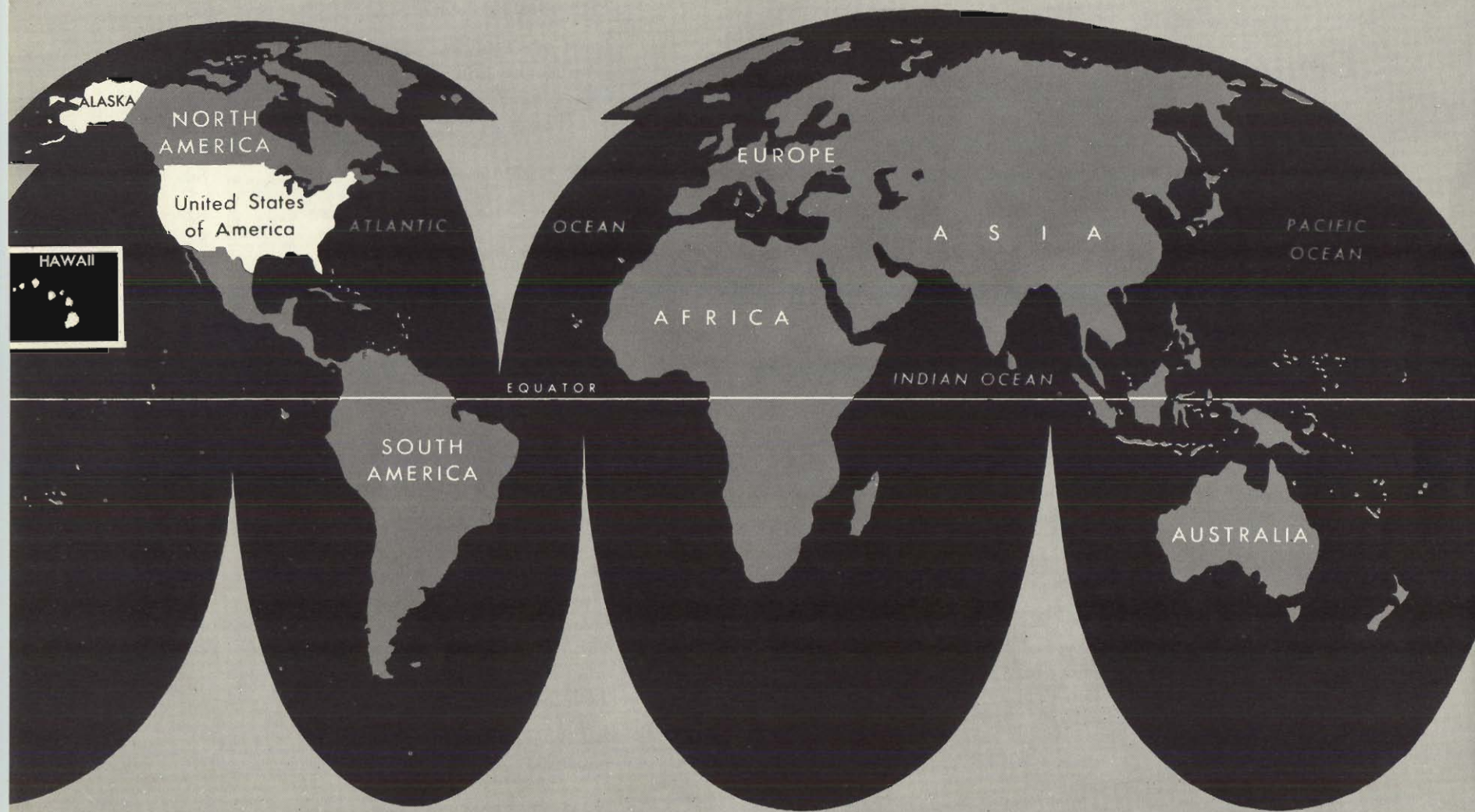


Foreword

Of the many inquiries that are received by the United States Information Service, a large proportion is concerned with the geography of the United States. Through words and photographs, this booklet written in simplified English as a teaching aid, gives the reader a partial picture of the nation. It tells about some of the ways in which Americans have made use of their land and their resources. Of course, such a brief account cannot tell the whole story. Many more detailed studies have been written on all aspects of the subject. Nevertheless, it is hoped that this introduction to the subject will contribute to a better understanding of the U. S.

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ALASKA

NORTH AMERICA

United States of America

ATLANTIC OCEAN

HAWAII

EUROPE

AFRICA

EQUATOR

SOUTH AMERICA

A S I A

INDIAN OCEAN

AUSTRALIA

PACIFIC OCEAN

Introduction

Of all the creatures on the earth, only human beings have found ways to stay alive in all parts of our world. There is no end to the many things people have done to make the land produce for them.

Geography, the science of earth and the distribution of life on it, is the raw material with which all people work. What people do with their geography is an exciting story. It is the story that gives human meaning to the facts of the soil, the winds, and the rivers. This booklet will discuss *the partnership of men and geography* in the United States.

The main land of the United States lies in central North America, with Canada to the north, Mexico to the south, the Atlantic Ocean to the east, and the Pacific to the west. Alaska does not touch the main land of the United States. It borders on northwestern Canada. Hawaii, the island state, lies in the Pacific Ocean.

Americans make great use of machines. Their farms are separate instead of being gathered into villages. They depend on maize (corn) as the basis of their economy. Many Americans frequently move about from one part of the country to another.



HOW DO PEOPLE IN THE U.S.A. LIVE?

WHAT IS THEIR COUNTRY LIKE?

Some Americans live on farms so isolated that, on foot, it takes them two days to reach their nearest neighbors; while other Americans live in apartments with many other families in the same building.



Some American farmers must plant and harvest in less than three months, and half the year their land is covered with snow; while others plant in January as easily as in May and raise four crops a year.



Some Americans drive to work and park their cars beside those of thousands of co-workers in the same plant; other Americans work alone, dependent mainly on their own resources for a livelihood.





It takes more than forty-eight hours for a modern train, traveling a mile a minute, to cross the United States.

Reasons for these and other features of life in the United States may be found through a study of the country's geography, and through a study of what the people there have done to make their geography work for them.

All these contrasting conditions exist because the United States is so large and has so many kinds of land, climate, and people. It stretches 1,600 miles (2,560 kilometers) from north to south; 2,800 miles (4,480 kilometers) from east to west. To cross the country in a modern train going a mile a minute (1.6 kilometers a minute), a passenger must ride all day, all night, all day again, and then all night again. The deep green mountain forests of the northwest coast receive more than 100 inches (2.5 meters) of rain each year. The cactus, a plant covered with sharp

needles that grows in very dry areas, native to the deserts in parts of the southwest, must live on less than five inches (12.7 centimeters) of rain a year. A traveler from almost any other country can find parts of the United States to remind him of home. He can find cool pine forests dotted with lakes, or mountain peaks covered with snow. He can find meadows with brooks and trees, or sea cliffs, or wide grassy plains, or broad spreads of grape vines, or sandy beaches shining in the sun.

In some parts of the United States, the pattern of life seems to have happened by accident. For instance, there is a little town in New York State where some Scottish glove makers happened to settle almost two centuries ago. Even today that town is a principal supplier of gloves.

Another city happened to be the

home of a man who invented a new kind of shirt collar. Ever since then, many people in that city have earned their livings by making shirt collars.

Sometimes when families moved westward to new farmland their wagons broke or they became ill upon the way. As a result, today, 150 years later, their descendants are farmers in little hidden valleys where few would expect people to live.

But these are exceptions. Most people in the United States live in certain ways because the resources of their homeplace have opened certain opportunities to them, and closed others. The choice of work has not been greatly affected by traditional occupations, political borders, the wishes of powerful people, or custom. These have been less important in the United States than in many other countries.



A PANORAMIC VIEW

THE NORTHEAST



THE CENTRAL BASIN



THE SOUTHEAST



THE GREAT PLAINS



THE MOUNTAINS AND DESERTS



Rolling farmland in the Allegheny Mountains

THE WEST COAST VALLEYS





Pacific Ocean

Coast Ranges
Sierra Nevada
Cascade Range
Nevada Mts.

GREAT BASIN

COLORADO PLATEAU

Rocky Mountains

Great Plains

Central Lowlands

Ozark Mountains

Great Lakes

Appalachian Mountains

Atlantic Ocean

Gulf of Mexico

THE FACE OF THE LAND

On the map, the great mountains look like shadowy masses; the wide plains look like little patches, and the rivers seem as thin as threads.

Today, roads and railways cover the land with many crossing lines. But only a few generations ago, these features on the map represented great dangers and difficulties for travelers. Visitors traveling today over a good road in the Cascade Mountains, in the West Coast states of Oregon and Washington, may see marks on the rocks. These marks were made by ropes, where pioneer settlers painfully lowered their horses and wagons down cliffs to reach the river far below.

In another place, in the Sierra Nevada Mountains, in the State of California, the main road now runs through a mountain pass which was once too narrow for a wagon to go through. Families traveling along that way had to take their wagons apart, piece by piece, go through the pass, and then build the wagons again on the other side.

In the southern part of the Great Plains there is an area so flat and featureless that the first travelers

found their way across it with difficulty. They drove stakes into the ground to mark the way for those who came after them. Because of the stakes, this area is called the "staked plains." And travelers in the unmarked western valleys dropped mustard seeds on the ground, depending on the seeds to grow into a bright yellow trail of plants that would lead them out again. Even the gentler Appalachian Mountains were difficult to cross. Men of adventure, almost without equipment, spent their lives finding passes through the mountains and making trails where settlers could follow.

Many modern features on the landscape prove that earlier generations were unwilling to be stopped by the "impossible" natural obstacles in their way. Poles and wire now carry power and communication between ridges that are so deep in snow that only men wearing wide devices for walking on the soft surface can reach them. Railroads run along the sides of mountains. Bridges have been built over deep valleys in mountains. Highways run through the burning heat of deserts. None of these could

have been built or repaired without heroic effort.

In a way, much of the geography and history of the United States was determined about 10,000 to 25,000 years ago. At that time the great northern ice cap flowed over the North American continent and ground into it the final major changes. These changes have affected everybody who has lived there since. The passage of these ice flows determined the size and the direction the Great Lakes drain. They changed the direction of the Missouri River (see map on page 42) and carved the channel of the Hudson River (map on page 30). They pushed soil off a huge part of Canada into the United States, thus creating the northern part of Central Agricultural Basin—one of the richest farming areas of the world.

On the Atlantic shore of the United States, the northern coast is rocky and uninviting, but the middle and southern Atlantic coast rises gently from the sea. It starts as low, wet ground and sandy flats, but then becomes a rolling coastal lowland somewhat like the lowland of northern



Much of the north Atlantic seaboard is bleak and inhospitable.



The Appalachians are rolling mountains, lined with gentle valleys.

and western Europe. The Appalachians, which cut down through the east, are old mountains. There are many valleys between them, and there is coal beneath. To the west of the Appalachians there are higher, sloping lands. They were built up from bits of stone that were washed down from the mountains. Then streams cut the slopes into small hills. Beyond these, one finds the great Central Lowland; the way its land lies resembles the plains of

eastern Europe, or Manchuria, or the Great Plains of Australia, or certain plains in Africa or South America.

Across the north of the Central Lowland, one finds the Great Lakes, which the United States shares with Canada. The Great Lakes extend for almost a thousand miles (1,600 kilometers). They are thought to contain about half of the fresh water of the world. These five large lakes were dug out of the land by the ice cap creeping south that once covered

the northern United States. In winter ships cannot use the lake, as the water freezes into sheets or blocks of ice.

The Great Plains are like the flat top of a great table which is slightly tilted, so that the Great Plains keep rising to the west until they are stopped by the Rocky Mountains, "the backbone of the continent." Scientists call them young mountains. They are the same age as the Alps in Europe, the Himalayas in Asia,



In the Great Plains, the land stretches as far as the eye can see.



Comparatively young, the Rocky Mountains are jagged and high.

and the Andes in South America. Like those ranges, they are high, rough and irregular in shape.

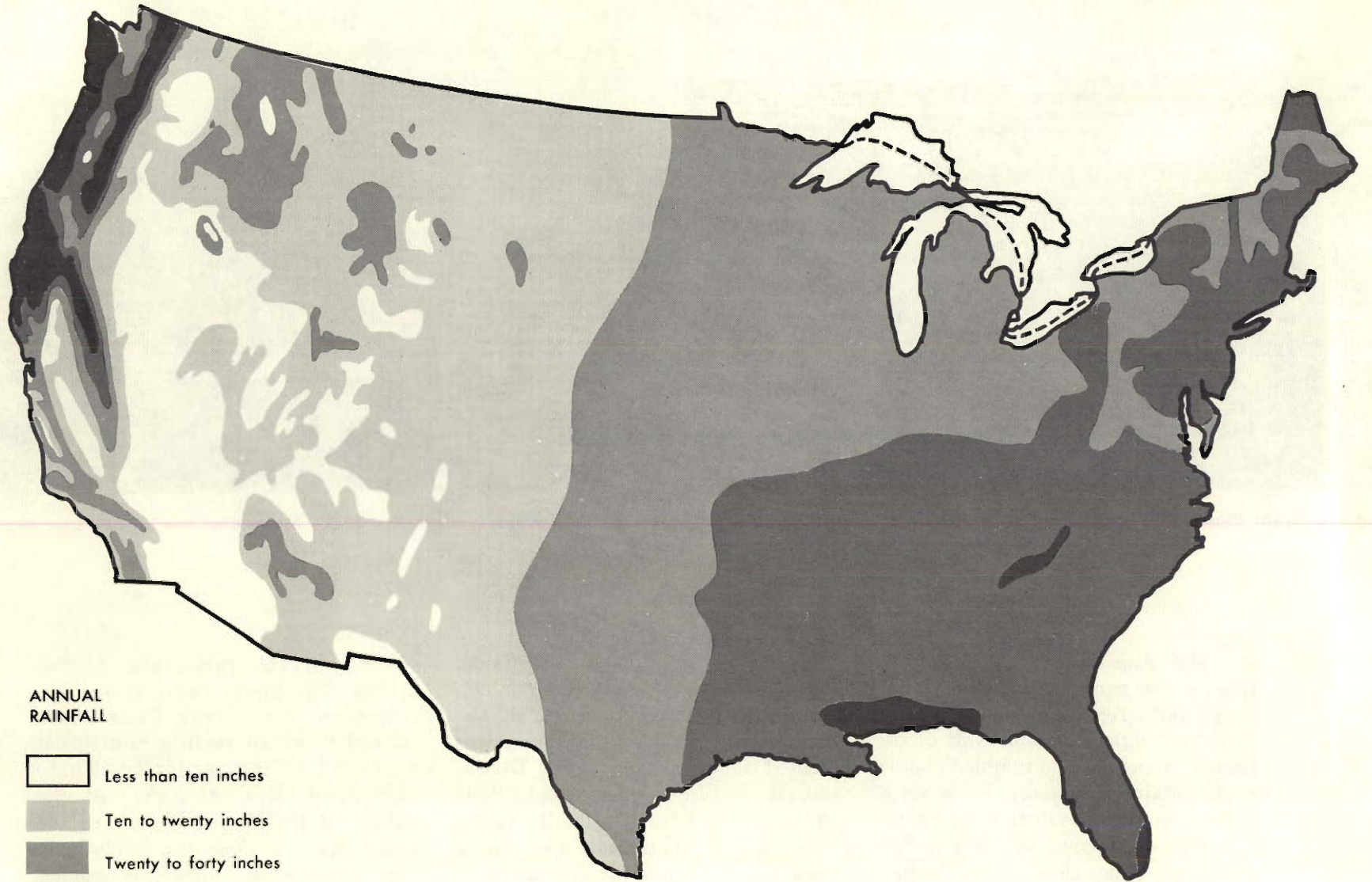
At first sight, the land west of the Rockies appears to be tumbled masses of mountains. Actually, however, it is made up of quite distinct and separate regions, formed in many different ways. One region was formed of material which was washed down from the Rockies and pressed into rock. That is the region of the high Colorado Table Lands, in which the

mile-deep (1.6 kilometer), Grand Canyon of the Colorado River is cut.







But another region, the high Columbia table land to the north, was created much as the great Deccan table land of India was created. Melted rock poured from inside the earth, burying old mountains and filling valleys to a depth of thousands of feet (meters).

The volcanoes which threw out the melted rock built the Cascade Mountains. They include the only active

volcano in the continental United States. The Sierra Nevadas and the ridges of the Great Basin were formed when an earth strain thrust a portion of the earth's crust into high tilted blocks of rock. At the border of the Pacific Ocean are the Coast Ranges. These are relatively low mountains, where occasional earthquakes show that in this region the process of mountain building has not yet stopped.



**ANNUAL
RAINFALL**

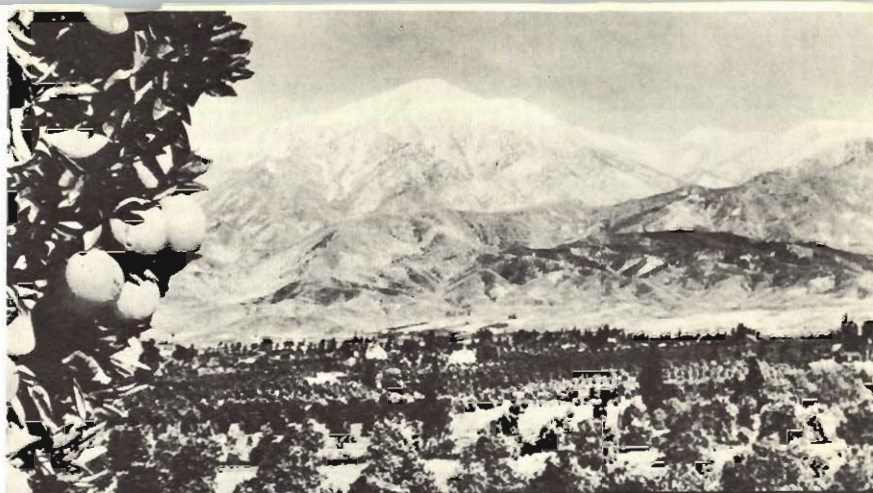
-  Less than ten inches
-  Ten to twenty inches
-  Twenty to forty inches
-  Forty to sixty inches
-  Sixty to eighty inches
-  More than eighty inches

THE RAINFALL

In the northern half of the world, the western portions of continents are especially favored by the prevailing winds. This is because the western lands gather the rains as they come off the ocean, blown by storms that circle from west to east.

The greatest geographical misfortune of the United States is that the Cascade Mountains and the Sierra Nevada Mountains run north and south so close to its west coast. Because they are so close to the coast, these high mountains catch the largest share of the life-giving rains that come in from the ocean. As a result, there is too little rain for North American regions which lie in the same wind paths as the British Isles, France, Germany, Italy, and eastern Europe. Almost the whole western half of the United States lies in the "rain shadow" of mountains, which means that very little rain falls. In a great part of that area, farmers must depend on water from the snows or rains that are trapped by mountains.

One of the most important geographic boundaries in the United States is the 20-inch (51 centimeter) rainfall line which runs north and south, almost through the middle of the country. East of this line, farming is relatively easy, and the population is relatively large. West of the line, one finds dry-farming, the feeding of animals on pasture grass, or man-made crop watering systems, and fewer people. East of the Rocky Mountains, running all the way from the Canadian border to Mexico, there are several hundred thousand square miles (kilometers) where almost no trees grow. In this section of the country, as well as in the Great Basin and Colorado table land to the west, there are deserts which receive as little as five inches (12.7 centimeters) of rainfall a year. Yet west of the Sierra Nevada Mountains, there are places in which 100 inches (2.54 meters) of rain falls each year.



West of the Sierra Nevada Mountains, rainfall makes the land rich.

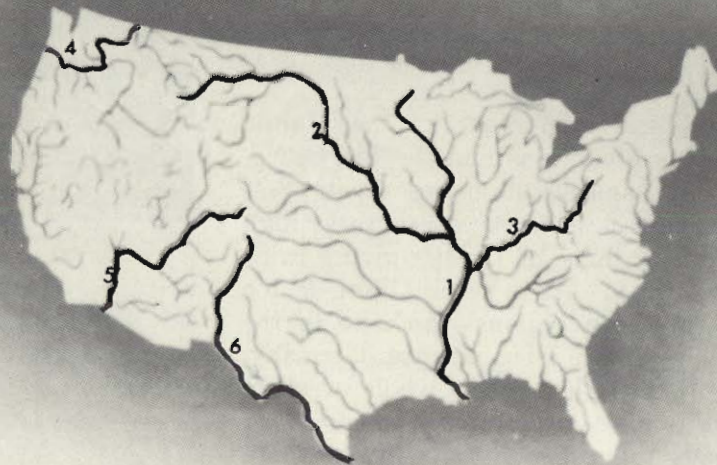


Because rain and clouds are stopped by the Sierra Nevadas, land on the eastern side is semi-arid, suitable only for grazing or dry-farming.



THE RIVERS

1. MISSISSIPPI
2. MISSOURI
3. OHIO
4. COLUMBIA
5. COLORADO
6. RIO GRANDE



THE RIVERS

The Mississippi is one of the world's great continental rivers, like the Amazon in South America, the Congo in Africa, the Volga in Europe, or the Amur, Ganges, and Yangtze in Asia. The waters of the Mississippi are gathered from two-thirds of the United States. Together with the Missouri River (its principal branch), the Mississippi flows almost 4,000 miles, (6,400 kilometers) from its northern sources in the Rocky Mountains to the Gulf of Mexico. This is one of the longest water courses known.

The Mississippi has been called "father of waters." Through all its lower course, it wanders along, appearing lazy and harmless. But people who know the Mississippi are not deceived by its lazy appearance. Americans have had many bitter struggles with Mississippi floods. Finally Americans had to learn that nothing can be gained by fighting against the rages of the mighty river. To live in peace with the river, people have had to accept some of the river's own terms. They have had to work

patiently at saving and rebuilding soil, grasslands, and forests, far back to where the waters begin to gather. Without such work, there could be no hope of taming the Mississippi.

Where the still untamed Missouri River pours into the Mississippi, from the west, it colors the river deep brown with small pieces of soil. Farther down the stream, the clear waters of the Ohio River join the Mississippi. The Ohio is the Mississippi's principal eastern branch. Where the two rivers join, the visitor may see a sign of a difference between the rainy east and the dry west. For many miles (kilometers) the visitor can observe the great difference between the waters of the two streams as they flow side by side in the same river, without mixing. The waters from the west are deep brown: they have robbed the soil in a land where few plants grow. The waters from the east are clear and blue: they come from hills and valleys where plentiful forest and plant cover has kept the soil from being washed away.

Like the Mississippi, all the waters east of the Rockies finally reach the Atlantic; all the waters to the west of the Rockies finally arrive at the Pacific. For this reason the Rocky Mountains are known as the Continental Divide. There are many places in the Rockies where a visitor may

throw two snowballs in opposite directions and know that each will feed a different ocean.

The two great rivers of the Pacific side are the Colorado and the Columbia. The Colorado is in the south; the Columbia rises in Canada and drains the north. In the dry western country, both rivers are important and necessary sources of life. But they are very different. The Columbia was wild in pre-historic times, cutting and shaping the land. Now, however, it flows with quiet dignity. But the Colorado is still a river of enormous fury—wild, restless, and angry. It races and plunges, cutting deeply into the desert rocks. For hundreds of miles (kilometers), it resists any attempt to cross it. But with all its fury the Colorado has been dammed and put to work. All the farms and cities of the southwestern corner of the country depend on its waters. When projects that are now being built are completed, every drop of the Colorado's water will have served man before it reaches the sea. However, it will probably never be as useful as the Rio Grande: of which it is said that all the water that flows into the ocean from that river has been used five times for irrigation, and has been drained back five times.

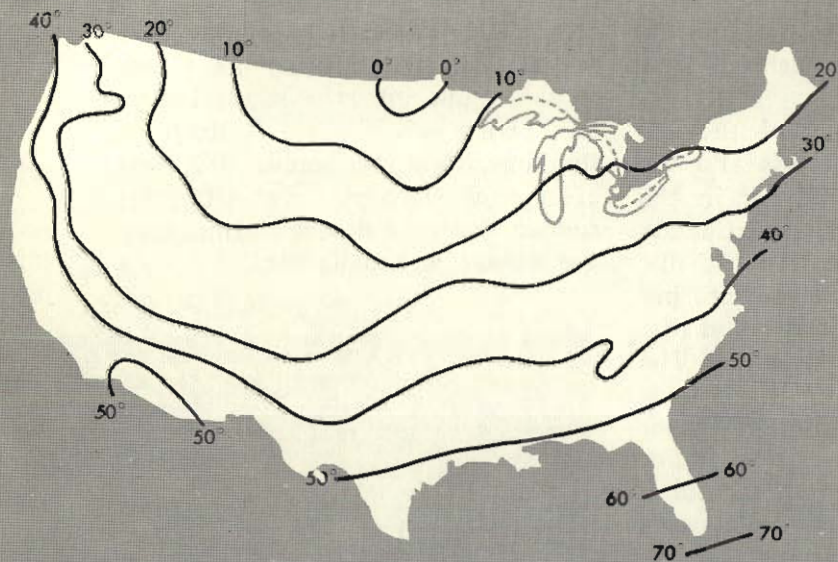
The Great Basin is a strange drainage area. Its rivers seem to go no-

where. This region is so dry that the atmosphere sucks up its rivers or they sink into the sands before they can reach the sea. Much of the time, they are simply dry beds of narrow streams. But after the sudden and rare desert storms, they are savage and dangerous.

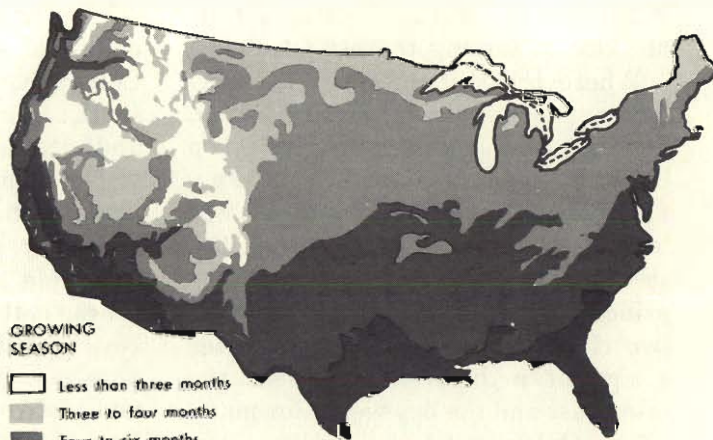
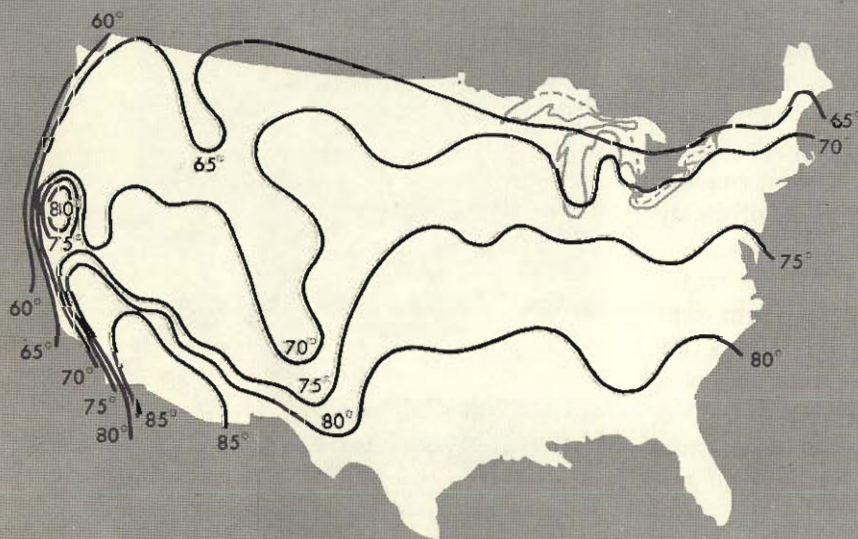
Before the Rio Grande reaches the Gulf of Mexico, its waters are used as much as five times for irrigation purposes. This is the border between Texas and Mexico.



TEMPERATURE FOR JANUARY



TEMPERATURE FOR JULY



GROWING SEASON

- Less than three months
- Three to four months
- Four to six months
- Six to eight months
- More than eight months

THE TEMPERATURE

If there were no mountains or oceans, and if the winds circled the earth with perfect regularity, then the amount of heat and the length of the farmer's growing season would progress at the same rate from north to south. Instead, there are all kinds of unexpected differences in climate, as we can see from the two temperature maps of the United States at the left. For instance, all along the western coast, the temperature changes little between winter and summer. In some places, the average difference between July and January is as little as 15 degrees Fahrenheit (or less than 10 degrees centigrade). In

such places, people wear light coats all the year around. The climate along the northern part of this coast is similar to the climate of England or New Zealand. But in the north central part of the country, summer and winter are like two different worlds. People in the north central region need the lightest kind of summer clothing, and the heaviest woolen or fur clothes for winter. There the average difference between July and January is 65 degrees Fahrenheit (36 degrees centigrade) and more violent extremes are common. The coldest days of a typical January may be -40 degrees, (-39.6 degrees centigrade) and the hottest July day may be 110 degrees (48.4 degrees centigrade)—a difference of 150 degrees Fahrenheit (88 degrees centigrade). This is the sort of climate that is also found in central Asia, far from the moderating influence of the oceans. In the eastern part of the United States, the difference between summer and winter is also very noticeable, but not so extreme. Near the southwestern corner of the United States, the climate is mild and spring-like in winter, but in summer it is hotter than on the equator.

Differences of this kind have become very important to living standards in the United States. Because of good transportation, every region of the country can benefit from the

temperature peculiar to every other region. For example, the GROWING SEASON map on page 18 shows a long crop-growing season along the southeast coast and also in several small strips and pockets to the west. In these regions crops grow well during a large part of the year. Until rather recently, however, this fact was of no special importance to Americans in other regions of the country. People in the colder climates did not often get fresh vegetables and fruits to eat during the winter. In earlier times, relatively few people lived in the warm regions of the country, especially in the west. Those regions were not heavily cultivated; they did not provide a good living for a big farm population.

Today, however, swift, machine-cooled trains, and motor trucks on fine highways can carry fruits and vegetables from these warmer regions to every part of the United States. As a result, more people can make a good living in these areas. All winter they supply people everywhere in the United States with fresh fruits and vegetables at reasonable prices. These fruits and vegetables are rushed to markets which are 1,000—or even 2,000—miles (1,600—or even 3,200—kilometers) away.

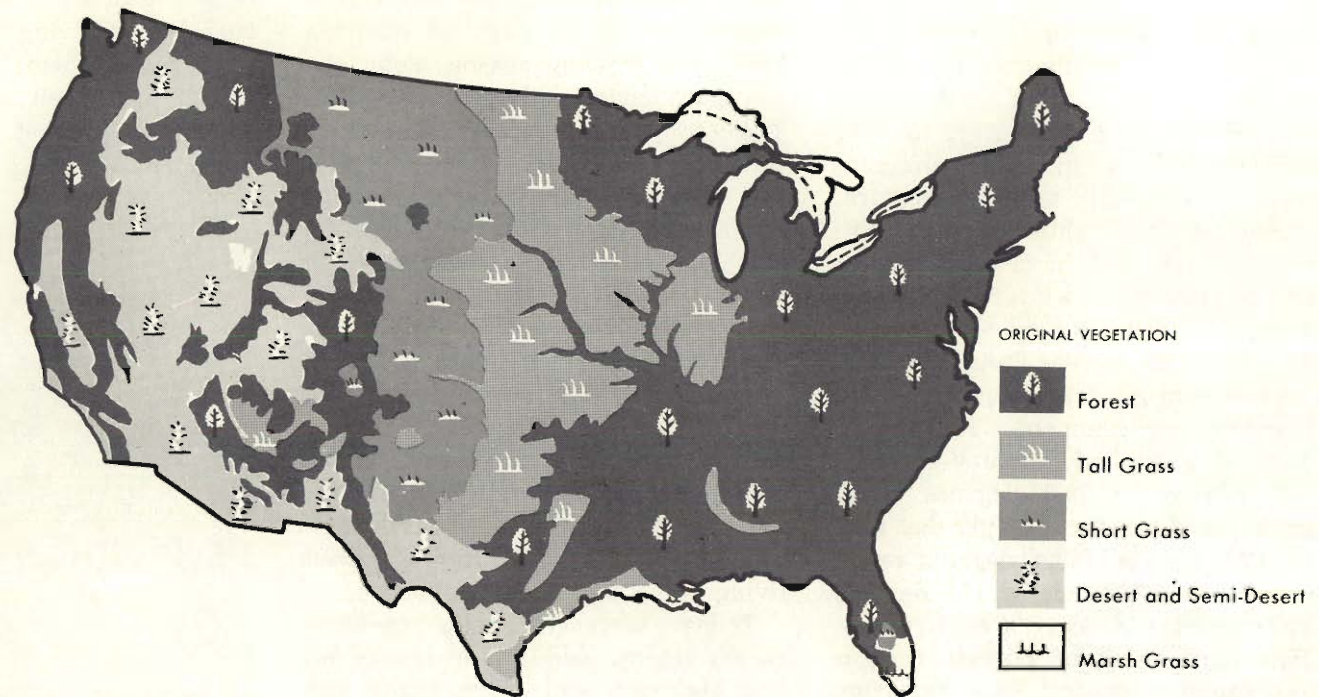
Some plants and animals live best in a cool climate, or in a climate which combines coolness and damp-

ness. These “local” specialties, too, benefit the whole country and provide better living for the farmers who produce them. In a way, Americans “send their climates” to each other. This is not just a luxury for a few: it is part of everyday life for almost everyone.



Farmers in the State of Maine are accustomed to harsh winters and short growing seasons. Their countrymen in California, however, make the most of a growing season which often lasts 265 days.





THE PLANT LIFE

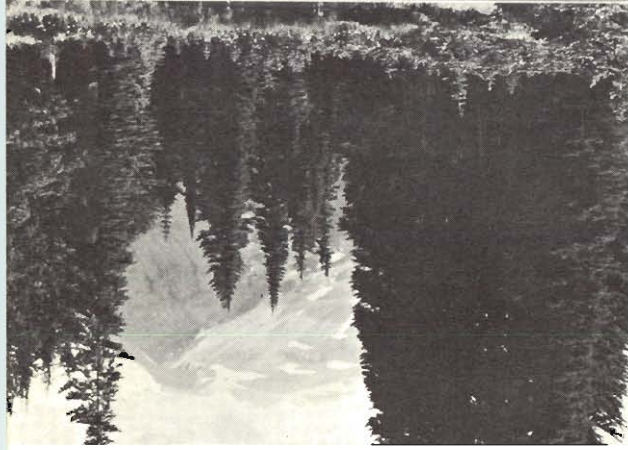
When early voyagers approached the land that is now the United States, they noticed a sweet and surprising "land smell," which told them they were near the shore. This "land smell" came from the great, thick forest that covered all the eastern part of the country. The wind carried this pleasant odor far out to sea.

Today, Africa and South America still have great forests like the ones that greeted the first European visitors in North America. And long ago, enormous woodlands probably covered great parts of Europe and Asia. But

European colonists who came to the eastern coast of America had never before seen such forests. The apparently endless woods, unbroken except by rivers and occasional masses of rock, seemed strangely wonderful to these settlers. The great wild forests impressed and inspired them. They began to dream of developing the land and its fruits.

In those days, every growing boy wanted to learn the secrets of the forest. It was both an exciting and a natural thing to do. And this is a tendency that has

things have determined people's use of the land, too—together with transportation routes and the rich resources which have been discovered under the ground.



Forests of giant fir trees are landmark of the northwest coast. Diagonally across the country, in the subtropical Everglades of Florida, another type of evergreen plant forms a "river of grass" 100 miles long.



A few favored grassy meadows lie in the high mountains catch enough rain. A few favorable grassy meadows lie in the high mountains catch enough rain. A few favored grass common to dry regions. But some places, here and there, are too dry or too full of salt for even this poor desert growth.

The greatest wonder of all is the plant growth on the northwest coast, where the mountains catch the heavy Pacific rains. Here one finds the forests of huge sequoia and fir trees. Some of these great trees are 3,000 years old. They are among the largest and oldest living things known. Some were seedlings when Troy fell, and they were already forest giants when Rome was built. The silent forests are filled with columns of great tree trunks, and they are lighted dimly by rays of sun that are filtered through leaves far above. To many visitors, these forests seem like cathedrals. In some parts of the west, laws protect and preserve them, as a national treasure.

The different original plant life regions correspond quite closely to the different economic regions of the United States today. (Turn to the map on page 29 for examples.) This is not really surprising. The original plant life was determined by the way the land lay, rainfall, river drainage, temperature, and soil. These same

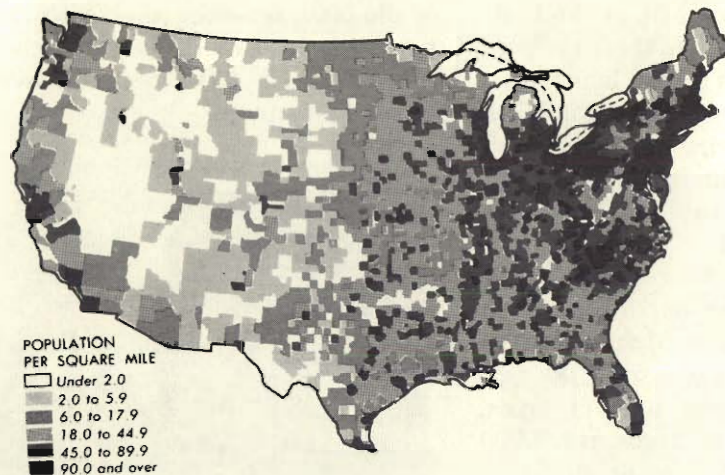
continued among Americans until the present day. Even in the parks of a big city, American children still love to pretend that they are living in a forest. There is very widespread enjoyment of hunting, hiking, and camping out-of-doors.

No one knows just why the woods ended where they did, or why the tall grass of the prairies, the wide, treeless plains, began where it began. The explanation remains a mystery, for the eastern part of the prairies' tall grass lands have soil that is good for trees. Some people believe that, long ago, Indians burned off the forest there in order to force game animals out to the hunters. Or perhaps some special conditions of soil and rainfall were responsible. This seems to explain it more nearly, but nobody really knows. The early settlers wrote that the prairie grass was very beautiful, interlaced with flowers in the spring, and so tall that a man on foot could not see over it.

It is clear why the tall grass became short grass farther west. The reason is clearly lack of rainfall. The line where the two kinds of grass change roughly follows the important 20-inch (51 centimeter) rainfall line which we have discussed earlier.

Still farther west, the vegetation, or plant life, map looks quite mixed. Forests cover the slopes where moun-

THE POPULATION



Every ten years since 1790, the United States Government has taken a count of all the people in the country. From these figures, census officials are able to say where the exact "center of population" is. This is the point where there is an equal number of people to the north, south, east, and west. This map shows how the center of population has moved steadily westward since 1790.



POPULATION GROWTH

YEAR	NUMBER OF PEOPLE
1790	3,929,214
1820	9,638,453
1850	23,191,876
1880	50,155,783
1910	91,972,266
1940	131,669,275
1950	150,697,361
1960	179,323,175 (estimated)

When the first census, or the counting of people, was taken in 1790, much of the country had not even been explored, and much of the land did not belong to the United States. Many parts still belonged to France and Spain. The "western settlers" of that day were in the Appalachian Mountains.

By 1850, the United States had acquired the western part of the country, by purchase and by treaty. This region had been unified politically, and there were about as many people living west of the Appalachians as east of these mountains. However, almost the whole vast west was inhabited only by small scattered bands of Indians. At that time, people seriously believed that the task of settling and developing the country would require at least 500 years, and perhaps 2,000.

The speed with which it actually was settled is one of the most exciting stories in American history. Within the space of a single lifetime, millions of acres (hectares) of forests and prairies were converted into farms and industrial cities, and scattered with universities, churches, and meeting halls.

At first the settlers pushed forward in thin lines, along the rivers; then they began to fill the remaining spaces throughout the middle of the

country. And then, dramatically, the movement of population jumped to the Pacific. The reason was the discovery of gold on the central west coast, in 1849. By then, too, a route had been found through the mountains to the fine farming valleys of the northwest coast.

The last regions to be settled were the dry plains just east of the Rocky Mountains. In the meantime, the cities of the east grew at an astonishing rate.

Where did all these people come from? Many a family left a secure home in the east to live in a sod hut on the windswept prairie. Such a family had moved west with the hope of making a better farm than the one "back home."

Many people left the east because of personal failure, or because of discontent with their prospects, or because they wanted adventure. Many came from abroad, mostly from Europe. Of these, many were seeking political or religious freedom; others were fleeing poverty and hunger. Before 1880, most of the settlers came from northern and western Europe. After that, most came from southern and eastern Europe. Thousands of Asians came to the Pacific Coast. The peak of movement was reached in 1900. That year, almost 4 million people came to the United States from across the seas. That

year, too, marked the closing of the frontier: there was no longer good, new land ready for the plough or the herd. Nevertheless, since 1900, the nation's population has more than doubled.

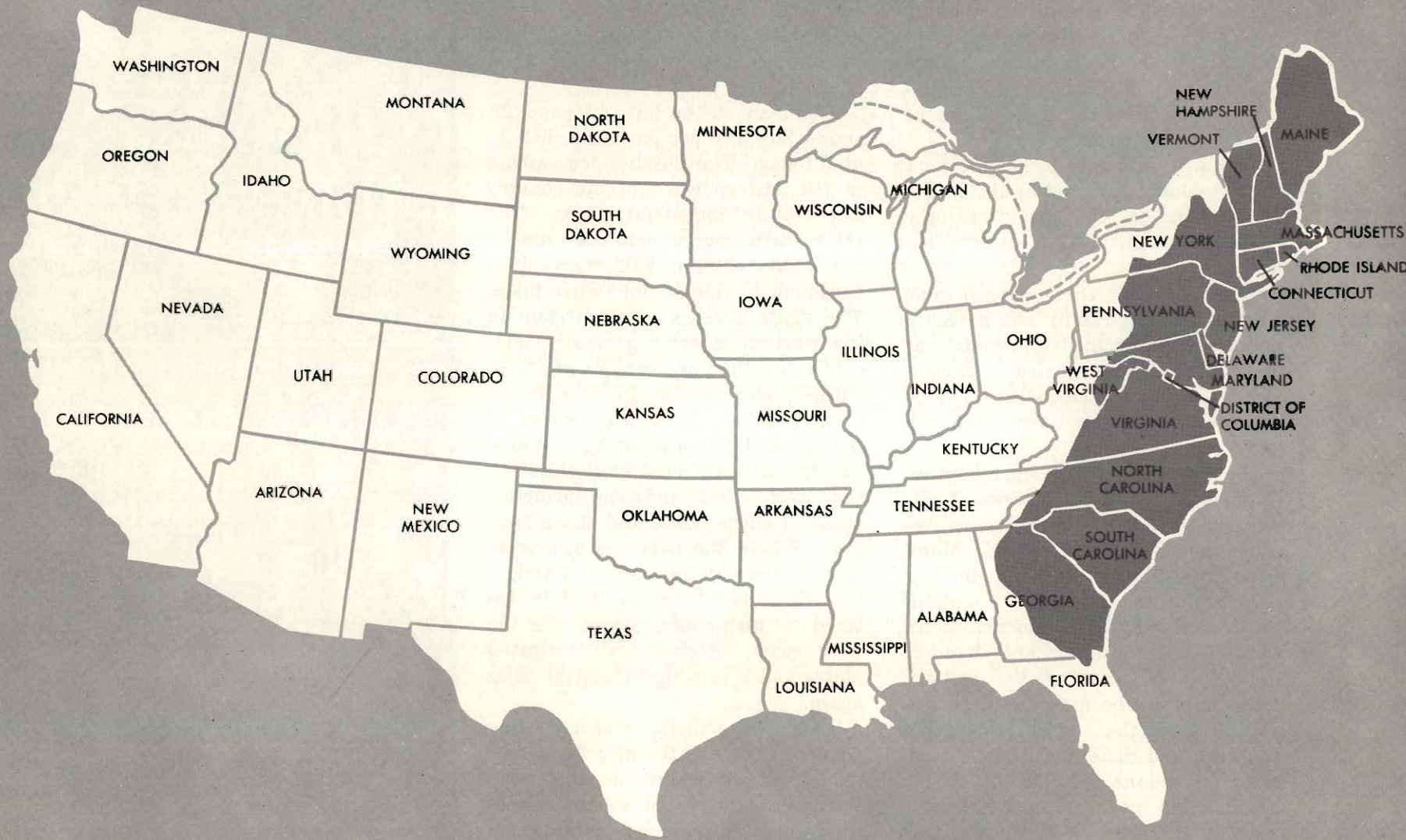
The map at the left, on page 22, shows how the population is distributed today. The closely filled patches in the eastern third of the country are mainly industrial cities. The thick scattering of dots over almost the whole eastern half shows that farmland is thickly inhabited there. The dense patches of population in the western interior generally indicate cities that are centers of trade, culture, and service for the farms around them. Some are centers of mining and manufacturing. Where the dots are scattered most thinly in the west, they indicate principal areas of cattle, goat, and sheep raising. Where the dots are somewhat thicker, they indicate areas of irrigation farming where the land is watered by man-made means. On the west coast we find well irrigated places and a few big industrial cities again.

Today, the principal reason causing people to move is the growth of new industries, especially in the west. People are attracted to the places where new geographical or industrial development means new opportunities for better jobs.



This is the way New York City's Broadway looked in 1826, when the city's population was less than 200,000. Today, Fifth Avenue and 42nd Street meet at what is often called the "busiest corner in the world."





THE 50 STATES

The United States began as a nation of 13 states. These were the colonies which had broken away from Great Britain in 1776, and had fought a six-year War for Independence. The original 13 colonies were then located in the area that is marked gray on the map. Today this gray area is occupied by 16 states, and 34 other states have been admitted to the nation, one by one.

The newest states are Alaska and Hawaii, admitted in 1959. Washington, in the District of Columbia, is the national capital. It was named in honor of George Washington, the first U.S. president. The District of Columbia, which was named for Christopher Columbus, discoverer of America, is 69 square miles (179 square kilometers) in area; and is not part of any state.

Many of the state lines look as if they had been laid out according to a regular, squared pattern. Indeed, the whole country west of the original 13 states was surveyed in regular blocks, a mile (1.6 kilometers) square. This way of dividing the land is reflected in the borders of the states. The men who organized the United States and established this surveying plan were very much interested in mathematics, the science which treats of the exact relations between quantities and operations. One of the philosophers who most influenced them was Sir Isaac Newton, the great English mathematician, who had shown how the whole universe moves in accordance with mathematical

rules. The Americans who organized the survey liked to think that such a sense of order could be brought into the affairs of men. Thus, in the Constitution of the United States, the powers given to each state are limited by the powers given to the national government. At the same time, the powers given to the national government are limited by the powers given to the states. This prevents both the national government and the individual states from becoming too powerful. The branches within the national government are also designed to balance and check each other, as if they were planets being kept within their own paths in the sky.

One result is that states which share the areas where water runs off slopes, or one mountain range have had to learn to work with each other, to develop their resources properly. Sometimes this has been difficult—just as it is difficult for different nations to agree—but it has been done. Today there are many “treaties” and agreements and shared projects among states in the United States. As long as the resources are still being developed, a need to agree will continue between different interests and different state governments.

With their neighbors to the north and south, the people of the United States have learned to work and plan together in the same way. The borders which they share with the nations of Canada and Mexico are the longest militarily unguarded frontiers in the world.

WHAT THE STATE NAMES MEAN

Northeastern States

- Moine — (English) “Coast of the Mainland”
- New Hampshire — (English) Named for Hampshire in England
- Vermont — (American folk version of French) “Green Mountains”
- Massachusetts — (Indian) Named for the Mass-adehu-senk tribe; means “Big Hill People”
- Rhode Island — (Dutch or English) Meaning disputed. Named either for the island of Rhodes in the Mediterranean, or an English adaptation of the Dutch for “Red Island”
- Connecticut — (Indian) “At the Long River-Mouth”
- New York — (English) Named for the Duke of York, who became colonial owner of the land in 1664
- Pennsylvania — (Latin) “Penn’s Woods.” Named for William Penn, colonial founder in 1681
- New Jersey — (English) Named for the Isle of Jersey
- Delaware — (English) Named for Lord de la Warr, colonial governor of Virginia in 1610
- Maryland — (English) Named for Queen Henrietta Marie, wife of Charles I, in 1634
- Ohio — (Indian) “Fine River”
- Michigan — (Indian) “Big Water” or “The Clearing”
- Indiana — (Latin) “Indian Land”
- Wisconsin — (Indian) Meaning uncertain, but may be “River with Holes in its Bank Where the Birds Nest”
- Illinois — (Indian) Named for an Iroquois tribe; means “Brave Men”

Southeastern States

- Virginia and West Virginia — (Latin) Named in 1607 for Queen Elizabeth I of England, called the Virgin Queen
- North Carolina and South Carolina — (Latin) Named in 1629 and 1665 for Kings Charles I and II of England
- Kentucky — (Indian) “Meadow Land”
- Tennessee — (Indian) Probably the name of a Cherokee Indian town; meaning unknown
- Georgia — (Latin) Named in 1732 for King George II of England
- Alabama — (Indian) Named for the Alibamas tribe; means “The Thicket Clearers”
- Mississippi — (Indian) “Big River”
- Florida — (Spanish) “Easter Season”

North Central States

- Minnesota — (Indian) “Cloudy Water”
- North Dakota and South Dakota — (Indian) Named for the Dakotah tribes; meaning unknown
- Montana — (Latin) “Mountain Land”
- Iowa — (Indian) Named for the Ouauiautonon tribe; meaning unknown
- Nebraska — (Indian) “Shallow River”
- Wyoming — (Indian) “Large Plains”

South Central States

- Missouri — (Indian) May mean “Big Muddy” or “Big Canoe”
- Kansas — (Indian) Named for the Kansa tribe; meaning unknown
- Colorado — (Spanish) “Red”
- Arkansas — (Indian) Named for the Alkansa tribe (Quapaw Indians); meaning unknown
- Louisiana — (French) Named in 1682 for King Louis XIV of France
- Oklahoma — (Indian) “Red People”
- Texas — (Indian) A salutation meaning “Friends!”
- New Mexico — (Indian) Named for the Aztecs of Mexico; means “Temple of the God”

Western States

- Idaho — (Indian) A greeting of the Comanche tribes, meaning “Good Morning!”
- Washington — (English) Named for George Washington, first President of the United States
- Oregon — Derivation and meaning are unknown, but believed to trace back to an engraving error on a French map of 1715
- Utah — (Indian) Named for the Ute tribes; meaning uncertain but may be “Those Who Live High Up”
- Nevada — (Spanish) “Snowed Upon”
- California — (Spanish) Allusion to a mythical island of a Spanish romance, which was supposedly ruled by a Queen named Calafia
- Arizona — (Indian) “Little Spring of Water”
- ALASKA — Russian version of an Eskimo word for the peninsula.
- HAWAII — Perhaps a derivative of a native word for “homeland.”

The Capital

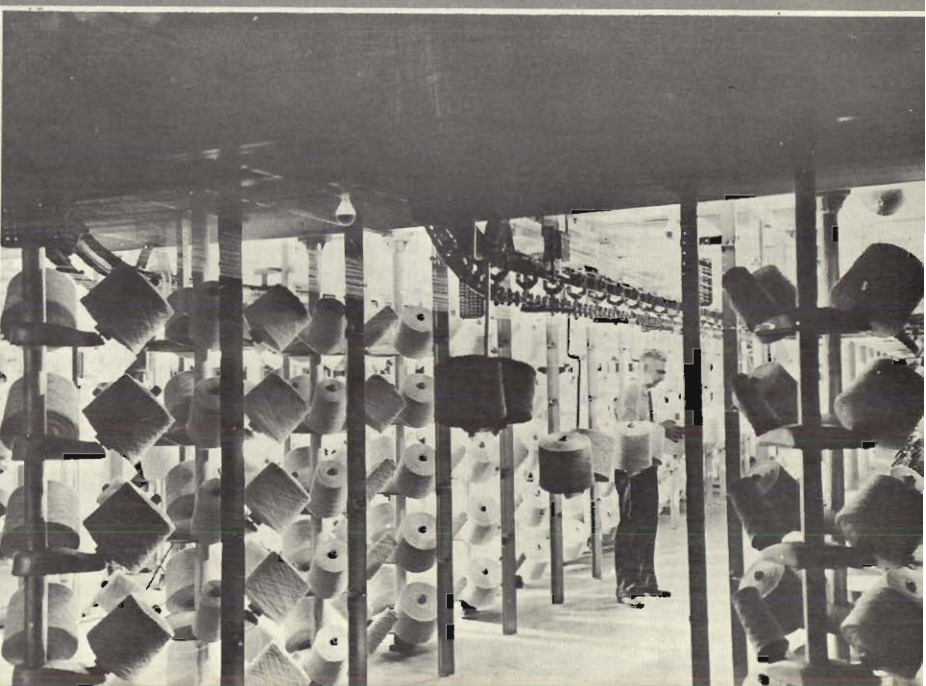
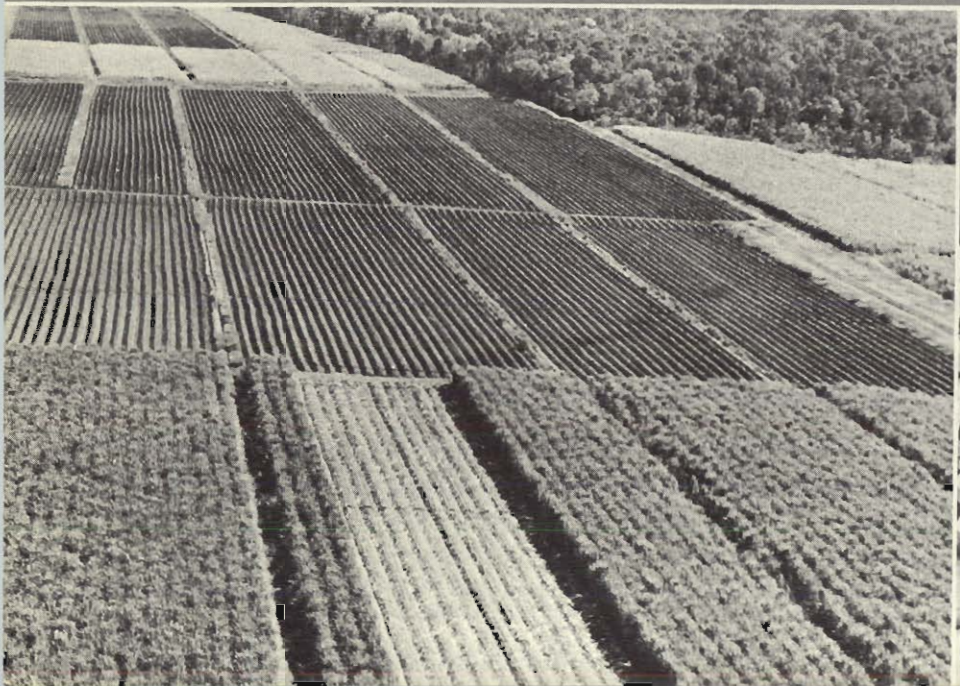
- District of Columbia — Seat of the Federal Government, named for Christopher Columbus, discoverer of America
- Washington — City in the District of Columbia, capital of the United States. Named for George Washington, first U. S. President



One of the world's greatest problems is that of supplying food for its growing population. In the United States, horses have been replaced almost completely by machines, thus freeing 64 million acres formerly devoted to hay and fodder, for the pro-



duction of food for humans. Improved agricultural methods such as that shown in the Louisiana cane field, below, are increasing yields. This, with the development of synthetic fibres, releases land once needed for raising cotton.



THE SCIENCES PUT TO USE

The United States has a reputation as a land of rich natural resources. It is also noted for its great use of machines. If this country had such vast natural resources, why was it necessary to use machines to such an extent?

Actually, much of the land in the United States is in steep mountain or hill slopes. Because much of it lacks enough rainfall or steady rivers, only a little more than one-third of the land can, or should be cultivated. But people in the United States a century ago did not fully understand this. In addition, they did not know that some of their methods of farming were ruining good land. To people who looked out across the rolling prairies, it seemed that the country's good farm land must be almost unlimited.

Perhaps it was fortunate that they thought so. As a result, the people supported a national policy of giving away a great part of the nation's land to individual settlers. If the new settler farmed his land for five years, it then belonged to him.

This policy was one of the chief causes of high wages in the United States. City employers had to pay good wages to keep good workers; for if city workers did not earn a good living, many of them left to settle new farm land, or to try their

luck in the trading villages or mining camps of the west. It was also hard for established farmers to hire laborers, because most farm workers preferred to settle new land and have farms of their own.

The price of labor was so high that it became absolutely necessary for industrialists and farmers to develop and use machines. They also had to keep improving these machines. And because labor was so expensive, not much of it was wasted in jobs that did not produce well.

This widespread use of good machines helped individual workers and farmers to produce more than they could with hand labor. When the land frontier was gone, half a century ago, machines were already opening up new "frontiers"—finding new opportunities for advancement. Machines made it possible to develop swiftly mines, waterways, transportation, and industry. They created wealth that could be used for rebuilding ruined land.

For many people in the world today, the rich resources of the earth still lie unused. United Nations experts say that two-thirds of the world's people lack the proper food for health; yet the countries where these two-thirds live possess at least *80 percent* of the world's natural resources. Many of these countries are

"old"; that is, people have lived there for a long time. They have the priceless possession of rich cultures, and of people who love their land and want to see it flourish and bloom. But they are "young" in another sense—even younger than the United States. They are young in the practice of making their geography and their resources work for the good of their peoples.

The people of the United States have made many mistakes while developing their resources. They still have big problems. Even today, some Americans do not care for their land as wisely as the farmers of many other countries. They have to be shown and taught methods that use the soil well. But today, as never before, people in the United States are trying to learn how to use their land properly.

Between 1920 and 1959, the population of the United States increased by more than 60 percent. Except for the addition of Alaska and Hawaii as states, the usable land area remained almost the same. Yet Americans were better fed and better clothed in 1959 than in 1920.

This was accomplished largely through the wide use of machines, which we have already mentioned. Trucks, automobiles, and farm machinery have replaced horses almost

completely as a means of farm labor. As a result, more than 80 million acres (32 million hectares) of land, which were once needed for growing hay and other animal feed, have been freed to produce food for human beings. The use of machines has also meant that the farmer can do more than he used to do by hand methods. The average farmer now produces twice as much each working hour as he produced in 1940.

Scientists have bred new hybrid plants and animals, the result of mating two different types of plants or animals, which yield more food. New ways have been found for controlling harmful insects, for preserving food, for packaging, storing, and marketing farm products. All together, these have made the farmer's labor produce more food.

In addition, great progress has been made in using the land itself. Through improved methods of enriching the soil and its wise use, farms are yielding more per acre (hectare) than ever before. In many areas like the Great Plains, land that was once used wastefully for grazing is now used to produce food.


But perhaps the most remarkable achievements have resulted from irrigation. West of the Mississippi River alone, these projects have saved 6 million acres (2.4 million hectares)

of land that could not be used before. These great irrigation developments now give water to 100,000 farms, and supply power to many farm communities.

In this book we will see the problems which the people in each region of the United States have faced, and some of the things they have done to solve these problems. But what will happen in the future? How can the land in the United States continue to feed a constantly increasing population? Many Americans are trying to find an answer.

Scientists know that there are 50 million acres (20 million hectares) in the vast western United States which can be irrigated. These 50 million acres (20 million hectares) could be a source of food for many millions of people. Scientists know that an equal amount of land can be reclaimed by draining low, wet lands, and that another 90 million acres (36 million hectares) of sandy pinelands and wet grass lands can be cleared for cultivation. And they know that future advances will improve food production.

The people of the United States are really only in the midst of their job of using their resources properly. But what they have done thus far has made them appreciate how much more may be possible.



THE MAP: We have divided the United States mainland into six regions, as shown in the map at right, and we shall examine each one separately. No man-made boundaries separate these regions. Their borders are determined, instead, by climate, topography, natural transportation routes, soil, or other geographical factors. Each region has its own geographical inheritance, and each has offered its own opportunities and problems to the men and women who have chosen it as their home.



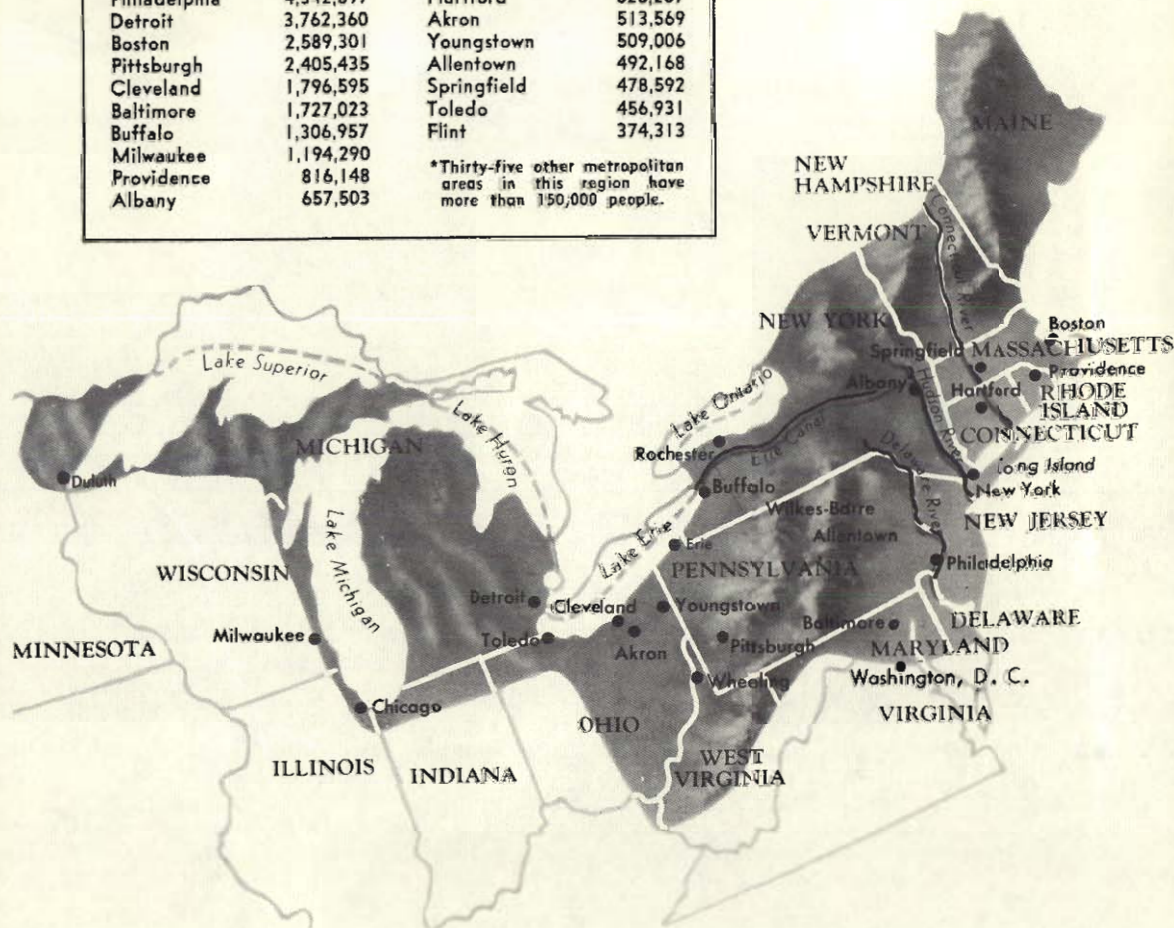
1. THE NORTHEAST
2. THE CENTRAL BASIN
3. THE SOUTHEAST
4. THE GREAT PLAINS
5. THE MOUNTAINS AND DESERTS
6. THE COAST VALLEYS

The Northeast



METROPOLITAN AREAS	POPULATION (1960 Census)	METROPOLITAN AREAS*	POPULATION (1960 Census)
New York	14,759,429	Rochester	586,387
Chicago	6,794,461	Syracuse	563,781
Philadelphia	4,342,897	Hartford	525,207
Detroit	3,762,360	Akron	513,569
Boston	2,589,301	Youngstown	509,006
Pittsburgh	2,405,435	Allentown	492,168
Cleveland	1,796,595	Springfield	478,592
Baltimore	1,727,023	Toledo	456,931
Buffalo	1,306,957	Flint	374,313
Milwaukee	1,194,290		
Providence	816,148		
Albany	657,503		

*Thirty-five other metropolitan areas in this region have more than 150,000 people.



Of the ten largest metropolitan areas in the United States, six are in the industrial Northeast. In the geography of the United States, the term "metropolitan area" has more meaning than the term "city." For the boundaries of a city are often drawn arbitrarily through well populated places; they are political boundaries. "Metropolitan area," on the other hand, means the entire cluster of urban population about one center. It may include only one city and its suburbs, or it may include several cities and towns close together which

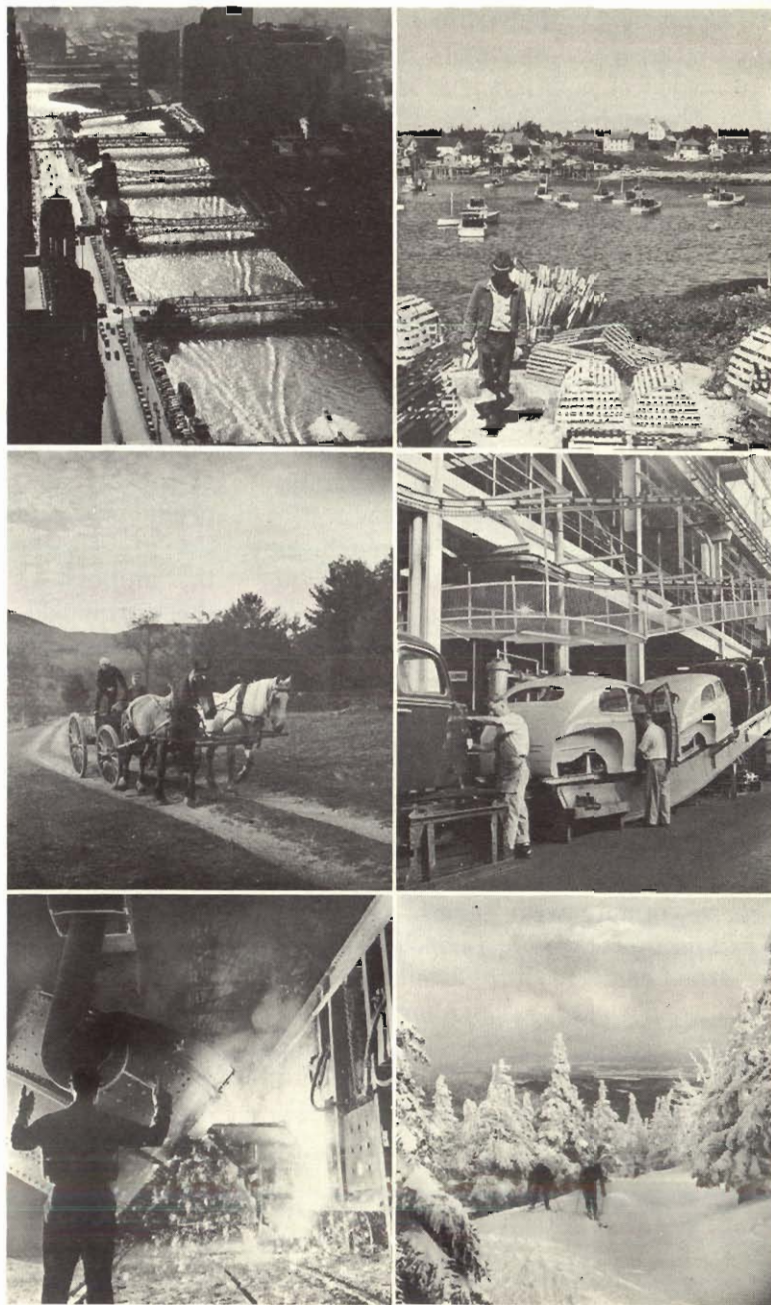
make up one population and economic unit. In the United States it is common for people to live in one town or city and to work in a different city of the same metropolitan area. Each workday morning, tens of thousands of people pour by automobiles, buses, trains, and ferries into such cities as New York, Chicago, or Philadelphia, and at night return to their homes across city, or even across state, lines. Here the principal metropolitan areas of this region, which are shown on the map above, are listed in order of their size.

THE "MELTING POT"

This is the part of the United States which most visitors see, and the part that is most often described. The tall buildings of New York, the steel mills of Pittsburgh, the automobile assembly lines of Detroit—these and many other symbols of industrial America belong to this region. Here are most of the country's cities of industry and commerce.

This is the part, also, that owes the greatest debt to Europe. For into this area of industry came millions of Europeans, who made of it what became known as the "melting pot." The "melting pot" changed people from many nations into Americans. More than any other part of the country, this section belongs to the European culture and traditions.

Seeing this great area today, it is hard to realize that it was wilderness only 300 years ago. The effect of that wilderness upon the settlers was a powerful force in developing the United States. As soon as permanent settlements were made in the new land, a new sort of people developed. Slowly but surely, men changed the ways of life they brought with them. During three centuries of westward movement, the wilderness was the single most powerful force in the making of a new people.



Chicago • Fishing village, Maine • New England farm
• Detroit assembly line • Steel plant • Skiing in Vermont

Even today, the visitor who expects only factories, apartment houses, and crowded streets is surprised. In the Northeast he sees more wooded hills than factory chimneys, more fields than roads, more farm houses than office buildings. The cities—so big, so busy, so complex—are hard for the human mind to grasp easily. But, in contrast, the features of the land over most of this northeastern region are on a small and gentle scale. It is a country of many brooks, of low mountain ridges, of rolling hills, of groves, pastures, and vegetable gardens. Only a few places in the Northeast is a visitor so much as 10 miles (16 kilometers) distant from rich farms. Those few places are not in the hearts of the large cities. Instead, they are in areas of true wilderness, such as the forests of the northern part of the state of Maine, where to this day the only way of crossing great stretches of land or water is by foot or canoes. Everywhere, the outer reaches of cities mingle with farms. In many towns there are old farm houses and barns, changed into dwellings, now crowded close by neighboring buildings.

So the observant visitor quickly

guesses that he is in a relatively old farming region, on which a pattern of cities and industries has grown and spread. What he cannot see is how the look of country has changed with this growth of industry. Only a few generations ago (or less) the majority of these farms produced grain to sell. They also produced a great many types of plants, meat, and domestic birds for the farm family itself. Today, most of the farms are devoted to dairy cattle, or vegetables, or chickens, or fruit. Most of the farmers specialize in growing products that can be rushed fresh to the great cities nearby and sold to the millions of people there. Thus, the farms do not simply continue operating as in the old days before industry grew so big here. They are a needed modern part of the region's economy.

This change in the farms' products gives us an idea of a very important factor in American geography: the "market." Usually, when we hear this word, we think of a city or village square where people are buying and selling. But when the economist or geographer speaks of the "market," he means all the people and organizations in an area that are able

to buy goods. And when we examine the industries of the United States' Northeast, we find that many of them are there because the area is a good "market," because there are many well-paid workers and prosperous farmers nearby, who have the money to buy clothing and goods and equipment for their homes. Makers of such items bring in raw materials and produce these goods near a large "market." This costs less than to ship the finished items, and arrange their sale, from a distance. These industries employ many workers in the area, adding to the population and the "market" in this way.

Why, then, is this region so thickly populated, and what do its people do for a living? We already have part of the answer: a great many people live and work here just because it is a place of big cities with well-paid workers. They earn their livings by providing goods and services for each other. But that is not the whole answer. There are several great geographic reasons why people in this region turned so heavily to trade and industry.

One of the most important of these reasons is the sea.

Today, four of the eight heavily populated areas in the Northeast are around the seaports of Boston, New York, Philadelphia and Baltimore. (On the map, Philadelphia appears to lie inland, but it is on the wide, deep tide water of the Delaware River mouth and is a good harbor for the largest sea-going vessels.) At these points, materials from across the sea enter the United States, and the products of the land are sent there for export across the sea. But these four areas are not only important points for reloading and transferring goods. Indeed, in this region, shipping and everything connected with it is of much less importance than industry.

People have found that places where all kinds of goods come together, and where transportation lines meet, are excellent for making raw or partly finished materials into finished goods. The importance of these northeastern cities, both as ports and as manufacturing centers, did not simply come about by chance, however.

On a coast line like this, with good harbors, the sea is a ready-made means of transportation. But the land is not. About 1815, when the settlement of the United States west-

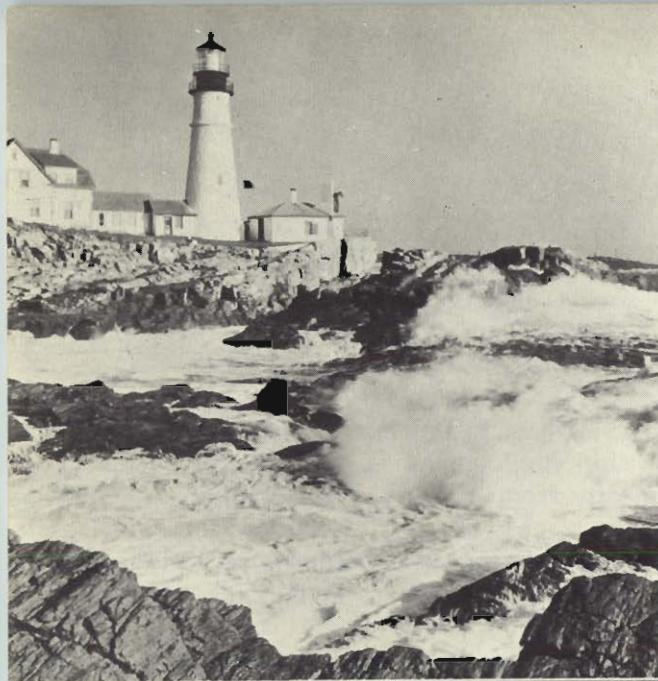
ward from the coast had already become an important movement, trade routes from the ports to the interior began to be a serious problem. The slow wagon trains of that time, drawn by horses or oxen, were too expensive for moving freight any great distance. Americans had long admired Europe's canals, and a canal seemed the best solution to the transportation problem in New York State. From the eastern end of Lake Erie, all the way across the State to the Hudson River, there is a long strip of low land. The Hudson itself flows deep and without waterfalls to New York harbor. For the small population and the agricultural economy of the time, such a canal was a most ambitious project, but—after several years of work—it was completed in 1825. Freight costs from Lake Erie to New York were immediately cut to about *one-tenth* of what they had been. New York, which had previously been smaller than Philadelphia and Boston, quickly became the leading city of the coast. In the years which followed, traffic on the Great Lakes was joined to the traffic on the Mississippi River; and then New York City became the end point of a great inland shipping system that extended from the Atlantic

far up the western branches of the Mississippi. The coming of the railroads made canal shipping less important, but it tied New York even more closely to the interior.

Exports from New York were greater than imports. Consequently, shipping companies, on the return trip from Europe, were willing to carry passengers for very low fares. Thus, New York became, too, the greatest port for receiving new arrivals.

Many of these people remained in the city; their labor helped its industries grow. But millions of others saw New York only as the first step in what has been called the "American dream." This was the belief that the humblest person could, by his own efforts, achieve security for his family, and could know that his children could do better than he. As soon as the new settler landed in New York, and started to make a permanent home, he was never again English or Spanish or Polish. In the new nation, the European class system was not important, and the millions who landed in New York became a new people, shaping a new nation.

While the Erie Canal was being built in New York State, the people



Portland Head Light, Maine, is a scenic vacation spot.

A public beach only 90 minutes from New York City



of Philadelphia began to worry about the future of their port. Unlike New York, they had no easy canal route, over one river system, to the interior. Mountains barred the way either to the Great Lakes or to the Ohio River, the eastern branch of the Mississippi. Nevertheless, the people of Philadelphia built a canal. Where it reached the ridges that separated the eastern slopes from those to the west, railroad tracks came to the edge of the canal. The canal boats were lifted onto special railroad cars, to be carried over the mountains. Philadelphia's canal was one of the major engineering feats of nineteenth-century America, but all the work was in vain. Shipping on the Erie Canal was so much cheaper that Philadelphia's canal was little used. But the Philadelphians swallowed their disappointment and looked about for some better plan. Coal had been discovered near several upper branches of the Delaware River, and now the people worked hard to deepen the stony streams, and to build canals to the mines. This plan succeeded. The combination of the port with cheap shipping for fuel assured Philadelphia a position as a manufacturing center. Later, railroads provided the much-needed tie with the interior.

The fear that their port would lose its importance worried the people of

Baltimore, too. Their city is situated where the hard rocks of the Appalachian hills and the soft soil of the coast come together. This made waterfalls, and the waterpower gave them an early advantage for manufacturing. But they saw that this was not advantage enough, and conditions were not right for building a canal. Instead, they constructed the first railroad across the mountains. In this way, Baltimore became a vital center for export and for import, too. Yearly, about 6,000 vessels move into Baltimore's natural harbor. Lumber, ores, crude oil—raw materials from the world—are unloaded and reshipped by rail or coastal tank ship to American industry, in exchange for grain and machines. World trade helps to make Baltimore America's sixth largest port.

Boston, alone of these four ports, did not develop primarily through export trade. Although it is the largest port for shipping fish in the United States, it is in a region which early became an important center of industry, and therefore required raw materials. So Boston was primarily an import point. Second, it was an export city for the northeastern corner of the country. This northeastern corner, which is called New England, had special problems of its own.



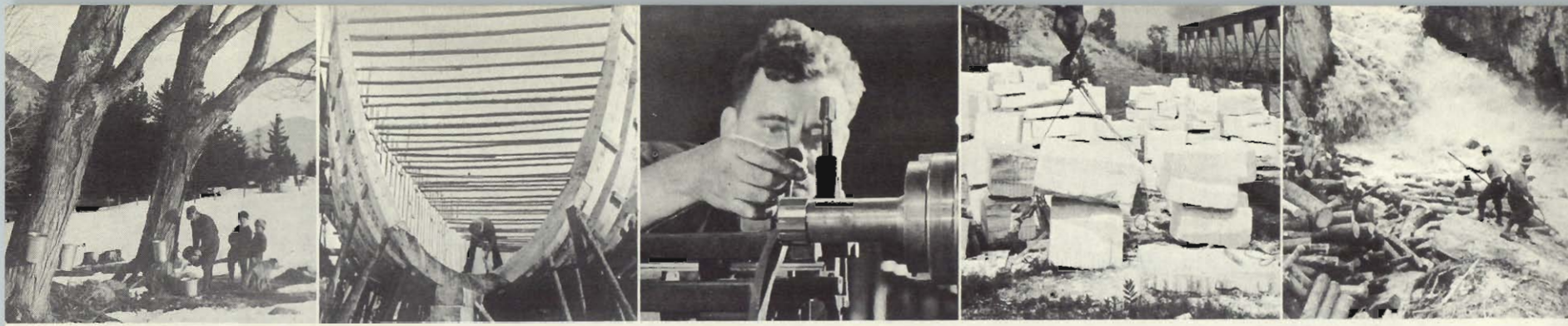
Stone from New England fields has been removed patiently by generations of farmers, and used for their fences.

THE STONY SOIL

Generations of hard-working farmers in New England have declared that the chief product of their land is stones. More than 10,000 years ago, the ice caps that covered this part of the country dug away the hard rocks that lay close to the surface. When the melting ice retreated, it left the rock bare. Over the centuries, a thin layer of soil formed on top of the rock. To clear this land for farming, the New England farmers had to remove stones of every size, in addition to cutting trees and digging out the stumps of trees. This work of removing stones has been an endless process, for the frosts of each winter bring more stones up to the surface through the thin soil. Even

today, farms which have been worked on for more than 200 years still yield their annual crop of stones. But this same rocky soil that created such problems for farming was a great aid to industry. In the mountains and hills of New England, these rocks created large quantities of water power. Every brook had its waterfalls, and very early in the 19th century, New England people began to build little mills beside many of these waterfalls, for weaving cloth or for wood or metal turning machines.

In one way, the opening of the Erie Canal in 1825 was an economic threat to New England. When large amounts of grain from farther west began to reach the towns on



Maple sugaring, shipbuilding, machine tools, marble quarrying, lumbering: a few of New England's diversified industries.

the eastern coast, New England farmers had difficulty selling their own small crops in the markets. Some farmers moved westward to better land, some turned their farms back to pasture and raised sheep to supply wool for the nearby mills. A great many farmers found work in industry. For the transportation route that brought grain to the east could also be used to take the products of industry to the west. The New Englanders quickly understood this fact and used it to their advantage. Did the frontier hunter need a better gun? Did the prairie farmer need a better plough? New Englanders watched for such opportunities, and before long their stony soil became "the workshop of the nation."

In time, many such "workshop" areas appeared in other parts of the country. These other shops could do many jobs as well as New England, and they were closer to fuel or markets. Farm machine factories grew up in the west. Metal smelters, or ore refining plants, were built near richer mines. Textile mills moved southward. But New England kept its position as a great production center. By this time, it had the great advantage of long experience with processes, and its workers had developed important skills. Today, New England makes many of the machine tools that are the basis of all mass production. And New England makes equipment such as heavy electrical motors, looms for weaving cloth, and machines for manufacturing shoes. It also produces instruments

that perform very exacting tasks.

Life in New England has always required clever, careful planning. It is still chiefly a place of carefully planned specialties. For instance, farms on the strip of good land along the Connecticut River specialize in the kind of tobacco in which cigars are wrapped. The tobacco is grown with great care, under acres (hectares) of thin cloth which shades the delicate leaves. The stony farms are devoted to dairy cattle. The farmers also tap the sweet juices from maple trees to make maple sugar. People in thinly populated Maine combine part-time farming with part-time small industry, lumbering, or fishing. In one part of Maine, at the far northern tip of the state, people have developed a most highly cultivated area of potato farming. Throughout the whole New England area, many people specialize, too, in services for vacationers and tourists. New England is a favorite choice for holiday trips, because of the beauty of the region, with its forests, mountains, and sea, and because of its cool summers and heavy snows.

If the United States had been settled from the west instead of from the east, New England might still be a wilderness with little wealth except its natural beauty and its coastal fisheries. That statement is often made. Whether or not the statement is true, certainly no section of the United States better illustrates the importance of human imagination in the partnership of men and geography.

THE BASE OF INDUSTRY

Beyond the western and southern shores of Lake Superior, the earth is marked with pits where giant electric machines dig up soft red iron ore. Each huge bite may weigh as much as 14 tons (13 metric tons); four loads may fill a railroad car.

Far to the southeast, in the Allegheny hills of western Pennsylvania and West Virginia, cars loaded with coal crawl out of mines beneath the ground.

These two gifts of the earth are brought together by the ships that travel across the Great Lakes and by the shore railroad lines that supply their ports.

The first French travelers on the North American continent discovered how easily they could travel across long distances by water. They found that they could go up the St. Lawrence River and travel by canoe through the Great Lakes to a point farther west than the mouth of the Mississippi River. This is a distance nearly as far as from London to Tripoli.

The greatest part of America's heavy industry depends upon these three resources: iron ore from the



A huge crane loads coal at Detroit steel plant.



Mined from open pits near Lake Superior, iron ore is transported to eastern industrial cities via Great Lakes waterway system.

Lake Superior area, coal from the Allegheny region, and transportation across the Great Lakes. From Wheeling and Pittsburgh, to Milwaukee and Duluth, every built-up area that you see on the map on page 30 plays a part in the production of heavy industrial goods. Steel-making is the basic industry, but there are many other related industries in this area, too—glass, metals other than iron, chemicals, rubber, and the making of machines.

Pittsburgh, in the heart of coal fields, was the first of the great steel cities. It was cheaper to bring the ore to the coal than to take the coal to the ore. The Pittsburgh area produced a great quantity of the steel for the railroads that opened America's west. It produced steel for the bridges that spanned the rivers, and for making very

tall buildings. Today, the Pittsburgh area still produces about one-fifth of the nation's steel. Pittsburghers say they know that spring has come to the city when strings of open railway cars begin to arrive, loaded with red iron ore, to replace the piles of ore which have been used up during the winter. Today, the Pittsburgh area ships out a special coal for making steel to other great steel areas—Chicago, Youngstown, Detroit, Toledo, Cleveland, Erie, Buffalo, Wheeling.

Several of the cities on the Great Lakes grew up first as grain milling centers. Even today, grain is carried in great quantities across the lakes to mills in the city areas. Detroit, which is the center of the automobile industry, had a rather special start. It began as a wagon-making



Heart of the nation's great steel industry is Pittsburgh, where furnaces fired with coke convert the iron ore into steel.

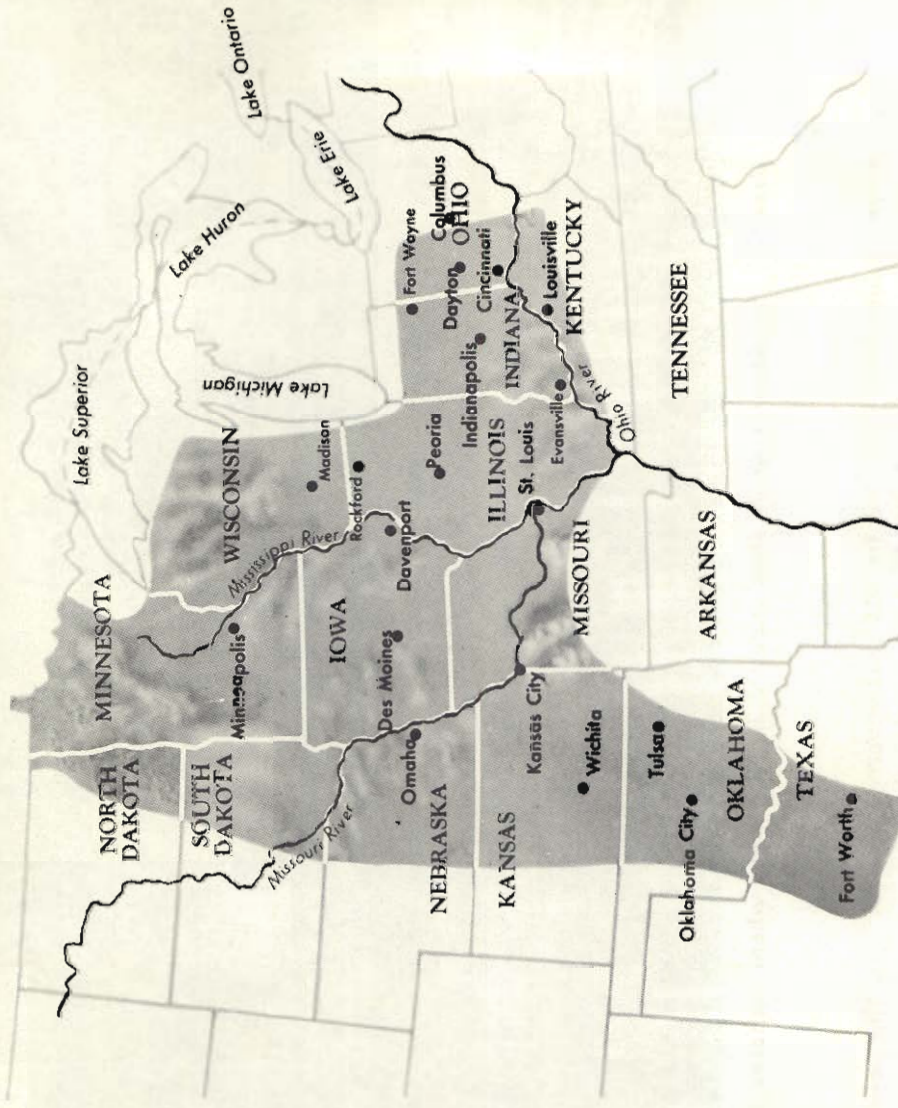
town, using wood from the forests that covered the land area which separates Lake Michigan and Lake Huron. The first citizens of Detroit even laid out the streets of the city to resemble a great wagon wheel. Early in the 20th century, the makers of wagons and carriages turned to making automobiles. By good fortune, they found that the new raw materials which they needed were also available near Detroit.

An almost unbelievable quantity of freight is carried across the Great Lakes, because most of the Lake shipments are raw materials. Materials which pass between Lake Superior and Lake Huron weigh about as much as all that go through the Panama and Suez Canals, combined. For four months of the year, ice prevents the use

of the Lakes. Thus, during the open water season, complicated machine loaders and unloaders are needed for transporting the huge quantities of freight. Ten thousand tons (9,100 metric tons) of ore are commonly loaded aboard a freighter in three hours, and this much work has been done in less than 17 minutes. Grain which once took seven days to unload by hand is now transferred from ship to wheat elevators, tall storage bins, in an hour.

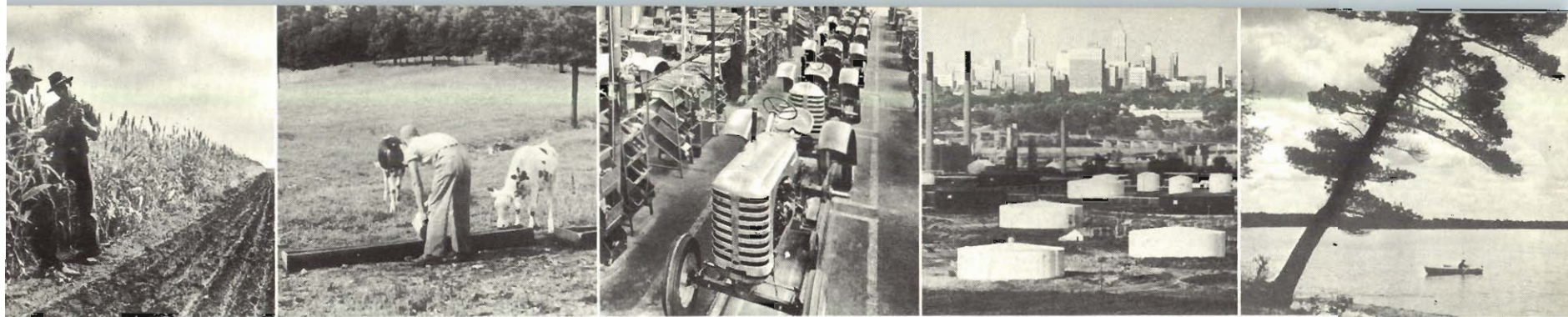
On their last trips in the fall, the freighters sail home, perhaps in heavy fog, against the thickening ice that threatens to keep them prisoners for months. Before the ship has tied up at the dock, buckets of the unloader on the dock have swung into position, ready to remove the ship's freight. Not a moment of working time is lost.

The Central Basin



METROPOLITAN AREAS	POPULATION (1960 Census)	METROPOLITAN POPULATION AREAS*	METROPOLITAN POPULATION (1960 Census)
Sf. Louis	2,060,103	Wichita	343,231
Minneapolis-St. Paul	1,482,030	Peoria	288,833
Cincinnati	1,071,624	Davenport	270,058
Kansas City	1,039,493	Des Moines	266,315
Louisville	725,139	Fort Wayne	232,196
Indianapolis	697,567	Madison	222,095
Dayton	694,623	Rockford	209,765
Columbus	682,962	Evansville	199,313
Fort Worth	573,215		
Oklahoma City	511,833		
Omaha	457,873		
Tulsa	418,974		

*Sixteen other metropolitan areas in this region have more than 100,000 people.



Kansas corn field • Dairy farming • Wisconsin tractor plant • Oil storage tanks outside Tulsa Oklahoma • Bemidji Lake in Minnesota

THE PLAINS

Just as the wilderness near the seacoast changed the European settler into a colonist, so the great plains—the vast grass lands—turned the colonist into a new type—an American. After the settler had crossed the Appalachian Mountains, he turned his face toward the Mississippi River, and he turned his back toward Europe. The Atlantic Coast continued to be the child of Europe's culture. It gained knowledge and polish through its constant contacts with other nations. But the vastness of the plains, also called prairies, often made other continents seem unreal, or relatively unimportant.

For almost the first 200 years of American settlement, the only way to make a new farm was by clearing the forest. This was a long, hard job. Many of the trees were giants, so big that a man had to chop for two days before he could cut down a

tree. The pioneer farmer also had to build his house and barn, his fences, and often his own furniture and tools. He could clear only a few acres (about a hectare) each year. For years, the stumps of the trees would resist burning or loosening, so the farmer plowed and planted maize around and between the stumps. Hidden roots often broke his horse's harness or even broke the plow itself. But after years of such effort, with a little more land cleared each season, the farmer finally had a good sized farm among the tall trees. When new settlers arrived in great numbers, this cleared land became very valuable. The first frontier farmers would then sell the farm, buy better cattle and equipment, and move on again westward. In this way, the farmer's labor created capital for agriculture.

By the early 19th century, frontier

farmers finally reached the edge of the great eastern forest. They had arrived at the eastern pocket of that prairie, in what is now the state of Illinois. Many of those who recorded their feelings told of their joy in leaving the dark forest and coming out into the sunny open grass lands. Here, at last, they could see the great arch of the sky. The land that they saw was not really flat; it rose and fell in low, graceful slopes. And it was not entirely without trees. Along the streams there were narrow strips of wood.

The prairie soil was richer than most of the forest land. But the pioneer farmers did not know this. In their experience, and in the experience of their fathers, the only good soil was soil in which trees grew. So they settled in the forest at the edge of the grass.

After some years, however, late-



Great Plains cattle in stockyards near a large rail center.



Farms like this are common in Wisconsin, a leading dairy state.

Kansas City was a trading post, outfitting pioneers going west 100 years ago. Today 12 trunk-line railroads meet here.



comers or unusually daring families decided to try their luck on the open land. At first, other families laughed at them. One such man, for instance, lost an election as a country official because his neighbors were sure that only a fool would settle on the prairie. They thought he lacked the good sense that was required for public office.

And indeed, the first prairie settlers had their serious troubles. The wooden and cast iron plows of the time could not cut through the deep, thick prairie sod. New Englanders, with their experience in mechanics, invented a much larger, heavier plow. This could break and turn the sod. But the soft soil stuck to the rough iron, making the plow so heavy that a team of six oxen could scarcely pull it. The solution to the problem was steel, which could be sharpened and polished smoothly. The first steel plow was made by a prairie farmer, using strips from an old saw, in 1833. A few years later, John Deere, one of the first makers of farm machines in the United States, began to manufacture steel plows. Rapidly, the prairie became the nation's richest agricultural region.

THE METROPOLITAN AREAS

In this region, city and countryside have supplemented each other especially well. Each has helped the other develop. For instance, the spring wheat of the north used to yield only a dark inferior flour until a miller in Minneapolis developed a new purifying method. This made expansion of wheat-growing practicable also and helped establish Minneapolis as a great milling center. St. Louis, an important cattle market, developed a shoe manufacturing industry which became a larger user of cattle hides. Peoria, Minneapolis, Des Moines, Fort Wayne, Evansville, Rockford, and Madison all make farm machinery or tractors.

Metropolitan areas in the eastern part of the region are linked closely with the industrial Northeast. For instance, the Ohio River (which forms the southern border of Illinois, Indiana, and Ohio) is a busy traffic artery between the Pittsburgh area (see map, page 30) and the Mississippi River, and much heavy industry has grown up along its banks. Similarly, some cities — such as Chicago and Milwaukee — which we have considered in the Northeast because they are part of the Great Lakes industrial system, also handle large quantities of farm products from this region and manufacture farm equipment.

Good markets, together with coal in the eastern and central parts of this region and petroleum in the southwestern part, have combined to make diversified manufacturing centers of nearly all the metropolitan areas throughout this primarily farming region.

THE BIG CROPS

Across the center of this region lies America's greatest maize-producing area called "The Corn Belt," because throughout the U.S. maize is known as "corn." In Ohio, Indiana, Illinois, Iowa, and Nebraska, the fields of tall corn, or the fields of hay or beans, resting from corn, stretch endlessly, mile after mile, until the eye tires. Wherever conditions are right for the highest yields — hot, sunny summers with plenty of rain and rich soil — corn is the preferred crop of the Central Basin. But this does not mean that other parts of this basin are poor for farming; on the contrary, they combine conditions which make them excellent for other crops or livestock. For example, in the cooler north, particularly in Wisconsin, is the United States' leading dairy country, its chief supplier of cheese and butter. In the drier western and southwestern parts of the region lies much of the nation's best wheatland. Unusually nutritious grasses in the southeastern corner have made northern Kentucky the principal area for breeding and raising fine horses. Beef cattle are raised throughout the whole basin.

THE GARDENING OF THE ICE CAPS

The climate of today is very different from the climate of long ago. That long-ago climate helped prepare much of this region for farmland. When the ice sheets of the last ice age pushed down from the north, reaching as far south as the Missouri and Ohio Rivers, they did not encounter mountains or hard rocks in the Central Basin, as they did in New England. The rocks of the Central Basin area were soft. As a result, the same ice flows that left New England with such poor soil, brought riches here. Like a giant gardener, the ice leveled the land by cutting off the tops of hills and filling the valleys. Even more important, it crushed rocks, making fine powder. It mixed the old surface soil with this powdered rock, and with fresh minerals that it brought up from deeper layers of soil. It dug the basins of the Great Lakes from old

river valleys and carried the fine, fresh soil southward, laying it as much as 300 feet (more than 90 meters) deep in some places.

Along with all their benefits, however, the ice sheets created one problem. They changed the way the land drained. Water ran off very slowly in rainy years. The farmers worked their ploughed soil carefully, breaking it into small bits, because until very recently this was considered good for planting. The smallest bits of earth were carried downward by rain, and formed a hard layer beneath the plowed soil. Consequently, in rainy seasons, the ploughed earth would often hold the water while the crops spoiled. Then the earth would let the water drain slowly off the surface, instead of sinking into the soil.

Farmers on these lands quickly found that they must **When glaciers like this were resisted by hard rock or mountains, they scraped off topsoil, leaving boulders when they retreated.**



supply a system of drains. They dug ditches. They laid hundreds of thousands of miles (kilometers) of drains (made of tile) to let some of the water pass slowly out beneath the soil. To pay for building and repairing these drainage systems, groups of farmers organized a new kind of local governmental unit, the "drainage district." Farmers who would benefit from draining a certain area came together to vote on the extent of the project and the methods to be used. Then they worked together to carry out the decisions of the majority.

In some places in Ohio, floods or loss of soil or road construction complicated the problem. In such places, by 1920, these "drainage districts" became "conservation districts," or areas where the farmer worked out common problems to save the land. This was a very important

step in the social development of the nation. It was a step toward the nationwide soil saving plan which was adopted in 1933. Today there are thousands of local "conservation districts" throughout the United States. These are formed and controlled by farmers themselves, as the first "drainage districts" were—but they receive advice and help from agricultural experts who are paid by the state and nation.

Improvements which are made through the "conservation district" method commonly increase a farmer's yield by 10 or 20 percent. Sometimes the improvement is even greater. The districts include 88 percent of all the nation's farm and pasture land. In other parts of the country, farmers have worked together in similar ways, to deal with problems that the prairie farmer never knew.

In the Central Basin, where the ancient glaciers met no resistance, they left a deep layer of rich topsoil in their wake.





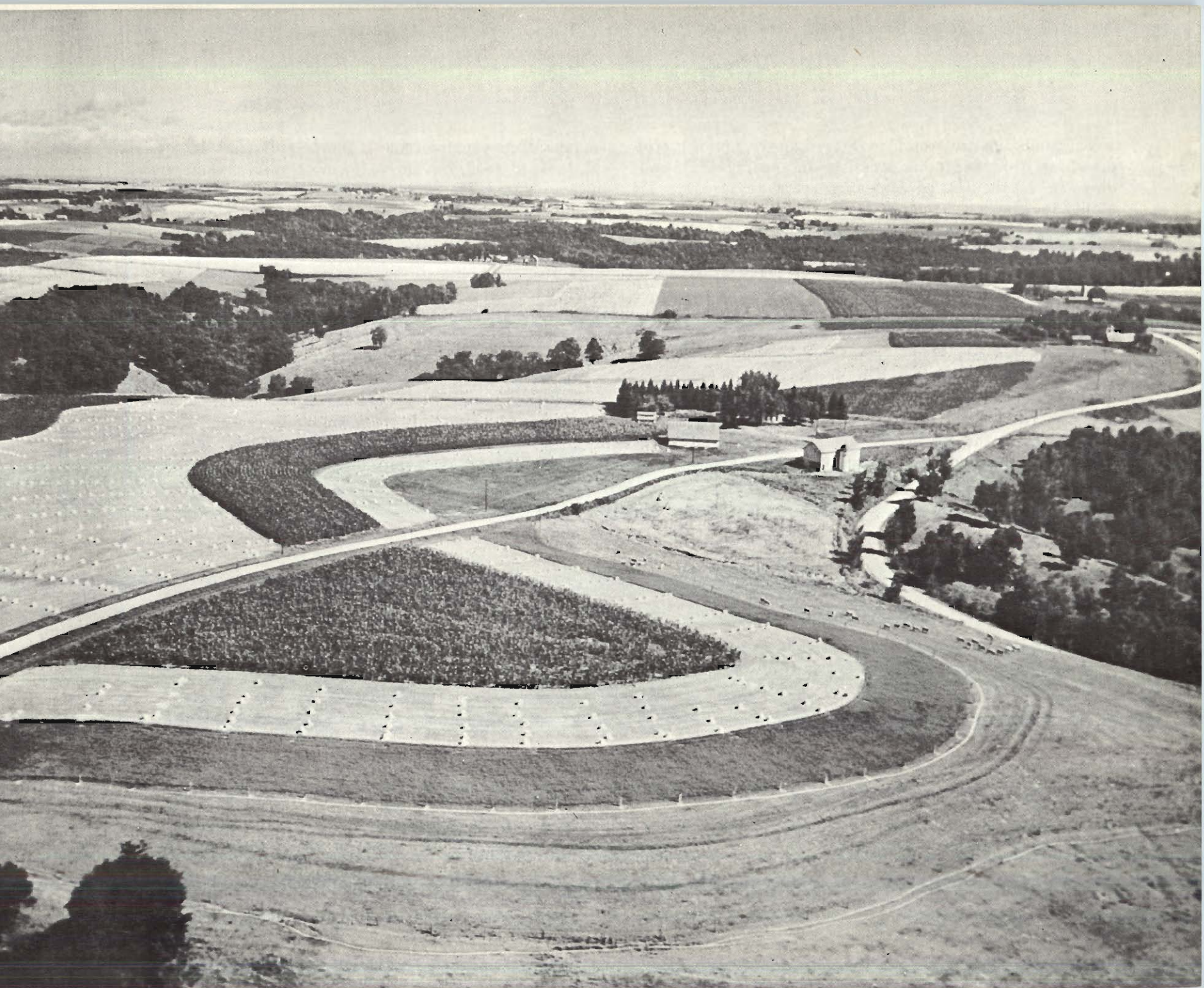
The corn harvest is the most important in the United States. Two-thirds of the nation's farmers grow this bountiful crop, principally as food for livestock.

THE MAIZE BELT

On hot, still midsummer nights in the Corn (Maize) Belt, there are small, mysterious noises in the fields. The farmers like to go out and listen to these sounds. They claim they can hear the maize growing. This used to be considered a joke, but the farmers have been proved right. The maize grows fast, sometimes two inches (five centimeters) during a night. By late summer, it may be 10 or 15 feet (three or four meters) high. A person can easily get lost in a big field of full-grown maize because there is no way of looking over it or through its tall, heavy growth of thick stalks and broad leaves. One can get out only if one walks straight ahead between two rows of the plants, perhaps for a mile (kilometer) or more to reach an equally straight road at the edge of the field. Everything in the Maize Belt seems to be in straight lines and squared-off. The roads, barn yards, houses, fields, and buildings, all seem to have this shape. But the effect of such regularity pleases the eye because (except in very dry years) nature is so obviously generous with the good things of the earth. Even in the winter snows, maize makes the landscape bright. The gleaming gold of the grain shines through the open sides of the storage sheds.

Maize is not only the King of the Maize Belt; it is the most important of all American crops. It is basic to American agriculture, just as iron is basic to American industry. In the United States, two-thirds of all farmers grow maize. And maize is grown on one acre (hectare) out of every four cultivated acres (hectares) in the United States.

Contour planting is used on these rolling Minnesota fields.



The annual maize crop is greater than the nation's crop of wheat, rice, and other small grains combined. Probably one of the United States' greatest resources is its ability to grow great quantities of maize.

However, most Americans who do not live on farms see only one kind of maize. They see only "sweet maize," a garden vegetable that they eat fresh or preserved. Occasionally, they may eat cakes that are made of maize ground into meal. But these uses account for only a tiny fraction of the crop. What happens to the millions of bushels of this grain?

Most of the crop, after it is harvested, is made into other products. The majority of farmers sell little of their maize as grain. For instance, the principal products sold by farmers in the Maize Belt are cattle, hogs, and poultry, or domesticated birds. This is because about three-

fourths of the maize crop is fed to animals. It reaches the table as food, but in the form of milk, cream, cheese, butter, eggs, beef, lamb, pork, or poultry. Much of the remainder also becomes food, but industry changes it into oil; thick, sweet juices; flour and powders. Used in these ways, maize is the foundation of the nation's food supply. It is also the foundation of much of the food which is exported by the United Nations. Scientists have found that all the ancient civilizations of North and South America were also based on maize. They believe it first grew in the upper basin of the Amazon River in South America.

Most grains are too expensive to be fed in such great quantities to animals. There are two main reasons why farmers in the United States are able to use maize in this way. One is that maize grows so well. An acre (hectare) of corn requires only one-twelfth as much seed as

HERE IS HOW CORN IS TRANSFORMED INTO MEAT, MAKING IT THE NATION'S MOST IMPORTANT CROP:



Corn-picking machines handle 12-15 acres a day. An efficient crop, corn has a high yield per acre.



Nearly three-fourths of all corn harvested in the United States is fed to meat-producing animals.

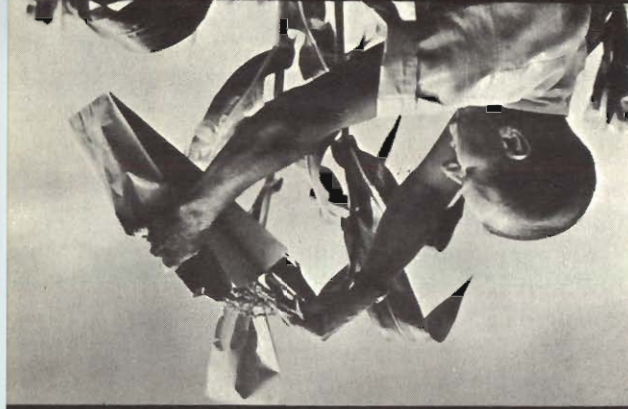


The grain then reaches consumer as meat, dairy products, poultry, or in form of processed food.

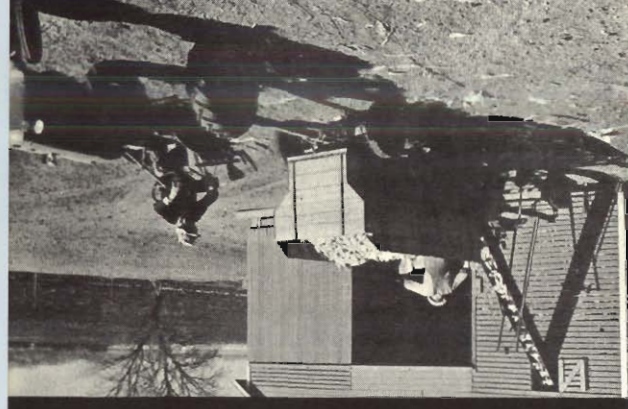
HOW FARMERS GROW RECORD CORN CROPS:



Fertilizer mixed with seed replenishes the soil.



Science has bred more productive hybrid strains.



Machinery makes it possible to farm more acres.

Suddenly, in 1940, it began to increase greatly each year. By 1948, the yield was 43 bushels an acre (3.7 hectoliters an hectare). It is still increasing. In the Maize Belt, where yields of 50 bushels an acre (4.3 hectoliters an hectare) had been considered good, 90 and 100 bushels an acre (7.8 and 8.7 hectoliters an hectare) became common. (The highest recorded yield is 224 bushels an acre (19.5 hectoliters an hectare), produced in the state of Iowa.) Such a vast and rapid change, in the most basic crop, represents a real agricultural revolution. This has been a very quiet sort of revolution, however, because the chief difference between the older maize agriculture and the new is simply that the farmer plants a different kind of seed. In the past, for centuries, farmers saved the best ears from each year's crop for the next year's planting. Today, the farmer buys new seed every year from maize developers. The increased value of the crop more than pays for the extra cost. Maize which is grown from the new kinds of seed is called "hybrid maize," that is, a maize which re-

shelled grain an acre (1.7 to 2.6 hectoliters an acre) of wheat, for instance. Yet the yield of grain from the acre (hectare) of maize is several times as high as the yield from the acre (hectare) of wheat. The other reason is that farmers have worked out high-yield methods in all the important maize-producing areas. The Maize Belt farmer uses machines for every step of his operation. He uses machines for planting, enriching the soil, cultivating, spraying, and killing weeds. He uses machines for harvesting the grain, and for removing the thick natural wrappings, and for removing the grain from the long, round center on which it grows, and for cutting the stalks. The farmer needs all these machines because he may be farming as many as 250 acres, (100 hectares) and caring for a large herd of cattle, with no human helpers except a son, who spends several hours of the day in school. On a Maize Belt farm, the most impressive buildings are the large barns, and the sheds for the machines. The farm-house looks small beside them. Farmers first began to keep careful records of maize production in 1866. Between 1866 and 1939, the maize yield in the United States averaged between 20 to 30 bushels of shelled grain an acre (1.7 to 2.6 hec-

sults from the mating of different types of the same grain. All kinds of hybrids are developed for such basic qualities as higher yields, stronger stalks, and roots that are more active in seeking out water in the soil.

As with other grains, different kinds of maize have been developed for different soil and climate conditions. Some have been developed for various purposes. For instance, some contain twice as much oil as ordinary maize; others are rich in certain minerals. Hybrid crops grow to regular, even heights. This makes it possible for farmers to use machines that harvest the ears of grain from the side of the stalk where they grow.

Producing hybrid maize requires a great deal of patience. It must be done by hand, during 12 or more years of mating within the parent line of types and introducing other types. As the last step, two good plants are combined. This last step must be repeated for each year's seed, or the hybrid may not come true to type.

This process is difficult and complex, but it is simple compared to the job of discovering that new kinds of maize could be developed, or the job of discovering how to develop

them. With other grains, the farmer or experimenter can be sure that all or nearly all the plants will be like the parents. But maize is different. American plant scientists began working on the problem of controlling maize qualities very early in the 20th century. Many men spent many years of trial and error before scientists could master the theory and practice of growing the new maize.

Like farmers everywhere, American farmers do not like to throw away anything that experience has taught them. They do not like to risk an untried new idea, even if it sounds like a good idea. To the eye, hybrid maize does not look as good as the prize ears of ordinary maize that farmers were so proud of growing. So, even after the first hybrids were developed, farmers were unwilling to use them. The maize developers had to spend 20 years more proving the value of hybrid maize before a few farmers were convinced that it was worth risking. After that, the revolution in the Maize Belt happened fast, because many farmers could actually know of a daring neighbor's success with the new seed. But the revolution is only now taking place in some parts of the country.

Farms in the Central Basin are large, averaging over 240 acres in size. Often they are out of sight of their neighbors.





In this area, most of the towns are trading centers for nearby farms, serving as community centers for the rural population.

FARM AND VILLAGE

A visitor to the United States would see many thousands of farms and many hundreds of small and large country towns. But he could search far and wide over the Central Basin without finding a farm village like the country villages which are often found in Europe and Asia. In those parts of the world, a village is a collection of homes, close together, occupied by some of the people who work on the surrounding land. In all the United States, there are few such villages.

Instead, each family of farmers lives separately on its own fields, often beyond the sight of any neighbors. The farmers and their families do not travel away from a village or town to do their work. Instead, they travel into

town to attend church, to buy supplies, to go to meetings or dances. In most places, special, very large passenger automobiles stop for the farm children every day and take them into town to attend school.

This lack of farm villages seems strange at first, and hard to understand. We know that most of the early settlers in America came from farm villages in Europe. Indeed, when the Atlantic Coast was settled in the early 17th century, both the colonial officials and the settlers themselves expected that most of their settlements would be villages.

In New England, this plan worked out much as expected. For 200 years there, farmers typically lived in a group



All over the U.S., excellent roads make it easy for farm families to go to town for supplies, church services, and school.

of houses around a central green where the cattle of the whole villages grazed. The farmer's crop lands extended outward around the village.

Farther south, in the State of Virginia, however, farmers scattered up and down the creeks and rivers, with great distances between the separate families. These settlers were planting a New World crop, tobacco, which required fresh land every few years. For this reason, these tobacco farmers moved westward, as separate families, whenever their crop required new land. After several generations, families reached the low hills at the

edge of the Appalachian Mountains and the long, rich valleys which were enclosed by the mountains. They then changed their farming from tobacco to grain and domestic animals. With their new crops, these families had no further need to move. Now they could remain where they were; now they could group themselves into villages if they wished. But by this time, they had learned to value the independence of the separate farm. Even when the cabin was humble, even though the work was hard, each family could feel that it had its own little farm on which the

owner could do as he wished; and the families liked that feeling.

Much of the same kind of thing had been happening in other eastern states, but for different reasons. In the western reaches of the States of Maryland and New York wealthy land-owners held great blocks of wild land. Frontier farmers traveled to these lands to clear and farm them without any clear legal right to do so. Naturally these frontier farmers did not wish to call attention to themselves by establishing villages. Many other families in the States of New Jersey, Pennsylvania, and New

York lived on separate farms because their home countries or their religious beliefs were different from the home countries and beliefs of their neighbors.

Anyway, the families who moved out to settle in other parts of the United States were not people who preferred villages. Those who moved were the most independent and self-sufficient families. These were the families who first pushed westward to the Appalachian Mountains, then southward along the mountain valleys, then into the great Central Basin, and finally westward beyond the Rocky Mountains. These were the people who formed the pattern of the way of life brought on by the separate farm.

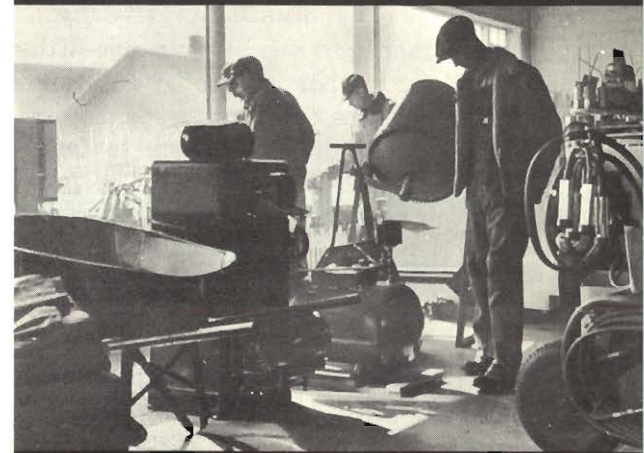
Until the days of good roads and automobiles, farming in the United States was often a lonely life, and it was always hard work. To be successful, the farmer and his wife had to have all kinds of skills. Whenever a problem arose, they had to deal with it themselves. Of course, neighbors helped each other with big jobs like building barns, but in day-to-day work the farmer had to make his own repairs and was often his own inventor. In a way, this made the farmers less conservative about methods. They tended to depend on their own ideas and experiences, more than on community tradition.

People in other countries feel emotionally attached to their villages. Americans became emotionally attached to the independent family farm. And since the early days of the United States, the people have supported this pattern of country life through their public policy. For many years, beginning in 1862, the government gave away free farm lands. To take full possession of such a farm, the settler and his family had to build a house on the land and live there for five years; then the land became theirs.

Between 1890 and the early 1930's, there was an increase in the number of farmers renting their land (instead of owning it). When this fact was realized, it caused great alarm. Therefore, recently, the national and state governments have helped farmers with loans in times of drought or crop failure, so that they will not lose their land. Some farmers have difficulty raising enough crops to support themselves, even in good times, because of poor land, poor methods, or lack of extra money for improvements. Such farmers are most in danger of losing their land. During the last 30 years, more than a million needy farmers have been helped by loans from the national government. The government requires the farmers to use this money in ways that will improve the farms,



Saturday is shopping day for most farm families.



Farmers consider new equipment with great care.



Recreation is another aspect of visits to town.

increase yields, and raise the family's living standards. Among tenant farmers (farmers who do not own their own land) many have been helped to buy land of their own.

As a result of this combination of tradition and policy, there are not many great farms which are owned by people who do not live on them. In the United States, less than one farm in a hundred is operated by a hired manager. Less than one-fifth of all farm labor is done by full-time hired workers or by harvest laborers who move about from farm to farm as the crops become ripe. The proportion of work by hired laborers is slowly but steadily declining. There is also a steady decline in the number of farm families who do not own land.

The frontier settlers took into the Central Basin many different ways of farming, from many different nations. First, there were the methods which were brought from England, but these methods were soon influenced by many customs from other nations. The Swedes introduced the log cabin, which became the typical dwelling of the frontier wherever there were trees. Good types of farm animals, and skills in dairy farming, came with the Dutch. Scots and Irish brought potato cultivation, for this New World crop was first widely

planted in Europe. Germans created what was to become the typical American barn. This process of borrowing continues even today. Two pasture plants, lespedeza and kudzu, have been brought to the United States from Asia. The soybean, also from Asia, has recently become one of the chief crops in the Maize Belt. Italians and Japanese have influenced fruit and vegetable growing. Scandinavians have introduced their methods of dairying and cheese-making in the great northern dairy region of the Central Basin.

Until rather recently, most of the farmers in the Central Basin did "general farming." In the United States, this meant that the family produced as much of its own food and equipment as possible, and sold whatever remained, to buy things it could not raise or make.

Today, however, nearly all the farm families in the Central Basin do "commercial farming." This means that the family uses most of its energy, land, and equipment to raise products for sale. The farmer chooses to plant the crop that will grow best on his farm. He carefully figures the costs of enriching the soil, sprays, seeds, and equipment. He considers the effect of a crop on the soil, and the labor required for raising it. He balances this against the amount of

money that he can get from the crop. He and his family do not try to raise products for their own use if the cost (in land, energy, and equipment) would be more than the gain. This change from "general farming" to "commercial farming" represent another kind of agricultural revolution.

The average size of farms in the United States has increased from 148 acres (59 hectares) in 1920 to 302 acres (121 hectares). The main reason for this increase is that a farmer can use more land now, because of machines and larger-scale growing of crops or farm animals. A century ago, two-thirds of the people of the United States were on farms. But today, the average farmer grows enough food for himself and twenty-three other Americans. In addition, he grows for export farm products for three people.

This is Montana, near the headwaters of the Missouri River. In this land of extremes — of intense heat and cold, almost constant wind, mountain peaks, and vast space — the unpredictable Missouri exerts a powerful force on the lives of all the people. The nation's longest river, the Missouri is also the most destructive, as it winds almost 2,500 miles from its source in Montana to its mouth above St. Louis. Most of the water that flows through its basin comes from the melting snows high in the Rocky Mountains. The enormous Missouri basin comprises one-sixth of the area of the United States — and yet it holds only one-twentieth of the nation's people.





A farmer surveys desolation created by the flooding Missouri. Below, Fort Peck Dam in Montana, one of more than 100 projects now planned to control the Missouri and put its water to human use.



THE WILD MISSOURI

The great Missouri River curves through the heart of the whole western half of the Central Basin. The Missouri is the chief branch of the Mississippi River, and does more harm than any other river in the United States. When the first travelers reached a point near the present city of St. Louis, they were amazed to meet a mighty stream of dirty water pouring down from the west. Father Marquette, a French priest who was leading the group, wrote: "I have seen nothing more frightful. A mass of large trees . . . real floating islands, came rushing . . . (so) that we could not, without great danger, expose ourselves to pass across." That was the Missouri River in flood in 1673. And that is the Missouri River in flood today.

The Missouri rises high among the snows of the Rocky Mountains. Before it reaches the Central Basin, it runs for 1,000 miles (1,600 kilometers) through a region where there are long droughts and sudden, extremely heavy rains. The Missouri is really two rivers; one of water and one of little bits of soil which are washed off the land. The people who live along the Missouri's banks say that it is "too thin to plow and too thick to drink."

Time after time, the muddy waters of the Missouri have flooded,

spreading ruin in the States of Nebraska, Iowa, Kansas, and Missouri. The most recent floods have been in 1947, 1951, and 1952. The 1951 flood left 200,000 persons homeless. It killed 41 persons, put two million acres (800,000 hectares) of farmland under water, and destroyed more property than any previous flood in U.S. history.

In 1945, the United States Government began a great project to help the people in the Missouri basin. The project was named the Pick-Sloan plan, because those were the names of its engineers.

Already, many man-made lakes, dams, boat traffic channels, and earth walls have been constructed. But the job is so big that the work which has been done so far seems only to have made the river angry when it is in full flood. This is the biggest basin construction project in the nation's history. It will not be finished for many years. When it is completed, the river will "walk down" 2,000 miles (3,200 kilometers) through more than 100 huge lakes.

People who know the Missouri cannot fully believe that it can ever be really tamed. But people know that, somehow, the mighty river must be tamed. As one Iowa farmer says, "You can't live on a river that takes your future away."



The most characteristic autumn scene in the Central Basin, repeated mile after mile from Ohio to Nebraska, is cornfields filled with tidy rows of golden-brown corn shocks. Corn grows fast—sometimes sev-

eral inches in a single night — and by late summer the stalks may be ten or fifteen feet high. In recent years, corn yields have increased enormously, largely through the use of better seed.



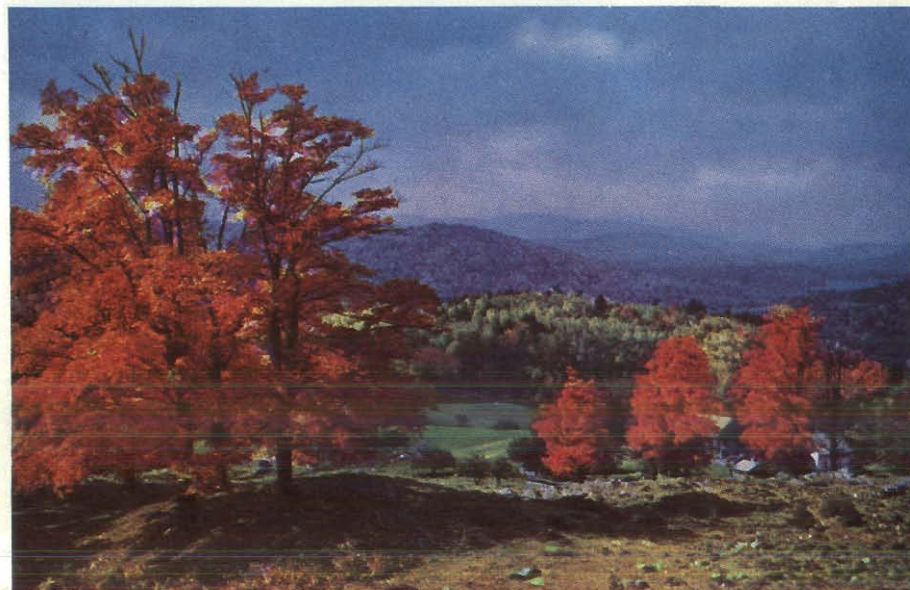
For 100 years, men have been reclaiming land that was once desert. Yet where it remains, the desert is a place of dramatic beauty.



On the prairies, far from the moderating influence of the oceans, winters bring fierce storms and numbing cold to the farmers.



In the fall, New England's hills are a blaze of color. Maples, oaks, and birch trees burst forth with flame-colored autumn leaves.

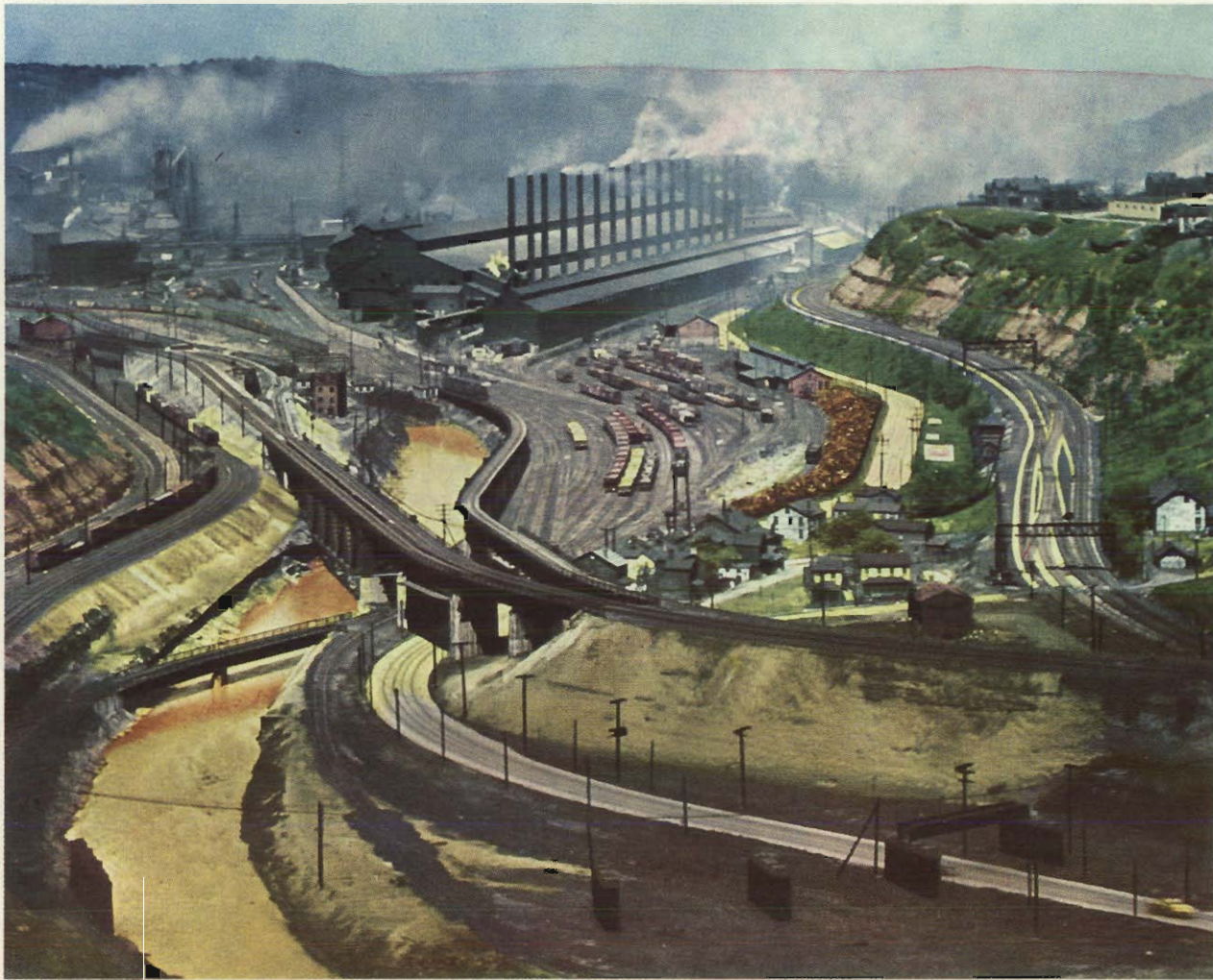


Clear air and brilliant summer sunshine bring forth striking color contrasts in the Rockies. This is a mountain meadow in Colorado.





The canyon through which the Columbia River flows was cut into a lava plateau by a continental glacier during the last ice age.



Transportation facilities have been of paramount importance in the growth of Pittsburgh's heavy industry. Like many of the steel mills in this region, these are served by both railroads and river transport.



The Hudson River, as seen from the New Jersey shore, is a scene of almost constant activity. Ocean liners from all over the world berth at piers in New York harbor. In the background is Manhattan's famous skyline.

South of Los Angeles, a coast highway runs through scenery which is typical of southern California. Beyond the shoreline of the city shown in this picture, oil derricks may be seen on the horizon. The heart of more than forty business and residential communities in this region is Los Angeles, one of the largest metropolitan areas in the world. People from many sections of the United States vacation at Pacific beaches like this.

