

LAND

LAND is a many-splendored thing. Crops grow on it—on about 60 percent of the total land of the United States. We use land for homes, cities, highways, forests, junkyards, parks. To some of us, land is a piece of the earth to be cherished; to some, it is a commodity to be exploited. We have been fortunate in having much land of many types, but we have been wasteful. This section explores some of the problems that are developing and some courses of action; they are treated more fully in later chapters. Urban requirements have been relatively small, but the growth of cities eventually may impinge more seriously on other major uses. Local units of government are increasingly important in guiding the use of undeveloped lands. Economists calculate that 71 million acres should be shifted from use as cropland by 1980. We need therefore to review the potential of our land to see how well it will meet future needs for food, forest products, urban uses, and recreation and how effectively we can shift from one use to another—but we cannot enlarge the extent of our precious land. It is all we have.

LAND USE TRENDS AND URBANIZATION

THE land and water area of the United States exceeds 3.6 million square miles, from the Atlantic to the mid-Pacific and from the Gulf of Mexico to the Arctic. About five-sixths is in the 48 contiguous States. All but 2 percent is land. What and where it is, how it has been used since it was settled, who owns it, and how it is related to the growth of population and production bear on the country's social and economic development and future.

About 60 percent of the total land of the 50 States is used directly to produce crops and livestock. Twenty percent is used for forests. Less than 3 percent is devoted to urban and related intensive uses. Land designated as primarily for recreational or wildlife uses and those devoted to public installations and facilities account for about 5 percent. The rest, 12 percent, is mainly desert, bare rock, swamp, and other land of limited economic use.

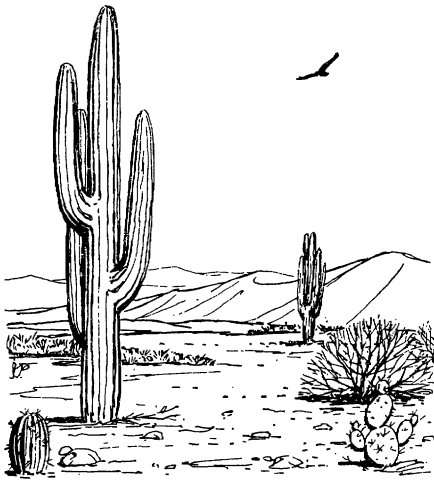
The use of land and expansion of cities have been related closely since early settlement. Greater productivity in agriculture and growing commercialization of agriculture are an initial condition for urban expansion. A smaller number of workers needed to produce food and fiber makes more of the labor force available to produce nonagricultural goods and services. Urban expansion at the same time pro-

vides the market for agricultural products and employment opportunities for released workers.

Another interrelationship is the effect of urbanization on patterns of land use within the zone of influence of cities. Improved means of transport of persons and products have extended continuously the zone of urban influence on the use of land. Also relevant is the amount of the land required to meet urban needs in relation to requirements for other major uses.

Urban requirements thus far have been relatively insignificant in the total picture, although increasing urban expansion eventually may impinge more seriously on other major uses.

BEFORE the European settlers came, the land was used largely for fishing and hunting. Almost one-half of the land area was forested. About two-



fifths was covered with grass and herbaceous plants. The remainder was covered with shrubs or was barren rock or desert. The forested areas formed two belts, one inland from the Atlantic and the other from the Pacific. The eastern forest covered both the valleys and the mountains of much of the humid East.

Two types of grassland formed a central belt between the eastern and western forests. The prairie, or tall grass area, was slightly larger and extended west from the eastern forest to the 100th meridian. The plains, or short grass area, extended westward to the mountains. The two grasslands occupied about 30 percent of the total land surface. Other grasses, such as mesquite, bunchgrass, and marshgrass, covered about 8 percent of the land. Desert shrubs grew in places.

Although in the first settlements dwellings were in villages, the cultivation and grazing of adjoining land was a major source of employment and income. With abundant land, a pattern of individual ownership was established as the economy evolved and agricultural products were produced for oversea markets.

The early settlements grew at an increasingly rapid rate. By the time of the first census in 1790, the population

was 3.9 million. Only about 5 percent were urban. Most of the rural population engaged in agriculture. Transportation access to the Atlantic seaboard was important. Inland movements of population tended to follow navigable streams. Only land within 15 to 20 miles of navigable streams or markets generally was cropped.

Improved lands in 1790 totaled about 30 million acres. Most of the agricultural development was confined to a strip about 250 miles wide along the Atlantic Plain. Agricultural production was sufficient to meet increasing domestic requirements and to permit some exports. The 20-odd settlements west of the Appalachian Mountains accounted for less than 5 percent of the population.

Heavy immigration continued into the 19th century, and rapid settlement took place beyond the mountains. Impetus to land development and settlement stemmed from major transport innovations in the form of the steamboat, canals, and railroads. The first railroad in 1830 had 13 miles of line. Within 10 years, the total railroad mileage approached 3 thousand. Before the railroads, each city depended on local supplies of fruit, truck, and vegetables. The expansion in rail transport broke the locational advantage of the farmland along the seaboard. The production of grain, sheep, and cattle shifted westward to the frontier, and fluid milk could be supplied in place of butter and cheese.

Many implements—the cotton gin, the iron and the steel plow, harrows and seed drills, the corn planter, mechanical reapers, and a practical threshing machine—were developed. They had tremendous effect on production and the use of land.

By 1850, agriculture was spreading to the prairie lands of Illinois, Iowa, Kansas, and Texas. A few settlers had penetrated as far west as Utah, Oregon, and California. Land in farms totaled 294 million acres, of which 113 million were cropland. Most of the improved land had been carved from virgin for-

est. The real value of gross farm product was about four times that of 1800.

The westward migration continued throughout the second half of the 19th century. Settlement was stimulated by passage of the Homestead Act in 1862, the Desert Land Act in 1877, and completion of the first transcontinental railroad in 1869.

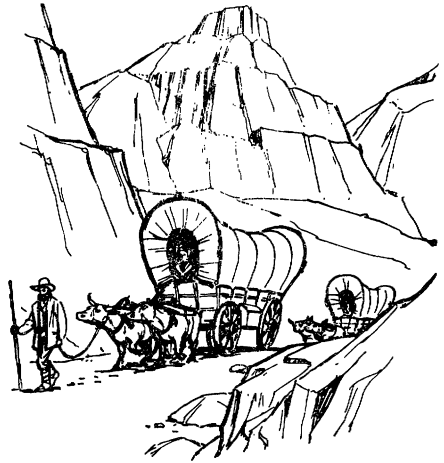
By 1900, farm settlement had reached the arid zone along the 100th meridian, and irrigation and dryland farming were expanding in the Pacific Coast States. Croplands totaled almost 400 million acres, of which about 7.5 million were irrigated. Cropland and farm pasture combined totaled about 600 million acres. The dominant role of the Corn Belt in the Nation's agriculture had become established. The real value of gross farm product had increased about fivefold from 1850; agriculture accounted for almost one-fourth of the gross national product and supplied about two-thirds of the total exports.

Developments in land use during the 19th century were dominated by agriculture's conquest of the wilderness. By the turn of the century, pioneer farmers had cleared more than 300 million acres of virgin forest and had plowed a like amount of virgin grassland. The development of fertile western lands was having repercussions in the East, as reflected after 1880 in the reduced acres of land in farms. While a part of the decrease may be accounted for by a shift to urban and transportation uses, much was abandoned for agricultural use.

THE FIRST two decades of the 20th century mark a turning period in trends in the use of land.

Agricultural expansion continued, largely through the development of arid, semiarid, and wet lands. But the areal expansion of agriculture was rapidly nearing completion. The peak in total cropland of 480 million acres reached in 1920 was unchanged in 1930.

This period also marks the beginning of a more rapid and different type of



areal expansion of cities. Urban population increased almost a hundredfold during the 19th century, and a corresponding increase occurred in the space occupied by cities. Although railroads and rapid-transit systems had extended metropolitan influences over broader areas, much of the development near them was still in the form of compact industrial or residential suburbs and satellite communities.

Automobiles and improved highways accelerated mobility and set the stage for more scattered and explosive types of expansion than the earlier gradual and regular growth. At the same time, working hours were being reduced, more leisure time was available, and incomes were rising. They provided the ingredients for an expansion in requirements for recreation and related types of land use.

Many of the developments since 1920 reflect the acceleration of earlier trends—the rise in the urban proportion of the population, a corresponding decrease in the rural population, a decline in the proportion of the labor force employed in agriculture, higher yields, increased mechanization, and the release of cropland formerly required to feed horses and mules.

By 1960, a population three-fifths higher than in 1920 was being provided with improved diets from less

cropland. The acreage harvested declined by 34 million acres from 1920 to 1959, and by 1961 was down 54 million acres, the smallest acreage of cropland harvested in more than 50 years.

The greatest change in land use since 1920 has been the doubling of areas in special-purpose uses, such as urban areas, highways and roads, parks, and wildlife refuges.

The average rate of absorption of rural land by special-purpose uses during the 1950's was about 2 million acres a year. Cropland and grassland pasture were the source of about 40 percent of the land shifted to special-purpose uses since 1950. About 40 percent came from forest and 20 percent from idle land.

Special-purpose uses include intensive uses, such as urban and built-up areas, and extensive uses, such as areas devoted primarily to recreation and wildlife and to public installations and facilities. About 54 million acres of land were devoted to urban uses, transport, and other intensive uses in 1959.

Urban uses and highways and roads accounted for about 90 percent of this category. The area devoted to urban and other intensive uses has increased by two-thirds since 1920, about two-fifths since 1940, and by about one-fifth since 1950.

INCREASES over the past two decades in the acreage devoted to urban and other built-up areas have approximated the United States average in the Northeast, Lake States, Corn Belt, Appalachian, and Pacific regions. Increases have been considerably greater in the Southeast, Delta States, and Southern Plains regions. Practically no change occurred in the Northern Plains.

The area devoted to extensive types of special-purpose uses has about doubled since 1920 and has increased by more than 20 percent since 1950. About 62 million acres were devoted to parks, wildlife refuges, and other recreational uses in 1959. Nearly one-half of this acreage consists of reserved

forest land in parks, wildlife refuges, and wilderness areas. Public installations and facilities occupied about 31 million acres, about three-fourths being in national defense areas.

THE EXPANSION of cities and increasing requirements for land for nonagricultural uses have affected strongly the use of land for agriculture. Some has shifted directly into nonfarm uses, and farming operations on the remaining agricultural land in fringe areas often have been adversely affected.

Frequently the first farms to disappear are the intensively utilized truck farms, which are shifted farther from the market of the central city. Displaced next are dairy farms, orchards, and lands devoted to the production of specialized and perishable products.

Other impacts of encroachment include higher tax burdens stemming from the need for increased public services. Tax levies in many places may be beyond the productive capacity of farmland, which then is placed on the market prematurely.

Highway improvements also have an immediate effect on the direction, rate, and nature of changes in land use. The quality and location of highways directly influence the location of residences, factories, recreation, and other land uses, where ready accessibility is a strategic consideration. In general, highways have enhanced the value and intensified the uses of adjacent land. Beneficial effects usually overshadow such adverse effects as the severing of farm operating units or the separation of parts of the service areas of communities.

The intensive type of urban-related uses generally represent higher valued economic uses of the land and water resources involved and hence have the advantage in competition with agricultural uses.

Trends and expectations indicate that continued urban expansion is inevitable.

OVER THE NEXT two decades, special-

purpose uses are expected to increase by almost 50 million acres, or about one-third. Urban and built-up areas are expected to increase by almost two-fifths, and the less intensive nonagricultural uses by about 30 percent. The increases in urban and other special uses would be drawn initially from all other major types of use.

Since most of the reductions in the next two decades would likely be replaced by diversions of cropland, the ultimate incidence of the absorption by increased nonagricultural uses would be on cropland.

Because of the increased output in agriculture, the needed acreage could be shifted from crop production to meet the expanding requirements for noncrop uses.

Estimates indicate that (if trends in yields since 1950 continue) the food and fiber needs of a population that may be 45 percent higher by 1980 could be met with 407 million acres of cropland, compared with 458 million acres in 1959.

In terms of effects on total agricultural capacity, the expansion in urban and related nonagricultural requirements would appear to have no serious repercussions during the next few decades. Such shifts, in fact, would contribute toward bringing the amount of cropland devoted to agricultural production more into line with requirements for food and fiber.

THE MORE serious adverse effects are likely to occur within the immediate zones of urban influence.

More consideration needs to be given the problems that attend such expansion and to possible means for their alleviation.

Among possible avenues for promoting more orderly development and minimizing adverse impacts that need to be explored by rural and urban interests are fringe area and rural zoning, reorganization of local government and resource districts, tax assessment policy, and environmental and regional planning.

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For further reading:

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