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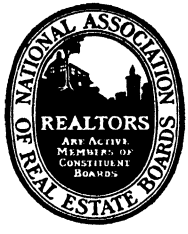
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ELEMENTS OF LAND ECONOMICS

LAND ECONOMICS SERIES

Edited by RICHARD T. ELY, LL.D.

Director of the Institute for Research in Land Economics and Public Utilities, Professor of Economics in the University of Wisconsin







LAND ECONOMICS SERIES

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AIRPLANE VIEW OF MANHATTAN ISLAND, NEW YORK CITY

Trace the route of the first subway. This picture shows the most intensive utilization of land in the United States. It also shows how transportation affects land utilization. Note the inefficient planning of streets. There are few streets at great intervals running the length of the island to care for the bulk of the traffic but many streets at short intervals running across the island.

Elements of Land Economics

BY

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TO

A. E. M.

PREFACE

The books included in the Land Economics Series are designed to explore a field of economics that has been inadequately studied in the past. They may be classified for the most part in two groups: First, those books that deal with various aspects of *land as an economic factor;* and second, those that treat *land as a commodity* from different points of view. The present volume is an elementary survey of land as an economic factor, and although it is published second in point of time, it furnishes an introduction to the entire series of books. The first volume, already published, *Principles of Real Estate Practice,* by Ernest M. Fisher, gives a general introduction to the second group of books, the main purpose of which is to serve as part of the textbook equipment for the standard course in real estate established by the Joint Commission representing the National Association of Real Estate Boards, the United Y. M. C. A. Schools, and the Institute for Research in Land Economics and Public Utilities. At the same time the sponsors of this great movement in real estate education recognize that real estate brokers and operators, although chiefly concerned with land as a commodity, can function more efficiently if they also understand the part played by land as an economic factor. This binds together the two groups of books into one Land Economics Series. The present volume, therefore, is intended to accomplish a double purpose: First, to deal in a scientific but elementary way with land as an economic factor, as other elementary

books in general economics deal with all economic factors; and second, to furnish a foundation of economic principles for the treatment of land as a commodity.

To supplement these first two volumes, other books are being prepared along the lines indicated above. On the one hand, a larger work of a general nature which may be called Advanced Land Economics, is in preparation. Moreover, each main topic in the treatment of land as an economic factor may become the subject of a separate treatise. For example, a book on Urban Land Economics is being prepared by our associate in the Institute for Research in Land Economics and Public Utilities, Mr. Herbert B. Dorau; studies in Farm Ownership and Tenancy are being made by other associates, Professor B. H. Hibbard and Dr. George S. Wehrwein; and a comprehensive study of Public Utilities, showing the close relation between land and public utilities, has been undertaken by Professor Martin G. Glaeser. On the other hand, various aspects of land as the commodity of real estate practice will be dealt with in books on Real Estate Law by General Nathan William MacChesney, Real Estate Transfers and Conveyances by Harold L. Reeve, Real Estate Investments by C. T. Moffett, Building and Loan Associations by Frank A. Chase and H. F. Clark. This list is not exhaustive, even of the books already in preparation; but it illustrates the particular field of economic activities which is embraced in the term *land economics.*

Land economics, in contrast with the field of money and banking, of labor, or of business organization, has been surprisingly neglected. Few people realize adequately the nature and scope of the problems of land economics. We are familiar in a general way with the group of questions of the day which are called "land

problems"—problems of home ownership, forestry, agricultural credit, tenancy. These are among the most fundamental of our economic problems; yet people are prone to accept solutions which are for the most part quack remedies, because no one has undertaken an adequately systematic and scientific study of the place of land in our economic life, of the services rendered by land, or of the principles governing the use of land.

The senior author has studied land problems from different angles for many years, and he has concluded that these problems are basic to more economic activities than it is commonly believed. This conclusion is summed up in the motto of the Institute, "Under all, the land." This is further brought out in the accompanying chart showing the scope of land economics and suggesting the relation of public and private policies of land utilization to other economic policies of labor, capital, and management. This graphic summary reveals the wide range of subjects treated in the present volume and in the Land Economics Series as a whole.

Opening a new field of economic inquiry requires preliminary research of a somewhat different character from that in old and well-tilled fields like physics, chemistry, or general economics. Research in a new field involves building from the ground up, collecting the results of the experience that men have had in utilizing land; analyzing, classifying, testing, and interpreting that experience; synthesizing it into a consistent and harmonious whole; and finally publishing the results of the research in as clear and readable a manner as possible. Many organizations are engaged in gathering these data and some progress has been made in analysis, testing, and classification by organizations like the Bureau of Agricultural Economics of the United States Department of Agricul-

ture. The Institute, organized and supported by private efforts, endeavors to synthesize the results of the researches of various unrelated agencies and to conduct further research where needed and where possible. The present volume is largely the result of many years of research of this character.

In addition, the writing of this book has been facilitated by the advice and encouragement received at two conferences on real estate education in Madison, Wisconsin, attended by representatives of the National Association of Real Estate Boards, the United Y. M. C. A. schools, the Institute, and a number of colleges and universities. At these conferences the standard two-year course in real estate for Y. M. C. A. schools and Real Estate Boards was discussed and approved, and a four-year course for colleges and universities was projected. In these conferences many useful ideas were obtained from the discussions of Mr. T. H. Nelson of the Educational Committee of the Y. M. C. A.; Mr. Herbert U. Nelson, executive secretary of the National Association of Real Estate Boards; Dean Ralph E. Heilman of the Northwestern University School of Commerce; Professor Edmund E. Day of the University of Michigan; Mr. E. M. Fisher of the National Association, and Dean H. G. Atkinson of the Chicago Y. M. C. A. School of Commerce. On other occasions also Mr. H. U. Nelson and Mr. Fisher have made helpful suggestions to the authors.

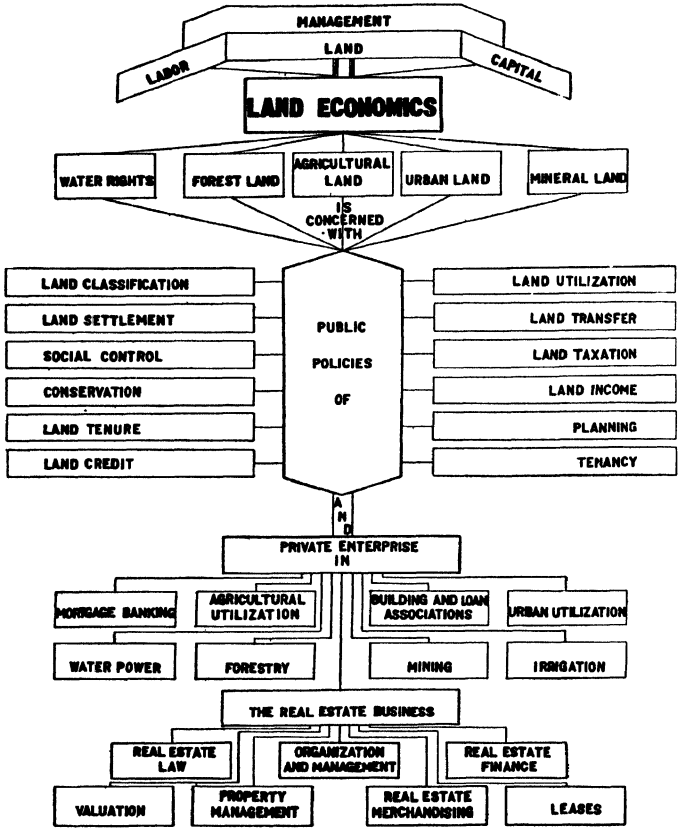
We are under great obligations to our associates in the work of the Institute for their very valuable assistance in the preparation and improvement of the book. Dr. George S. Wehrwein has aided in the preparation of the entire text and especially of Chapters VII, XII, and XIII. Dr. Mary L. Shine has read the entire manuscript in the most painstaking and helpful way, and has

prepared the summaries at the close of the chapters. Messrs. B. H. Hibbard, Herbert B. Dorau, Herbert D. Simpson, M. G. Glaeser, A. J. Mertzke, H. W. Bohlman, W. H. Voskuil, and H. O. Walther have been of assistance in various ways. Professor Hibbard has read the entire manuscript and has made useful suggestions, as have Professor Glaeser and Mr. Simpson, who helped particularly with Chapter XV. Mr. Dorau has worked especially on Chapters IV, VI, XII, XIII, and XV; Mr. Bohlman on Chapter X; Mr. Mertzke on Chapter XII, and Mr. Walther on Chapter XI.

RICHARD T. ELY,
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Sterling Hall,
University of Wisconsin,
March 31, 1924.

THE SCOPE OF LAND ECONOMICS.



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Urban Land Economics.
Taxation of Land.

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The History of Federal Land Policies.

G. S. WEHRWEIN, PH.D.
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ELEMENTS OF LAND ECONOMICS

CHAPTER I

THE PROBLEMS OF LAND ECONOMICS

Land Utilization.—In Cleveland, Ohio, a large labor union leased a twenty-story office building, installed its headquarters, and sub-leased office space to business firms. The venture was such a success that another union in the same industry decided to duplicate this undertaking and built a tall office building in another part of the city. The first union has sub-let all its office space and is planning the construction of a larger building on the opposite corner, in which a large railway has rented office space in advance. The second union has not yet taken down all the "For Rent" signs from its windows. What is the explanation?

A private investor in the same city built a strong, fireproof, five-story office building and then leased for ninety-nine years the air above the building up to the sky. This so-called "sky-lease" was taken by an athletic club which added eight stories to the building, using part of the addition for the club and the rest for office space. The club pays $15,000 a year rental for its space.[1] What is the reason for this unusual long-time lease?

In going out from the heart of this city along one of the main streets one passes first ten and twenty-story office buildings rising from land which sells for $15,000 and $20,000 a front foot. Several blocks out from the

[1] Stanley L. McMichael, "Long and Short Term Leaseholds," published by author, Cleveland, 1922, p. 11.

center of the city on the same street are five-story structures built on land which sells for $2,000 a front foot. Farther on are seen combination store and dwelling buildings on land which sells for $500 a front foot. Still farther on will be found residences built on land worth $200 a front foot. Then suddenly, at some distance from the heart of the city, a visitor comes upon grocery stores, drug stores, dry-goods stores, a branch bank, housed in five-story buildings, the ground beneath selling for $5,000 a front foot. Why is this?

Why are the hilly sections of a city devoted to fine residences and the lowlands to factories? Why is it that a train entering a city like Chicago passes so many factories and so few residences?

These are not conundrums; they are the subject matter of land economics. The examples given describe different ways of utilizing urban land, some successful, some not. There are reasons for both successes and failures, and these reasons are economic in their nature since they have to do with property, its characteristics, its uses, and its values. Take the case of the two unions venturing into the real estate business. The successful union saw the economic characteristics of the site and took advantage of its possibilities. The other union did not realize what qualities of a site were necessary to make a tall office building profitable.

Consider the agricultural uses of land. In Wyoming the trains go past grazing herds of cattle and sheep for mile after mile with hardly a house in sight. In Kansas the traveler sees nothing but wheat fields for long stretches. In Iowa corn and hogs bring the largest revenue to the farmers of the State. Scattered through New England are small towns with many large summer estates surrounding them. In the Connecticut Valley in

Massachusetts will be found land worth $200 and $300 an acre, growing onions, tobacco, and garden truck; yet fifteen miles away on the hilltops are many abandoned farms. What is the explanation of these facts?

Farm mortgages in southeastern Wisconsin bear the lowest interest rate in the country; in Montana they bear the highest rate. Farm lands in New England on the average are worth $19 an acre; in Texas, $28 an acre; in Iowa, $200 an acre. North Dakota had only fourteen per cent of its farms operated by tenants in 1910; now it has over twenty-five per cent. South Dakota had twenty-five per cent and now has thirty-five per cent of its farms occupied by tenants. In the New England States the number of tenant-operated farms has declined.

The agricultural towns and villages in central Germany have quite a different appearance from our New England villages. They are located in the valleys. Encircling the town are farms pushing halfway up the surrounding hillsides. The hilltops are crowned with trees. The reverse is largely true in New England, where the villages are on bare hilltops, because watershed protection was not so vital a concern to the early Puritan colonists as protection from the Indians. There are New England villages which have not increased in population for fifty years; and real estate values in those towns have decreased.

To illustrate the point further: In Australia there is a little copper-mining town where the visitor may walk through the city hall, the library, a store building, or any house and not meet a single human being. All these improvements and the ground they stand on can be had for the asking. Their value is nothing.

These are phenomena related to the use of land for agri-

culture, forestry, or mining. Some cases are typical, other cases are unusual, but in every case there are economic principles involved. The study of land economics uncovers these principles of land utilization. And these economic principles will clarify the reasons for the valuation of the average New England farm at $19 an acre, when Iowa land is valued at $200. If location were the fundamental factor in farm values as it is in urban real estate values, then the New England farm should have the advantage because it is nearer the centers of population. This suggests that the factors determining agricultural land values are not identical with those determining urban land values. The analysis of these different factors in land valuation is a major part of the study of land economics.

Another fact which apparently is not fully appreciated is the relation of agriculture, or forestry, or mining to the city dweller. The country supplies the town with food, with lumber for houses, with iron ore for the frames of buildings and with coal to heat the buildings. In turn the city industries supply the rural dweller with clothing, with machinery to run the farm, and with many other essential manufactured commodities. Town and country are interdependent, a fact which is strikingly reflected in the national politics of the past few years. The farmers resent having two price levels, the lower one for their products, and the higher one for the commodities they buy. They expressed that resentment in the organization of a "farm-bloc" in Congress and in the election of radical legislators to represent several Middle Western States. Here is a political movement which has its roots in the economics of land utilization.

Land Policies.—A policy is a definite plan of action to reach desired ends. A discussion of policy, therefore, nec-

essarily includes a treatment of the principles upon which the plan of action is based. If we trace the word policy to its origin, we find that it is the same as polity and suggests plans of public or governmental agencies. Such, for example, are the policies of the Federal Government for relieving wheat farmers who complain that they cannot sell their product at a profitable price, or the taxation policies of State and local governments. The word policy now has come to refer also to plans of private agencies, and, desirable as it might be to restrict policy to public action, it is not now possible to do this. We hear constantly about policies of individuals, using such expressions as my policy, your policy, and also policies of corporations; for example, railway policies. In the present book, in general, an attempt will be made to use policy to denote the plans of public agencies and to use some other word to describe the private plans to reach desired ends. Where necessary, in order to secure clearness of meaning, adjectives like private and public will be used. Public policies are the framework within which the individual moves in the utilization of land; for example, an individual makes his plans within the limitations laid down by public policy, such as a zoning policy.

Some policies and plans of land utilization are good, and some are bad; but all are based on principles which, as has been previously shown, underlie the use of land.

One of the functions of land economics is the analysis of these policies and the principles on which they are based to discover whether they are good plans for reaching the desired ends. In addition, there is the more important task of determining whether or not the ends in view are desirable for the general welfare.

On the outskirts of a Middle Western city an observer will notice land laid out with streets, cement sidewalks,

sewers, even with saplings growing into the shade trees of a residence neighborhood. But the homes are few and far between. They have been there for five or ten years. Weeds almost cover the sidewalks in some places. Two years or even five years from now the same number of houses may be counted as before. Such subdivisions, and there are many of them, are evidence of wrong policies or of right principles imperfectly seen and incorrectly applied. Some of the lots may be owned by individuals who have paid out more in taxes than the property is now worth. There is social loss here. Perhaps fertile agricultural land was taken out of use for this subdivision and made incapable of cultivation—another social loss.

In contrast with such subdivisions, pictures are shown later in this book revealing a successful subdivision policy. The land was bought at a low figure, graded and platted; streets and sewers were laid; a trolley line was built by the subdivider and turned over to the traction company; and homes of pleasing and harmonious architecture were built. Even the stores in the restricted commercial district of this subdivision were designed to harmonize with the general architectural scheme. Property values in this district have increased from the time the subdivision was started. It is a land development which has added to the community not only material wealth but also, which is even more desirable, satisfied home owners.

It does not require much discernment to see which development is better from the social point of view. However, it does require a great deal of discernment and scientific analysis to see *beforehand* whether this or that plan of land settlement is going to result in social betterment.

But land, in economic terminology, includes more than the mere surface of the earth; it includes all natural resources—forests, minerals, water. Builders of city homes

are acutely conscious of the high cost of lumber. They acted as though they believed that our forests would last forever; but as a matter of fact, of the original estimated supply of 5,000 billion board feet of lumber in the United States, only 1,600 billion board feet remain, plus about 600 billion feet of second growth and culls.[1] At the present time 60 billion board feet of timber are cut each year and only 15 billion feet replaced by reforestation.[2] The centers of lumber production are in the South and Far West, but the centers of lumber consumption are in the East and Middle West. Thus the prominent factors in high lumber costs are the dwindling supply, the cost of transportation, and the distance from the source of supply, which, because a larger supply must be carried by eastern distributors, adds to the overhead expense.

This is the situation; now what is done about it? Almost four-fifths of the present forest area is owned by private individuals. They are in business for profit to themselves. They find forest land taxed under the general property tax at the same rate as agricultural land, yet they harvest a crop only once in from thirty to sixty years. To be sure, many States assess forest lands at less than full selling value, thus lowering the aggregate amount of taxes, and a few States do not tax the timber at all until it is cut. Even with these aids, private owners often find themselves paying taxes which will amount to more than the timber is worth when harvested. They have every encouragement to cut their timber now to avoid the accumulating costs of taxes. The results are "our vanishing forests," and these results called forth the conservation movement.

These illustrations of land policies might be multiplied.

[1] W. B. Creeley, and others, "Timber: Mine or Crop?" *Yearbook of the United States Department of Agriculture*, 1922, p. 84.
[2] *Ibid.*, pp. 109, 138.

They point a moral, which is: The welfare of the individual and of the community to which the individual belongs is bound up with the formulation and accomplishment of scientific policies of land utilization, based on sound principles tested by experience.

Land Characteristics and Classification.—Any observant real estate broker may be heard advising a client that a certain lot is better suited for a store than for a residence, or for a factory than for a warehouse. There are also some farm colonizers who furnish the settler with soil maps showing the areas best suited for different crops. What these specialists do is to classify land for its best and highest use on the basis of its characteristics. This process of analyzing the characteristics of land and classifying it is an essential and preliminary step in planning the use of land. Neglect of this process is responsible for many misfortunes, while observance of it leads toward success.

A few years ago in Chicago the owners of a large manufacturing business built a tall, imposing, and beautiful office building several blocks away from the heart of the business and financial district. At the time, everyone said the owners were crazy, that the building could not hope to be a financial success. Now this building is being duplicated by the owners. Two more tall buildings are being constructed within a block or two of the first. Still farther up the street a twenty-one-story apartment hotel is being built, and across the street from this is rising another tall office building. These successive developments prove the vision of the manufacturers who first moved in this direction.

Southeast of Ithaca, N. Y., there is a one-hundred-acre hilltop farm which was bought by a woman for $1,000. She had worked as a laundress in a city and had put all

her savings into the farm. After paying for it, she did not have money enough to get a license for the Ford which was part of the equipment. When visited in early August, 1923, the only crop, outside of garden vegetables for home use, was corn which was scarcely six inches high. Taxes amounted to $47, or almost five per cent of the original investment.

The woman was misled, perhaps by some unscrupulous farm land dealer, into believing that the soil was fitted for farming. On the other hand, the men who put up the office building understood the characteristics of the land better than the general public, which believed it unfitted for such use. The characteristics of the farm were not those of good farm land; it should have been classified as land suitable for growing white pine timber. The woman who tried to use, as a farm, land which was not agricultural, was incurring losses. On the other hand, the owners of the office building mentioned above foresaw the most profitable use of the land, classified it correctly and jumped in ahead of the crowd. Land classification was the problem in both cases; in one case it was solved correctly, in the other incorrectly. In one case there was large gain, in the other pitiful loss.

Land Economics As a Social Science.—Natural resources are what man has worked with in building up the society in which we now live. So also to-day land is basic to our current prosperity and present mode of life. In the complex mechanism of economic life as it now exists, natural resources are utilized in a great variety of ways and according to a variety of principles. Men's relations to each other with respect to land are as fundamental as any other economic relations. In view of the importance of land in relations among men, policies and plans of land utilization should, if they do not already, converge toward

one common end. That end is the *improvement of the social conditions of living.* It is a test or standard by which all principles and policies of land utilization should be measured. Since land economics is the study of how this end can be accomplished through arranging the human relationships arising out of land utilization, it is properly called a social science.

Summary

The reasons for success or failure in the use of land—urban, agricultural, mineral, forest, etc.—are found in the principles of *land economics.* When definite plans are worked out to secure definite ends in land utilization, these are called *land policies,* a term which is applied particularly but not exclusively to the plans of public agencies. One of the most important preliminaries to the framing of sound land policies is *land classification;* that is, the examination of the characteristics of land with a view to determining for what use it is best suited. The standard for testing whether or not a land policy is sound is: Does the policy result in the improvement of social living? Land economics is, therefore, a *social science* dealing with the human relationships arising out of land utilization.

CHAPTER II

THE CHARACTERISTICS OF LAND

If the need for analyzing the characteristics of land is not yet clear, let the reader explain why within a half mile radius urban land values may range from $12,000 a front foot to $200 a front foot. Or, why agricultural land values may vary from $15 an acre to $250 an acre within a radius of 25 miles in Massachusetts. It is very easy to say that there are buyers of the urban land at $12,000 because they can pay the price and still make a profit from the land. The cheaper land will have more prospective buyers, but they will pay more than $200 a front foot only at the risk of losing all net profit. These variations in the profitableness of land cannot be explained unless the general and special characteristics of land which make it valuable are understood.

In a single chapter one cannot give all the characteristics which make any particular piece of landed property worth the price that is paid for it. To do that would mean compressing the substance of land economics into one chapter. In lieu of this impossible task, the following pages will portray those general characteristics which distinguish property in land from other forms of property, leaving the special characteristics to appear where most pertinent to the story. These general characteristics are of four general types: legal, physical, economic, and social.

Legal Characteristics of Land.—All property is divided

by legal authorities into two great classes; namely, *real property* and *personal property*. The essential characteristic of real property is immobility or permanency of location. All kinds of property which have not this permanency are personal property. But immobility as a legal concept needs definition. Mobility is really a matter of degree of movableness, and, as a matter of fact, nearly all our economic and legal differences and discriminations are matters of degree. A house may be moved, yet the house is regarded as part of the land, attached to it, and having permanency of location. When the land is sold, the house is sold with it, even if no mention of the house is made in the deed conveying the property. There are, however, doubtful cases, such as attachments to the house. Consequently the law steps in and decides doubtful cases, and these decisions are not always precisely the same; what is personal property in one state may be treated as real property in another. Land as used by the economists refers to the forces of nature or to natural resources. It means more than the surface of the earth, because it includes what is above and below the surface. Water itself is regarded as land because it is a natural resource. Economics under the term, land, emphasizes what nature has given. This is brought out in the definition of land given by the English economist Alfred Marshall, namely:

> "By land is meant the material and forces which nature gives freely for man's aid in land and water, in air, light and heat."[1]

The difference between the legal and economic concept can be well illustrated by contrasting Marshall's definition with the definition of land as given in Kent's *Commentaries:*

[1] Alfred Marshall, *Principles of Economics*, 5th Edition, London, 1907, Bk. IV, Ch. I, p. 135.

"Land according to Lord Coke includes not only the ground or soil, but everything which is attached to the earth, whether by the course of nature as trees, herbage and water, or by the hand of man, as houses and other buildings; and which has an indefinite extent, upward as well as downward, so as to include everything terrestrial, under or over it." [1]

Real estate operators deal in land, but they are not called land dealers, because they deal not merely with land in the legal sense but especially with land in the legal sense. The term *real estate* is used in economics not simply because the lawyers use it, but because for so many purposes the land and improvements form a natural economic and income-producing unit. In most cases real estate operators consider the legal unit and do not make the economic analysis between the land itself and the improvements upon the land. An investor in buying real estate makes a wise purchase if the return upon the whole property is satisfactory. If he makes an analysis in his forecasting, he may estimate a depreciation in the value of the building and an appreciation in the value of the land itself. The return on the land and on the building are added together to determine the profitableness of the investment.

More and more in cities the appraisers make the analysis between land and the separable improvements on the land. This is a part of the process of determining rentals in making long-term leases, and it is especially important that a careful appraisal be made wherever there is a separation in ownership temporarily or permanently between the land and the improvements upon the land.

The term *real estate operator* is the right term because the legal unit is that which is of special significance to the

[1] Kent, *Commentaries*, III, p. 401.

operator. It is interesting to notice, however, that we often speak of farm land dealers. The land in itself stands out more prominently in the case of the farm than in the case of city real estate, and unconsciously this is emphasized when we say real estate operator, referring to the man engaged in urban transactions and farm land dealers when we refer to the man engaged as a broker in buying and selling farm land; but *real estate* is a proper term in both cases.

Physical Characteristics of Land.—The outstanding physical characteristic of economic significance is the *immobility of land.* In fact, this is what distinguishes real estate from other forms of property as was pointed out previously. A Kansas farm cannot be physically picked up and moved to New England near the centers of consumption, nor can a valuable business location be moved to a cheaper part of the city. Of course it will be said that it is physically possible to move some land and improvements, but economically this is undesirable and generally economically impossible, for the land itself cannot be moved in large quantities except at prohibitive expense.

A striking illustration of the economic consequence of immobility is the Australian copper town which is completely equipped with improvements that have lost all value because neither the land nor improvements could be moved when the copper mine ran out. In such cases of decaying towns land is subject to special losses, just as in the opposite cases of boom towns or cities, it is subject to special gains. Around New York harbor the land useful for waterfront purposes is scarce compared with the demand for it, and hence it commands high prices. If land could be moved around, like a rug, from places where it is plentiful to places where it is scarce, these high prices would not be obtainable.

The second important physical characteristic is the fact that land has great *gradations in fertility and in advantages of location.* Gradations in fertility apply particularly to agricultural land, but gradations in advantageous location apply peculiarly to urban land.

Gradations in fertility are due to the presence or absence of soil elements, to variations in humidity, light, heat, topography, and to other factors which cause the earth to give up produce in varying quantities. An excellent example of gradations in fertility is found in the Connecticut Valley district. Land in the valley is rich and fertile, suitable for highly specialized crops like garden truck. On the slopes above the river flats, the soil is less fertile, but well fitted for orchards. On the hilltops, however, the land is suitable for forests or pasturage.

It has been said that such gradations in fertility tend to disappear, because "bad lands become good by proper treatment, and poor usage ruins the best land."[1] If this were true, in the course of time all land might become equally fertile and there would be no reason for paying more for one kind of land than for another, provided facilities for marketing were equal. Experience, however, has shown that with the progress of invention, of technique of production, and of transportation, gradations in land become greater rather than less. Early New England farmers raised about the same kind of crops whether their farms were in the valleys or on the hillsides. Land was of about the same value and was put to the same use. But machinery and easier transportation made the level plains more desirable and New England agriculture declined. Instead of raising the poor land up to the level of the best, the use of farm machinery tends to enhance

[1] S. N. Patten, *Premises of Political Economy*, J. B. Lippincott, 1885, p. 27.

the natural differences in grades of soil. Evidence of this tendency is found in figures showing that good land, where machinery has been widely used, has increased in value more rapidly than poor land.

TABLE I

VALUE OF LAND[1]

State	1900	1910	1920	Percentage Increase 1920 over 1900
Iowa	$36.35	$82.58	$199.52	448
Illinois	46.17	95.02	164.20	255
New Hampshire	9.83	13.70	18.21	85
Vermont	9.70	12.52	19.58	101

Gradations in advantageous situations are primarily due to nearness to markets, and to transportation facilities. The transportation outlet accounts for the building of heavy industries along railways. The light industries can afford to locate farther away from transportation lines. In appraising farm lands, nearness to good roads is a factor always taken into account. In the case of residential land, transportation facilities to retail markets are important, but favorable location with respect to the amenities of land adds even more to residential values. *By amenities are meant beautiful scenery, a pleasant neighborhood, congenial neighbors, and all other inducements which add to the pleasure and comforts of living.* Particularly in the case of business sites differences in favorable location are reflected in differences in value.

The *durability* of land is the third physical characteristic of importance. Early economists used to say that the powers of the soil could not be destroyed, but experience has shown that this is not strictly true. Fertility can be depleted if proper scientific rotation of crops or fertilizing is not carried out. Depletion, however, occurs

[1] Figures compiled from 1920 Census.

only up to a certain point, which may be called the permanent level of fertility. Some Texas soils that have been growing cotton from fifty to seventy years without rotation of crops, continue to yield cotton. Although fertility can be increased or decreased within limits, the texture of the soil, as the agricultural experts say, cannot be changed. For instance, sandy soil cannot be made over into a loamy soil. Fire will destroy a crop or a building, but ordinarily it will not destroy the capacity of the land to produce another crop or to support another building.[1]

It is one thing to say that land is durable because it can be used over and over again; it is another thing to call it durable because of certain unchangeable factors affecting land, such as climate, topography, rainfall, etc. These factors, like climate, cannot be changed or created at will by the hand of man. They tend to make the *uses* of land durable rather than the land itself. As long as climate and topography do not change from year to year, landowners may count on certain uses being available. If one year a piece of land in New England were in the temperate zone, and the next year in the tropical zone, there could be no permanence of use.

Economic Characteristics of Land.—Most economists probably will say that the law of diminishing returns is primarily a law of the physical world rather than of the economic world. Fundamentally it does rest upon the action of physical forces, but in actual operation it is so preeminently a matter of economic interest that the *tendency to diminishing returns* is classified as an economic characteristic.

The law of diminishing returns is not restricted to land economics, although it was first formulated in connection with land; but it operates with peculiar regularity in the

[1] Peat and leaf mold are important exceptions.

case of land. Stated in its simplest form, the law of diminishing returns is as follows: As labor and capital are added to a given piece of land, there comes a time when the yield is less in proportion to the amount of labor and capital added. It should be repeated that this principle is not limited to land utilization. Manufacturers have noticed that enlarging their plant brings increasing returns at a falling cost up to a certain point where the increased production is obtained only at increased cost per unit. This point is the point of diminishing returns. Agriculture and manufacturing differ in that this point comes much sooner in agriculture.

The tendency toward decreasing returns beyond a certain point in development has been observed in the construction of office buildings. One such study in a midwestern city shows that on a lot (160x172 feet), worth $1,500,000, a building of five stories will yield 4.36 per cent on the investment; a building of ten stories, 6.00 per cent; of fifteen stories, 6.82 per cent; of twenty stories, 7.05 per cent; of twenty-five stories, 6.72 per cent; of thirty stories, 5.65 per cent.[1] The point of diminishing returns for this particular office building was just above twenty stories. In other words, twenty stories was the most economic height for this building, because any labor and capital used in further development would bring proportionally less return.

The law of diminishing returns is of great importance in the treatment of agricultural production. A study of cotton land where increased amounts of fertilizer were added to a given acre gives interesting results.[2]

[1] George C. Nimmons, "The Economic Height of Office Buildings," *National Real Estate Journal*, Sept. 11, 1922, p. 33.

[2] Compiled from tables given by A. S. Smith, "A Farm Management Study in Anderson County, South Carolina," *Bulletin 651*, United States Department of Agriculture, p. 14.

TABLE II

Cost of fertilizer	Yield of cotton per acre	Yield due to additional application	Cost of production per pound
Under $3.00.....	200 pounds	.. pounds	$0.1142
$3.00-$5.00	221 pounds	21 pounds	.1140
$5.00-$7.00	272 pounds	51 pounds	.1028
Over $7.00.....	276 pounds	4 pounds	.1217

Note in the above table that this piece of land was characterized by increasing returns from each addition of fertilizer until more than $7.00 worth was added. Then production drops off proportionately, and the cost of production rises sharply.

The importance of this law of diminishing returns is far-reaching. If increasing returns, rather than decreasing returns, were the response of the land to more intensive utilization, only the best lands would be used by farmers, and taller office buildings would be constructed in cities. There would be no cause for worrying about population increases, or about the limited supply of land for certain much-desired uses. In short, there would be no need for economizing our use of land. But since decreasing returns are the rule, there is the problem of utilizing land sparingly, of finding out where the margin of profitableness is, of discriminating in the choice of uses, of conserving our natural resources.

The second economic characteristic of land is *scarcity.* In using the term scarcity, there is no intention of conveying the idea that there is now an *absolute scarcity* of natural resources. Probably many generations will pass before anyone need doubt seriously that the total *physical* supply of land will be sufficiently large for our needs.

There does exist to-day a *scarcity of the economic supply of land.* By economic scarcity is meant a relative scarcity of land suitable for the uses which are most in

demand. It is physically possible to put up a twenty-story office building in Cheyenne, Wyoming. But if it were built, there would probably be insufficient demand for its office space and the investment would be wasted. The demand, however, for office space in the centers of large cities justifies the erection of tall buildings. The function of urban land is to provide standing room for the city population. So where population is most dense, there is a scarcity of standing room in relation to the demand for it. This relative scarcity of land in urban centers is the main reason why buildings have become taller and commercial land values have risen. The same relative scarcity occurs in the case of some kinds of agricultural land. Land especially suitable for raising burley tobacco, for example, is so limited in quantity, compared with the demand for it, that it commands a high price.

This limited economic supply of land would not be so important, if it were not accentuated by the immobility of land, its gradations in fertility and in advantageous location, and the operation of the law of diminishing returns. There would be no scarcity, even economic scarcity, if land could be moved from places where it was plentiful to where it was scarce, if there were no gradations in desirability, or if the law of increasing returns displaced its opposite. As it is, the economic scarcity of land is a matter of costs and the margins of profits. At any given time there is always some land which might be used were it not for the costly handicaps of lack of transportation, poor soils, climatic or topographic conditions, which make the use of such land unprofitable. Land with such handicaps may be regarded as economically useless and may be left out of the available land supply. It is part of that potential land supply which will be brought into use only when the values of land products or services are high enough to

repay with profit the costly improvements necessary to make it productive.

The third economic characteristic of land is the *slowness with which the uses of land can be adapted to changes in prices.* This was brought out by a questionnaire on the farm land market which was sent to farm land dealers by the National Association of Real Estate Boards in 1923. Many answers came back to the following effect: The market is bad because of the wide discrepancy between prices of land products and prices of the manufactured products which the farmer must buy. To put it another way, agricultural production is not easily and quickly adjusted to changes in prices. The same tendency is observable when urban lands are changed from one use to another.

This inflexibility of agricultural production was well illustrated during the summer of 1923. Wheat prices went below one dollar a bushel in the middle of the growing season. What could the farmer do? He could not plow under his wheat and sow some other crop. And in many cases he had no facilities for storing the grain when harvested until the market was better. He was almost forced to sell at a low price and take his losses, which were especially serious where there was no diversified production. This inflexibility is in part due to the immobility of land and in part to the type of production. If land could be moved freely from one section of the country to another, it might avoid some of these price depressions. Also if the growing season were not so long, farmers might be able to adapt themselves more quickly to price fluctuations. As it is, the industrial manager can order half the labor force laid off and production cut in half, but there is no chance for the farmer to lay off crops, once they are planted.

Social Characteristics of Land.—In the pre-Revolution days of the United States most colonies permitted only landowners to vote. In other countries, too, notably England, landowners had certain political privileges as well as the social distinction which even to-day goes with land ownership. Quite recently we have had an example of that widespread opinion which holds that the landowning class contributes most to stability of government. Governor Allen of Kansas was impressed with the spirit of the French soldiers in the World War, sixty per cent of whom were landowners, and the following statement made by him is an interesting comment with some measure of truth: "In two years socialism, driven by the cleverest German propaganda, rose and broke three times against the land titles of France."[1] In the Russian revolution of 1917 the slogan "All land to the peasants" was of great influence in winning the support of the majority of the population to the change in government.

These diverse illustrations show that great *political and social power attaches to land ownership.* It is commonly said that ownership of land contributes to the stability and conservatism of citizens. The result of this belief is seen in the political privileges accorded to landowners. Moreover, the examples given above reveal the great economic power which ownership of the land carries with it. That is why many corporations buy up and control land used by their employees for dwellings, schools, churches. When strikes occur, corporations may use their control of land against the strikers by ejecting them from company-owned homes, as some coal operators have done. It is estimated that almost half the total wealth of the United States, estimated at $294,000,000,000, is in the

[1] Henry S. Allen, *Kansas Problems*, Topeka, 1920, pp. 16, 17.

form of city and farm real estate. The value of city real estate is estimated at $84,000,000,000 and of farm real estate, $60,000,000,000.[1] These figures are impressive evidence of the economic power involved in real estate ownership.

Consciousness of the possession of this power often leads landowners into abuses of it; and the abuses of power are often so flagrant that some control for the common welfare is essential. As population has increased, the need for control has become more apparent, so that now the use of irrigated lands, the use of mines and water power, and the use of oil, gas, and mineral resources are regulated by the government in various ways. The whole movement for the conservation of natural resources expresses an extension of social control of land. In our great cities, where land has its most intensive use, social control through building codes, planning and zoning laws, sanitary regulations, is growing. This tendency finds expression in what may be called the principle of social control: *The more intensive the use of land, the more highly developed must be the social control.* In such a complex society as ours, social control of some forms of land utilization is necessary to achieve the social ends which are set before each individual.

Another significant social characteristic of land is that it acts as a sort of savings bank for a great many people. In some quarters it is said that real estate is in the hands of the rich. As a matter of fact, the real estate of this country is owned by millions of persons of moderate means, with the exception of comparatively few large family holdings. Man clings to the land; an extreme ex-

[1] W. I. King, "Net Volume of Saving in the United States," *Journal of the American Statistical Association*, Sept., 1922, pp. 318, 322.

ample of this is the French peasant clinging to his soil. This is partly due to a desire for the social prestige that accompanies land ownership, but largely it is due to a feeling of security in land as an investment. The land is visible, tangible; it is not a mere piece of paper like a stock certificate or bond. Consequently the land is called the poor man's investment.

Relation of Land Characteristics to Land Utilization.— The foregoing general characteristics apply more to landed property than to other forms of property. These characteristics, together with the special characteristics which distinguish various kinds of land from one another, furnish the key to the best policy of utilization. Analysis of characteristics facilitates the classification of land for its highest and most profitable use.

To clarify this relation, it will be helpful to refer again to some of the illustrations setting forth the problems of land economics. The owner who made use of the novel "sky-lease" understood that the qualities of his land were favorable to a higher building than he was able or willing to finance out of his own pocket. The union which constructed an office building outside the commercial center did not analyze properly the characteristics of its site. The partially developed subdivision was based upon characteristics which the site did not possess, whereas the successful subdivider took account of all the qualities necessary to make the site a profitable development. Furthermore the varying values of farm lands in the Connecticut Valley region reflect the different degrees of adaptability to agricultural uses. Instances might be multiplied to reinforce the point that successful utilization of land is based on knowledge of the characteristics of land.

SUMMARY

The general *characteristics* of land, which distinguish property in land from other forms of property, are of four general types: *legal, physical, economic,* and *social.* The legal characteristics of land are based chiefly on the legal distinction between *real property* (the essential characteristic of which is immobility) and personal property. The concept real property therefore includes other permanent attachments to land, such as buildings, which the economist would ordinarily not include under the term land. The physical characteristics of land are *immobility; gradations in fertility and in advantages of location;* and *durability.* The economic characteristics of land are its *tendency to diminishing returns* when the land is developed beyond a certain point; the *scarcity of the economic supply of land;* and the *slowness with which land can be adapted to changes in prices.* The social characteristics of land are the *political and social power which attaches to land ownership;* the *increasing need for social control as intensity of use develops;* and the *tendency of land ownership to develop thrift,* since it acts as a savings bank for many people. These characteristics furnish the key to the best policy for land utilization.

CHAPTER III

THE CLASSIFICATION OF LAND

THE classification of land is part of a general classification movement in many fields of endeavor. Educational experts have lately begun to classify school children according to the mental ability shown in intelligence tests. Labor experts are beginning to classify employees according to industrial tests. The Federal Government has a classified civil service, has an income classification for the Federal Income Tax, and is now proposing to classify immigrants at the source of emigration. Private businesses classify their merchandise according to salability. But the classification of land has generally lagged behind the rest of the movement.

Need for Classification.—The need for classifying land is a practical one and has public as well as private aspects. It makes possible a better utilization of natural resources. For many years the Federal Government made no attempt at all adequate to classify the public domain in order to dispose of it to advantage. The publicly owned land area was divided into 40-acre tracts, and during the greater part of our history these tracts were generally sold in groups of four, called a "quarter-section." Each tract was sold as a unit with little regard to its fitness for agriculture, forest culture, ranching or mineral extraction. Petroleum land was sold on an agricultural basis. Forest land was sold to private individuals just as if it were land

suitable for growing grain. Ranch land was disposed of without regard for the requirement of large areas by the ranching industry. Swamp lands were given to States for reclamation without an adequate survey. California, for example, received some "swamp land" without any water on it. Only in comparatively recent years has the Federal Government classified its public domain according to fitness for different uses, and that has been a partial classification occurring after it had disposed of the larger part of the public domain. Our past public policy of land administration would have brought more wholesome conditions in the present if more adequate classification according to the characteristics of the land had preceded the disposal of it.

Neglect of classification has been not only a fatal defect of public policy but also has doomed to failure many private ventures in land utilization. During the war a North Dakota tract was plowed for wheat by 56 tractors working day and night. This land was quite unsuited for the profitable cultivation of wheat, a fact which was realized as soon as wheat prices dropped from the abnormally high war level. Meanwhile the damage was done. It will take fifty years to replace the turf which the plow destroyed, destroying at the same time the fitness of the land for grazing, the only suitable use for the area. To guard against such mistaken ventures, the Canadian province of Alberta and many of our States publish soil maps showing the qualities of the soil that fit it for different types of production. A classification of this nature, if heeded, protects many people from pitfalls such as that engulfing the users of the North Dakota tract.

A property classification is the basis of a proposed change in the methods of tax assessment recently suggested by a member of the Cook County (Illinois) Tax

Board of Review.[1] He says: "A uniform depth percentage, it is not difficult to see, is not proper to be applied to widely differing classes of land." Neither is a uniform percentage of corner influence. "For example," he explains, "in an apartment district, it is clear that a corner fifty-foot lot is considerably more valuable than an inside fifty-foot lot; many more rooms in each flat can be given a street outlook; probably more flats can be planned. On the other hand, in a detached residence district, it is equally clear that a corner fifty-foot lot is but little more valuable than an inside lot; in each case a commodious house can be built with all outside rooms, and with equal yard. . . . Our first conclusion may well be that all valuation of land for taxation should be on the basis of a definite system comprising unit values and formulæ for computing property valuations from these unit values. Our second conclusion must be that these formulæ for computing property valuations from unit values should vary according to the *class of property concerned.*[2] There should be a different sort of formulæ, as we have seen, for the following classes of property: Residential, apartment, commercial, manufacturing." A similar classification is the basis of zoning laws in many American cities.

Classification of land is also essential in real estate practice. Real estate operators who hold properties in various portions of a city classify these properties according to their highest and most profitable use before undertaking plans for development. Furthermore, in a growing city, real estate dealers are constantly confronted with the choice of tracts of land for subdivisions. If the tracts available for expansion are not properly classified, the subdivision is quite likely to be a failure. Take the case

[1] E. R. Litsinger, "Plan for the Valuation of Land," leaflet privately printed.
[2] Italics ours.

of an undeveloped area of low land just outside the industrial district. To acquire this tract for a high-class subdivision would be absurd. It is probably more suited to industrial use, or at most to cheap dwellings for those of small incomes; for the nuisances of an industrial district will destroy the values of such a subdivision developed for high-class residences.

Instances might be multiplied showing that classification is essential not only to effective real estate practice but also to effective planning of policies by public agencies. It should be borne in mind from the outset that a comprehensive land policy cannot be formulated unless the different forms of land utilization are separated and each kind of use is planned with reference to the available land with qualities needed for this use.

Requirements of a Good Classification.—A haphazard classification, based on purely artificial distinctions, is useless. The first requirement of a good classification is that the classes be distinct, well-recognized, and measurable. A division of land according to square feet or acres answers this description but it does not clearly serve the end of policy-forming. The second requirement of a good classification is that it be helpful as a means to the end or purpose of classification. A third requirement is that the class differences shall have economic significance. The late President Van Hise of the University of Wisconsin pointed out three methods of classifying land: (1) Areas of crystalline and sedimentary rocks; (2) plains, plateaus, and mountains; (3) according to the covering which was originally on the land.[1] These are useful classifications for certain purposes but not for the purposes

[1] C. R. Van Hise, *The Conservation of Natural Resources in the United States*, Macmillan, 1910, p. 266.

of the economist, because they are geological and not economic classifications.

Suggested Classification of Natural Resources.

A. Sub-surface appropriation—oil, gas, minerals, stones, salt, etc.

B. Surface appropriation.

1. Site purposes
   - *a.* Urban
     - Manufacturing
     - Mercantile
     - Residence
     - Recreational
   - *b.* Building sites, non-urban

2. Land for agricultural purposes.
   - *a.* Arid land
     1. Irrigable
     2. Non-irrigable
        - Timber
        - Grazing
        - Dry Farming
        - Desert
   - *b.* Humid land
     1. Natural appropriation
        - (*a*) Forest and pasture
        - (*b*) Swamps for rice, hay, cranberries
     2. Cultivated
        - Farm
        - Garden
        - Forest

3. Land for transportation and communication.

4. Recreational land
   - *a.* Natural parks
   - *b.* Forest and stream
   - *c.* Highways

C. Water and land connected with it.

1. Shore lands
2. Land under water
3. Riparian land
4. Irrigation water
5. Navigation water

D. Super-surface appropriation for the aeroplane and radio.

Other Classifications.—There are many other ways of classifying land. Land might be grouped according to the form of ownership,—whether private, public, or common property. Particularly for agricultural interests it is important to classify the land according to soil texture

and the mineral elements it contains. For urban purposes it is useful to classify land according to density of its population. It cannot be too strongly emphasized that there is no one classification which will hold good for all purposes. Classification is nothing but a tool for planning the most economic utilization of natural resources.

Summary

Classification is recognized as necessary in many fields of human endeavor. The need for classification of land is great, whether public or private purposes are under consideration. Neglect of adequate classification of the land in the public domain has caused losses to the nation and also to individuals, and a failure to classify landed property for taxation has also had bad results. Land classification is also important for real estate practice. Good economic classification of land must satisfy three requirements: (1) it must divide the land into classes that are distinct, well-recognized, and measurable; (2) it must be helpful for the purpose to accomplish which the classification is made; (3) the class differences must have economic significance. Many different methods of classification may be used; the choice depends on the purpose for which classification is made.

CHAPTER IV

SOME FUNDAMENTAL PRINCIPLES OF ECONOMICS

THIS chapter is included at this point to clarify the treatment of certain principles of land economics in the following chapters. It should not be forgotten that land economics is merely a division of general economics, just as are money and banking, or labor. It is the field of economics that is concerned with the economic relations growing out of the use of natural resources in the production of economic goods and services under the institution of property. Underlying these economic relations are certain fundamental principles which are not restricted to the relations arising from the use of land, but are common to almost all behavior resulting from economic considerations. Moreover these fundamental principles appear later in various connections, and the same principle is likely to reappear several times when different aspects of the problems of land economics are presented. It may not be amiss, therefore, to summarize some of these principles early in our inquiry in order that the unity of the subject of land economics will not be lost sight of as it is approached from different angles in the succeeding chapters.

Economic activities are concerned primarily with the production and use of wealth, and we study these activities from the standpoint of both public and private economy. In studying the wealth-getting and wealth-using behavior of men we find that a few facts recur so often that they come to be regarded as the inescapable realities

of almost any economic situation. Differences in personal ability and in the motives of economic activities are of this nature. Moreover the constant classification, analysis, and comparison of these activities have brought to light some general trends or principles of economic processes. These principles particularly will crop out repeatedly as different aspects of land utilization, ownership, valuation, and taxation are discussed.

Some Facts That Must Be Reckoned with in Economic Analyses.—Since we are dealing with human activities, one of the first things we meet in an economic analysis is the motive or cause of an act. Generally speaking, the psychologists tell us that man's acts are the result of instinct, habit, deliberation, or compulsion. Economic activity affords examples of the action of all these causes. The instinct for self-preservation prompts men to work for very low wages or steal rather than starve. Custom or habit is seen at work helping to keep stable the prices of certain commodities or services while other prices are fluctuating widely. In deliberating between different ways of acting, individuals are governed by a variety of inducements. To some people the hope of increasing their income or their prestige in the community induces them to buy one farm in preference to another or one home instead of another in a less fashionable neighborhood.

All these causes of action, or inducements, comprise what is understood by the term, *human nature.* The early economists assumed a simple type of human nature, a type which has been called the "economic man," largely because the "economic man" always sought his own advantage and in so doing was supposed to have promoted the public advantage. The modern "economic man" has a much more complex nature than this, since we take account of his instincts, habits, customs, hopes and fears,

pains and pleasures, and the whole range of deliberate choices which have economic significance. Among other evidences of this changed concept of the "economic man" is the fact that public agencies definitely recognize that the desire for private gain does not always induce persons to act in such a manner as will accomplish the greatest social good. For that reason it is found desirable sometimes to control the behavior of private persons for the public good.

In this connection must also be considered *private property,* which is the fundamental institution which guarantees to the individual the undisturbed enjoyment of the fruits of his own efforts. Since natural resources are in large part private property, the effects of private ownership on the utilization of land will have to be considered from the standpoints of both public and private economy. When the "economic man" is studied against the background of these effects of private ownership it will be seen that the problem of controlling his behavior for the common good may often be solved by controlling private property, rather than by transferring private property to public ownership.

Another fact which must be reckoned with is the price system. The day has gone past when each individual produced by himself all the articles that he needed. The modern economy is characterized by division of labor and production of goods and services for sale; and buying and selling transactions are effected through the medium of prices. Prices are estimates of the worth of things to an individual in terms of a common unit of measure, money. In other words, prices are the common measure of values. The importance of the price system lies in the fact that prices guide most activities that have economic significance. In land economics the prices which the products

of land obtain in the market determine, mainly, how land will be used. This relationship between prices or values and the efficient use of land from both public and private points of view is in many respects the heart of the problems of land economics. An adequate understanding of this relationship depends chiefly on a knowledge of the principles governing the valuation of land and of the movements of land values.

A great many problems of land utilization arise from the fluctuations of prices. In one way or another every producer and every consumer feel the effect of rising and falling prices and try to adapt themselves accordingly. Economists are not agreed entirely as to the causes of these price cycles, but there is no disagreement as to the importance of studying them and perhaps of controlling them. Since fluctuating prices affect all classes in the community, it is important to forecast price movements in order to adapt policies of land utilization to changing conditions. Such forecasting is constantly done in everyday life by business men of all sorts,—farmers, real estate operators, bankers, investors,—and by public agencies also. In recent years certain private agencies have undertaken to estimate the future movements of prices that are of immediate concern to manufacturing and commercial enterprises, which illustrates the importance of forecasting also the prices of land and of the commodities and services which land renders.

One reason why business men are so anxious to have a correct view of future price movements is that an accurate forecast will help them to increase their profits while a faulty estimate may bring great losses. Those who utilize land are very often in the same position. This illustrates another real factor in land utilization—namely, that the inducement to use land is the desire to obtain an

income. The term, *income,* is here used in its broadest sense to include not only money income, a part of which is commonly called profits, but also the income which is in the form of direct satisfaction or enjoyment. To obtain income requires the outlay of time, effort, and money. These expenditures are known in economics as costs. Since the transactions by which incomes are acquired are made in terms of prices, incomes and costs also are calculated in terms of prices. Hence we have the notions of money income and outgo, revenues and expenses.

Of all the problems of land utilization those problems which turn on the relationship between expenses and income are of fundamental importance. Given the prevailing prices of land products or services, the choice of land to be used and of the degree and form of utilization depends on the relation of expenses to income in such use. In other words, the prospect of earning a *net income,* figured in dollars and cents, is frequently the determining factor in land utilization. When the farmer plans his operations for the year, he estimates what the prices and yields of his crops will be, balances this gross income against his expenses in the form of seed, fertilizer, equipment, labor, and other expenses, and makes his plans with an eye for the spread between his income and his expenses. Similarly a city landowner in mapping out a building program calculates what the cost of construction per square foot of floor space or per cubic foot is likely to be and what the receipts from rentals or other sources are likely to be, and ordinarily decides upon the size and type of building which in view of these estimates will yield him the largest net income. These calculations are naturally not limited to one year, for since the services of land are durable, calculations must take account of probable expenses and incomes over a number of years. Both public

and private agencies, particularly the latter, in formulating policies of utilizing urban, agricultural, forest or mineral lands, consider this relationship of expenses to incomes and often make it a determining factor in their plans.

Finally, a general survey of economic activities reveals the undoubted fact that men differ in ability and in capacity. Some men are better managers than others; some men are better workers than others. The capacity to save is characteristic of some people in greater degree than it is of other people. We are familiar with the fact that commercial and industrial concerns vary in their capacities to perform the services for which they are organized, and we recognize this fact when we speak of the "average" business man, implying that some are more capable than others. Ordinarily in a system of private enterprise governed by prices, differences in personal ability are expressed as varying capacities to earn a net income. Hence it is said that the best farmer will earn a larger income than the poor farmer on the same land. Consequently when land is classified as "marginal" farm land in the sense of being "no-profit" land, it makes a difference whether this classification is based on the best farmer, an average farmer, or a poor farmer. Land on which a poor farmer may lose money may be profitable in the hands of a good farmer. If this fact is considered further, it will be found that the total production of farm products will be greater or less according to the degree of realization of the ideal, in which land and men are combined in the most advantageous manner. Such differences of personal ability must be borne in mind when policies of developing agricultural or urban land and of encouraging land ownership are considered.

Some Fundamental Principles of Economics.—Wher-

ever the experience of men in any field of economic endeavor seems to run along certain fairly well-defined grooves, economists are inclined to find a principle. The formulation of economic principles is not an idle, theoretical study; it is an intensely practical task. Only as the mass of information about economic relations is gathered together and organized into a scientific body of knowledge, can it be made useful as a practical guide in everyday life. The relations growing out of the use of land in economic life have been relatively neglected in comparison with economic relations in other phases of the production, distribution, and consumption of wealth. To put these "land relations" upon a more scientific footing, some of the economic principles already formulated need to be applied to, and tested by, the experience of utilizing land. In part this is done in succeeding chapters as a basis for framing sound policies for using land.

It would be futile, even if it were possible, to compress into a single chapter an adequate description of the essential economic principles governing human relationships arising from the use of land. It is important to note, however, that the underlying principles of land economics are generally found in other branches of economics; and since some of these principles are applied to a number of different phases of land economics, it may not be out of place to indicate here a few of the most important and fundamental of these principles.

(1) *The Scarcity Principle.*—In economic inquiries we are continually confronted with the question: Why is land or any other commodity valuable? Why does it command a price? Economists generally draw a distinction between free goods and economic goods. Free goods are those which exist in sufficient quantities to meet the needs of all; economic goods are those the demand for

which exceeds the available supply. Hence economic goods command a price and are economized.

Let us apply this distinction to land. As long as some of the earth's surface is not used, it is apparently illogical to say that there is an insufficient supply of land. But if land is thus a free good, how does it happen that men are willing to part with money for the use of it? The explanation of this peculiarity becomes clear when we recall that land has different characteristics, that some land is more favorably located or has greater fertility than other areas, and that the demand for land with different characteristics varies. Thus as soon as the supply of land with suitable characteristics becomes less than the amount demanded, such land may be said to be relatively scarce and worth a price. That is the situation with respect to central locations in great cities. And the same situation prevails in the case of land fertile enough to yield a crop which can be sold with a profit in the market.

Prices, then, reflect the economic scarcity of land, or, to express it another way, the scarcity principle is a factor influencing prices. This principle also affects the pricing of commodities and services other than those originating in land, and in the case of land it affects some forms of utilization more than others. Moreover the scarcity principle is significant not only in the valuation of land, but in policies of utilization; one aspect of this is touched upon later in considering the principle of substitution.

(2) *The Anticipation Principle.*—In connection with the price system, the tendency of human beings to look to the future was noted. This tendency is so important in pricing land or any other commodity that it has become almost an axiom of valuation. To understand fully many land problems, it is essential to remember constantly that a quoted price includes an element of anticipation. When

a sale of land is made, the price includes not only the present value of the services of land, but also the estimated value of those services in the future.

Anticipation probably plays a larger part in the valuation of land than in the valuation of almost any other type of economic good, chiefly because the services of land do not entirely wear out from repeated use and also because land cannot be reproduced or manufactured at will. Consequently a large part of the valuation of land and of planning land utilization is concerned with anticipations of what the future will be, *i.e.*, future prices, future demand, future substitutes for the services and products of the land, future expenses, and future incomes.

Furthermore an important aspect of anticipation, common to all economic activities, is the fact that man values the present more highly than the future and so the future is discounted according to the proverb, "A bird in the hand is worth two in the bush." Although the anticipation principle is especially significant in the valuation of land, it has a bearing on all problems of land utilization because land is of such a nature that the forms of utilization are relatively fixed and must be planned many years ahead.

(3) *The Capitalization Principle.*—In everyday speech capitalization is usually associated with the total par value of stocks and bonds which a corporation is legally authorized to issue. The capitalization principle in economics refers to something quite different. In the United States we speak of land as being worth $100 an acre. This does not mean that an acre of land will yield annually an income of $100. The hundred dollars represents the *capital value* of the acre of land which possibly may yield services bringing a *net income* of $4, $5, or $6. The capitalization principle is the link connecting this net income and the capital value which expresses the price of land.

To illustrate by a concrete example: A tract of land produces services bringing $5 a year to the owner. This annual income of $5 represents interest on a sum of money invested in the land. The landowner expects such an income this year, next year, and for a number of years ahead. Consequently he attaches to the land a value equal to a sum of money which would yield him this income as interest. In other words, the landowner transforms the series of expected land incomes into a single figure, which is the capital value of the land. The process of transferring this flow of incomes into a fund of value is capitalization, and it is a principle of great importance in valuation and derivatively in the many land problems which depend so much upon valuation. In the following chapters, when we speak in one place of the income from land and in another place of the value of land, confusion may be avoided if the capitalization principle is recalled as the connecting link between income and value.

(4) *The Substitution Principle.*—The average person frequently uses the principle of substitution in everyday life. When the price of potatoes is too high, potato consumption is cut down and some other commodity, like rice, is substituted. In similar ways oleomargarine is substituted for butter, and fruits in season displace in our diet high-priced fruits out of season. As a general proposition, when two or more commodities yield substantially the same service or meet needs with about the same completeness, the low price commodities tend to crowd out the high price commodities.

This common experience of the household economy is duplicated in the economy of a business concern. Rising labor costs induced electric railways to install one-man cars. For the same reason factories supplant man power with mechanical power, and farmers buy machines rather

than hire laborers. Wherever capital in the form of machinery or some other device has displaced human labor, the principle of substitution is at work.

The same principle governs the shifting of land from one use to another. When land becomes too high in price to use for residences, the tendency is to use it for commercial purposes. When agricultural land rises in price, its use tends to shift from grazing to grain crops and then to garden truck. Generally, it is economically impossible to grow forests on land that is valued at $25 or $30 an acre, but if the price were reduced, a forest crop might be substituted for a grain crop or for the underbrush which now covers many idle cut-over lands. This principle of substitution is an important factor to consider in making plans for the utilization of land, in valuing land, and in formulating policies of land development and taxation.

(5) *The Proportionality Principle.*—Since land with desirable qualities, like other economic goods, is not plentiful enough to satisfy the wants of all people, it must be economized. What is meant by economy? The housewife says she is economizing when she substitutes a lower-priced commodity for a higher-priced one. Most people overlook the fact that economy is simply proportioning the available resources to accomplish the greatest result. The household expenditures are distributed among different articles so as to make the income bring the greatest satisfaction, health, and general well-being. In the same way a business man spends part of his income on advertising, part on labor, part on land, and part on a number of other things, but he changes his expenditures for labor, for capital, for advertising, and so on, if he anticipates that a different distribution of his income will bring larger profits. Economy in the use of land

means the proportioning of the economically available supply of land among its sundry uses in such a way that all demands will be most adequately satisfied.

This principle of economy or proportionality governs private as well as public policies of utilizing land. Every year the farmer faces the task of deciding what proportion of his land he will sow in grain, what proportion he will leave in pasture, and what proportion he will allow to stay idle. His policy of proportioning is decided with reference to the market prices of his products, both at the time of planting and, according to his estimates of prices, at harvest time. Many circumstances, like the weather, may disturb his calculations, but the calculations have to be made unless he is willing to be guided by custom or precedent. Similarly the owner of an urban lot having the characteristics of an office building site faces the problem of the economic height of the building. Should it be five stories, ten stories, fifteen or twenty stories, or even higher? That is a problem of economy, or proportioning expenditures so as to obtain the largest result. Ordinarily, with a system of private initiative in business, the best proportioning is that which brings in the highest net return on the investment.

From the public point of view the problem of economy is that of proportioning the total natural resources among different forms of utilization. Can this be done best under a system of private property or should these resources be transferred to public ownership and administered by the government? A shortage of timber, reflected in high lumber costs, shows a need of devoting more land to the raising of a timber crop. What type of land and how much of it should be used? Moreover, can private persons be persuaded to raise a forest crop or must it be done by the government? These are prob-

lems of economy and call for the application of the principle of proportionality.

The Social Aspects of Economic Life.—The drift of modern times is toward increasing recognition of the public interest. This tendency was noted early in the chapter in connection with our changed notion of the "economic man," and it is noted again because almost all human relationships arising from the use of land are affected by this tendency in one way or another. In the field of legislation, the growing emphasis on the public interest is seen in the more active part played by government in controlling business affairs generally, and not alone in regulations controlling the use of land. In the field of private business, evidence of this tendency is found in higher standards of business conduct and, on the whole, a greater consideration for public needs.

This "socialization movement" sometimes leads to undesirable consequences, undesirable even from the point of view of the public welfare. Consequently most problems of land economics need constant re-examination in order that the desired end of public economy be attained. The need for this will become more apparent as the main problems of land economics are discussed from various angles.

Summary

Certain facts and principles exist which are fundamental in the economic relations between men. Five facts that must be reckoned with in any economic analysis are: (1) *motives or causes of economic activity,* which are found in instinct, habit, deliberation, or compulsion; (2) the institution of *private property;* (3) the *price system;* (4) the distinction between *net income* and *gross income;* (5) the *differences in personal economic ability* that exist. Certain fundamental principles are: (1) the *scarcity* principle; (2) the *anticipation*

principle; (3) the *capitalization* principle; (4) the *substitution* principle, and (5) the *proportionality* principle. The modern tendency is toward *socialization*—that is, public control of economic relations—a tendency that may sometimes have undesirable consequences.

CHAPTER V

THE PRESENT AND FUTURE UTILIZATION OF LAND

A CENTURY and a quarter ago when economics was first called the "dismal" science, an English economist, Thomas Malthus, stated that population has a tendency to increase faster than the food supply. The population has more than doubled since that time; yet there seems to be no danger of a general food shortage. In 1824 the great majority of American people lived in the country districts where food was produced. Now less than half of the population are country dwellers. And yet during 1923 it was proposed that the United States Government buy the wheat surplus and find a market for it. That seems to support the immigrant's belief that America is a "land of plenty." But what of the future? The city dweller draws his daily bread from the country, lives in houses that in their original state came from the land, and heats his home with deposits taken from the earth. He lives upon the country. More and more of his kind are making their homes in cities. Will the country be able to support them all? The average commuter does not consider this prospect at all. As long as he finds food in the market places, he is satisfied that there will always be plenty for him to eat.

In the main this is true. The food supply alarmist does not have the support of most economists to-day. It has been observed that the rate of growth of the population is declining. The present population might have

some difficulty in supporting itself if the technique of agriculture and of mining were what they were one hundred years ago. But with improvements in technique increasing and becoming more widespread, and with a declining rate of population increase, there is no immediate, reasonable fear that the means of subsistence will be lacking. However, this does not mean that economy in the use of natural resources can safely be discarded. The concentration of population in cities creates problems of marketing and of intensive cultivation which require scientific planning of land utilization, both now and in the future.

The Shifting of Land Utilization.—As one surveys the utilization of natural resources from year to year the striking fact emerges that there is a continual shifting of land from one use to another. Some years there is an increase in land used for raising wheat; in other years this area grows smaller, and the difference goes to some other crop or to pasture land, or land goes out of use altogether. To find the causes of this shifting one has to go back to human wants. The wants of individuals are continually changing in quality and quantity. The displacement of horse-drawn vehicles by the automobile is a case in point. These changes in wants produce changes in market demand, which in turn are reflected in price changes, and prices are indicators of the profitable channels of production. Man needs food, clothing, shelter, recreation, and culture; and the earth will be utilized to satisfy these wants. A variety of products can satisfy a given want: silk, cotton, wool, and furs are all used for clothing. Fishing, hunting, golf, tennis, motoring, football, and baseball all satisfy recreational wants and require the use of land to a greater or less extent. Similarly meat, cereals, vegetables satisfy the primary

want of hunger. In what proportion these commodities and services will be used to satisfy wants, depends not only on the need for covering, for recreation, or for food, but also upon such forces as custom, the standard of life, habit, religion, and the purchasing power of the family income. As these determining factors change human wants, the utilization of the earth's surface or of its deposits changes also. The significance of any particular use of land is the contribution it makes to the satisfaction of human wants.

The shifting of land from one use to another especially involves the price system and the principle of proportionality. Prices are a guide to those who utilize land. Rising prices encourage an expansion of business enterprise, which in turn affects the utilization of land. Falling prices discourage an extension of utilization. During the war, for example, the price of wheat was fixed at a level designed to encourage production. This price actually encouraged farmers to expand the wheat area. It has been estimated that the United States increased its wheat production by over 20,000,000 bushels annually. Then prices slumped, showing a disproportionate production. In 1923 wheat prices fell below what was generally acknowledged to be the average cost of production for an average farmer. Many wheat farmers, who had no other source of income, went into bankruptcy and some of their farms will be devoted to another use or will be abandoned.[1]

This over-supply of wheat was due partly to the recovery of foreign wheat-producing areas from the

[1] The Wisconsin Department of Markets, *Market News Letter* of Dec. 2, 1923, quoting from the Secretary of Agriculture of the United States, states that in 1923 "in 15 wheat and corn producing States an average of 8.5 per cent of the farmers lost their farms because of financial troubles and crop failures." In addition, more than 15 per cent were actually bankrupt but were hanging on through leniency of creditors.

ravages of the war and partly to a decline in domestic wheat consumption. These forces worked through the system of market prices, and if their effect had been forecast in time, the utilization of land for wheat might have been somewhat curtailed. Through the knowledge of the cycle of prices the farmer is able to tell roughly how to shift and proportion the uses of his land in order to obtain the highest net income.

Fundamentally, however, each use of natural resources depends on the intensity of the human want back of it. The intensity of that want is recorded with a fair degree of accuracy in the price offered or paid for that use, and this price is the signpost that points the way to the best proportioning of land utilization.

Limitations of Land Utilization.—Some resources of nature are not at all suitable for certain uses. In other words there are limitations to the range of choice of uses open to owners of natural resources. The most graphic way of picturing these limitations is to conceive of all the possible uses of land competing with each other for the land. Viewed from this angle these limitations are of three general types—physical, economic, and social.

(1) *Physical Limitations.*—Consider the arable land of the United States situated in that part which has the best soils and the best climatic and moisture conditions, and which is suitable for the cultivation of the highest types of plants. As one moves to the north from the highly favored areas, crop production is hindered more and more by the shortness of the growing season and the danger from frosts. Man has succeeded in pushing this frontier of utilization farther north by introducing quickly maturing strains of corn and other grains; but ultimately a region is reached where crop growing ceases.

Forests thrive as well as the cultivated crops on the

favored area of arable land, but they cannot compete economically with the cultivated and rapidly maturing plants. Hence trees are removed to make room for agriculture. The original forest area of the United States contained 822,000,000 acres, of which 350,000,000 acres have been cleared for agriculture. Forests can endure winter conditions which crops cannot; hence, as one moves toward the frontier of cold and frosts, forests gradually take the place of crops. Finally, even forests give way to the frozen tundra. The same influence causes crops to be abandoned at an altitude of nine thousand to ten thousand feet in Colorado, while the timber line is not reached till an altitude of ten thousand to twelve thousand feet is attained. Crops also have to be abandoned on land that has been denuded of trees to such an extent that the fertile soil has been washed away by erosion or blown away by winds.

As one moves to the west another frontier is reached where there is not enough moisture to grow crops. Drought-resisting plants and dry farming are pushing this frontier farther away; but ultimately a point is reached where the land must be used for grazing. Grasses will grow with six inches of rainfall. Forest trees, on the other hand, are even more restricted than are crops by their moisture requirements, so that fully 600,000,000 acres (or one-third of the United States) can be used only for pasture (unless there are unforeseen changes in agricultural technique) and will be the grazing area of the future.

Another frontier is that set by topography; stony, steep, or rough ground sharply limits crop production, especially because it limits the use of labor-saving machinery. Some of this land can be used for pasture, but, on the whole, such land, as in the New England hills, is

best suited for forests. Forests should also occupy swampy, sandy regions, and regions of heavy precipitation.

As far as physical conditions are concerned, some land can be used only for pasture and some only for forests, while some could be used for both. However, all crop land could be used also for forests and pastures. Diagram (1) on the following page shows the physical limitations and possibilities of the land utilization of the United States. It shows that there are only 100,000,000 acres that are fitted by nature exclusively for forest production; but there are 300,000,000 acres of "pasture-forest" land, and 700,000,000 acres of "crop-pasture-forest" land that could, if economic conditions justified it, produce timber.

Recapitulating, the greatest physical limitations of the use of land are climate, humidity, topography, and fertility of the soil.

(2) *Economic Limitations.*—Even where physical conditions are favorable, natural resources may be unutilized because of economic limitations. The rate of profit is the first and foremost economic limitation. That use which is not expected to yield an adequate profit will generally be discarded by private individuals. A crop which will not pay for itself with a fair profit is not worth putting into the ground, and the soil should be put to some other use which will pay for itself. By the same token a building which will not pay for itself is not a use to which a city landowner will deliberately devote his lot. Thus, the prospect of losing money, or of not getting a normal return, restrains private individuals. This limitation does not always apply to a public enterprise, where the social advantage of a particular use may overbalance the prospect of financial loss.

Tales have been told of farmers who shipped potatoes

to a customer only to receive later from the consignee a request for money to cover freight charges which were more than the price given the farmer for the whole shipment. Nearness to markets is so important a factor in agricultural land utilization that a general principle may be stated: *Other things being equal, increasing the distance from the market lessens the number and variety of uses competing for land.* It is well known that garden truck is perishable and can be profitably grown only in districts having quick access to markets. The development of motor-truck transportation, of good roads, and of refrigeration for articles transported by railway or by sea, has helped to increase the area which is economically suitable for specialized garden production and even to carry this area to distant territories. Even so, as the observer travels out of urban territory, the types of agriculture change noticeably the farther he goes from the city. This tendency is reflected in a decrease in land values and rents as the distance from a city increases. The table which follows confirms this tendency of decreasing values and shows also an increase in the size of farms. Note also the decrease in the receipts from trucking and the increase of receipts from dairy products with increasing distance.

TABLE III[1]

INFLUENCE OF LOCATION ON AGRICULTURE

Distance (in miles)	Size of farm	Value per acre	Rents	Per cent of receipts from trucking	Per cent of receipts from dairy
8 or less.....	102	$313	$11.85	68	10
9-11	221	110	5.50	35	12
12-14	256	106	5.37	34	20
15 and over.....	257	95	4.66	20	27

The history of American agriculture is full of illustrations of the influence of transportation on types of

[1] *Bulletin 678*, United States Department of Agriculture, "The Influence of a City on Farming," p. 11.

D I A G R A M I

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<tr><td rowspan="2">CROPS, PASTURE, OR
FOREST.

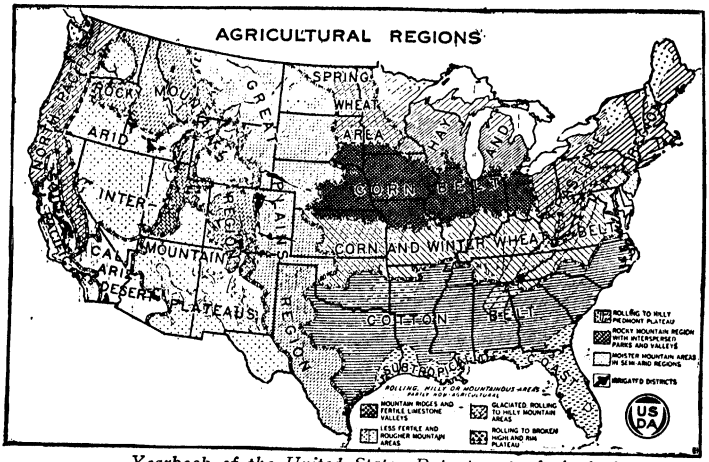
700 MILLION ACRES.</td><td>CROPS OR
PASTURE.

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ACRES.</td><td>PASTURE OR FOREST.

300 MILLION ACRES.</td></tr>
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ESTIMATED PHYSICAL LIMITATIONS AND POSSIBILITIES
OF LAND UTILIZATION IN THE UNITED STATES



Yearbook of the United States Department of Agriculture, 1922

AGRICULTURAL REGIONS

Region	Land Area Acreage	Land in Farms 1920		Improved Land in Farms 1920		Land in Crops 1920	
		Acreage	Per Cent Land Area	Acreage	Per Cent Land Area	Acreage	Per Cent Land Area
Subtropical coast	61,500,000	12,965,000	21.1	5,111,000	8.3	3,728,000	6.1
Cotton belt	275,760,000	176,213,000	63 9	92,250,000	33.5	76,755,000	27.8
Corn and winter wheat region	201,087,000	156,712,000	77.9	99,239,000	49.4	69,438,000	34.7
Corn belt	145,987,000	135,572,000	92.9	113,166,000	77.5	89,668,000	61.4
Hay and pasture region	214,209,000	117,001,000	54.1	68,168,000	31.8	48,365,000	22.6
Spring wheat area	52,516,000	44,489,000	84.5	35,723,000	68.0	29,019,000	55.8
Great Plains region	304,837,000	193,369 000	63.4	52,285,000	17.2	36,006,000	11.8
Rocky Mountain region	146,101,000	24,159,000	16.5	6,930,000	4.7	4,465,000	3.1
Arid Intermountain Plateaus	341,704,000	59 817,000	17.5	15,760,000	4 6	9,226,000	2.7
North Pacific coast	71,766,000	12,219,000	17.0	3 519,000	4.9	2,264,000	3.5
South Pacific coast	38,032,000	22,044,000	57.9	10,246,000	26.9	5 945,000	15.6
Arizona-California desert	49,717,000	1,323,000	2.7	675,000	1.4	552,000	1.1
United States	1,903,215,000	955,884.000	50.2	503,073 000	26.4	375,432,000	19.7

AGRICULTURAL REGIONS

The United States may be divided into two parts, equal in area, the East and the West. The East has a humid climate, the West mostly an arid or semi-arid climate, except the North Pacific coast and the higher mountain altitudes. Each of these two parts has been subdivided into six agricultural regions, characterized by distinct combinations of crops or farming, the result largely of the different climatic conditions, or the dominating influence of topography.

farming. Consider, for instance, what the opening of the Erie Canal meant to the old Northwest and what the railways did toward making Western land available for the farmers. It has been said that the schedules of freight rates have moved Los Angeles, California, to Kansas City. Favorable freight rates for California have tended to equalize the expenses of producing in California and Missouri, so that producers in each locality compete on equal terms in Eastern markets. There is no better illustration of the influence of transportation cost on the type of land utilization. After all, from an economic point of view, distance is a matter of time and cost of transportation.

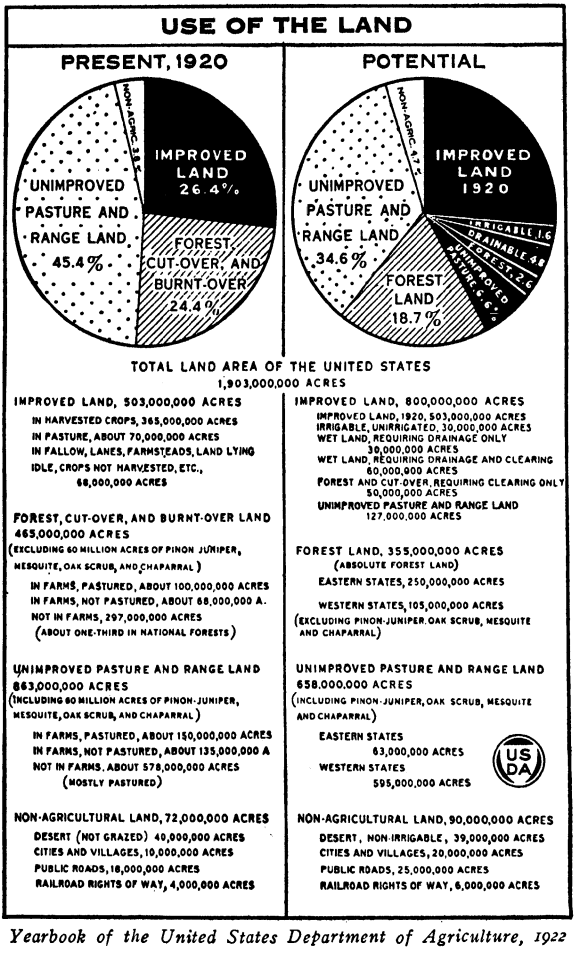
(3) *Social Limitations.*—Another limitation on land utilization is occasioned by mere numbers of people. Where population is most dense, land has to be used very intensively in order to make the area, limited physically and economically, furnish the immense amount of services demanded. In the case of cities this means an office building or store instead of a residence; in the case of agricultural land this means garden truck instead of corn, wheat, or stock-raising. In other words, there is a principle involved; namely, *that high value uses of land tend to crowd out the low value uses of land.* The high value use is that use which brings in a large income from a relatively small area. This is expressed in the values attached to land. An acre of land in the heart of a city may be worth thousands of dollars, whereas an acre of agricultural land is worth only tens or hundreds of dollars. In order to make the city acre a paying investment, it must be utilized in such a way that a large income will be forthcoming. Compare, for example, the income from an acre of city land devoted to an office building with the income from an acre of agricultural land sowed in

wheat. So, even though the fertility of the city acre is of the highest, its use is restricted to an intense urban use by reason of its location amid a dense population which boosts the value of the land.

Habits or customs of production and consumption are also influential factors in determining and limiting the utilization of land. The effect of habits of production is seen in the case of immigrants in America who have settled on agricultural land. They tend to grow the crops to which they were accustomed in Europe. The dairy industry in Wisconsin owes its origin in part to this cause. In this case the climate and economic conditions were right for this type of agriculture, but in other instances immigrants introduced grapes, fruits, and crops that could not survive. Even among old settlers of native stock, the type of crops to which they are accustomed by long usage is very difficult to change, although in many cases agricultural experiments have shown that change would yield greater profits. Habits of consumption, although indirect in their effects upon land utilization, are also influential factors. This is seen most clearly where the standard of living of the immigrant is much lower than the American standard. It is also seen, to a lesser extent perhaps, in the case of those foreigners who habitually eat less meat than the average native American. The effect of reduced consumption of meat is transmitted to the ranching industry.

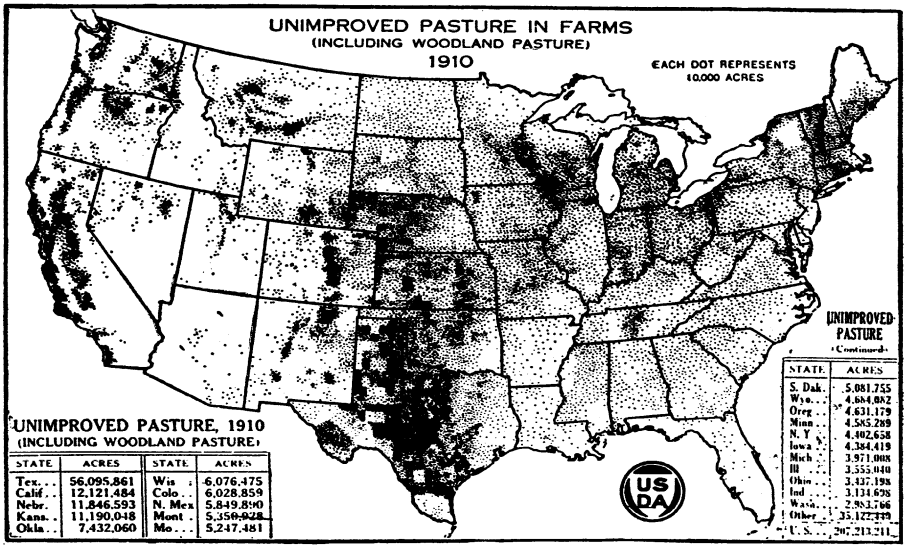
The Present Utilization of Land.—The map on the following pages shows the unimproved pasture in farms in the United States, and Diagram II shows the size of the different use areas.[1] The analysis and interpretation of the figures are illuminating. Of the total land area of

[1] Maps and diagrams from "A Graphic Summary of American Agriculture," by O. E. Baker, *Yearbook of the United States Department of Agriculture*, 1921.



Yearbook of the United States Department of Agriculture, 1922

It is possible to increase the area of improved land about 300 million acres, or 60 per cent, by irrigation, drainage, clearing, and dry farming. But until farm products are higher in price most of this reclamation work would not prove profitable. On the other hand, although there are about 355 million acres of humid land so hilly or sterile as to be fit only for forests, the price of lumber will probably warrant the additional use permanently of 100 million acres of poor potentially arable land for forest instead of crops. In other words, the present forest and cut-over area is not likely to decrease greatly.



Yearbook of the United States Department of Agriculture, 1922

UNIMPROVED PASTURE IN FARMS

This map shows the location of forest and woodland in farms that was pastured in 1909, amounting to 98 million acres, and that of "other unimproved land" used for pasture, which amounted to about 109 million acres. In the States from Minnesota to Texas and eastward, especially in the South, forest and woodland pasture is much the larger item; but in the Great Plains Region and westward "other unimproved pasture," which consists almost wholly of native grasses and herbs, is the more important. In addition to the unimproved pasture in farms in the West, there is a vast acreage of similar land not in farms, the aggregate of unimproved pasture and range in the West being about 800 million acres.

the United States (1,903,000,000 acres) almost half (863,000,000 acres) is unimproved pasture and range land. When there is added to the range land the pasturage to be found on farms as improved pasture and the forest and cut-over lands used for grazing, more than one-half of the land area of the country is used for grazing. Forests and cut-over lands occupy 465,000,000 acres, and improved land 503,000,000 acres.

Another classification of the land can be made on the basis of land in farms and land not in farms. About half the total land area of the United States is in farms. Curiously enough, about the same proportion holds for Great Britain. The utilization of the land in farms is shown in Dr. Baker's figures accompanying Diagram II. Naturally, all improved land falls into this category of land in farms. Besides the improved land, 36 per cent of all the forest land and one-third of all the range and unimproved pasture land are already in farms.

Only 72,000,000 acres are not included in the uses enumerated so far; part of this area is in cities, roads, and highways, and 40,000,000 acres are absolute desert.

The Potential Utilization of Land.—The second part of the diagram is a forecast of the potential use of the land of the United States. Improved land is expected to increase until it reaches a total of 800,000,000 acres. Forest and pasture land will be drawn upon to furnish a part of this land. Irrigation, dry farming, and drainage will make still other lands available for agriculture. The fact that much of the potential area for cultivation is already in farms is important. It means that the tillable area can be enlarged without encroaching upon forest or range land now not in farms, or in other words without increasing the farm land area. Even though the per capita consumption of forest products should be mate-

rially reduced, our growing population will demand such large quantities of timber, fuel, and other wood products, that the area needed for forests is not likely to decrease very much. On the other hand, we can expect a constant increase in the area devoted to urban utilization, to highways, and to railways.

The Trend in Land Utilization.—In considering the astounding growth of population in the United States, one's first reaction is to wonder whether our land supply, expressed in the number of farms, acres in farms, or in *improved acres* is growing at a corresponding rate. We fear a shortage of land, forgetting that area is only one of the characteristics of land and that the power of land to produce or render services is to a large extent independent of area. Dealers in land who neglect this phase of land economics are likely to make wrong forecasts respecting the future demand for land. In many ways the above principle applies to urban as well as to agricultural land.

A brief survey of the changes in land utilization as revealed by the Census of 1920 will make this clear. Because of the World War and its economic effects, the 1910 to 1920 decade is not representative or normal, but in this case it emphasizes the situation we are discussing. It was a time when food was in great demand. Moreover, food was in the consciousness of the American people as never before, and the agricultural collapse had not made itself felt at the time the Census was taken.

Keeping in mind this extraordinary demand for subsistance, we would ordinarily expect an increase in the area of cultivated farm land. Nevertheless, every State east of the Mississippi, with the exception of Wisconsin, Michigan, and Florida, showed a decline in the amount of land in farms. Part of this decline was caused by the

encroachment on farm land by cities, highways, land purchased for summer homes, and land used for mineral and oil developments. Some farms were abandoned because of a labor shortage and other temporary causes. Of a more permanent nature and more significant was the noticeable reversion of farm land to forest and brush all over the East. It is estimated that the million acres of cut-over lands cleared annually just about offset the area of abandoned farm lands that revert to forests every year.[1]

The land in farms for the whole country increased by 8.8 per cent during the decade. The area lost in the East was compensated for by the increase in farms in the semi-arid States where farms are necessarily large, but where the amount of improved land per farm is very small.

Improved land is of more importance than *land in farms.* Improved land, according to the United States Census, includes "all land regularly tilled or mowed, land in pasture which has been cleared or tilled, land lying fallow, land in gardens, orchards, vineyards, and nurseries, and land occupied by farm buildings."[2] The acreage of improved land increased by 5.1 per cent over 1910, largely in the Lake States and the Southern States where clearing and reclamation are in progress and where new farms were added. It is again noteworthy that the improved land area of the Corn Belt and of practically all the East declined in the ten years preceding 1920.

Woodland in farms in general declined in importance; it increased only in those States where new farms are being created.

Besides giving the acreage of the improved land and

[1] W. B. Greeley, and others, "Timber: Mine or Crop?" *Yearbook of the United States Department of Agriculture,* 1922, p. 88.

[2] *Fourteenth Census of the United States,* 1920, Vol. VI, Pt. 2, p. 14.

woodland, the Census presents figures on *unimproved* land—the lowest form of utilization. As the farmer brings his farm into a higher and better utilization, the area of this class of land ought to decrease, as will, no doubt, also the area in woodland. But in only ten States of the Union was there a decline in the area of unimproved land in farms. It naturally increases wherever there is an increase in new farms, and a large share of the increase was in the West. In some of the Eastern States the decline in unimproved land in farms was a part of the general movement in the direction of abandoning farms altogether. It is of the greatest significance that in the twelve States where there was a decline in farm acreage there was an increase in this, the lowest form of land use. For the nation as a whole, unimproved land in farms increased 36 per cent from 1910 to 1920.

In spite of all these changes there was no decrease in production; in fact, the country is suffering from lack of a proper balance between agricultural products and other products right now. More significant than the changes indicated so far is the fact that *crop acreage* had increased everywhere in the United States. Improved pasture and fallow land were plowed up and put into crops. In other words, farmers have made more intensive use of their better lands and a much less intensive use of the poorer soils. Since the War much of the land has gone back to its former utilization.

The significant fact to be noted here is that production can be increased without increasing the land in farms. We can draw upon unimproved land and woodland already in farms to increase the improved land area without adding greatly to the overhead expense, or we can use the improved area to better advantage.

At present the land market is overstocked. Until very recently there was hardly a State which was not pursuing a policy of stimulating immigration and of advertising, at the expense of its taxpayers, the State's agricultural lands. In addition there is a multiplicity of advertising by railway companies, chambers of commerce, land dealers, and other private concerns that are trying to induce settlers to take up idle lands everywhere. It is estimated that there are a million acres of newly drained land, reclaimed land, and irrigated land prematurely ready for the plow, to say nothing of the steadily increasing areas of cut-over land.

Methods of Increasing the Economic Land Supply.—In general there are four ways of augmenting the supply of land produce: (1) New areas of natural resources can be brought into use. This method is called an extension of land utilization. (2) Additional labor and capital can be applied to the area now in use, which method is called intensifying land utilization. (3) Certain obstacles to the full use of the present area can be removed by more efficient planning. This method may be called economizing land utilization. (4) Finally, there is the negative method of controlling consumption so that people will want what the earth can most easily produce.[1]

(1) There are four great areas of undeveloped natural resources in the world—the tropics, the temperate zone outside the range of present transportation, the arctic, and the sea. The tropics, including about half of the land surface of the earth, are rich in undeveloped resources. That the tropics are capable of supporting large

[1] For a discussion of methods of increasing the economic land supply by better consumption, see the various works of the late Professor Simon N. Patten, especially *The Consumption of Wealth*, Publications of the University of Pennsylvania, 1889, and the first essay in *Essays in Economic Theory*, Knopf, 1924.

populations is shown by Porto Rico, which has 300 people per square mile; Cuba, with only 3 per cent of its land under cultivation, which supports a population of almost three millions; and Java, a little larger than Louisiana, which supports 33 millions of people. The white races, it is true, find it difficult to withstand the tropical climate and diseases. However, this need not prevent the development of tropical resources by black, brown, or yellow races in coöperation with the white.

Within the temperate zones there are large areas awaiting development. Above all, two requirements must be met before these resources will be utilized profitably. The first requirement is higher prices of minerals and food. Most of these undeveloped lands require drainage, irrigation, or clearing before they can be made productive. The expense of drainage or irrigation is so great that prices of land products must be higher before the incomes from using the larger proportion of such land will offset the expenses.

Transport facilities are the second requirement. In western Canada, thirty miles is the practical hauling limit for the farmers' horses and wagons, but beyond that limit is land of very great fertility. Another striking example is the Siberian Railway which makes possible an agricultural strip across Asia some fifty to one hundred miles in width. The rest of the land is commercially non-existent, though much of it is physically rich. When the prices of minerals and food are high enough to repay the development of transport facilities, these undeveloped resources will repay utilization.

Another region of great food possibilities seems to be the arctic. Instead of a region of "icy mountains" and frozen wastes, a recent explorer tells us that there is a great deal of vegetation serving as food for enormous

herds of reindeer. These and other arctic animals, he claims, will be a great food resource in the future.[1]

The use of fish as a food product has great opportunities of development. The sea is scarcely touched, in comparison with its available food resources. The work of the United States Fish Commission and the fish hatcheries maintained by various States are steps in the direction of increasing the supply of sea food, of cultivating an appreciation of new varieties of fish and other kinds of sea food, and of devising new methods of catching such food.

(2) A second source of more abundant supplies is a better utilization of the resources now in use. It is estimated that if the average yield of our staple crops were raised to a standard attainable without violent changes in the forces involved, the present crops might be grown on 205 million acres instead of the 299 million acres now required. This necessitates growing crops in soils especially adapted to them, and requires more rotation, better tillage, and proper fertilization. There is tremendous waste of resources, both agricultural, mineral, and urban. Not only can agricultural production be increased on the same area in ways indicated above, but the extraction of minerals can be made more efficient by proper machinery and care in conservation. Within the urban areas a great deal of land goes unused because the owners are waiting for the cities to grow sufficiently to create a demand for their land. Much of this idle land can be used for gardens as was done during the World War when it was estimated that food products valued at $525,000,000 were added to the normal production. These are only a few illustrations among many which point the way for a more intensive utilization of resources now tapped. But it can

[1] Vilhjalmur Stefansson, *The Friendly Arctic*, Macmillan, 1921.

be laid down as a general rule that much of the *land now unused within the farm will be put under cultivation, and the cultivation of used parts will be intensified, as soon as the values of farm products rise sufficiently to justify the additional expenses.* The same rule applies to the products of mineral lands and to the services of urban land.

(3) Closely related to the better utilization of existing area is the removal of obstacles to the full use of that area. Chief among these obstacles is transportation. Some productive resources have inadequate transportation connections with markets. In other instances such high freight rates prevail that full utilization is unprofitable, and hence lands not so well suited for production but better supplied with transport facilities are used. Connected with the question of transport is that of the proper distribution of food products. Production of an article of food is not complete until it is on the consumer's table, and any circumstances that delay, waste, or destroy the product in its path to the consumer have the same effect as a reduction of the amount of land used for producing that article. Delays of transportation, lack of refrigerator cars for perishable products, lack of market information on the part of the growers are all defects in the marketing system which contribute to the inefficient distribution of food.

There are also social obstacles to the full utilization of land. Turkey and the Balkans have large potentialities for land utilization that will be realized with the establishment of law and order. Even in America thefts of fruit, vegetables, and fowls near cities have deterred many farmers and dwellers on the outskirts of the city from using their land to the fullest extent. Ignorance and bad custom, too, are obstacles

which are gradually being overcome. The improvement in agricultural technique has been made available by the work of scientists, experiment stations, and agricultural colleges. Soil chemists, inventors of machinery, and economists have also brought to light many ways of increasing production or reducing the cost of producing in the areas now used. To some extent these new ideas are being spread among producers, but in far too many cases these ideas run up against the stone wall of custom. A surprising number of people cling to the unprogressive philosophy that "what was good enough for my father and my grandfather is good enough for me."

(4) Last of all, natural resources can be increased by adjusting human consumption to what the earth can best produce. The scientific study of nutrition in our schools of domestic science is noteworthy in this connection. The emphasis on a balanced ration, on the food value of certain products, and on experiments with new and cheaper foods is a step in this direction. Habits and customs and the desire for social prestige are great obstacles to development in this field. The persistent hammering of education does much to counteract these obstacles, and the use of the State's power of taxation can do a great deal more to control consumption and to direct it into channels which will virtually increase the natural resources available for a growing population.

The Problem of Idle Land.—The great unused land resources of the United States present a difficult problem of utilization for the future. Also, there is the problem of finding the most desirable use for land now in unprofitable operation. The land of the United States is not all in 100 per cent efficient use. Some of the agricultural land of the East is reverting to brush and forests, its proper use. Also some drained, reclaimed, and irri-

gated land will be in enforced idleness until conditions are such that men can profitably use it.

But the bulk of idle land is the cut-over land. Commercial lumbering is setting such a pace that this area is increasing by 5,000,000 acres annually, or 16,600 acres a day. Some of these lands are potentially rich, but their settlement proceeds at a comparatively slow rate. According to the best available judgment, agriculture is already faced with a period of over-production. At the same time every observer has noted the approaching famine of timber and forest products. The immediate problem, which looks so simple but which is seemingly impossible to carry out, is the reforestation of all lands especially suitable for forests and unsuitable for higher utilization and the temporary reforestation of such lands as are not ready for agricultural purposes. Cut-over lands are of various grades; some are of excellent soil and ready for agricultural purposes as soon as cleared. Others will not justify clearing, draining, and the "removal of obstructions" until higher prices of agricultural crops warrant such expenditures. The exactly proper proportioning of utilization depends upon the relative profitableness of forest products as contrasted with agricultural products.

The Problem of Recreational Land.—An increasing demand for land for recreational purposes has come about through the growth of cities, the development of the automobile, and the establishment of higher standards of living. Meeting this demand is a possible solution for the problem of utilizing large stretches of land now idle or unprofitably used. To some extent this is going on at the present time.

Many of the abandoned farms of New England, partly forested in second growth, have been bought for summer

homes. Throughout New England, in fact, there is a tendency to make over the idle land or the misused land into a recreational center. Public forest lands, too, are more and more used for recreational purposes. It is proposed to make a Federal game preserve out of the Horicon Marsh in Wisconsin, a tract of 50,000 acres which so far has defied all efforts to reclaim it. A contrary tendency is observed in the drainage of the Kankakee River marshes a few years ago. These marshes were once good hunting land, but are now producing only inferior crops. Here is one example of the misuse of land.

The need, however, is for public, rather than private, recreational land. The city hunters and other recreationists, invading the country in their automobiles, are anathema to the farmers, because some of these people display an utter disregard for property and for the beauty of the countryside, forcing country people to insist more strenuously on their property rights. Public recreational land, however, can be controlled and regulated in the interest of the public welfare. National, State, and city parks are examples of this movement.

In cities the demand for recreational land is equally insistent. Many municipal golf courses, tennis courts, and outing parks have been established, and most, if not all, are crowded. Public recreational land brings within reach of the people of small incomes the satisfaction of the play instinct and of the desire for outdoor life.

Land Utilization and Public Policy.—It is apparent that a better proportioning of land among its various uses is a real problem of the future. An economic solution of the problem would not only increase the values of real property, and open up more profitable uses for individual owners, but, also, it would help to achieve those social ends which justify a particular use of land.

Summary

Land shifts from one use to another in response to changes in human wants that are revealed by price changes. These price changes bring about the proper proportioning of land uses. The utilization of land is, however, subject to certain limitations: (1) physical limitations, resulting chiefly from temperature, rainfall, topography and fertility; (2) economic limitations, resulting from differences in the rates of profit from the various uses of land, and from differences in transportation costs; (3) social limitations, resulting from density of population, and from habits or customs of production and consumption. Maps and diagrams showing the present utilization of land and its potential utilization indicate the possible shifts in utilization that may be made in order to secure increased production when this is needed. The economic land supply can be increased in four ways: (1) by bringing into use areas previously unused—chiefly in the tropics, in the areas of the temperate zone outside the range of present transportation, in the arctic zones, and in the sea; (2) by applying additional capital and labor to land already in use; (3) by removing obstacles to the full use of the area utilized at present; (4) by controlling consumption so that people will demand the products that the land can best produce. The choice of a use for land that is now idle is an immediate problem; a solution in some cases is the use of this land for recreation purposes, especially for public recreation. The better proportioning of land among its uses is an economic problem the solution of which is important for both individual and social welfare.

CHAPTER VI

URBAN LAND UTILIZATION

THE average city dweller is inclined to be oblivious to the land problems at his elbow, until, perhaps, he seeks parking room for his automobile in order to join the pedestrian traffic on a shopping trip. Then the discouraging attempt to find parking space, and later to find walking space, convinces the city man that the most acute land problem is that of providing standing room for a city population. This conviction is partly correct, but only partly, because the supporting of a city population from the products of agricultural, forest, and mineral lands is an equally important probem. Urban land economics is a subject *in* itself, but not *by* itself, for the problems of utilizing urban land cannot be divorced wholly from the problems of utilizing other kinds of land.

Strangely enough, the economics of urban land has been relatively neglected by writers on land problems, due, no doubt, to the tendency to put the different kinds of land into one class and treat agricultural land as typical of the class. If we were to judge the importance of urban land merely from the treatment it received from writers on economics, it would have a minor place in land economics, which would be out of proportion to the real place of urban land in the modern world.

Importance of Urban Land in Modern Civilization.— How many of us consider the effect of shifting the centers of living from the country to the cities? When

city inhabitants point proudly to the latest population records of their city, and when chambers of commerce encourage further growth by glowing accounts of each city's future, do they realize how the difficulties of finding standing room are piling up? Already the United States has concentrated 54,000,000 people on 10,000,000 acres. In other words, over half the population is crowded on to a one-hundred-ninetieth part of the total land area. What does this mean?

For one thing it means that the United States is no longer a nation predominantly rural in character. The town has surpassed the country in population, as is seen in the following table, and its influence in the community life is correspondingly greater:

TABLE IV[1]

COMPARATIVE URBAN AND RURAL POPULATION, BY DECADES, 1880-1920

Year	Urban population	Rural population	Percentage of total population which is urban	rural
1880.....	14,358,167	35,797,616	28.6	71.4
1890.....	22,298,359	40,649,355	35.4	64.6
1900.....	30,380,433	45,614,142	40.0	60.0
1910.....	42,166,120	49,806,146	45.8	54.2
1920.....	54,304,603	51,406,017	51.4	48.6

For another thing it means that immense property values are concentrated in cities. It has long been a rough-and-ready rule of land valuation, not always accurate, to be sure, that the highest value will be found where population is most dense. In the United States almost half of the total wealth is in the form of city and farm real estate. The value of city real estate is estimated at $84,000,000,000 and of farm real estate,

[1] Fourteenth Census of the United States, 1920, Vol. I, p. 43. All incorporated places (and all towns in Massachusetts, Rhode Island, and New Hampshire) having 2,500 inhabitants or more are treated as urban and the remainder of the country as rural.

$60,000,000,000, the total wealth of all kinds being $294,000,000,000.[1]

Furthermore, cities are manufacturing centers. Since an increasing proportion of the total effort of the community is spent in manufacturing, the surplus population of the rural districts is drawn into the city's labor supply. At the same time cities are the centers of financial, commercial, and residential life.

Relation of Urban Land to Agricultural Land.—The greater population of the town compared with the country accentuates also the dependence of the city population upon the produce of agricultural, forest, and mineral land. This dependence has two aspects. First, the town is the market for the rural districts. Cities are not self-sufficing; they cannot raise their own food, grow their own timber, or extract their own minerals. This is the farmer's opportunity. He finds a gradually expanding market for his produce among city folk. Second, the town's dependence on the country for food and raw materials makes more important the distribution of commodities and the factor of transportation in that distribution. Cut off any fairly large city from communication with the country and within surprisingly few days a shortage of food accompanied by real physical distress appears. Snow-bound New York City knows this only too well. The tendency of farm land values to increase as one approaches a city reflects the importance of transportation. The nearer a farmer is to the market, the less will be his transportation cost and the greater will be his chances, other things being equal, of making his farm profitable. Land values are, cursorily considered, capitalized profitableness. Naturally, then, an increase in the profitable-

[1] W. T. King, "Net Volume of Saving in the United States," *Journal of the American Statistical Association*, Sept., 1922, p. 322.

ness of using certain land through decreased transportation cost, results in rising values of that land and perhaps a fall in the values of other land.

Geographically, as well as economically, urban land depends on agricultural land. The urban land area is extended by taking a slice from the agricultural area. As population becomes more concentrated and cities grow, the demand for land increases. This increased demand may be met in two ways, by extending the urban area or by putting up taller buildings on the same area. A developing town will first extend its area outward from the center into the agricultural area. At the same time land in the center of town becomes more advantageous commercially and hence more valuable. A newcomer at this stage of development has the choice of paying a high price for land near the center or paying a lower price and suffering the inconvenience of distance. There comes a time when distance is less inconvenient than a high price, and then the town pushes its lines still farther into the agricultural area. In successive waves of development agricultural land emerges into urban uses and the center of the town is built up with taller structures. Agricultural land is the potential supply of urban land.

Though complementary in one sense, in another aspect agricultural and urban uses are competing. In general, land which is suitable for urban use is not altogether desirable for agriculture. There are, of course, exceptions to this statement. Land on which buildings are erected is usually fertile enough to produce crops, but the demand of other uses pushes the price so high that agriculture becomes unprofitable. Quite often one will find within city limits land planted in garden vegetables, but this can hardly be called a strictly agricultural use unless the produce is sold commercially for profit. Occasionally

one will see truck gardens within a city; but in most, if not every case, these are long-established garden farms around which the city has grown. Again, there are cases in which land that has been broken up into city lots in anticipation of the needs of the community has gone back to agricultural use when the expected growth was not realized. By and large it is true that agricultural and urban uses are competing, for the reason that the high prices which urban land will command make the costs of agriculture too great for such a use to be profitable.

Peculiarities of Urban Land.—The first and foremost peculiarity of urban land is the overwhelming importance of location. The business man realizes this when he seeks office space in the business district. To be sure, location is one of the elements in determining the value of agricultural land, but it is not an element of the first rank as it is in the case of urban land. Sometimes two or three miles in one direction or the other make comparatively little difference in the value of agricultural land; whereas a few hundred feet in the case of urban land may make a difference of $500 a front foot. Location, in fact, is the key to urban rents and to urban land values. The corner lot may have twice as many people passing it as the lot in the center of the block, hence there are twice as many possible customers for the corner store as there are for the one in the center. The value relationship between lots in the center of a block and corner lots has been worked out in several percentage tables. According to the Cleveland table, for example, if locations on the side street are equally valuable with those on the main street a corner lot is worth 72 per cent more than an inside lot on the main street.

Advantages of location are reflected in high values

attached to urban land. Recently it was reported that a large downtown hotel in Chicago had acquired a lot 99x90 feet adjoining its present site on a ninety-nine-year lease. The total rental will be $6,216,000, at an average of $62,787 per year. Capitalized on a 5 per cent basis the leasing value of this lot is $1,255,757, or $12,557 a front foot.[1] A front foot of this land in the heart of the "loop district" is worth 60 acres of average Iowa farm land.

The first consequence of these high values is that a highly intensive use of land is made necessary. The ground acquired by the Chicago hotel could not possibly yield a profit if used for agricultural, or even for residential or factory, purposes. A large gross income is necessary to overcome high expenses, and such large incomes are forthcoming only from concentrated uses such as office buildings, stores, or hotels.

Secondly, area is much less of a limiting factor in the management of urban land than it is in agricultural land. As a farm increases in size it becomes more difficult to manage efficiently. Eventually a point is reached where the great area of the farm is a limiting factor to its management. This tendency is not found in the case of urban land, because comparatively small areas represent large money investments. It is easier, for example, to manage property valued at $100,000,000 in New York City than it would be to manage property in agricultural land valued at $1,000,000. This is quite obviously due to the fact that a given amount of money acquires a much smaller and hence more manageable area of urban land than of agricultural land.

A third peculiarity of urban land is its dependence on

[1] *Chicago Tribune*, Oct. 10, 1923.

transportation, which not only causes but also relieves congestion of people. The backbone of New York is a line of sky-scraping buildings which follow the course of the first subway. It is even said that a subway will not be built unless it feeds a multiple dwelling district. As soon as it is built, taller buildings become profitable. Here is a vicious circle, the result of which, when uncontrolled, is seen in the financial district of New York City, where the closing hours of various firms have to be put at different times in order to avoid the crowding of narrow streets by the thousands of people pouring forth at the close of the day's work. Studies of the values of city lots show that distance of three or four blocks from a car or bus line is a vital factor; the same distance from a car or motor transport line in the country is of comparatively little importance.

A fourth peculiarity of urban land is the fixity of urban land utilization. A modern office building lasts from forty to sixty years, during which time any change from the existing utilization of the site which would destroy the usefulness of the building would be so expensive as to be impracticable. It is of course easier and less expensive to change from a residential to a commercial use, yet even so, one often sees old, well-constructed houses, having still a good many years of usefulness as residences, that persist despite the change of the neighborhood all around them. On the other hand the farmer may change his utilization in two or three years, provided, of course, that the soil is suitable for the new use and that the farmer can finance the scrapping of old machinery and the purchase of machinery suitable for the new purpose.

A fifth peculiarity is the ease with which the value of

improvements can be separated from the value of the land itself. In the case of a farm the value of the buildings, fences, and such improvements are included in the value of the farm. Also fertilizer and other chemicals added to the soil become so merged with it as to be inseparable. Without them it is not a farm, but raw land. In the city, however, the values of the buildings and of the ground are often stated separately. This makes it easier to isolate the effect of a particular tax, as will be seen in the chapter on taxation.[1]

Selection of the Urban Site.—The selection of the urban site is the first act tending to separate urban land from other uses. A rapid survey of the history of cities will throw light on the reasons why men located cities where they are, and these reasons in turn have a bearing upon present real estate practice.

In very early times protection was the dominant motive in locating cities. Where groups of men thought they could best protect themselves from wild beasts or enemy tribes, a town or city was established. Coming down the years to the earliest times when we have actual records, it is found that cities arise around the palaces of kings and the temples of gods. Undoubtedly protection was a leading motive, but there were other reasons. The temples of the gods were centers of religious life, and the palaces of kings were the centers of social, political, and economic life.

In the days of early Greece, cities were collections of merchants who formed communities wherever the advantages of commerce could be obtained most easily. Such commercial cities were located on the shores of good harbors or at junction points of the caravan routes going

[1] *Post*, Chap. XV, p. 322.

inland. As the religious and political motives declined, the commercial motive forged ahead, although the motive of protection still remained an important factor. Other cities in this period were located in centers of agricultural production and may be called agricultural cities to contrast them with the commercial cities. Colonization, too, was responsible for many cities. The medieval towns also were commercial and protective in their origin.

American cities have no long historical past like that of European cities. Consequently the motives influencing the choice of their sites are not mixed with traditions. There are two sets of forces in addition to those named which have caused most of the urban cities to be where they now are. These forces may be termed (1) commercial, and (2) industrial. In the earlier days of the United States the commercial forces were largely operative, as they were in the Grecian period. Cities were established at strategic points on the natural routes of travel or traffic—that is, along streams, at old army posts, and at junction points between two lines of traffic. When the railways came, cities were established at important points along the road. Chicago, Detroit, Cincinnati, and St. Louis were in line with these routes of travel even before the advent of railways.

The later growth of American cities has been largely due to industrial factors. Gary, Indiana, is a good example of this influence. The site was picked out by steel manufacturers because it was near the source of raw materials, the iron of Michigan and Minnesota and the coal of Ohio, Indiana, and Illinois. The city was built up by the manufacturers. Apparently there is a growing tendency for manufacturers to move out of the larger

cities into villages or small towns, which, thus encouraged, grow to city size. This was particularly noticeable in the case of the men's ready-made clothing factories in New York City after a long six months' strike by the union. They moved to the small hamlets of New Jersey or up the Hudson River, in order to avoid labor difficulties. Labor may be scarce, or it may be high-priced, or highly unionized and militant; all these influences tend to push the manufacturer out of the city. High prices for land and high local taxes also tend to force the migration of industries to villages which may ultimately grow into cities. These are but two examples among many that might be cited to show the influence of industrial factors in the selection of urban sites and in the growth of cities.

In addition to the commercial and industrial motives, there are other inducements to founding cities, such as political reasons. Since the United States extended itself from coast to coast, protection has become less important, and commerce, industry, agriculture, and politics have become more important influences.

Urban Growth As Affected by Manufacturing.—Since manufacturing is the major influence in the growth of modern American cities, it will not be amiss to indicate several characteristics of cities which attract manufacturing enterprises. These are: (1) the possibility of assembling materials at a low cost; (2) the availability of a large supply of labor; (3) the possibility of obtaining power at reasonable cost; (4) an elastic supply of credit to tide the concern over seasonal as well as permanent needs; (5) fair cost of land and reasonable taxes; (6) good transport facilities for the distribution of products. These factors influence not only the selection of the general district, as, for example, the New England States or the Middle Western States, but also the selec-

tion of the particular factory site within any given city. Good and cheap transportation is on the whole the most desirable quality, but low cost of land and low taxes are becoming increasingly important, as is shown by the growing tendency to locate new factories just outside the large cities or in the small towns.

It has also been noticed that cities tend to specialize in certain lines of manufacturing for various reasons. For instance, tradition or early start is responsible for the textile centers of New England; special labor conditions caused the silk centers of New Jersey and Pennsylvania to be where they are; nearness of raw materials influenced the location of packing centers in the middle West; easy access to a large consuming population, including facilities for export, accounts for the industrial character of Eastern cities generally. All these reasons help the growth of the modern industrial city of America.

Classification of Urban Land.—A classification of urban land is essential to the planning of its utilization. Classification, in fact, is the core of zoning laws; and the private owner or real estate dealer makes his plans within the limits laid down in those ordinances. Similarly classification underlies the buying and selling functions of the dealer. The general public is apt to think only of three classes of land, commercial, manufacturing, and residential, overlooking the public utilization of land and the water area within city limits. A suggested classification which is more comprehensive than those used by city planning officials is here presented:

I. Utilized area.
  1. Land area.
    a. Public utilization.
      (1) Recreation.
      (2) Transportation.
      (3) Municipal utilities.

b. Quasi-public utilization, *i.e.*, schools, churches, privately owned street railways, hospitals, etc.
c. Private utilization.
(1) Commerce.
(a) Wholesale district.
(b) Retail district.
(2) Manufacturing.
(a) Heavy industries.
(b) Light industries.
(3) Residence.
(a) Single-family dwellings.
(b) Duplex dwellings.
(c) Apartments.
(d) Apartment hotels.
(e) Flats.

2. Water area.
a. Public utilization—parks, harbors, etc.
b. Private utilization—water power.

II. Unutilized area.
1. Publicly owned.
2. Privately owned.

Other classifications are sometimes useful. Very often land is spoken of as being urban and suburban (or subdivision) land. This classification, however, is especially suitable only for the larger cities, and it includes a further subclassification of the distinctly urban area. Often, too, land is mentioned as being in the automobile district, the theater district, or the financial district. Such a classification has its use in an economic analysis, and may be added, if needed, as a subclassification of the commercial area.

Distribution of Urban Area Among Different Uses.—Comparatively few cities are aware of the facts that would be brought out by a survey of their urban land resources. This singular lack of curiosity among public officials and private citizens about the ways in which their community uses its area can be explained only by a failure to appreciate the significance of such a survey. With

the advent of zoning ordinances and city planning the importance of such surveys was recognized more than before. Even now, however, the basic facts in the utilization of urban land have been gathered in only few instances, although most of the larger cities have been planned or zoned. Very few of the seventy largest cities, for example, are able to report in any detail the amount of unutilized land to the Institute for Research in Land Economics and Public Utilities which recently sent out a questionnaire on urban land utilization.

The results of surveys in Minneapolis, San Francisco, and Portland, Oregon, are given below, more as an indication of what needs to be done before zoning and planning the city than as a general statement of urban utilization.

TABLE V

URBAN LAND UTILIZATION IN SAN FRANCISCO, 1922[1]

Class	Area in acres	Percent of total area
Total land area	27,000	100.00
Publicly utilized	9,470	35.07
Streets and alleys	6,020	22.29
Parks	1,660	6.15
Other publicly used	1,790	6.63
Privately utilized and owned	17,530	64.93
Unimproved	7,200	26.67
Improved	10,330	38.26
Residential	3,830	32.70
Commercial	900	3.33
Industrial	600	2.23

This table does not show the urban water area, which in some cases is of great importance.

[1] Returns from questionnaire sent out by the *Institute for Research in Land Economics and Public Utilities.*

TABLE VI

URBAN LAND UTILIZATION IN PORTLAND, ORE., 1923 [1]

Class	Area in acres	Total acres	Percent of total area
Total city area		42,617.60	**100.00**
Land area	40,441.60		94.9
Water area	2,176.00		5.1
Publicly utilized land area		10,166.94	**23.80**
Streets and alleys	8,400.84		19.71
Parks	1,119.81		2.60
Water department	164.75		.386
City of Portland	20.14		.047
County of Multnomah	5.73		.013
Public docks	189.00		.443
Public schools	266.67		.625
Privately utilized land		32,450.66	**76.1**
Unimproved	9,735.20		22.8
Improved	22,715.46		53.3
Residential	17,036.60		40.0
Commercial	2,271.54		5.3
Industrial	3,407.32		8.0

The city planning commission of Minneapolis, Minn., reports the city area is proportioned as follows:

TABLE VII

URBAN LAND UTILIZATION IN MINNEAPOLIS, MINN., 1923 [2]

Class	Area in acres Class	Area in acres Total	Percent of total area
Total area		34,106	**100.00**
Publicly utilized land		10,995	**37.3**
Schools	368		1.1
Parks	3,715		10.9
Streets and alleys	6,912		20.3
Privately utilized land		15,314	**45.9**
Residential	12,395		36.2
Single family	11,593		33.9
Duplex	524		1.5
4-flats	151		0.43
Apartment	127		0.37
Commercial	491		1.6
Industrial	2,428		7.1
Light industry	478		1.4
Heavy industry	1,950		5.7
Unutilized land		7,797	**22.8**
Vacant area	6,077		17.8
Open area	1,720		5.0

[1] *Ibid.*

[2] *Op. cit.*, p. 95.

Of course the proportioning of total area will vary from city to city, and until more surveys are made any general statements about urban land utilization are incomplete. However, it is significant to note in the three tables above that the urban area in streets is very close to 20 per cent. These percentages are only approximate and may change with additional information. Many cities have as much as one-third of their area publicly owned. Little can be said as yet about the relation between the residential area and the combined commercial and industrial area. In Portland, Oregon, the commercial and industrial areas are one-third of the residential area; in Minneapolis, less than one-fourth; and in San Francisco, one-sixth. Naturally this relationship will vary according to the proportion of the population which is housed in single-family dwellings as opposed to duplex or apartment houses.

Natural Zoning.—As cities have grown up without zoning laws or comprehensive city planning, a tendency is observed for certain districts to specialize in certain uses. This process is called natural zoning to distinguish it from zoning which is controlled by public officials according to a definite public policy. For example, hilly sections of a city generally attract residences, whereas the lowlands attract factories. Good transport facilities lure factories to one section of the city. Commercial enterprises spring up where traffic routes come together. Wholesale houses tend to group themselves according to the commodities dealt in, for convenience of buyers.

This natural grouping of certain uses in one or more sections of a city is entirely a matter of private initiative. Public officials, lacking the authority conveyed by a zoning or city planning ordinance, exert a negligible influence in this development. Natural zoning may be influenced

to some extent by the plans of real estate dealers for the development of their properties or by the decisions of railways to place street car lines or freight yards in one locality rather than another. Undoubtedly there are other influential factors, but on the whole this zoning is brought about without any unifying or comprehensive social control.

Social Control of Urban Land Utilization.—The evil results of allowing a city to develop "naturally" is the best evidence of the need of social control of urban land utilization. The unregulated desire for profits from ownership of private property often leads to a short-sighted view. Owners of city lots, for instance, may seek to use their space up to the limit prescribed in the building law, only to find 15 or 20 years later that they have not allowed enough space for light and air. In the long run it does not pay to crowd buildings onto a lot when your neighbor is doing the same thing. The result is crowded districts like those of New York City. Small parks are now being introduced into these New York districts, but they are enormously expensive and the work proceeds slowly.

Another striking illustration of the results of natural development is afforded by the direction of the growth of factory production. How often do we see fine, old residences blackened by the smoke of encroaching factories! In many rapidly growing factory towns houses that used to be the aristocratic and high-priced residences of the founders of the town are now low-priced and are surrounded by cheap dwellings or factories. No one would reasonably wish that such development had been wholly eliminated, for the sacrifice of some districts was probably inevitable if the town was to progress at all; but some of these losses in value might have been avoided if the development of the city had been controlled. In the

long run it does not pay to leave development unregulated in the hands of profit-seeking individuals, for the temptation is very great to plan for large profits in early years, which tends in later years to cause a more rapid decline in values than is necessary.

The remedy for these undesirable results of natural zoning is in some form of social control of land utilization. In some German cities this social control takes the form of development of new city areas by the municipal government itself. In the United States reliance is placed on private initiative regulated by a city planning law accompanied by a zoning ordinance. In other words, the American policy of social control is to place limits on private utilization according to a preconceived plan of developing the whole urban area.

The zoning of a city is accomplished by pressure of public opinion operating through private and legislative channels. It has been said that the "destiny and growth of your town is largely affected by the foresight of the man who subdivides the land."[1] The real estate dealer who plans, builds, and operates a subdivision can increase the amenities of land and stabilize values through restrictions on property if in no other way. In fact, the members of the real estate profession are in a most advantageous position to accomplish zoning by private efforts. Notwithstanding this potential, and in some cases actual, influence of the real estate men, private owners are not bound by the professional standards of dealers. For this reason, among others, the future development of the city should not be left entirely to private individuals, but should be entrusted to a commission of city planning experts, backed by zoning ordinances and by an active,

[1] J. C. Nichols, "Real Estate Subdivisions," American Civic Association, Series II, No. 5, p. 6.

supporting public opinion expressed through the real estate operators. More and more cities are coming to realize that such social control of urban land utilization is the wise policy.

Controlled Zoning.—Controlled zoning is the restriction by public authority of the different uses of land to certain sections of a city following a preconceived city plan. When a city ordains that factories shall be built only in certain districts or that apartment houses may not be built in certain residence districts, we have what may be called controlled zoning. Such zoning requires in the first place a classification of the several uses to which urban land may be put and a grading of those uses so that non-harmonious uses will be prevented from conflicting. In the second place, zoning requires a comprehensive plan of the city, designed to secure the most economical use of the urban area and a rational development which will stabilize land values as much as possible.

One of the main factors in the stabilizing of land values is the protection of the amenities of land by proper zoning. *By amenities are meant beautiful scenery, a pleasant neighborhood, congenial neighbors, and all other inducements which add to the pleasure and comforts of living.* Home owners are willing to pay for these amenities. In the case of farm land, scenery is an item in the value when the farm is regarded as a home as well as a productive unit. But the economic significance of such amenities in agricultural land values is of small account in comparison with their significance in connection with urban values. These amenities can be reduced to almost nothing by improper zoning of a city, which allows, for example, the nuisances of a factory district to be present in a residence district. The encroachment of smoke, noise, and dirt is a primary cause of the rapid decline of resi-



Courtesy of J. C. Nichols, Kansas City, Mo

A COMMERCIAL CENTER IN A RESIDENTIAL SUBDIVISION

Commercial buildings need not be an "eyesore." These combination "store and dwelling" buildings in the Country Club District of Kansas City do not sacrifice harmonious architecture to utility nor utility to architecture.

dential land values. It is, therefore, something to be guarded against in zoning, since the chief function of zoning is to stabilize values.

Principles of City Planning.—Zoning which is not based on a comprehensive city plan is bound to be unsuccessful. *The first principle and the primary object of city planning is to achieve unity in the construction of the city.* Unity of construction is attained by building factories in the most convenient and desirable places, by offices and stores in the most profitable districts, and residences in scenically beautiful districts. All this is implied in zoning, which also takes care of the locating of public buildings and of public utilities, and which places parks and squares where they will be most accessible and useful, and where the need for recreation grounds, light and air is most urgent. In short, unity of construction means efficient, useful, and attractive urban land utilization.

It will not pay, however, to ride roughshod over the rights of private individuals in order to attain unity of city construction. In fact, the courts will not sanction a zoning ordinance which is retroactive or which invades too far the rights of private property owners. This suggests the second principle of city planning, namely: *Where a city has developed well-defined use districts before city planning is installed, those districts should be retained.* In other words, where several factories have been built in a certain district, they may not be required to move elsewhere in order to conform strictly to the zoning plan.

A *third principle* is that *city planning should not enter the field of city construction.* If public development of urban land is thought desirable, the actual construction of buildings or the preparation of the land for building sites would ordinarily be in the hands of some public agency

other than the city planning commission. It is no part of the duties of a planning commission to enter into contracts for construction, grading, or laying sewers. Its duties are limited simply to drawing up a plan and recommending such regulations as will insure the realization of the plan. The details of building construction are also properly left to the building code administrators and private enterprise. The farthest that a good city plan will go in regulating construction is to limit the height of buildings, to limit the area of a lot which may be covered by a building, or to place a minimum on the value of improvements. However, the planning commission does exercise indirect control over construction through its proper power of zoning the uses of land.

The *fourth principle* is that *city planning must always be ahead of the actual utilization of land.* The dangers of allowing a city to develop before any plan is thought of are all too apparent on every side. Even after a city has decided to start planning for the future, the plan is only partial, applying perhaps to municipal parks, playgrounds, and public buildings, which leaves the largest part of the urban area open to the unrestrained designs of private owners. It is not too much to say that a city plan ought to visualize the city from thirty to fifty years ahead. This need not require detailed planning of districts which at the time of planning are several miles out in the agricultural area. But at least the main thoroughfares and the restricted use districts should be on the paper plan, though they need not be plotted on the ground for ten or twenty years.

This fourth principle raises the question of the scope of city planning. One expert on the subject puts it this way: "In order to secure unity, planning should include and harmonize as many as possible of these factors, pub-

lic, semi-public, and private, such as the systems of streets with their building lines or set-backs, the waterfront and its improvements, the parks and other public open spaces, the public and semi-public buildings and their sites, the transportation systems, both local and long distance, with their respective freight and passenger stations and terminals, the gas, water, electric, and similar public utility systems, the subdivision of building land and the regulation of the height, area with relation to the size of the lot, and use of structures on it." [1]

The principles enumerated above are not so much technical principles of city planning as they are *economic principles.* Neither do the four economic principles laid down exhaust that subject. The object in view is the most efficient and least wasteful utilization of the urban area. Included in efficiency of utilization is due care to cultivate the amenities of land. The four principles set forth above are therefore in the nature of standards for judging whether or not a city plan is good from the point of view of the most economical utilization of land.

Expansion of the Urban Area.—The subject of use zoning and city planning clearly involves the problem of how and when to expand the area devoted to urban uses. It is often assumed that after an adequate city plan has been made, the problem of expansion takes care, more or less, of itself. On the contrary, many of the larger cities, like Milwaukee, find expansion very difficult to control because the areas suitable for development are under the control of some other independent political unit. Villages and towns grow up just outside the city limits. The utilization of land within these villages and towns cannot be controlled by a city plan because these

[1] F. B. Williams, *The Law of City Planning and Zoning,* Macmillan, 1923, p. 27.

villages are independently administered. Checks are thus imposed on the expansion of the urban area along the harmonious lines laid down in the city plan. One way of obviating this difficulty is for the city to obtain political control of a large area in advance of its present needs. A more complete control is obtained by purchases of land for urban extensions by cities themselves, a method formerly used by Savannah, Georgia, and still by Ulm, Germany. Much can be said in favor of public action in cases of this kind, particularly as a means of planning land utilization more effectively.

At the present time, however, we rely on private enterprise in expanding the urban area, and certainly we cannot dispense with private ownership and private effort. Nevertheless, it cannot be denied that private initiative sometimes leads to unwise expansion.

Popular prejudice tends to look with disapproval on most subdivisions as speculative in character because there is large risk in putting money into something whose value is not certain and proved. This impression has gained ground in some quarters, due to the display advertising and prize auction sales of some "get-rich-quick" real estate dealers. In other quarters this current prejudice is giving way to a more correct view of speculation, a view which distinguishes between good and bad speculation, or between speculation which is in the nature of investment and speculation which is mere gambling for private enrichment. The professional ideals of the real estate business as practiced by dealers, and the legal standards embodied in laws regulating the real estate business, are powerful forces undermining the current "speculation complex."

Speculation is a much confused term in popular

thought. It is usually associated with the ideas of large risks, danger of unusual loss, and hope of large gain. When we, perchance, speak of *investment* in land as socially desirable, while warning men, and especially women, against *speculation* in land, we have in mind just these ideas. A few years ago a leading New York banker said: "Investment is buying stocks after the value is proved. Speculation consists in trying to guess what the value will be."[1] Putting money into a new subdivision always involves some guesswork about future values, and in so far as it is a mere guess, not based on scientific analysis of the trends of the community, it is bad speculation. An addition to a city, whether it is made by private or public agencies, cannot at once be covered with houses. It is always desirable that there shall be some unoccupied land, and if this is not excessive, those who own and plan and contrive to bring the land into its appropriate use at the right time are rendering a service. Very often it happens that a man is not in a financial position to buy and hold a vacant lot until the time is ripe for utilizing it. Another man with surplus funds may hold the lot without improvements until the first man is ready to use it. Here is speculation, we may say, but is it good or bad speculation? If the speculator gets in ahead of the utilizer, and simply appropriates a part of the value that would otherwise go to the utilizer, he is not doing a social service, but a disservice; for it is in general socially better that the values should accrue to the utilizer, *i.e.,* the farmer and home owner. In the above illustration, which is quite common in urban developments, if the speculator who held the land unimproved

[1] A. Barton Hepburn, "Don't Speculate and Don't Listen to 'Tips' on Stocks," *American Magazine,* Nov., 1919.

asked of the utilizer a price so high that the income-yielding possibilities of the site were destroyed, then we would call him a bad speculator or one who rendered no service to the community or to legitimate investors. On the other hand we would call this man a good speculator or more properly, an investor, if he asked a price which still left to the utilizer a reasonable prospect of getting a profit from developing and using the lot. In other words, bad speculation is something more than taking large risks or guessing at future values; it is the taking of profit in the buying and selling of land or any other economic good *without counter service.* To put it another way, bad speculation is associated with large risks, gains or losses, pure guesswork, and no service to the community or to other individuals. Good speculation, or investment, a necessary part of an economic system based on free purchase and sale, is associated with reasonable risks, reasonable gains or losses, scientific forecasting, and the rendition of service to others.

Expansion of the urban area is legitimate when it is in response to a real need for additional homes, factories, or business sites. There is always an element of uncertainty in such expansion due to the fallibility of human judgment and the lack of information in regard to the community's development. But this element of uncertainty can be and is being reduced by more careful analysis of the growth and movement of population, and of the trend of values which reveals the condition of the market for home, factory, or business sites. In so far as real estate dealers and owners seek and take advantage of more complete information of this character, their forecasts of the needs of the community will become more accurate, and urban developments based on these forecasts will become investments rather than bad speculation.

Ripening Uses of Land and Ripening Costs in Land Utilization.—Land which is taken out of agricultural use and held without direct use until purchased for a home or factory site is said to be ripening into use, just as a crop ripens until it is harvested. Theoretically defined, a ripening use is the holding of land out of present utilization until it is profitable to use it in some higher form. It may yield a present return in agriculture, but the probabilities are it will yield a higher return in urban use. It takes time and waiting to convert an agricultural area into an urban subdivision. This waiting or ripening period is socially necessary if the subdivision itself is socially necessary.

An important circumstance in connection with this ripening period is the popular misconception of it and the neglect by investors to consider the costs of waiting. The popular view is that any piece of land that is not physically occupied and used is not really used and is held merely for speculative purposes. Undoubtedly some land to-day is being held for an unserviceable speculative return. But if there is a real or reasonably demonstrated need for the higher use of such land, the waiting period is a legitimate and normal stage in the development of the urban area. It is, moreover, the ripening period of the investment, comparable to that period in the development of new businesses when the surplus is put back into the business instead of into dividends. We have in these observations summed up *real costs* and we have described briefly what we shall call the LAW OF THE RIPENING COSTS IN LAND UTILIZATION.

Too many investors come to grief because they underestimate the costs of waiting. They put their money into land that is ripening into a higher and more profitable

use and expect to get back their money in a short time with interest and profit. There is an optimistic tendency to underestimate the accumulating costs of taxes, special assessments, and interest that might have been earned in some other investment. Very often the final balance sheet shows a loss instead of a profit, giving rise to a feeling that all such investments are pure speculation. This feeling would have less foundation if there was adequate realization that the costs of carrying land through a RIPENING PERIOD are so great that a sound financial position as well as foresight are necessary in order to make this particular economic use a profitable use.

SUMMARY

With the rapid growth of cities, urban land is increasingly important in modern life, but it cannot be considered apart from other classes of land, from which are taken its increases in area and the food and raw materials needed by the city population. Urban land is peculiar in that (1) location is so important in determining its value; (2) very high values attach to it (with great intensity of use on relatively small areas); (3) it depends so largely on transportation; (4) it shows considerable fixity in utilization; (5) its value can be easily separated from the value of improvements upon it. Sites of cities have been chosen for various reasons, such as protection, commercial advantages, and industrial advantages. Industrial advantages have been most important in determining the sites of cities in modern times. Within the city urban land must be classified to secure its best use. *Natural zoning* occurs through a tendency of certain districts to specialize in certain uses; *controlled zoning* brings about better results, if based on a comprehensive *city plan* worked out on sound principles. Interference with the expansion of large cities by lesser municipalities that stand in its way may be obviated by securing political control of large areas in advance

of the city's needs or by public purchase of land for extension. Private enterprise must, however, be the chief reliance in city expansion. While most subdivisions are speculative in character this speculation is not evil if there is a service given in return for the profits received.

CHAPTER VII

AGRICULTURAL LAND UTILIZATION

To a great many people land problems mean almost entirely agricultural problems. This is just as untrue as the idea that all land problems are urban. It is unquestionable, however, that agriculture requires a larger land area than any other use, and that in value of product it is the largest industry in the United States. Important as these facts are, they are neither so important nor so significant in our national life as the fact that agricultural land furnishes the food on which the city population lives.

A writer in the *Country Gentleman* recently commented on this fact as follows: "Between 1896 and 1913 farm product prices gained 65 per cent, whereas the general price level gained only 35 per cent. That was what brought increased income to the farms, and the cause was an increase of urban population to nearly half the 96,000,000 total of 1913. . . . To-day, more than half our population lives in cities and large towns. More strictly interpreted than the census does it, we probably have 75,000,000 people to be fed and clad by the 35,000,000 on farms. It is the greatest aggregation of consumers anywhere on earth. It is the wealthiest. The latest figures show some 15,000,000 employees in manufacture, paid annually round $10,000,000,000. During the past decade the farmer, with no increase in numbers, has expanded production sufficiently to feed 14,000,000 more

people at home, besides increasing its exportable surplus by 7,000,000 to 10,000,000 tons. In other words, our same farm man power is feeding here and abroad a total of about 25,000,000 more mouths than before the war." [1] A century ago when Malthus announced his "law of population"—that population, if unchecked, tends to increase faster than the food supply—he recognized the vital place of agriculture in the economy of a nation and of the world. But he did not foresee the great improvements in agricultural land utilization which have made possible the support of the enormous population increase since that time.

A wholesome balance between the city population and the food supply is essential to a stable and progressive national economy. At the present time certain groups of our rural population are in economic distress, and political orators are making much of the slogan, "a nation cannot exist half prosperous and half distressed." To the understanding of this fundamental national problem the following pages contribute an outline of the main features of agricultural land utilization.

Nature of Agriculture as an Industry.—The observer of the agricultural industry notices first the many different kinds of land which all come under the term, "agricultural land." There are crop land and range land, irrigated and drained land, improved and unimproved land, and cut-over land and wood lots. A given farm area may have within its confines a sample of each class of agricultural land, as well as the sites of farm buildings and homes. This diversity of agricultural land gives rise to complexities of utilization that do not arise in the same degree in the case of urban land, which is primarily use-

[1] William Johnson, "Farmers' Share of the City Pay Roll," *Country Gentleman*, Jan. 5, 1924.

ful for building sites. On the one hand, taking the nation as a whole, we have the problem of proportioning the respective areas of crop land, pasture land, cut-over land, and wood lots, right down through the list, to one another and to the market demand for their products and services. This proportioning in turn is based on the proportioning by the individual farmer of the various classes of land within his own farm. Thus, the diversity of agricultural land complicates the problems of public and private economy.

(1) *Agriculture Is a Relatively Small-Scale Industry.* —In 1920 there were about six and one-half million farms in the United States. Nearly every farm is an industrial unit managed by the farmer and his family, for only a little over one per cent of the farms are operated by hired managers on a "capitalistic" or "factory" basis. Less than half of the farms reported any expenditure for labor in this year; the average amount expended by those employing labor was $469 for a whole year. This is a small sum and shows that the "family farm" is the unit for the industry; a fact which obtains not only in the United States but in the whole world. Most urban industries present a striking contrast to this state of affairs, with their enormous plants, numerous employees, and far different methods of business organization.

For the whole United States the average farm property represents a value of about $12,000. In some of the Southern States $4,500 will buy an average farm with equipment and livestock, whereas in Iowa the average farm property is valued at almost $40,000.[1] The farmer who owns his farm is therefore a capitalist as well as worker and manager.

[1] *Fourteenth Census of the United States*, 1920, *Agriculture*, Summary, p. 23. See Table IX, Appendix.

(2) *The Home and the Farm are One in Agriculture.* —"Own your home" to the farmer means the ownership of his business also. The farm and home are so closely associated that farming has been called a "mode of life" instead of an occupation. This is not the situation in the city, where the laborer who works in an undesirable factory may still live in a comfortable home in a good environment or *vice versa.* On the other hand, country life offers many attractions that draw people to agriculture in preference to some other occupation, sometimes despite the prospect of earning more in other occupations. Real estate dealers make use of this fact. The up-to-date colonization companies try to make the farmsteads as attractive and homelike as possible in order to induce the more capable settlers to buy.

Few industries afford the opportunity that agriculture does of becoming the owner, manager, and operator of an independent business with such relatively small capital. The independence from political and economic pressure is an attractive part of farm life, although this independence is often over-rated. A tenant farmer or one heavily mortgaged loses much of the freedom of action which the owner-operator enjoys.

The farmer usually produces and uses in the farm home many "side lines" such as fuel, fruits, vegetables, milk, and other food, which the city dweller, on the contrary, has to buy at the end of a long route from producer to consumer. For this reason the farmer as a rule is able to stand the shock of industrial depression better than the city worker, to whom the loss of a job means complete cessation of income. However, the "one-crop" or highly specialized farmer is in a position very much like that of the city dweller, and in the crisis from which we are just emerging the man who does diversified

farming has weathered the storm much better than the one-crop farmer, especially the wheat farmer.

Agriculture, on the average, offers a steady income, a home, and a fair living to the capable men who engage in it. On the other hand it does not offer opportunities for large fortunes and great enterprise, and it does not furnish equal scope for unusual abilities. No names stand out in agriculture as do those of "Jim" Hill, Rockefeller, or Marshall Field in industry and commerce; although our early history records the names of great statesmen who were proud to be farmers—*e.g.*, George Washington, Madison, Monroe.

It is true that there are large farms and ranches approaching industrial establishments in amount of capital and labor invested, but they are very few and in many cases are not paying concerns. Many rich men have invested in large estates, have put up magnificent buildings upon them, and have equipped these places with fine machinery and pure-bred stock. But these are often "play farms" which cannot stand on their own feet. They are supported by money made in other industries. Occasionally some are found which can show a profit, but as far as the production of agricultural products for the nation is concerned, these farms are negligible.

(3) *Farm Life Is an Isolated Existence.*—In many foreign countries farmers live in villages while the farms lie about the town, often miles away from home. American farm homes are located on individual farms and very rarely are close together. To the city dweller who buys a farm this isolation is often intolerable, especially to the women and children; and colonizers realize that very often a promising settler goes back to the city because the family cannot stand the loneliness of rural life.

The fact that farm homes are scattered is more or less responsible also for the lack of those conveniences which city people generally take for granted. According to the 1920 Census, less than 40 per cent of the American farm homes have telephones, only 10 per cent have water piped into the home, and only 7 per cent reported gas or electric light.

This isolation makes it difficult, if not impossible, for farmers to act as a unit. In Europe the village life has undoubtedly been a factor in promoting coöperative action; in America the isolation of the farmer has tended to make him an individualist. Better communication by means of the telephone, rural free delivery, good roads, and the automobile has helped to bring farmers together for united action. Coöperative marketing has been making marked headway during the past few decades.

(4) *Another Characteristic of Agriculture Is that the Farmer has so Little Control over Production.*—He does not produce "to order." The farmer may select the crops to be grown, determine the acreage to be sown to such crops, cultivate and care for them to the best of his knowledge and ability; yet the harvest is an unknown quantity until the crops are in the barns or granaries of the farmer. The "one-crop" farmer, such as the cotton or wheat farmer, often has very little control over the crops he would like to raise. The nature of the soil and the climate may be such that the only safe crop to grow is the one crop he is used to growing. Weather or insects may cut down the yield from 10 per cent to 50 or 100 per cent for a particular farmer. On the other hand, a general good season may bring a bumper crop, a fact that is heralded by the metropolitan press as a sign of the prosperity of the farmer and of the nation. As a matter of fact, a bumper crop usually brings ruinously low prices;

and if a particular farmer has had a bad yield, he is hit twice—by a bad crop and by a low price. These features make agriculture a risky business, and farmers who depend upon perishable crops are even more exposed to such risks than is the grower of staples. For example, the market for tomatoes for a certain Texas district depends upon the state of demand during a few weeks in the year. No other region is able to supply tomatoes at this particular time under normal conditions. But if this region is too early or too late in bringing its crop to the market, it comes into competition with other tomato sections, and the market for all the competing districts is likely to be ruined.

The man who does diversified farming has more latitude in his choice of crops. He does not have all his "eggs in one basket," and is more likely to make "some money all the time"; on the other hand, he is not in a position to make a large profit in some lucky year when "eggs" are sky-high in price. He attempts to forecast prices. If it seems to him that barley will be high in the fall he may sow barley instead of oats or wheat. Too often the farmer is inclined to forecast the future by the price at planting time. If potatoes are expensive in spring, there is a tendency for everybody who can grow potatoes to enlarge his potato acreage—and with a good season there is bound to be over-production. The specialized potato grower suffers the most in such a case, because he has few other crops to level up his losses. The next year is likely to be a year of under-production because of the slump in prices of the year before. Orchard crops, cattle, and dairy products are not subject to so much yearly fluctuation, but the same forces are at work to produce cycles of over-production and under-production over longer periods of time.

A period of low prices will usually induce a manufacturer to curtail production. The farmer may do exactly the opposite by trying to make up in quantity of the crop the loss in price per bushel. Of course, he cannot succeed in this over a long period of time.

This psychology explains the failure of acreage reduction campaigns. Every farmer expects his neighbors to reduce their acreage, but he hopes to take advantage of the increased price by having a large crop to sell. Usually 90 to 100 per cent of the farmers raising a certain crop will reason alike and another year of over-production and low prices results. The 10 per cent who actually reduce their acreage are penalized by a low price in addition to a short crop.

For the city man who wants to go into farming these facts are of great significance. He will find it hard to adjust himself to a condition where there is no regular pay check at the end of the week or month. Instead, there is often a long period of uncertain waiting with crops looking promising until near harvest time; then, a sudden hail storm may reduce a grain field to a mass of tangled straw; or a bounteous crop may have to be sold for less than the cost of production. Agriculture is a contest with the forces of nature, and the contest has tended to make the farmer conservative in his methods; he does not like to change from tried practices, and therefore is slow to take up "new-fangled" crops and breeds. The city man does not understand him and feels that the farmer is slow and a "mossback." The farmer, on the other hand, finding his price ruinously low, fails to understand the economic forces that are responsible for low prices and blames the city people for the situation. He hates and distrusts the speculator, the middleman, the monopolist, and Wall Street; whereas the business man is

inclined to consider high or low prices a part of the game, to be taken at the flood to lead to fortune, or to be endured without whining or complaining. Co-operative marketing has taught much to those farmers who have become members of organizations for that purpose.

The farm land dealer, acting as middleman between the country and city, can be of service in helping each side to understand the other fellow and his problems.

(5) *Agriculture is a Highly Competitive Industry.*—Another feature of agriculture as an industry, which is usually forgotten by the city dweller and is not always recognized by some farmers, is the fact that *agriculture is a competitive industry,* just as is the retail grocery business or any other. Even those farmers who market coöperatively are competitors as producers. The associations have never kept any one from growing prunes or apples, let us say, and have never kept a grower from joining their group. The difficulty has rather been to get the growers to join. Restriction of acreage or output is therefore extremely difficult, if not impossible; a larger acreage and crop merely throw more work upon the marketing machinery, which must keep pace with the growing supply. Through advertising, salesmanship, and efficiency, marketing associations have in some cases stimulated demand so as to keep ahead of supply, thereby keeping prices up for a time. The test comes when the world does not want to "eat more" cranberries and when it does not care for "more iron" in the form of raisins—but that is another story.

The point is that producers of farm products are in competition with each other, whether organized or not; and if they are not organized for marketing, they compete even more. Where the produce enters a world

market, as do wheat, cotton, wool, meat, or other staples, the farmer of America has as his competitors the farmers of India, Russia, France, Australia, Canada, and Argentina. Where there is a substitute or near substitute, competition may take another form; the producers of tropical oils and fats are real competitors of the dairymen and hog farmers of the United States.

On the other hand, farmers in one section of the country are consumers of farm products of other sections. The wheat farmer uses cotton, and as a consumer he wants cheap cotton just as much as the city consumer does. The cotton farmer wants cheap flour, bacon, and meat, while the cattle feeder wants cheap corn, hay, and other cattle feeds. Therefore, the interests of farmers in widely scattered areas are antagonistic rather than identical—another factor making monopolistic control of agriculture impossible.

The modern farmer is aware of the competitive nature of his business. There is less complaint by farmers about the boys leaving the farm for the city than in former years, and the growth of cities is not considered such an evil as it once was. The larger the urban population the better the market for the man who remains on the farm; the greater the number of people leaving the farms, the fewer competitors he will have and the more consumers there will be clamoring for his products. It is true that he may regret to see the most intelligent boys go to the city, and he may experience a shortage of labor, but in time this difficulty can be adjusted by a change in crops or methods.

No one has a more vital interest in the question of opening new lands for settlement than the farmer; yet he is never consulted when new settlements are proposed. It is self-evident that the use of more new land means

more farmers and more farm products. No one realized this better than the Eastern farmers who protested against the suggestion of Secretary Lane to divert the returned soldiers to the reclamation of new lands and the making of more farms. The farm press every now and then voices the feeling of farmers, asking why this demand for "agriculturizing" the cut-over lands is stressed, when cut-over land ought to be growing timber and thus be helping to reduce the ever-mounting prices for lumber and building materials.

The policy of our government has not been consistent. Tariffs have been put on agricultural products in order to protect our farmers from foreign competitors, while at the same time another branch of the government has opened up new lands, irrigated them, and promoted settlement, and is proposing to put immigrants on land, thereby raising up competitors for farmers on the improved land within our own boundaries.

The above discussion must not lead the reader to believe that the farmer has used means, legal or extra-legal, to reduce competition. Being unorganized, he is the most helpless member of our economic system (except perhaps the so-called "middle class"). On the contrary, he has often helped to create competitors for himself by trying to keep the boys on the farm, by helping to bring more people on to the land, and by gladly assisting his neighbors to become more efficient through his support of Farmers' Institutes, agricultural schools, and the like. It is significant, however, that farmers are insisting that too much has been said and taught about *large production* and not enough about *balanced production*—proper prices, marketing, and distribution.

(6) *The Farmer Is Looking for the Highest Net Profits.* —The farmer is actuated by the same economic motives

as any other business man. Like the business man he is looking for the largest net profits. The cultivator does not cultivate to produce crops so that consumers may have something to eat or so that the manufacturer may have raw materials for his factory. The farmer, particularly as he becomes more and more a part of the commercial system, is looking not for crops but for a *living* and a *profit* to be made from those crops. Therefore, he is interested in price more than in the *quantity* of crops. The inducement for the farmer to grow crops is *price,* and he adjusts his production to prices as much as he can.

The Size of the Agricultural Unit

(1) *Production per Man vs. Production per Acre.*— In order to produce the largest profit and a living for himself the farmer *will utilize the largest possible area* to make that income. He is less concerned with the greatest production per acre than with the greatest production *per man.* The American farmer has utilized machinery to the utmost, and therefore has been able to operate a large area, producing a large surplus over and above his own living. It is this surplus that interests the city dweller. The larger the surplus over the farmer's own needs, the larger the city population can become.

> "This vast agricultural production of the United States requires the labor of about one-quarter of our gainfully employed population, whereas 85 per cent of the population of Russia is classed as agricultural, and probably three-fourths of the people of China and of India derive their support from agricultural pursuits Six and a half million farmers in the United States, assisted by a somewhat smaller number of farm laborers, probably less than 4 per cent of the farmers and farm laborers of the world, produce nearly 70 per cent of the

world's corn, 60 per cent of the world's cotton, 50 per cent of the world's tobacco, about 25 per cent of the world's oats and hay, 20 per cent of the world's wheat and flaxseed, 13 per cent of the world's barley, 7 per cent of the world's potatoes, and 5 per cent of the world's sugar, but only about 2 per cent of the world's rye and rice. Totaling the cereals on the basis of tons, and estimating the production of China as somewhat larger than that of India, it appears that the United States produces about one-fourth of the world's cereal crops. The average production of cereals per person engaged in agriculture in the United States is 12 tons, while for the rest of the world it is only about 1.4 tons."[1]

The American farmer has at least five times, if not twenty times, as much surplus to send to the city as has the Russian peasant after the latter has satisfied a much simpler style of living. "In our better agricultural regions almost every farmer has an automobile, but there is hardly one peasant in all Eastern Europe who owns even the most rudimentary flivver."[2]

(2) *The Influence of Machinery.*—Machinery has enabled the American farmer to operate larger and larger areas, especially after the pioneers began to break the level prairies. Recently, the tractor has enabled some "Corn Belt" farmers to enlarge their farms by 25 to 35 per cent. On the other hand, the Eastern farmers, with their farms on hillsides, in small fields, and on rough ground, could not so well use the mower, the self-binder, and other horse-power machinery, and found themselves outstripped in competition with the West.

Nevertheless the tendency has been toward larger farms

[1] O. E. Baker, "A Graphic Summary of American Agriculture," *Yearbook of the United States Department of Agriculture,* 1921, pp. 407-408.

[2] E. Dana Durand, "Agriculture in Eastern Europe," *Quarterly Journal of Economics,* Feb., 1922, p. 175.

in all parts of the country where machinery can be used. There has been a combination of smaller farms to make larger farms in some sections of the country, and a tendency to reduce over-sized farms to the normal size, showing a gradual readjustment to new conditions.

(3) *The Type of Agriculture.*—The size of the ideal farm will vary with the type of agriculture. In every method of farming there is a peak load in farm operations which determines the size of the enterprise. For instance, in cotton farming the critical operation is picking. One man can easily prepare and cultivate the soil and "chop" (that is, hoe and thin) the cotton which it will take three men to pick. Hence, the area actually planted depends upon the labor force which the farmer can put in the field at picking time. There has been a tendency for cotton farms to decrease in size in parts of the South. Where there is an exodus of negro labor, or where the boll weevil has made cotton unprofitable, other crops are taking its place and farms are becoming larger. If a machine could be perfected to pick cotton successfully, the entire system of cotton production would be revolutionized.

Other types of agriculture can be used as examples. In the wheat section of Minnesota the proper-sized farm tends to be the one just large enough to utilize one complete set of farm implements. In the dairy industry the critical point is milking, and the milking machine has made possible larger herds and larger farms per operator.

Within the limits of the type of agriculture, the farm tends to adjust itself also to the ability of the owner and the size of his working family or the labor easily available at the time of the peak load.

(4) *Fallacy of the "Small Farm Well Tilled."*—A few years ago many books and articles appeared glorify-

ing the *"small farm well tilled"* with "Three Acres and Liberty" and similar catchy slogans. Experience has shown that the small farm is suitable only for the regions where highly intensive agriculture is carried on. The success of such farming depends upon markets. The Northern local truck grower is in competition with truck growers in the South and West. His market is easily flooded; specialized growers of all kinds must increase production only in direct proportion to the increase in their markets, or there is danger of over-production. Stories of food rotting on the ground and vegetables being plowed under, which are headlined in the metropolitan press, suggest the results of such over-production.

The picture of the small farm with its vine-covered cottage, and the rest of the glories portrayed by the word-painter, has frequently been used by the real estate man to induce city people to take up farming. Too often it has proved to be a false picture. The real estate man dealing in agricultural land can perform a great service to his customers if he studies the nature of agricultural production and types of agriculture before advising his clients. Modern private colonization companies, as well as State colonization agencies, offer some excellent suggestions on the subject of the proper size of farms.

(5) *Concentration in Agriculture.*—On the other hand, there is a belief in some quarters that there is a *concentration in ownership of agricultural lands,* and that there are "corporation" farms and large land holdings. The truth is that we have some corporation farms and a few large land holdings, but in the agricultural industry as a whole they are not significant. In 1920 only 1 per cent of the farms in the United States were over 1000 acres in size, the average for all farms being 148.2 acres. Socialists have claimed that agriculture would follow

industry in its trend toward centralization and concentration, and during the period of "bonanza farms" they seemed to have reason for their belief. However, the "bonanza farms" have been divided and the family-sized farms have more generally taken their places.

(6) *Effect of the Increase in Size of Farms.*—Where agriculture has absorbed all of the arable land area and no new farms are being added out of cut-over or other potential farm land areas, an increase in the size of farms must be accompanied by a *decrease* in the number of farms, and usually by a decline in rural population. This population movement has been pictured in alarming colors by some writers, but in the light of what has been said it will be seen that it is perfectly natural and that it does not depress agricultural production. In fact, agricultural production has increased in spite of a decline both in acres in farms, and in the number of farmers.

The Problem of Proportioning the Rural to the City Population.—(1) *Nations on the whole are inclined to look with favor on a large rural population, because it is a stabilizing element in society.* Governments see in the rural people a conservative class favorable to property and individualism. Particularly if this large rural population owns the land upon which it lives will it be the back-bone of political society.

"Not only the form of political organization but its stability as well is affected by the agrarian situation, particularly in an agricultural country. The proprietor is by nature a conservator of law and order. His interests are all with established institutions. His home and land, his crops and domestic stock are exposed in every outbreak of violence. He not only will seldom start revolution, but he can be counted on to oppose it. He needs peace for the security of his property. The prop-

ertyless individual, on the contrary, recks little of political turmoil or the overturn of established systems. Individually he has nothing to lose. He may even gain by a completely new deal. This attitude is recognized in the industrial classes of our large cities, who have no permanent interests tied up in the plants in which they work. It is equally true of landless agricultural laborers. Tenants or serfs are usually little loath to see constituted authority weakened or overthrown. Hence a nation composed largely of such elements is in perpetual peril, while one with a great body of independent landholders possesses at least one excellent guarantee of internal peace." [1]

Living in the country is popularly supposed to develop a sturdy physique, although recent statistics indicate that freedom from disease of urban people is greater than that of rural dwellers. One reason for the agrarian policy of Germany was the belief that the best soldiers came from the country. "Agriculture must provide the soldiers and industry pay for them," said von Bülow. A writer of India sarcastically puts it this way: "There is the idea present in books, if not anywhere else, that the land is a breeding ground for a fine race of men, who are to go and do whatever fighting may be necessary; while the weaker townsman can stay at home and make large profits from his business." [2]

"Connected with this," this writer continues, "is the idea that the land must be well peopled in order that there may be a *sufficient supply of men and women to maintain the towns.*" There is a constant and real migration of young people into the towns in all countries. In the United States the urban population numbers over 54 million people; the rural about 51 million. Yet of the

[1] G. McC. McBride, *The Land Systems of Mexico,* American Geographical Society, 1923, pp. 3-4.
[2] H. Calvert, *The Wealth and Welfare of the Punjab,* Lahore, 1922, p. 41.

54 millions of urban people about 19 millions are below 20 years of age, whereas of the 51 millions of rural people almost 24 millions are below that age. C. J. Galpin recently stated this fact in slightly different terms. The farm community as a whole, he says, is carrying 2,000,000 more children 10 years of age and younger than the city community of equal population. These children are not producers, and the farms are carrying the burden of rearing and educating these children. "At the producing age this human product is turned over to city industry, ready-made, finished, educated." [1]

National and Urban Leadership Comes from the Country.—That the education has been efficient is evidenced by the number of country boys who have become leaders in urban and national life. Rural children grow up with elemental things. Urban distractions are kept from them until a foundation for character is laid. However, the *proverbial superiority of country-bred boys must be analyzed and discounted.* If one remembers that the United States was largely a rural nation before 1860 it becomes self-evident that if the country merely furnished its quota of leaders it would furnish 75 to 85 per cent of all the great men. Since the Civil War, cities have probably furnished more than their share of noted men. This is partly due to the fact that the city facilities for education and health have become superior to those of the country.

A large and stable rural population is therefore desired for various reasons. A real estate man recently said: "The farmer-owner is the backbone of the nation's prosperity. The economic stability of America rests with its farms. Out of the farm come bread and meat and the

[1] C. J. Galpin, "A Disparity Between Farm and City," *The Agricultural Situation, United States Department of Agriculture,* Nov. 1, 1923.

clothes on our backs—and something more. Out of it come thrift, hard work, efficiency, integrity, love of home and stalwart respect for the institutions that have lifted this nation out of the mire of Old World living standards."[1]

(2) *Inducing a Large Rural Population.*—Agriculture and rural life therefore make basic contributions to the state, but men will not go into an industry unless their contributions to society are rewarded. *The principle of inducement operates in agriculture as in industry.* If the hodcarrier without invested capital can earn more money than an intelligent farmer with $25,000 in his business, men will be inclined to leave the farms to become hodcarriers.[2] Any business that is losing money, whether a farm, grocery store, or garage, will sooner or later disappear, and under these circumstances it is of no use to argue that boys should stay on the farm, that the country is the place to bring up children, or that the farmer has a duty to stay on his farm. If the nation wants farmers, it must pay for their services. It is often said that England has treated its agriculture as of secondary importance and that people have flocked to the cities. When the war broke out England found that its chances of producing food were gone. The fact is that the people of England could obtain greater wealth by becoming manufacturers for the world and buying cheaply the food, raw materials, and fibers raised on the productive lands of the Americas, Australia, and Africa. Any individual would have done the same, all things considered. If a mason can make more money by laying bricks and purchasing his garden stuff, he would be unwise to spend his time raising vegetables. That a dependence on foreign nations is deplor-

[1] M. J. Murphy, before New York Convention of Real Estate Boards, Oct. 19, 1923, privately printed.
[2] *Ibid.*

able when a war threatens may also be true; but no nation can expect to induce certain of its citizens to be farmers when it is patriotic to do so, and allow all the economic advantages to go to those citizens who prefer commerce and manufacturing.

Farmers of the United States will respond to the inducement of price. Any other inducement that artificially brings people to the land—salesmanship, advertising, or public opinion—is diverting people from occupations offering a larger income than agriculture.

The people of the United States are still under the spell of the free land era when "Uncle Sam" was considered "rich enough to give us all a farm." Reclamation has been looked upon as the opportunity "for the creation of the small self-supporting farm home—the back-bone of the nation."[1] Therefore, reclamation was considered to be of great importance from the national point of view, and the government expenditures were considered justifiable.

In our thinking about agriculture we are continually putting new wine into old bottles. What was considered highly desirable under a self-sufficing system of agriculture is not necessarily desirable in our present commercialized agriculture. A bumper crop to the self-sufficing farmer meant well-filled barns, cellars, and storehouses, and abundant reason for thanksgiving. More farmers merely meant more neighbors, a larger community, and more taxpayers to help support the government. Locally considered this is still true, and it is one of the reasons why settlers in a new country are as anxious as the land dealers, bankers, or merchants, to welcome newcomers to their community.

However, self-sufficing agriculture is a relic of the

[1] F. H. Newell, "Reclamation—What Is It?" *The Field*, Aug., 1922.

past that can be found only in out-of-the-way corners of America. The farmers on reclamation projects are not self-sufficing, but feel the pulsation of the markets as well as any other producers of agricultural products. Let it be repeated—agriculture is a competitive industry among farmers as producers, and it also competes for labor and capital with other industries.

Let us see where the arguments of those who want a continuing migration of men to the land will lead us. (1) As long as there is *potential agricultural land,* additional farmers will carve out new farms from this land, and compete with old farmers. This is desirable only in so far as increase in population and increased need for food justify it. (2) If this potentially agricultural land is sub-marginal under given prices (as much of it is at the present time) the new farmers will bring such land into use at a sacrifice of their families and their resources. Their only hope is that future prices of their products and the increase in the price of land will be sufficient to reimburse them for present sacrifices.

(3) In a country *where the agricultural area cannot be expanded,* the placing of additional men on the land will mean the sacrificing of the ideal of the highest production per man. Farms will have to be divided to make smaller farms, and more work must be put upon each acre to produce a sufficient income. This is the situation in many countries of Europe. There are so many people in proportion to the land that the area per man is limited, and the labor, fertilizer, and other costs per acre are increased. Therefore, the land looks very well tilled. The casual traveler is impressed by "wheat as thick as hair on a dog's back," by the well-kept fields with every square foot producing. He contrasts it with the "waste" of land on American farms. His conclusion is that the

American farmer "does not know how to farm," when as a matter of fact he knows *exactly* how to farm under a condition where land is cheap and labor and capital are relatively expensive. Therefore, the American farmer welcomes and utilizes farm machinery, whereas the European farmer in many cases or the Japanese peasant have such small farms that machinery cannot be used economically. In fact, in some cases it is almost physically impossible to use American machinery on very small farms; for example, on farms averaging but two and one-half acres, such as the Japanese peasants till.

If two farmers grow crops where only one produced crops before, the product per farmer in the long run must decrease. For a time the total product that can be sold for city consumption will increase—but if the process is carried farther, the personal needs of the farmer will require more and more of the diminishing production per farm, leaving a smaller and smaller surplus for city consumption. The United States and Russia may be taken as examples. Taking all bread grains together (except oats) the United States in 1919 harvested 1,889 pounds per capita of total population; Russia, before the war, 804 pounds. Based on rural population the farms of the United States produced 3,885 pounds per capita, the Russian farmers only 937 pounds.[1] These figures tell the story. A large urban population is impossible when the production per man in agriculture is but little more than what the cultivator needs for his own sustenance.

Up to the present time we have had a substantial movement of people to the land; or rather we have retained a sufficiently large number of people on the farms to supply us with the necessary food and fiber and leave a

[1] E. D. Durand, "Agriculture in Eastern Europe," *Quarterly Journal of Economics*, Feb., 1922, p. 173.

good margin for export. Free land was such a great inducement that men spent practically a lifetime creating farms, and feeding the world with 50 cent wheat, hogs at 2 to 5 cents a pound, and corn literally cheap enough to burn. Population and demand had just about stabilized agriculture when the World War came, but its after effects have again plunged the farmer into a cycle of depression. Again there is an over-supply of land, farmers, and crops *in relation to other industries.* How long this will continue it is impossible to predict accurately.

There is danger that the pendulum may swing in the other direction. Farmers now on the land are bound by their investments which they cannot liquidate, and they will continue to produce in order to prevent a complete loss. But whether the next generation will stay is another question. The boys and girls now on the farms are growing up in an atmosphere of unrest and discontent. They see friends make as much in an hour repairing an automobile as the farmer can make in a day or perhaps a week, and no one can blame them for going to the cities. It has been estimated that 1,200,000 people have left the country during the last two years. The loss of farm acreage in the best agricultural regions revealed by the last Census can be explained, at least in part, by this phenomenon; and unless relative prices change, there will be a continuing migration to the cities until economic advantages are balanced.[1] Any artificial devices which tend to stop or reverse this migration before the balance is established will be contrary to sound economic policies.

(3) *Income, the Inducement of the Rural Population.* —It goes without saying that not only the money income, but *all other advantages of urban life or rural life must*

[1] A survey made by the National Association of Real Estate Boards, October, 1923, shows that in about 75 per cent of the country the migration was still going on.

be weighed in choosing one or the other type of industry. But when such advantages are compared, rural life suffers by the contrast in certain particulars. Educational institutions, health facilities, churches, entertainment—all the various characteristics of a civilized society—are found in abundance in the city. "Read every ancient writer you like—you will find that life, really civilized life, was a city life. They did not think of themselves as living outside and not in close connection with the city. You have some idyllic tendencies, people looking toward the country, but these were few in Greek and Roman times. But life in the country is not life. Life and the city are identical." [1]

While things have changed in this respect, still more change is desirable. The nation to whom go the benefits of having a virile and proportionately large rural population must even up the advantages of life in the country with life in the city. "How are you going to keep them down on the farm?" is a question with more truth than poetry in it, and the word *down* expresses exactly the mental attitude toward the farm of many country-bred city people.

The United States Government has begun to alleviate the situation by helping rural education, by the placing of county agents and county nurses in the country, and by other means; but it is still a long cry from the city with its wonderful school plants, cathedrals, hospitals and clinics, art galleries, theaters, and operas, to the one-room country school, the abandoned country church, the country doctors and ministers joining the exodus to the towns, and the general lack of entertainment and in so many cases the dullness of rural existence.

[1] Michael I. Rostovtzeff, "Cities in the Ancient World," in *Urban Land Economics*, by R. T. Ely, and others, Edwards Bros., Ann Arbor, Mich., 1922, p. 19.

This is stating the case in its strongest possible terms, but a land policy must recognize both the monetary and psychic inducements which, in a competitive society, will insure to a nation a properly balanced population of rural and city dwellers. At present the city offers such great opportunities that one writer on colonization asserts that the new lands of America will not be brought under the plow except by immigrants with European standards of living.[1]

Colonization companies, public and private, are recognizing the psychic and cultural needs of rural life and are consciously making provision for attractive homes, schools, community centers, and wholesome entertainment.

Ownership of Agricultural Land.—Whether or not agricultural land will give forth a food supply sufficient to support a growing city population depends in part upon the system of ownership under which land is utilized. The kind of land tenure also affects the size and character of the rural population. We cannot avoid considering the effect of systems of property ownership upon land utilization, but for clarity of treatment the discussion of this subject is postponed to Chapter X.

Summary

Agriculture requires a greater land area than any other use—an area that must be properly proportioned among the different sorts of agricultural production. Agriculture is a small-scale industry which in the United States is conducted in connection with the farm home and in relative isolation. The individual farmer has little control over production in agriculture, which is a highly competitive business. The farmer, like others, is looking for the highest net income, and the size of his farm is determined largely by the desire

[1] P. A. Speek, *A Stake in the Land*, Harper's, 1921, p. 8.

to secure maximum production per man rather than maximum production per acre. The size of farms is also influenced by the use of machinery, and by the type of agriculture. The "small farm well tilled" is not the economic ideal in agriculture. The rural population can be kept in proper proportion to the urban population only if the inducements to enter agriculture are sufficient. These inducements, however, are not confined to monetary profits.

CHAPTER VIII

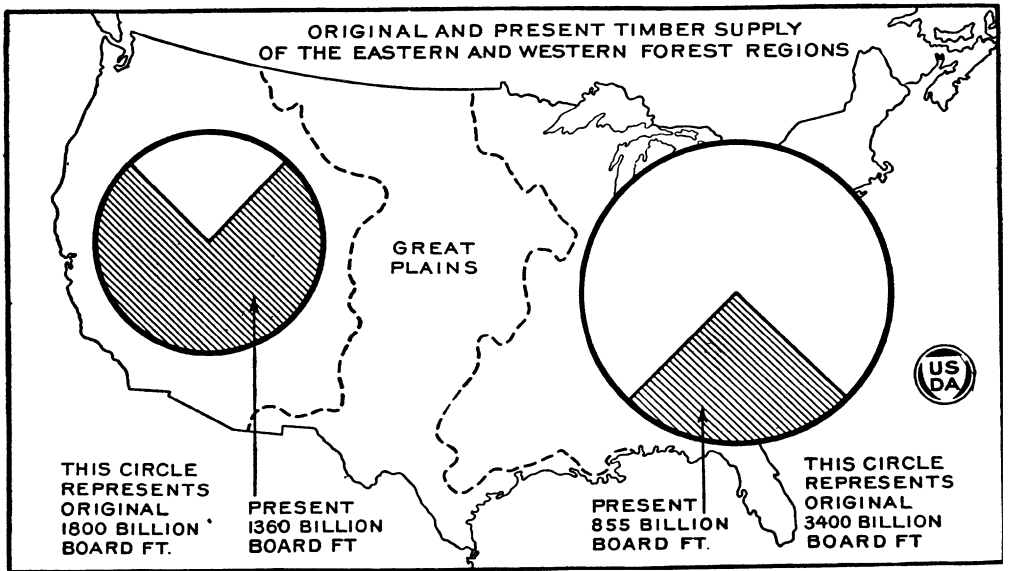
FOREST AND MINERAL LAND

THE man who builds his own home is convinced that a lumber famine approaches when he receives his bill for building materials. The real estate dealer and the building contractor who build homes for others realize their dependence on building materials from forest and mines. Home owners face two alternatives in obtaining their winter fuel supply: (1) Either they must pay the high prices of anthracite coal, or (2) they may endure the smoke nuisance by burning lower-priced bituminous coal. This seems ominous for the future; but the outlook for the future need not be dark if proper conservation measures are applied to the utilization of forest and mineral lands.

PART I

Forest Land

Our Vanishing Forests.—When we see the increased amount of concrete, brick, stone, and stucco building construction all around us, it is easy to get the impression that wood is decreasing in importance in modern economic life. So says a newspaper writer on economic problems, but he proceeds to correct this impression by citing many articles of everyday use whose forest origin is little suspected—moving-picture films, varnish, carpets, clothes, gas mantles, hair brushes, boxes, newspapers, and the like. And he concludes, "we will have to regrow



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ORIGINAL AND PRESENT TIMBER SUPPLY

Our timber supply, in reality probably far greater originally than the 5,200 billion feet shown in this figure, is now reduced to about 2,200 billion feet. This map does not show the experience of the various States. Michigan, for example, exported out of the State almost 100 billion board feet between 1850 and 1912, but in 1920, the State imported 1 billion board feet. Nebraska, on the other hand, never had a large forest area and has had to import most of the lumber used.

our vanished forests or drop back several degrees in civilization." [1]

Originally the United States had a timber supply of 5,200 billion board feet. Only 2,200 billion board feet remain. The remaining timber covers 469,000,000 acres, compared with the original 822,000,000 acres of virgin forest. Of the virgin forest only 138,000,000 acres are left. The rest consists of 250,000,000 acres which are culled or partially stocked with smaller growth, and 81,000,000 acres are devastated and waste. Wood consumption is at the rate of 26,000,000,000 cubic feet a year, and only 6,000,000,000 cubic feet, less than one-fourth, is replaced by reforestation.[2] The lumber industry has 49,000 plants employing over 900,000 men. The logging and milling employees constitute 10½ per cent of all wage earners in manufacturing industries. These figures show that our forests are not of diminishing importance, but they are diminishing in supply. If this rate of production is kept up, the years of our forest resources are numbered, unless steps are taken to replace the wood which is consumed. In fact, even if all the idle cut-over lands were reforested to-day, before the young trees grew to merchantable size, our virgin timber supply in the United States would be used up at the present rate of exploitation.

Here is a situation which makes necessary careful and scientific utilization of forest land. The first task is to study the forest resources of the world and, on the basis of such a survey, to formulate an economic forest policy. The forest service of the United States Department of Agriculture has made the survey,[3] and its conclusions are

[1] Article by "Scrutator," *Chicago Tribune*, July 18, 1923.
[2] *Yearbook of the United States Department of Agriculture*, 1922, pp. 84, 91. See map on page 125.
[3] Raphael Zon and William N. Sparhawk, *Forest Resources of the World*, McGraw-Hill, 1923.

worth repeating: "The United States uses more wood than any other country in the world, and more than three-fourths as much as all the other countries combined. It uses half of all the saw-timber consumed by the world, and one-third of all the fuel wood. . . . It is obvious that the present situation cannot continue indefinitely, with production so much in excess of growth and no provision whatever for subsequent timber crops on the greater part of the cut-over lands. More adequate measures must be adopted to increase the amount of growing timber, the rate of consumption must be cut down to a small fraction of the present rate, or the United States will have to import enormous amounts of wood."[1] The attitude of many lumber producers and of the public generally toward forests needs to be changed. Instead of looking on forests as something to be exploited, like minerals, forests should be regarded as a crop, similar to other agricultural crops, but differing from them mainly in the length of the growing period.

Development of Lumbering in the United States.—Lumbering has been, or is at the present time, a phase of industrial life in every section of the United States. Its early development along the Atlantic seaboard was that of a local industry. Mills were established along the rivers, which served to transport the logs and lumber as well as to furnish the water power. Canals extended the local markets, but the railways revolutionized the industry. The building of railways allowed long distance transportation, large scale production, and concentration of the ownership of timber lands in the hands of corporations and "lumber kings." This development was greatest in the Lake States. When the timber was depleted there, the centers of lumber production shifted to the

[1] *Ibid.*, pp. 539, 550.

South and West. The Far West is now beginning to be the most productive center of the industry. The following table shows the shift in lumber production from one section of the country to the other:

TABLE VIII.

PER CENT OF TOTAL LUMBER CUT BY SECTIONS, 1850-1914[1]

Year	North-Eastern States	Lake States	Southern States	Pacific States
1850.....	54.5	6.4	13.8	3.9
1860.....	36.2	13.6	16.5	6.2
1870.....	36.8	24.4	9.4	3.6
1880.....	24.8	33.4	11.9	3.5
1890.....	18.4	36.3	15.9	7.3
1900.....	16.0	27.4	25.2	9.6
1914.....	9.0	10.5	47.7	19.3

The Future of the Lumbering Industry.—The shift in the centers of lumber production has removed the area of production from the centers of population and consumption. In 1850 New York was the leading lumbering State in the Union, now she produces only one-tenth of her own demand for wood. The hardwood centers have migrated from the Appalachians and the Lake States to the southern Mississippi valley. The pulpwood areas of the Northern and Eastern States are practically depleted. In New England the forests on the higher slopes of the White Mountains are being cut, and pressure is being brought on the State of New York to open the Adirondack State Preserve to relieve pulpwood shortage. American paper manufacturers are buying forests in Canada; it is reported that twenty-eight new mills were built there with American capital within the last ten years. *At present the Northwest has almost one-half of the timber of the United States,* and its lumber has invaded all the mar-

[1] W. B. Greeley, *Some Public and Economic Aspects of the Lumber Industry,* United States Department of Agriculture, office of the secretary, *Report No. 114,* 1917, p. 6.

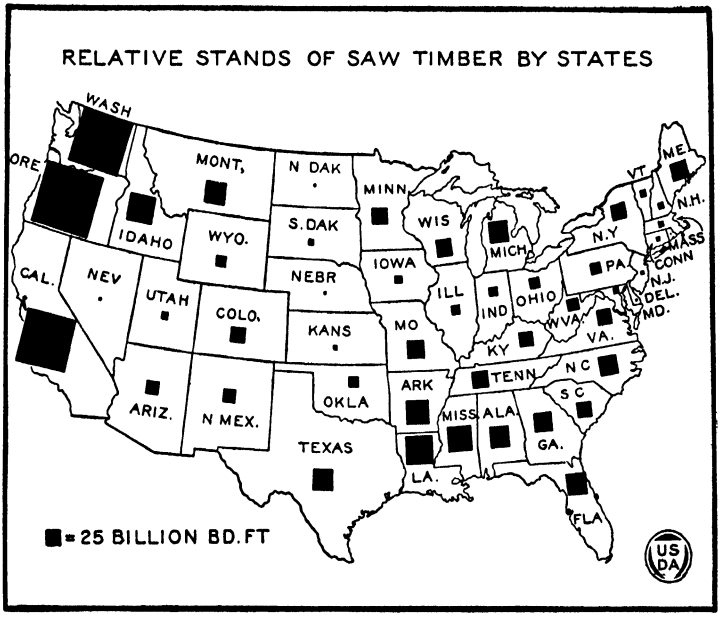
kets of the country, even those of New England. Wisconsin, once the first lumbering State in the Union, now gets 23 per cent of her lumber from the West, 13 per cent from the South, and 64 per cent from her own forests. The Northwest may be expected to dominate the lumber industry for some years to come. When the timber in those sections approaches the point of depletion, foreign sources will be sought. Although at present the United States exports to other countries more lumber than it imports, the time is not far distant, in the opinion of forestry experts, when the United States will import more wood than it exports. The chief sources of lumber imports will then be tropical America, Africa, and Asia for the hardwoods, and Canada, Central America, and Mexico for the softwoods.

The shift in the centers of lumber production has brought with it some important consequences. In the first place it has increased the cost of transportation because of the longer haul to the market. It is estimated that in 1850 the average transportation cost for every thousand board feet of lumber was about $3; to-day it is about $10; and in a decade it is estimated it will be $15.[1] Secondly, as one section of the country after another is eliminated, competition is reduced. These two factors of increasing costs and decreasing competition account for the constantly rising prices of lumber. Building materials for a six-room frame house were bought by contractors in January, 1924, at prices 104 per cent higher than in 1913.[2]

Development of Forest Conservation Movement.— The possibility of the vanishing of our forests was per-

[1] W. B. Greeley, *Timber Depletion and the Answer*, United States Department of Agriculture, *Department Circular 112*, 1920, p. 5. See also map on page 131.

[2] *Survey of Current Business*, United States Department of Commerce, No. 30, Feb., 1924, p. 97.



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RELATIVE STANDS OF SAW TIMBER BY STATES

This map portrays the distribution of our present timber supply. Most of our standing timber is in the South and West. The Middle Western and Northeastern States, though our largest consumers of timber, are far from producing the timber they use. Moreover, the Eastern States which consume most of the timber have plenty of forest land on which to regrow the "vanishing forests."

ceived in the 1870's and 1880's by certain forward-looking foresters and economists. About the time that the Northeastern States gave way to the Lake States as the center of lumbering, Dr. B. E. Fernow began uttering a warning that our wood supply would have to be conserved. During these years economists were concerning themselves with the same problem. The first Arbor Day was observed in Nebraska in 1872, and other States established Arbor Day later; but the effects, while on the whole beneficial, were in some respects detrimental, as the mistaken idea was conveyed to many that miscellaneous tree planting is a real conservation measure. The Division of Forestry in the United States Department of Agriculture was created in 1882; this became the Forest Service in 1908.

However, up to the first decade of the present century the conservation movement was of interest only to scientists. The popular conservation movement dates from the administration of President Roosevelt, who, aided by Gifford Pinchot and the late President Charles R. Van Hise of the University of Wisconsin, brought the need of conservation clearly before the business men and politicians of the country. Since then, some private corporations have voluntarily undertaken to reforest areas which had been cut and to search for wood substitutes. But, as a recent government report states, "in the future, just as at present, substitutes will keep down the rate of increase in the consumption of wood by taking its place where wood is less suitable or less economical. On the other hand, new uses of wood that are constantly arising with the industrial development of the country will tend to increase its consumption."[1] Despite the conservation

[1] Report of the United States Forest Service, reported in *New York Times*, July 8, 1923.

movement 75 per cent of our forest crop is not being replaced.

Private Property in Forest Land.—This ominous situation with respect to our wood supply is a result of the combination of three factors: (1) Private ownership of forests; (2) the length of time required to produce a forest crop; (3) excessive taxation of forest land. All three factors must be considered in forming an economic policy for the utilization of forest land.

Private interests own four-fifths of the timber in the United States at the present time. The present privately owned forest lands were at one time part of the public domain, but then were rapidly disposed of, and became private property in much the same way that agricultural lands passed into the hands of private owners. Many influences were responsible for this quick transfer of natural resources from public to private ownership. The desire for speedy development of the new Western States and for speculation, which characterizes every new region; the push of the lumber industry, railways, and other commercial interests; the "land hunger" of the frontier settlers—all these and other forces combined to make the politicians act. The result was defective land legislation and loose administration of the public lands. Most of the early laws pertaining to forestry were based on the fallacy that timber can be produced on small units like farm lands. Being far from transportation facilities and lumber markets, the Western forests, like the Western ranges, required large areas for practical operation. The result was the same as in the case of ranch land; fraud and evasion were often used to get from the government the proper size of forest holding.

In the East timber holdings have always been comparatively small; they are conservatively capitalized and

have been cut over several times. Taxes in general and fire hazards are relatively small. The situation in the West is quite different. Quick profits made in the Lake States and the example of lumber millionaires stimulated many to buy larger tracts of Western timber land than were required for practical use. Between 1900 and 1908 speculation drove the price of timber land to 10 to 20 times the government price of land, a movement which was hastened by the creation of national forests. As a result these lands were overcapitalized; more money was put into them than they are worth or will be worth when operated.

Now these forest investments must be carried until the time is ripe for utilizing the timber. As they were bought at a high figure and are subject to high taxes, the cost of carrying the forests increases as time goes on. The prospect is that, if the private owner waits until his timber is ripe for cutting, he will have lost far more in taxes and interest on his investment than he will if he utilizes the timber at present. Being in business for profit and not for philanthropy, private owners in this situation will operate their timber holdings in the present; and, in view of the high cost of holding timber land, they will not be desirous of reforesting because they stand to lose if they do. By "cashing in" on the investment now the private owner avoids paying in the future timber taxes and high interest rates on the money which he borrowed to make the investment.

Public Versus Private Ownership of Forest Lands.— "Broadly speaking, lumbering in the United States under private land ownership has consisted in using up timber, not producing it."[1] The manner in which private owners have been forced to this position has been described.

[1] *Op. Cit.*, Greeley, *Report No. 114*, p. 85.

What is needed is a change in the point of view. Depleted forests, forest fires wasting thousands of acres annually, wasteful lumbering, the accumulation of cut-over lands of doubtful agricultural value, are the results of the past policy. The problem of the future is production.

The time required for the production of a forest crop is a factor in favor of public ownership. Private owners cannot afford to wait 50 to 100 or 150 years to get returns on their investments, especially if interest charges and taxes are high. The average person is accustomed to look ahead about 20 years in making present plans; forest growers must look ahead at least 50 years; but a government views an indefinitely extended future. It takes from 30 to 150 years to raise a forest. The government, therefore, is in the best position to carry forests until they are ripe for use. The government is under no pressure to cut timber because of heavy carrying costs, since taxation does not enter into its cost, and interest rates are lower for the government than for private individuals; and it is also in a position to regulate the cutting of timber in an orderly and conservative manner and to reforest cut-over lands.

Public ownership, however, does not guarantee adequate care of this resource. In Turkey, Greece, and Bulgaria, the percentage of public forests is greater than in France or Germany, but the management is deplorable. In a few countries, it has been said by reputable authority, that economic conditions are so favorable to permanent forestry that government ownership is unnecessary.[1]

Two-thirds of the world's forests are publicly owned at the present time, but the largest proportion of these is to be found in the newer countries, such as tropical Africa, America, Asia, and Australia, and northern North

[1] *Op. cit.*, Zon and Sparhawk, *Forest Resources of the World*, pp. 19 to 37.

America and Asia. The danger here lies in the fact that these countries are in the stage in which development is being stimulated and the forests are likely to be depleted just as they were in older countries which passed through the same stage, whether the forests were in public or in private ownership. Only 10 or 15 per cent of the world's timber land is being treated as a crop area, and the greater part of this is in public ownership.

A little over one-fifth of the timber supply of the United States, or about 679 billion feet of timber, is publicly owned. Five hundred and forty-five billion feet are in national forests, 14 billion on unreserved public lands, about 50 billion in national parks, Indian and military reservations, and some 70 billion feet are in the holdings of various States. A wise economic policy would provide for enlarging the area under public ownership to include one-half the timber supply. Such a policy would take account of holdings by States, municipalities, and private individuals, and would lay down a plan of administering all forest lands as a single unit and according to common standards. Fire protection, reforestation, control of diseases and insects, can then be joint enterprises. Here again it is seen that as the natural resources become more scarce, it becomes increasingly necessary to subject private property to some form of social control.

Taxation of Forest Lands.—Taxing forest lands under the general property tax is harmful because it tends to force the owners into premature cutting of the timber. "Annual taxation of growing timber compels the same crop to pay taxes many times. Where assessments equal or approach actual values timber production is discouraged."[1] Annual taxation of timber overlooks the fact

[1] "Timber: Mine or Crop?" *Yearbook of United States Department of Agriculture*, 1922, p. 165.

that forest land is not like agricultural land, which produces a regular annual income. Forests produce a harvest but once in 30 to 50 years if low forest culture is practiced, or once in 150 years, if high forest culture is the method adopted. In the latter case taxes are paid 150 times for each harvest of timber products.

Excessive taxation of forests does not exist in all localities. In some places, in fact, taxation does not appear to be a great factor as yet, but there is danger that it will in the future provide a great inducement to premature cutting. Private lumber companies cannot afford to hold timber land until it is ripe for cutting and to pay high taxes during that time. In the West, for example, lumber companies select for immediate operation those parcels of their lands which lie in counties where taxes are highest. Unwise taxation thereby forces the uneconomic destruction of taxable property and results in a loss to the community by wiping out its principal taxable resource.[1]

Present taxation methods also tend to prevent the reforesting of cut-over land. There is no incentive to private owners to plant a new forest when they must begin paying taxes on it as soon as it is planted and continue to pay for 50 to 150 years before they can get any adequate return. Yet to transform private forests into public forests would greatly reduce the tax revenues of both States and counties, and this is always a cause of friction and discontent, because it means an increase in taxes on other kinds of property.

In order to avoid these undesirable results some States have modified their methods of forest taxation. Bounties in the form of undervalued assessments of timber or timber land have been tried in 29 States. Ten States have what is known as the "yield tax," which is calculated to

[1] *Op. cit.*, Greeley, in *Report No. 114*, pp. 16 and 86.

encourage conservation under private ownership. The "yield tax" taxes the land annually, but does not tax the timber until it is cut. Furthermore, some of the States having the "yield tax" use also the inducement feature of the bounty system by placing low valuations on the land.

Although the "yield tax" will do much to foster conservation under private ownership, it alone cannot be depended upon to achieve this result. All factors considered, the best forest policy provides for enlarging the area of publicly owned timber land, especially of land suitable for high forest culture, and for administering that area in coöperation with private lumber interests in such a manner that standards of conservation, rather than of exploitation, will be set up in the industry.

PART II

Mineral Land

Distinctive Nature of Mining Industry.—Mineral lands differ fundamentally from both agricultural and forest lands because there is no possibility of replacing the materials taken from the earth. Mining is a continual harvest; it is purely extractive. Even forests reproduce and replace themselves if given long enough time, but this is not true of minerals. Consequently the income yielded by mineral lands differs from that from other kinds of land, and this fact should be recognized when a policy for utilizing mineral lands is formulated.

Furthermore, mineral treasures are generally hidden. They are usually discovered through accident or through arduous prospecting—that is, digging and drilling in many places before ore or oil is discovered. There is always the chance to make a fortune by some lucky find, and mining investments reflect this feature of the industry. Even when investments are made in fully developed

mines where there is a more or less definite quantity of ore in sight, there is still the prospect of uncovering yet more rich resources by extending the depth of the mine. In the words of Herbert Hoover, this "creates a call for the venturesome, the untrained, ill-advised public to the business, together with a mob of camp followers whose object is to exploit the ignorant by preying on their gambling instincts." [1] The speculative nature of many mineral investments is notorious in the financial world.

While there is a chance element for the individual and great gains for some investors, there is no more than the usual rate of profit for the industry as a whole. Within a coal mining section, for example, there are mines yielding a high profit because of the thickness of the coal seam, the ease of operation, good situation, or other reasons, but other mines in the same section which are not so favored are just on the margin or below the margin of profitableness. In this respect mining is not different from other industries.

Unlike agriculture, mining calls for large-scale operations. There are, of course, small coal mines and other small mining industries, but the larger enterprises call for heavy machinery, deep shafts, large buildings, and expensive equipment. This requires a great amount of money to be invested in the business. So necessary to efficient production are such large-scale operations and financing that it has been proposed to remove all restrictions on the concentrating of ownership of mineral resources in a few large corporations.

Another distinctive feature of mining is the peculiar labor situation that develops in connection with the industry. This is because so much unskilled labor is required in isolated mines. Exclusively mining villages develop,

[1] Herbert Hoover, *Principles of Mining*, 1909, pp. 180, 184.

very often built by the owners of the mine, who also control stores, amusement places, and formerly the saloons—in fact, the whole life of their employees. It is impossible for the worker to get away from the environment of his job unless he quits the industry altogether. In this respect the life of the miner is quite different from that of the worker in a city factory.

Importance of Mineral Products.—Mineral land is a broad term, for such land is the source of a great variety of products. It yields not only metals, such as gold, silver, iron, but also coal, natural gas, oil, and building stones, valuable earths, such as fuller's earth, lime and sand, the use of which requires the removal of part of the earth itself. The importance of these products to civilized life is so great that historians have often referred to certain periods as the Coal Age, the Iron Age, the Bronze Age. At present we seem to be passing from the Coal Age to the Oil Age. Oil-burning house furnaces have been introduced on the market. Oil-burning ocean steamers are becoming common.

The increasing importance of minerals is shown by the fact that since 1890 more minerals have been taken out of the ground than in all the centuries before that date, especially coal, oil, and gas. This is such an unexampled development that we have no sufficient precedent to guide us in determining the proper policy for the treatment of land yielding these mineral treasures. This adds to the complexity of the problem.

Mineral resources are also of great importance in international relations. Abundance or lack of minerals is frequently an underlying cause of war, and a large part of the diplomacy of nations is centered on securing adequate supplies of these resources. This is the background of the present international rivalry to secure control of the

Mesopotamian oil fields; coal and iron are very obviously the economic bone of contention between Germany and France in the occupation of the Ruhr district; and for some years the oil interests of American capitalists in Mexico have been a source of friction between that country and the United States. These and other international complications arise from the fact that minerals are so unequally distributed among nations. Some nations have a virtual monopoly of the supply of certain minerals. Every country must import some minerals, and most countries have an excess of some other mineral. Therefore, tariffs, duties, and embargoes are set up to control each nation's interest in mineral resources.

The Fuel Problem.—One of the important problems connected with the utilization of mineral resources is that of obtaining a desirable fuel supply. Just as the depletion of forests is now being acutely felt in building trades in a high cost of constructive materials, so also is the fuel situation becoming acute, not because of an actual shortage of coal and oil, but because of the dearth of a fuel ideally suited for house heating purposes. Such a fuel must be clean and smokeless, must have a high heating value, and must not be a source of danger to the inmates. A number of fuels answer this purpose: Anthracite coal, oil, coke, and gas.

Since the beginning of coal utilization and up to very recent times anthracite coal has been the dominant domestic fuel in the United States. However, the reserves of anthracite coal are limited; it is estimated that there are 190 tons per capita of this material unmined as opposed to 28 tons mined to date. Compare this with bituminous coal, of which there are 15,000 tons per capita under ground as compared with 92 tons per capita extracted. This undue dependence on the small and wan-

ing anthracite reserve may be relieved by the use of a suitable by-product of bituminous coal.

Anthracite coal, because of its geological history, contains practically no by-products. Bituminous coal, on the other hand, can be split up into five products and by-products: Coke, gas, ammonia, benzol, and tar. At the present time coke that is manufactured for the iron industry is produced from bituminous coal distilled at high temperatures. Coke made by this process has some objectionable features as a domestic fuel, but already steps are being taken to develop a low distillation coke which will be more suitable for domestic use.

It is useless for city councils to pass ordinances requiring the use of anthracite coal in the homes when this material has become a luxury. The home, independently of its wishes in the matter, must turn to bituminous coal for an adequate and satisfactory fuel at reasonable cost. In a few limited localities near coke manufacturing plants, and in the natural gas fields, there is a possibility of securing gas for domestic fuel. Oil also is a good domestic fuel, although its cost as compared with coal has not yet been worked out satisfactorily. But from the social point of view it is desirable to conserve oil since it is at present the only source of lubricants.

The change from anthracite to bituminous coal for domestic use has already begun even in the Eastern States. The war helped to accelerate the change; the future demands it more completely. The advantages of bituminous coal are well known—its relative cheapness, its wide distribution, its ample reserves, the possibility of improved utilization. But there is one grave objection, its dirtiness. This is a valid objection. Burned in the raw condition, it gives off dense black smoke which dirties the home and the neighbor's washing. It pollutes the atmos-

phere, and becomes the enemy of civic betterment as well as a menace to the health of the city dweller.

Such a result cannot be permitted; nor is it necessary. An anthracite equivalent can be obtained from bituminous coal. The accomplishment merely depends upon establishing a process which will isolate the solid fuel portion of bituminous coal in the form of an artificial anthracite and produce from the remainder a number of products whose value could possibly be made to carry more than the actual expense of operation. There has been, as yet, little organized research directed to the solution of the problem. In reality it is more a problem of economics than of technology. When the need of artificial anthracite is generally appreciated, a suitable process for its manufacture will be forthcoming.

Wasteful Utilization Under Private Ownership.—Our present policy with respect to the utilization of mineral resources is based on the efficiency of private ownership and operation. But private ownership without regulation often leads to waste in operation. This can be illustrated best in the case of petroleum. Petroleum is a migratory mineral and moves in the direction of decreased pressure. The owner of a small tract, or even the lessee, can drain away the resources of a whole geological field. Every other owner must drill at once or lose all the value of his oil property. Even if an operator should desire to postpone production or to restrict his output, he cannot do so because a rival operator with a neighboring well will drain the oil from under his feet. Operators will also put their wells as close to the boundaries of their holdings as possible, in order to drain the oil from surrounding property. This characteristic of petroleum prompts a feverish scramble to drill as many wells as possible in every region where oil is discovered or thought to be present.

The result is seen in the extraordinary development of the California oil fields, which flooded the market in excess of the demand for oil and was a primary cause of the drop in crude oil prices in 1923.

The migratory nature of oil is not the only reason for the tendency to over-expansion under private ownership. Two other causes may be listed. First, the prevailing system of property rights regards ownership of the surface as including ownership indefinitely downward to the center of the earth and indefinitely upward into the air. Oil, coal, and other minerals exist in horizontal, and not vertical, strata. Anything that an operator can draw from under another's surface land to a position under his own surface land becomes his property. Vertical ownership has given way in certain circumstances to ownership of horizontal strata of the earth. What is needed is legal recognition of property in subsurface lands as separate from the surface which is useful for agriculture. This has been done in connection with mining land at Butte, Montana. Mineral rights are reserved also in the sale of lands in northern Wisconsin, Michigan, east Texas, and Canada. In various parts of the country different coal strata are at present owned by separate companies. Late recognition of the horizontal direction of mineral rights is partly due to the policy of the government in disposing of its public domain. Sales were made to private individuals in small tracts without any consideration of the layers of minerals below the surface. The smallness of the tracts sold was evidently due to the idea that the existence of many private owners would inevitably make for competition in industry; but this neglects entirely the fact that efficient mining requires large-scale operations and large areas.

The second cause of over-expansion in mining is the

great expense of carrying mineral property until it is ripe for utilization. There are three elements in this expense. The first element is interest on the investment. Anthracite coal land was first patented at $2 and $4 an acre; by the middle of the last century the value had risen to $50 an acre; in 1875 it was $500 an acre and at the present time some such land has sold for $3,000 an acre. The payment of interest alone on the sum represented by private investments in minerals at $3,000 an acre amounts to many hundred millions of dollars. The second element is royalties, which of course occur only when the operating company leases from the owners. One such lease calls for a royalty of 27 per cent of the selling price of coal at the breaker. This means that one dollar of the retail price per ton is the tribute paid to private ownership. Of course this is unusual, but if all royalties were added together the sum would be very large. The third element of great expense is taxation. Taxes based on the full selling value of all the mineral deposits, mined and unmined, amount to a large sum. These charges must be paid whether the minerals are extracted or not. Consequently operating companies seek some income to pay these expenses by immediate operations, whether the market is really able to absorb the products or not.

Taxation of Mineral Lands.—Mineral lands seem to be especially fitted for heavy taxation. Mineral resources are made by nature, they have fallen into private hands often through accident, and according to popular belief they yield high profits. What is more natural than the conviction that the public should share in these high profits? As a matter of fact, the industry as a whole makes no more than average profits, so that heavy taxation means either higher prices or wasteful operating methods.

A common form of mineral tax is the ad valorem tax.

This is a tax based on the estimated value of all the mineral resources owned by the individual, whether these resources are seen or unseen, being mined or unmined. The effect of such a tax is to increase the carrying charges. Operators do not want to tell about all their mineral resources, for that would mean that some minerals which they cannot possibly extract for twenty years or more would be taxed just the same. Where such a tax is imposed, operators bend every effort to extract the minerals which are easiest to get, and they do this by the quickest, rather than the most economical, methods. The object is to get the supply on the market as soon as possible in order to reduce the reserves on which their taxes are based. This process is noticeably similar to that of lumbermen whose timber is too heavily taxed.

On the other hand, the absence of a tax on the estimated value tends to encourage the holding of large mineral resources in reserve, until the shortage of minerals enables owners to charge a high price. This is exploitation of the public, not exploitation of minerals. The kind of tax very often suggested to meet this situation is a tonnage tax on the product after it is mined. While this tax possibly promotes desirable conservation, it often does not meet the need of the local community for a steady revenue, because in times of business depression and low production little would be mined and tax receipts would fall off. The local community would then have to tax other forms of property more heavily in order to maintain its customary revenues.

The difficulties in the way of wise taxation of mineral lands point to the need for examining the subject very carefully. What is wanted is a combination of taxes which will bring about three results: (1) The encouragement of economical methods of extracting minerals;

(2) the maintenance of a wise balance between present and future needs for minerals; (3) the yielding of a steady revenue to the local political units in which the mines are situated.

A Public Policy of Utilizing Forest and Mineral Resources.—So great is the city dweller's dependence on construction materials originating in forest or mine that indifference to the problems suggested above is contrary to its own best interests as well as those of the community in which he lives. Yet the problems are so large that the initiative of private individuals only is inadequate to bring about their solution. Federal, State, or municipal action is called for. As a citizen, each city dweller has some power, uniting with others, to urge a comprehensive public policy of utilizing forest and mineral lands. Such a public policy will place great emphasis on research in the economic problems of utilizing forest and mineral land, on the necessity of a policy of conservation of these resources, and on public ownership as a means of accomplishing this aim.

Summary

The increasing costs of forest and mineral products indicate the need for wise policies for utilization of these classes of land. Our forests are rapidly vanishing and are being replaced only to a small extent. Though there is a place for private ownership of forests, especially where the rapidly maturing woods are concerned, the movement for conservation cannot make adequate and satisfactory progress under general private ownership because of the great cost of holding the forests uncut. Public ownership of forest land, particularly for high forest culture, if accompanied by good administration, brings better results because the government has no taxes to pay and it can borrow money at low rates and can thus afford to hold the forests for future use.

Present taxation systems often defeat rather than promote conservation measures; and reforms in forest taxation should be made. Mineral lands differ from agricultural and forest lands in that their products are entirely irreplaceable, and in the fact that the minerals are usually hidden. Minerals are increasingly important in modern life, especially the fuels. Under private ownership there has been much wasteful utilization, owing partly to the high cost of carrying mineral land unused, part of which high cost is the result of faulty taxation policies.

A wise policy for forest and mineral lands will emphasize: (1) research on economic problems involved in utilizing them; (2) conservation; and, (3) public ownership as a means of accomplishing this aim.

CHAPTER IX

PROPERTY RIGHTS IN WATER

In economics *land* includes all natural resources and therefore water; so that the subject of water rights has a clear place in land economics. Historically, "Property in water," Robertson Smith points out, "is older and more important than property in land," and the digging of a well, without which the flocks could not be pastured, brings with it the right of possession.[1] But this inclusion of water rights in land economics has more than a mere theoretical justification; the use of water rights has a very practical and very definite effect upon the productive use of land. The Chicago drainage canal is only one of many illustrations of this fact.

When the Chicago drainage canal was decided upon in the 1880's, it was not dreamed that the present national and international complications would develop. The canal has been in operation since 1900, diverting water from Lake Michigan to the canal which carries the city's sewage to the Desplaines, Illinois, and Mississippi rivers and thence to the Gulf of Mexico. The diversion of lake water amounts to some 8,000 cubic feet a second, and it is this diversion which is protested by the States of Michigan, Wisconsin, and New York, the provinces of Ontario and Quebec, and the Federal governments of the Dominion of Canada and the United States, because of the alleged great damage to various property interests.

[1] S. A. Cook, *The Laws of Moses and the Code of Hammurabi*, Adam and Charles Black, 1903, p. 180.

Canada protests that the diversion of water lowers the level of the Great Lakes so as to injure navigation, and also that 500,000 horse power, the equivalent of 5,000,000 tons of coal per annum, valued at $35,000,000, is lost in the falls of the Niagara and St. Lawrence rivers. Michigan and Wisconsin claim that the diversion of water lowers the lake levels by nearly six inches, causing damage to inner harbors of approximately $12,000,000 and reducing the carrying capacity of lake vessels, a loss of $3,000,000 annually. It is also claimed that the strong current caused by the diversion is harmful to the river commerce of Chicago and to the maintenance of an inner harbor at Chicago, and has caused damaging overflows of Western river lands. Regardless of the accuracy of these damage claims, it is apparent that the use of water for the Chicago drainage canal has a profound effect upon the use and values of contiguous property as well as upon the value of water-power sites as far away as New York and Ontario.

Consider also the effect of a lack of humidity on land utilization. If the rainfall is no greater than six inches, as in the semi-arid West, the land will be restricted to grazing only. However, water rights do not exist in rainfall, but in the surface and underground waters. Where humidity is lacking, surface and underground waters become limiting factors and are hence subjected to property ownership.

Use of Water.—Water is needed (1) for purposes of consumption, such as drinking water, domestic use, in manufacturing; (2) for navigation; (3) for water power; (4) for irrigation; (5) for the food products and resources it may contain such as fish, clams, oysters, kelp. These uses may be so important as to give value to the adjoining land far out of proportion to the usual value

of land. Lands used for docks and wharves are often of very great value because of the access they give to navigable waters at strategic points.

Sometimes water rights have no value at all because water is plentiful enough to supply everybody's needs of whatever kind. But where water is so scarce as to fail to meet any one or all of the above needs, the right to control and use water becomes valuable and commands a price. In such cases water becomes property, and laws and institutions are created to protect property rights in water. Rights to water and the price of those rights are made more important by the conflict among the uses of water. Utilization of water in one way prevents use in another. For example, the development of water power often requires a dam which hinders or prevents navigation. Water desired for irrigation is taken from the streams and only partly returned. Consequently some of the lower channels of rivers whose waters are being diverted by irrigation ditches have dried up. Thus navigation and water power are often practically eliminated as possible uses when irrigation projects are completed.

Where water is very scarce the above uses may even destroy the use for the ordinary purposes of life, so that laws are passed establishing "preferred uses" of water. Wyoming has such a law which includes in "preferred uses," the following: (1) Water for drinking purposes, man and beast; (2) municipal purposes; (3) steam engine and general railway use; (4) culinary, laundry, bathing uses, ice manufacturing. Irrigation is considered a higher use than water power.[1]

Peculiarities of Property Rights in Water.—The first distinctive characteristic of property rights in water is

[1] "Wyoming Complete Statutes," 1910, par. 275, quoted in R. H. Hess, "Arid Land Water Rights in the United States," *Columbia Law Review, June,* 1916, p. 487.

that they are rights to control and use an unstable, moving thing. In the case of running streams, water is used as it passes, and it can only be partially consumed in this way. Only limited quantities of water can be stored for future use, as in the case of drinking water. Where water travels great distances, it is impossible to restrict its use to the person who owns the property rights. On the whole this characteristic of movableness makes property rights in water very complex.

In the second place water is peculiarly subject to monopoly control. The owner of a spring, water hole, or river bank in the ranch country may control all the land dependent upon the water supply. Similarly the one who controls irrigation water controls the land, for land is valueless without water. Water power is developed in connection with flowing streams, and the person who controls this use may exclude other commercial uses. More than this, experience in the United States shows that the use of water for the development of power may be almost completely monopolized by great combinations of capitalists.

This tendency to monopolistic control makes necessary a strict control of water rights in the public interest. Such a policy is essential to the full protection of private property and individual enterprise in the use of those resources which require water for efficient utilization. In the United States two methods of controlling property rights are practiced: (1) Control of the use of property by government commissions while ownership remains with private individuals—illustrated by railway and public utility regulation; (2) control through public ownership with either public or private operation. Experience has shown that public ownership of water rights is relatively easy and simple. It requires no employment of

large numbers of men, and the technical side of water utilization is not difficult or complicated. On the other hand, when control is vested in commissions while private ownership is retained, it is extremely difficult to assure equal opportunity to all users of water. Therefore, the general principle may be laid down that water should be either a free good (no ownership at all) or publicly owned, with private operation so controlled as to secure the most socially beneficial use.

Property Rights in Water Used for Consumption.—Where people are gathered together into villages, towns, and cities, there is little question about the advisability of rigid public ownership and control of the water supply because it is impracticable for each individual to furnish his own drinking water. It is impracticable not only from the point of view of the physical impossibility of allowing a well for each individual, but also from the point of view of community health. Consequently the water supply of the majority of urban centers is publicly owned and operated. In sparsely settled districts it is still possible and practical for each individual to drill his own well and thereby establish a private water supply. Public ownership does not become a problem until people form closely settled communities. Then an adequate supply of drinking water is so clearly for the public benefit that the advantages of public control seem undeniable.

Property Rights in Oceans and Their Shores.—By common consent the nations of the world regard the great oceans as free. No one nation has any right to claim ownership of them, although some nations, like England with Gibraltar and the Suez Canal, and the United States with the Panama Canal, control strategic points of ocean traffic which they might use to their own advantage. But, by and large, these nations have not abused their power

and this has contributed largely to making the freedom of the seas a reality.

There is, however, one limitation on the freedom of the seas which affects property relations. It is generally recognized in international law that a nation may control the ocean and all property in it, within three miles of its coast line. Within that three-mile limit foreign vessels are subject to the laws of the nation controlling those waters. Outside the three-mile limit a foreign vessel is subject to the laws of the nation under whose flag it sails. As a result of this rule and of the prohibition amendment in the United States, travelers on a British transatlantic liner may purchase intoxicating liquor on board ship until the three-mile zone is reached. Because of difficulties in enforcing the prohibition amendment against smugglers, the United States Government recently asked the government of Great Britain to agree to seizure and search for liquor within twelves miles of American shores. The American government relied on a forty-year-old statute which allowed search for goods liable to custom duties within twelve miles of the coast. Great Britain has accepted the principle which has been incorporated in a treaty. By this treaty the United States extends its jurisdiction over certain property on the ocean from three miles to twelve. The freedom of the seas will be cut down by so much.

A different situation is met in considering ocean shore lands. The constitution and laws of the various States determine whether private owners' rights extend to the ocean. In Rhode Island, for example, private individuals owning shore land do not have the right to keep the public from walking on the shore, but in Massachusetts these owners' rights extend to low-water mark. Sometimes, however, public rights are conveyed by restrictions

attached to private property in its transfer from one owner to another.

Property Rights in Lakes and Their Shores.—The controversy over the use of water for the Chicago drainage canal illustrates the importance of property rights in lake water. The legal aspects of these property rights are complex. The title to the soil below the water of a navigable lake is in the State and not in the owner of abutting soil. The water itself is public property and anybody may use it, so long as the public rights of navigation are not interfered with. When the State uses the water, it may not destroy private riparian rights without the owner's consent or due process of law, nor can the State authorize the drainage of such a lake without the consent of riparian owners. This latter principle is the law of Wisconsin, but not of Illinois, where no such case has arisen. On the basis of this principle the diversion of water by the sanitary district of Chicago is illegal according to Wisconsin law because it does not have the consent of shore owners in Wisconsin. Still it may be true, as the advocates of the drainage canal contend, that regulating and compensating works constructed in the Niagara River would raise the lake vessels to their former position. In that event Wisconsin shore owners would have no ground for complaint.

The property rights of owners of navigable lake shores do not extend beyond the low-water mark. Consequently it is illegal in most States for an owner to extend his lines out into the lake in an attempt to keep bathers or fishermen away. The shore owner's property ends where the lake begins. Sometimes, as in the case of a certain subdivision near Lake Erie, the right of access to the shore is given to owners of interior lots contiguous to shore lots. This is what the lawyers call an easement of

access to shore property, and is in the form of a restriction on the full property rights of the shore owners.

In the case of non-navigable lakes the law of each State determines who has title to the bed of the lake. Court decisions in New York, Michigan, New Jersey, Indiana, and South Dakota have established private ownership of the beds of such lakes. It is important to note that when a non-navigable lake is privately owned, neither the public nor an adjacent landowner has a right to boat upon it or to fish in its waters. Failure to remember this fact may cause trouble for some city dwellers who seek to establish summer homes on the shores of a small lake.

Property Rights in Navigable Streams.—To determine the most efficient utilization of land along streams or of the water itself, it is necessary first to find out the extent of private rights in running water. This in turn depends on whether the stream is navigable or not. Turning at once to the question of navigability, there is no little confusion about the exact standard of a navigable stream. Water subject to tidal flow alone used to be considered navigable in earlier times in England. Later this notion was enlarged to include the greater non-tidal streams. In the United States, the presence of large rivers and lakes necessitated a further enlargement of the term. In general at the present time a stream is considered navigable when it has "sufficient capacity to float the products of the mines, the forests, or the tillage of the country through which it flows to market," or to float vessels, boats, rafts, or logs.[1] Thus a stream is navigable when it is commercially useful for transportation.

The reason for defining so carefully what is a navigable stream is that such streams are public highways, and pri-

[1] *Bouvier's Law Dictionary,* 8th ed., 3rd revision, "Navigable Waters," p. 2301.

vate persons have no right to use the stream or their adjacent land in such a manner as to hinder the right of passage. No impassible obstructions, such as dams or bridges, can be placed in a navigable stream by private persons without the permission of governmental authorities. In other words, the use of a navigable stream as a public highway takes precedence over any other use of the stream or adjacent land. Thus owners of land along the shore of a navigable stream are restricted in the utilization of their property to some use which will not interfere with the public highway function of the stream. They cannot build a water-power plant, for example, on their shore property, if it will require a dam interfering with navigation. Even the State cannot interfere with the right of the public to navigate, to take ice, to fish, except by a reasonable regulation.

Control of navigable streams is exercised by either the Federal or the State governments. If a river is a highway connecting two or more States, it is under the control of the Federal Government. Also, if a river, although entirely within one State, is capable of carrying commerce of substantial size, it is controlled by the United States. However, when the United States does not exercise control over streams that properly come under its jurisdiction, the State may do so, if the river lies entirely within its borders.

Streams that are not navigable present an entirely different set of property regulations. Non-navigable streams are the private property of the owner of the banks; that is, the riparian owner. Fishing rights in such streams are private property, so the owner may keep away the fishing public from his stream if he so desires. The owner of one bank also has property rights in the land beneath the water up to the middle of the stream

bed. When the bed of the stream and the stream itself are privately owned, no one else may take away the rights to the stream without paying the owner for them.

It will be seen that public rights over water for purposes of navigation are very extensive. Only very small streams and bodies of water can become private property, and in flowing streams these water rights are restricted by the rights of others, since the flow of water may not be stopped to the injury of others. A small pond entirely in the land of the owner, not fed by, or emptying into, streams flowing over the land of another may be entirely private property.

Property Rights in Water Power.—In the United States the banks of streams are private property, which entitles the owner to make various uses of the bank and the stream. He has, of course, the right of access to the stream, as well as the right to build wharves and piers, to take ice, to fish, and the right to all the deposits that the river may bring to his land. But the most valuable of these rights is that of using the stream to develop water power. This right is especially important because it often involves making the stream unfit for any other use.

The right of a riparian owner to develop water power may be exercised only under certain reasonable restrictions. Among these restrictions are: (1) the flow of water must not be decreased unreasonably, nor the level of the stream unreasonably changed; (2) navigation must not be unreasonably obstructed, nor the stream polluted; (3) the water fall created must lie within the limit of one's land. A reasonable obstruction, pollution, or use of the stream is allowed. The courts of the various States are responsible for defining what is reasonable, and these courts do not always agree. Therefore, a water power

project in one State may be perfectly legal, though in a neighboring State it would be illegal.

Other difficulties are encountered when a dam is built to develop water power. Very often the dam holds the water back so as to flood the farm land above it. One man refusing to sell land to be flooded can hold up the whole water power project. To remedy this, some States have passed what are known as "Mill Acts," putting the power of the State back of the taking of land for flooding. This means that the use of streams for water power development was viewed as a public use and hence more important than the private rights of farmers to keep their land and obstruct the plans of other riparian owners. The owners whose land was thus flooded were compensated for the damage done to their property. The difficulties in the way of using riparian land for water power projects show the need for strict control by the public of water rights, either through public ownership or through regulation by commissions.

Property Rights in Water Used for Irrigation.

A. Complexity of Irrigation Water Rights.—Here is one of the most complex phases of property rights. The complexities arise from the fact that rights of individuals differ so much from State to State, and from the fact that the rights of States, of the national government, and of the individuals who obtained land from the national government are conflicting. Another complicating feature is the fact that the people who came into the West from humid areas did not appreciate the changed conditions of life. In the humid regions water was plentiful, almost a free good, and riparian rights were developed with this in view. When the settlers came into the arid West they found that water was no longer plentiful; it had to be economized and recognized as a form of

property. In fact, to these settlers water became another factor in production.

B. Development of Irrigation.—Irrigation is an old institution. Individual rights in the use of water for irrigation were defined in the code of Hammurabi seven hundred years before Moses. The Indians of Peru, Mexico, and New Mexico and the Spaniards developed irrigation laws much like those developed by the English under the same conditions. Despite the age of the institution, such laws as now exist are the result of "hard knocks" and experience in the physical environment of the semi-arid West.

The first attempts at irrigation in the West were ditches which the individual dug to lead the water on to his own land. With the growth of population, ditches were enlarged and became partnership affairs or association projects. Then it was necessary to have written agreements as to the share of the work and the water, or shares in the project. A great many mistakes were made in the early days, not only from the point of view of engineering but, far more, from the point of view of suitable property relations.

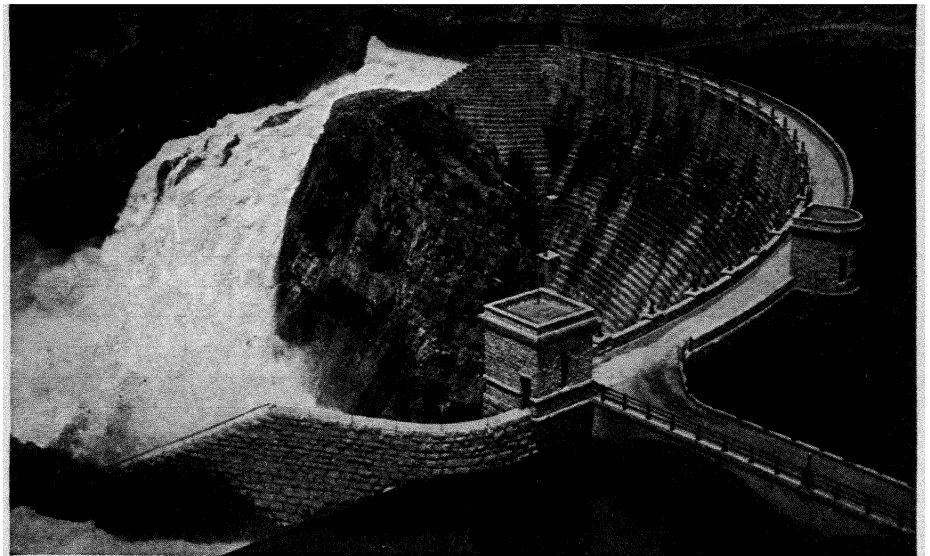
Failures in individual or coöperative effort led to the second phase of irrigation, when canals were built by corporations which sold the water to farmers. Where before water rights were attached to the land, now water rights were attached to the ditch, and the ditch owner had control over the disposition and sale of the water. This caused considerable trouble because certain individuals bought more water than they used for their own farms and could sell to others less fortunate at exorbitant prices.[1] Many private irrigation companies were bankrupted by speculators who acquired public lands under the Homestead Act wherever a new ditch was being

[1] Elwood Mead, *Irrigation Institutions*, Macmillan, 1903, pp. 82-87.

built. These speculators had no intention of settling the land; they merely intended to hold it until the irrigation project was finished and then sell at high prices. Meanwhile there was no sale for the water. The company's ditches deteriorated, interest charges piled up, and in a short time the company became bankrupt because of the lack of actual settlers and water users to buy its services.

The last phase of irrigation may be called the period of large-scale operations. The more easily developed sections were already taken up. The newer works required the construction of great dams and expensive canals and ditches, the cost of which was too great for private enterprise. To encourage irrigation the Federal Government has furnished funds and in some cases has even built the irrigation equipment, under authority of the Reclamation Act of 1902.

C. *Systems of Property Rights in Irrigation Water.*—Rights of property owners in irrigation water have been assigned in three different ways or systems, which are based on (1) the doctrine of appropriation; (2) the doctrine of modified riparian rights; (3) the Civil Law doctrine. These systems of property rights will be treated in some detail, because a full understanding of them gives a clue to the possibilities of using land in the arid areas. If, as might easily happen under either the riparian or appropriation systems, one person obtained control of the water supply, all others in his neighborhood would be at his mercy, because water is a vital necessity in arid regions. The most economical use of land requires control of water in order to assure to each person his due share. The necessity of control, as well as of public development of irrigation on a large scale, makes the Wyoming and Colorado systems (Civil Law theory) very desirable from the point of view of formulating land policies.



ROOSEVELT DAM, ARIZONA

The Roosevelt Dam is the first and one of the largest government irrigation projects. It furnishes water to over 200,000 acres which formerly were quite unproductive but which now yield crops valued at many millions of dollars. In 1916, when the dam was started, the assessed value of the region was about $5,000,000. In 1916 the taxable property values were $72,000,000, and to-day they are more than that. However, when the utilization of agricultural land is considered as a whole, it is a moot question whether it is economically desirable to spend more funds for irrigation projects.

(1) The doctrine of appropriation came from the early mining practice of California. According to this doctrine the man who first turned the water from stream or lake and applied it to "beneficial and continuing use" had first claim to the water. In other words, first in time is first in right to irrigation water, provided the water is continually used. As soon as the prior claimant stops using the water, the right is forfeited. The one who has prior claim is entitled to water even though it flows by the farms of every other man in the area. This is sometimes difficult for an individual to enforce because the man nearest the source of the stream can turn all the water to his own use even though he is the last one to build his ditch. To enforce the claim of the one who first appropriated the water, the State steps in and by law establishes the right, as was done before 1851 by the State of California. In 1866 the doctrine was recognized by the United States in the act authorizing the sale of mineral lands, and Colorado put the doctrine into its constitution of 1876. The United States modified this doctrine in the Reclamation Act which limited the amount of water delivered to each farmer according to his acreage, and in case of shortage of water the user was entitled only to his share of the quantity available.

(2) The modified riparian rights doctrine is an attempt to apply the doctrine of riparian rights, suitable to a humid environment, to irrigation in a semi-arid country. The accompanying table and diagram contrast this system and the appropriation system. For instance, under the riparian doctrine only those landowners whose land is actually located on the stream may legally use the water. The farmer locating at A in Diagram III is therefore not entitled to water for irrigation; but in those States adopting the modified system courts have held that the provi-

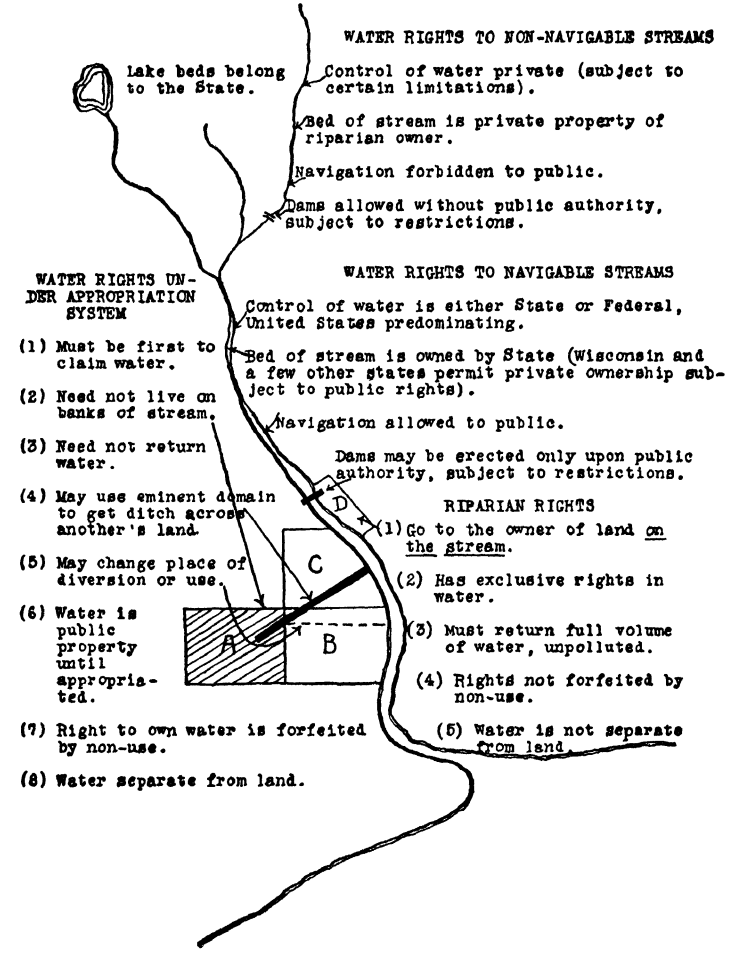
sion can be modified. Even lands in another watershed have been declared riparian to a particular stream in order to permit irrigation. Under the riparian doctrine water has to be returned to the *stream undiminished in volume,* but the courts have said that "reasonable" detention and utilization are permissable. In others ways also modifications are made in the riparian doctrine to suit irrigation. California in the case of Lux v. Haggin [1] in 1884 adopted the system, although the appropriation doctrine had its origin in this State.

TABLE IX

RIPARIAN	APPROPRIATION
Water is incident to the soil through which it flows. Private owner entitled to exclusive use of water.	Water is property of the public. Water is dedicated to the people or the State subject to appropriation.
Right to water does not depend upon use; non-use does not forfeit rights.	If not used, rights are forfeited.
Riparian owner lives on bank of stream; anyone not on the bank has no riparian rights.	Owner does not have to live on bank of the stream. (1) He may divert and carry the water anywhere he pleases.
Riparian ownership obligates the user	(2) Does not have to return all or any of water.
(1) To return the water substantially *undiminished* in volume.	(3) May change the place of diversion if he desires.
(2) Navigation may not be obstructed.	(4) May change the place of utilization from one farm to another.
(3) No pollution of stream.	(5) May sell water to another user. *Water* is *separate* from the *land.*

[1] Lux v. Haggin, 69 Cal., 255.

DIAGRAM III


WATER RIGHTS TO NON-NAVIGABLE STREAMS
Lake beds belong to the State.
Control of water private (subject to certain limitations).
Bed of stream is private property of riparian owner.
Navigation forbidden to public.
Dams allowed without public authority, subject to restrictions.
WATER RIGHTS TO NAVIGABLE STREAMS
WATER RIGHTS UNDER APPROPRIATION SYSTEM
Control of water is either State or Federal, United States predominating.
(1) Must be first to claim water.
Bed of stream is owned by State (Wisconsin and a few other states permit private ownership subject to public rights).
(2) Need not live on banks of stream.
Navigation allowed to public.
(3) Need not return water.
Dams may be erected only upon public authority, subject to restrictions.
(4) May use eminent domain to get ditch across another's land.
D
RIPARIAN RIGHTS
(1) Go to the owner of land on the stream.
(5) May change place of diversion or use.
C
(2) Has exclusive rights in water.
(6) Water is public property until appropriated.
A
B
(3) Must return full volume of water, unpolluted.
(4) Rights not forfeited by non-use.
(7) Right to own water is forfeited by non-use.
(5) Water is not separate from land.
(8) Water separate from land.

(3) The Civil Law doctrine holds that property in water has a dual nature: it is a necessity for the individual, and, because of its scarcity in an arid region, it is also essential for the welfare of all. Following this idea, Colorado, which was the first State to adopt it, declared in its present constitution that the water in every stream not heretofore appropriated was *public property.* It is, therefore, the property of all the individuals in the State and each one has the right to appropriate for his own use *according to rules laid down by the State government,* largely according to the appropriation doctrine. Public control of water is thus more complete than in any other system of property rights in irrigation water. This doctrine has now been adopted by Colorado, Idaho, Nevada, Utah, Wyoming, Arizona, and New Mexico.

The Wyoming system of irrigation water rights is slightly different from that of Colorado, but it is essentially in the same class because water is not the property of any individual. In Wyoming water is the property of the *State,* an idea derived from the old European theory that water belongs to the crown. Being State property, individuals acquire use of water by grant from the State and this grant defines the individual user's rights. This system differs from that of Colorado in the following way: Any individual may appropriate water under State regulation in Colorado, but his exact rights are not settled until a controversy has arisen and been judged by the courts; in Wyoming the individual's rights are defined in the original grant. The Wyoming doctrine has been adopted by Idaho, Nevada, and Texas.

D. *Economic Aspects of Irrigation.*—In its raw unirrigated state the land which has been irrigated was submarginal for agricultural use. To bring this land into

productive utilization the United States Government has expended a total of $181,000,000 in irrigation projects up to June 30, 1923. Including private as well as public irrigation, the 1920 Census reports 231,541 farms with an irrigated acreage of 19,191,716 acres, and there are in addition over 30,000,000 acres capable of being irrigated. The aggregate American crops for the enumerated year had an estimated worth of over $17,000,000,000, of which the irrigated farms produced $760,000,000.

The purposes of the government in expending this money were not only the increase of production, but also, as one writer says, "the creation of the small, self-supporting farm home — the backbone of the nation.[1]

Judging the success of irrigation from these two points of view we may question whether the expenditure has been justified. In October, 1923, a commission was appointed by the Secretary of the Interior to formulate a new reclamation policy. In opening the business of this committee the Secretary said that of the $181,000,000 government investment in irrigation, only $46,000,000 has been repaid, leaving $135,000,000 unpaid. He is reported to have said: "The complaints received include charges that in many of the projects the original estimates under which settlers were induced to go upon the projects were from fifty to one hundred per cent too low, and that the actual cost has been so great that it is impossible for the farmers to pay out within the time and manner fixed by law. . . . Reclamation of arid lands by irrigation from government funds, as heretofore practiced, is failing on a majority of projects as a business venture and must be promptly readjusted as to

[1] F. H. Newell, "Reclamation, What Is It?" *The Field*, Aug., 1922.

methods of reimbursement for funds appropriated and for the purpose of securing to the settler a permanent home."[1]

When the situation of the irrigating farmers is examined more closely, it is not surprising that they are unable to pay back the advances of the government. Farmers of irrigated land have not only water charges to pay, but construction and maintenance charges, in addition to the ordinary expenses of operation, such as taxes, payments for fertilizers, and the like. When the irrigation expenses add up to $50 and $100 an acre, it is apparent that these farms are still sub-marginal, despite the sums spent in irrigation. Nowadays many irrigation farmers are seeking some other use of their land than crop raising. In most, if not all, of the Western States the immigration departments are not encouraging new settlers to take up lands. It would have been a better policy to intensify culture on the better grades of unirrigated lands than to extend the frontier of utilization by irrigation. The mistaken irrigation policy was due in part to fluctuations in market prices of agricultural products and in part to the attempt to make supermarginal land out of submarginal land, neglecting the expenses of accomplishing this. In other words, the principle of net income was not applied.

Property Rights in Land Beneath the Water.—Two kinds of land beneath water must be distinguished when property rights are considered. The beds of navigable streams and lakes in the United States are generally public property, and such land may not be sold, although it may be leased to private individuals. The beds of oceans are common property.

[1] *Reclamation Record,* published monthly by the Bureau of Reclamation, Department of Interior, Oct., 1923, pp. 295-296.

Illustrating common property in land beneath water is the oyster land under Chesapeake Bay, where any one who has a boat and the proper tools, may gather oysters. The advantages of primitive communism of this type is that it is easy for a man to become a catcher and seller of oysters—in brief, a capitalist in a small way. The disadvantage is that there is no incentive to conserve a valuable natural resource. With no one having the responsibility of ownership, each oysterman will take as much as he can, which means stripping the oyster beds. To restock the beds, planting of old shells, or bushy tops of trees is necessary in order to catch the floating oyster spawn. But no one cares to go to such trouble if a thief can carry off the product on any dark night.

What the oyster industry needs is a different system of property rights. At first sight it seems as though full private property would remedy this uneconomical exploitation of oyster resources. But a system of leasing would on the whole be better. Public ownership with leases to private individuals not only would give a chance for adequate control, but also would encourage private initiative if the leases ran for twenty or forty years. Such leases can be regulated so as to protect the public against monopoly and against wasteful operation of oyster beds.

Public Interest in Water Rights.—Throughout this chapter it is apparent that property in water offers a veritable patchwork of rights. Yet water is so essential to the proper use of land, particularly in arid regions requiring irrigation, that it seems necessary to introduce some orderly system. *The most practical standard for policy-makers to work for is a large degree of public ownership, or at least public control, administered to assure equal opportunity to all private individuals and*

to furnish an inducement to the most productive combination of land and water.

Summary

In economics, *land* includes all natural resources, and, therefore, water; water rights also affect the productive use of land. Uses of water are: (1) consumption; (2) navigation; (3) power; (4) irrigation; (5) provision of food and other materials (fish, kelp, etc.). These uses compete when the supply of water is limited. When there is not enough water to satisfy all needs, *property in water* arises. This is peculiarly subject to monopoly control, and, therefore, must be regulated in the public interest. Property in water for domestic consumption should be public. Navigable waters are usually either free goods or public property. The oceans are free. Navigable lakes and streams are public property; non-navigable lakes and streams are usually the property of owners of adjacent land. Rights of riparian owners on navigable streams to develop water power are restricted in the public interest. Property in irrigation water has been assigned according to three different systems, based on: (1) the doctrine of appropriation; (2) the doctrine of modified riparian rights; (3) the civil law doctrine; of these the third gives the most effective public control. Property in land under navigable water is public; but often, as in the case of oyster beds, leasing of this land to individuals will bring more efficient use. Policies with respect to water should provide for a larger degree of public ownership, administered so as to secure equal opportunity to individuals and so as to encourage production.

CHAPTER X

OWNERSHIP OF LAND

THE ownership of land raises problems which are fundamental to the efficient use of land. Throughout the development of the United States as a nation it has had to face the problem of what should be done with the public domain. The original policy was to transfer this land from public to private ownership as fast as possible in order to stimulate the development of the country. For this purpose the Federal Government issued land grants to States and to private railways and enacted preemption and homestead laws.

Although under this policy the United States progressed rapidly in material ways, difficulties soon appeared. It was discovered that under private ownership forests were cut down but not grown, and that coal and oil and other minerals were taken from the land in such quantities that the national defense was endangered. Accordingly, during President Roosevelt's administration, the popular conservation movement forced a modification of this policy of exploitation, to the extent of keeping in public ownership certain tracts of forest land and certain mineral rights. National forests, and reserves of oil-bearing and coal land, for the most part date from this period. So far as agricultural land was concerned, the policy of transferring to private owners continued substantially unchanged.

While this process was going on, the growth of cities

gave rise to problems of a different nature. The intensive use of urban land in the largest cities brought about congested traffic and living conditions which menaced life, limb, and health. At the same time increasing land values, taxes, and other costs of owning and using home sites created a large class of urban tenants and a housing problem.

These two lines of development illustrate the general problem involved in the relationship between the ownership of land and its utilization. Whenever a rapid development of land has seemed desirable, we have put it in the hands of private individuals. On the other hand, when it has seemed necessary to withhold land from exploitation, that is, to conserve the services of land, we have, in some instances, transferred it to public ownership. In this way the sphere of *public* property has first been contracted and later extended, which amounts to the same thing as extending the sphere of *private* property and then contracting it.

But the transferring of titles from the public to private individuals, or from private persons to the public, is not the only way of regulating the use of land. While retaining public property, it is possible to lease land to private owners for operation under suitable restrictions; or the use of *privately* owned land may be regulated by governmental agencies without any change in ownership. The latter method is called the "social control of private property."

Varieties of Land Tenure.—Land tenure is not so simple a matter as the sharp division between public and private property would seem to indicate. Under private ownership, for example, land may be utilized by the owner, by a tenant under lease from the owner, or by a number of individuals in coöperative ownership. More-

over, the rights of some landowners are more intensive than the rights of others. The owner of an urban lot in a city which has been zoned is not free to put up any kind of building he chooses, but is restricted in his use of the land by the provisions of the zoning law; whereas the owner of a lot in a city which has *not* been zoned is not so limited in his freedom to use land as he sees fit. Thus, the landowner in an *unzoned* city has more intensive property rights than the landowner who must conform to a zoning law. A similar shading of property rights applies to land that is leased. The man who controls land under a lease has not the same freedom to use it that the landlord has. But the man who operates his own farm has greater freedom to use his land as he wishes than the city man has to use his lot. So we find a gradual tightening of the restrictions on private property rights from those of the man who has widest scope to those of the man whose land or whose business is strictly regulated because it is "affected with a public interest."

Public ownership of land does not have quite the same varieties of tenure. Nevertheless, under public ownership, land may be operated by a public agency, as parks, streets, highways, and national forests are, or by private individuals under lease from a public agency. In these cases the title to land rests with the public. In the case of public utilities which use land for various purposes the title to the land rests with private persons subject to regulations by the public. In these two illustrations a distinction should be drawn between full public property and public or social control of private property.

Common property exists in a few isolated instances, and is a survival of former times. In most cases, property that is owned in common is passing over to public

ownership. An example of common property in land is the town common of old New England. Such land was owned jointly by all the inhabitants of the town, and every inhabitant was free to use it to the extent of his landholdings elsewhere. An outsider coming to the town had no property rights in the common. Each inhabitant owned a part of the common and could allow an outsider to use that portion, but the common as a whole could not be bartered away without the consent of all. This is the origin of the Boston Common. The land owned by Indian tribes is still largely common property that is administered by the Federal Government in trust for the Indians.

Nature of Property.—When the man on the street uses the term property, he applies it to physical things. This is not correct. In law and in the daily dealings among men property consists not of physical things but of exclusive *rights* to things. By leasing land you relinquish for the time being, that is, for the life of the contract, your right to personal use of it. But you still have the right, recognized in the law, to regain the land for your personal use if the contract is not fulfilled or when it expires. Consequently, property has been called a *bundle of rights.* When a landowner is subjected to some form of social control, as he is under a zoning law, the number of sticks in his bundle of rights is decreased. This is a convenient way of thinking of the social side of private property.

Property, therefore, means an exclusive right to control an economic good. Private property means the exclusive rights of a private person to control an economic good. Public property means the exclusive rights of a political unit (city, state, or nation) to control an economic good. Common property means the exclusive rights of some kind of community to control an economic good.

Extent of Private and Public Land Ownership.—The Federal Government is the largest single landowner in the United States. This is usually forgotten by those who declaim against a tendency toward the formation of large private landholdings and who advocate an extension of the sphere of public property. Moreover, this holds true despite the strenuous efforts of the government in the past to transfer land to private owners.

Altogether the Federal Government holds title to 376,695,619 acres of land (excluding Alaska), which is about 19 per cent of the total land area. Approximately 182,000,000 acres of this land is the unreserved and unappropriated part of the original public domain; the same number of acres is included in national forests, while almost 8,000,000 acres are devoted to national parks and monuments and 4,500,000 acres are power site reserves. To this acreage may be added 378,165,760 acres in Alaska, several million acres under the administration of the national army, and 27,660,316 acres in Indian reservations which the government administers in trust for the Indians. Add to these figures the 31,049,956 acres owned by the States and probably 3,000,000 acres more owned by cities, and we find that approximately 870,000,000 acres of land in the United States and Alaska are publicly owned. This is about 38 per cent of the total land area of the United States and Alaska. The other 62 per cent of our land area is distributed among the millions of private citizens.

Ownership of Urban Land.—The greater part of the urban area is privately owned. No one doubts very seriously that the incentive of private ownership has resulted in a rapid growth of cities or that the public has profited greatly from the immense amount of services obtained from land through private initiative. At the

same time one must recognize that much of the poor planning, unattractiveness, and unhealthful and congested conditions of cities is due to the impulse of unrestrained profit-seeking. Hence, the community no longer allows itself to be led passively by private individuals whose vision is that of profit. Measures of control are applied in cases where the public interest outweighs the private interests.

Still the private ownership of urban land has some unquestioned advantages. It stimulates care of property; it brings improvements which otherwise might be delayed; it induces a rapid development of urban land to meet the needs of a growing city population; and it tends to encourage good citizenship.

From the public point of view, the first outstanding problem of urban land ownership is to keep these advantages and to avoid the bad results of allowing private owners to use their land as they see fit regardless of the rest of the community. For this reason the "social side of private property" has been developed by slow changes which have tended to circumscribe the private rights to land. In some cases the public control of the use of land has taken the form of transferring privately owned land to public ownership. We shall return later to this aspect of the ownership problem.

(1) *Home Ownership.*—One way of helping to develop a social point of view in the use of property is to encourage ownership of the home. The desirability of home ownership is an article of faith of most governments as well as of real estate companies. It is well pointed out that ownership of the home gives to the owners a sense of security, of stability, and of permanence in the community. Such owners are more ready, therefore, to take an active part in the government and improvement of the community. In

short, home ownership stimulates good citizenship. A well-developed sense of civic responsibility is after all the best single formula summing up the motives which lead to the betterment of the community.

It is somewhat startling then to learn that in 1920 less than half of the homes, other than farm homes, were occupied by the owners,[1] and further to learn that only a fourth of all the homes, not on farms, are owned outright, *i.e.*, with titles unencumbered by mortgages.[2] Some encouragement may be had from the fact that the percentage of home ownership increased more during the decade ending in 1920 than in the previous two decades, although, on the other hand, the percentage of free to mortgaged homes declined more during the last decade than previously.[3]

When the data by districts and by cities are analyzed, we find that a high degree of urbanization, combined with a rapid rate of urban development, usually coincides with a low percentage of home ownership and a high percentare of mortgaged homes. The explanations of this tendency will vary with the peculiar conditions existing in each locality. But the common experience of practically all large cities has been that the great increase in population could not be housed on the economically available land area except in multiple-family dwellings, and that the greatly increased costs of building and owning a single-family home have induced many people to prefer living in apartments.

By way of illustration, take the situation of a newcomer to a large and rapidly growing city. If he desires a single-family home, he has to locate at some distance from the business center of the city and must lose time

[1] Table IV, Appendix.
[2] Table V, Appendix.
[3] Tables IV and V, Appendix.

and money in traveling from his home to his place of business. Added to this inconvenience, he finds that building materials are expensive and land values and taxes are high, so that considerable capital is necessary to establish his home. If he has not sufficient capital in hand and wishes to borrow, he quite often finds that the supply of capital for building is limited. Weighing these disadvantages against the advantages of living near the center of the city, it is easy to see why the newcomer so often joins the urban tenant class and pays the landlord for assuming the financial burdens and other responsibilities of ownership. The demand of new arrivals in cities for rented apartments is swelled by the demand of many older inhabitants who find the ownership and operation of separate homes too expensive or too inconvenient to continue.

The future apparently does not hold such bright prospects for the would-be owner of a single-family residence as could be desired. The cost of building materials seems destined to increase rather than decrease, since the timber supply is dwindling and insufficient steps are being taken to grow new forests. The cost of labor is already high, and the building trades unions are apparently strong enough to keep wages at substantially the same high level. With the expenditures of local governments increasing, there is small likelihood of reduced taxes on real estate unless the tax burden is more widely diffused. Moreover, land values are already high in the largest cities and do not seem destined to fall generally.

(*a*) *Private Efforts to Encourage Home Ownership.*—The first thing that private individuals can do and are doing is to make economically available a larger urban land area for home-building sites. However, a wholesale development of subdivisions would be suicidal. The mar-

ket for homes is essentially local, and local conditions are decisive factors. In some cities a new subdivision would be doomed to failure from the start because the city is already over-expanded. But where there is a large demand for home sites and no land area is economically available, private efforts can make land available by cheapening transportation and by increasing its efficiency. The automobile has been a great factor in encouraging home building on land which used to be considered "way out in the country." Electric railways, too, have great possibilities in this direction, provided they are not stifled by an unwise and inflexible public policy of regulation or ruined by the competition of unregulated and "publicly subsidized" motor-bus transportation. However, electric railways are limited by the necessity of large initial capital expenditures and ordinarily have to wait upon the development of an urban area. In some circumstances, private persons will find it profitable to open up a new area by building their own electric railway and subsidizing for a time its operation by the railway company. All these means of cheapening transportation or making it more efficient are within the reach of private individuals and serve to make a larger land area available for home building.

Private efforts can accomplish most in stimulating home ownership by increasing the facilities for financing prospective home builders. Undoubtedly the development of the real estate mortgage market aided the increase of home ownership between 1910 and 1920, although this development was made possible by larger earnings and savings during this period, and ignorance or distrust of other ways of investing surplus funds. The various agencies which extend credit to owners of homes have it in their power to give even greater service in the

future than in the past. Building and loan associations, for example, are more exclusively devoted to the interests of home owners than any other single credit agency. Few people realize that the total assets of all these associations amount to more than the capital of all national banks. Here is a great source of funds available to people who must borrow in order to acquire their homes, as well as a great opportunity for saving for that express purpose. There is no reason why these associations should not increase their services to the community if they are properly manned and regulated and sufficiently advertised to attract the savings of people. But it would be useless for building and loan associations to advertise if there were no desire to own a home. To stimulate this desire, the legitimate advertising of reliable real estate dealers in "own your home" campaigns is a worthwhile contribution to the community.

The cost of building homes can be greatly reduced by private efforts as well as by the aid of the government. Concrete, brick, and other substitutes for wood are more and more used for construction. This saving in wood consumption, however, is offset by man's ingenuity in finding new uses for wood: for example, water pipe made from wood fiber. Constant search for new and cheaper wood substitutes, together with the utmost economy in using wood, is necessary, and the government is helping by undertaking the scientific search for substitutes. To reduce labor costs in building we need to make arrangements to prevent the necessity of paying that portion of high wage rates which is now paid to tide workers over periods of seasonal unemployment. If building operations were regularized, wage rates might be decreased without cutting yearly earnings, because more days during the year would be worked. This can be done by dovetailing

seasonal occupations, and if private efforts are unavailing to accomplish this, the application of some stimulus by public agencies may be necessary.

(*b*) *Public Efforts to Encourage Home Ownership.*—The public policy of regulating transportation agencies bears upon the problem of making economically available a larger land area. Regulation of electric railways has gone so far in many cases that railway companies have been handicapped in attracting to the industry the capital necessary to finance extensions, especially in the face of the competition of tax-exempt securities. In a few cases, notably New York City, the price of electric railway service has been held down for political reasons, so that the companies with difficulty maintain the existing plant and equipment, to say nothing of making extensions. When this is the case, and extensions of electric railway service become extremely urgent, they have to be paid for out of public funds, raised from taxation or a bond issue—which is only "robbing Peter to pay Paul."

Another factor in the transportation situation is that "motor-bus" companies are pushing to the fore. To the extent that they furnish cheaper and more adequate service to out-lying districts of the city, they help to make a larger area available for home building. But the competition with electric railways, not only as to service charges but in other ways, should not continue unchecked. At present "motor-bus" companies are practically subsidized by the public in that they do not pay taxes or franchise fees comparable with those paid by electric railways. The public policies of regulating these transportation agencies need revision in these particulars.

There is something to be said for public ownership of undeveloped land for home building purposes, provided the homes and the sites are transferred to private owners

after being developed by public agencies.[1] Not only could undeveloped land be carried by local governments at less cost than by private real estate companies or private owners, but, when ripe for development, the utilization of the land in harmony with the development of the whole community could be perfectly controlled. However, would the home owner take the same pride in a "ready-made" home received from a public agency as in a home of his own planning? Again, public administration in this country does not command as much confidence as, for example, in German cities, where public development is carried on. There is also ground for doubting whether the initiative of public agencies is great enough to develop land with sufficient rapidity to meet the demand. Nevertheless, a policy of public development of urban land is worthy of consideration.

Public policies can contribute something to encourage home ownership in reducing the costs of acquiring and holding a single-family home. To reduce the costs of building materials, a more active policy of reforestation on the part of the government will at least lay the basis for holding lumber costs down in the distant future.[2] Various departments of the Federal Government are already working on possible substitutes for wood in building construction. The problem of cutting labor costs in building, from the point of view of public administration, is mainly the elimination of seasonal unemployment. Public employment exchanges help the workers to some extent, but the relief of seasonal unemployment is largely in the hands of private employers. Since the disadvantages of public unemployment insurance are so great, a legislative program of this character seems inad-

[1] Bruce Bliven, "Do Workingmen Deserve Homes?" *New Republic*, March 5, 1924.

[2] *Post*, pp. 232-4, also Ch. VIII.

visable at the present time. But this need not prevent those engaged in industry from attempting to regularize production by a private "insurance by industry" scheme, provided it is on a sound actuarial basis. Such a scheme is being worked out in some industries, notably the Chicago men's clothing industry and the Cleveland ladies' garment industry. Finally a change in our policies of taxation, so as to take some of the heavy burden off real estate, would help to stimulate the desire for home ownership.

(*c*) *The Prospects for Home Ownership.*—Despite all that public or private enterprise may do to stimulate and increase home ownership, tenancy in our largest cities is destined to increase. The congestion of population and the limitation of land area available for building, whether due to lack of street space or lack of transportation facilities, necessitates more intensive use of land in the form of taller buildings of the apartment-house variety. There is no escaping the fact that apartment buildings are bound to increase in number in large, congested cities, and that we are going to have a large class of permanent urban tenants. Just as in the case of agricultural land, tenancy is not wholly undesirable. Many people are in occupations which necessitate moving often from one city to another. Young people especially do not usually settle permanently in one place, and they often need a dwelling which would not tie them to one spot as might the ownership of a home. Furthermore, in small or moderate-sized cities, tenancy is often looked upon as a temporary stopping place on the road to ownership of a detached residence. For this large group of temporary and shifting tenants, apartment houses furnish a much-needed service, particularly in view of the expense nowadays of acquiring a home outright, an expense which most young

people cannot meet at the beginning of their careers. But what of the permanent inhabitants? Are they to be condemned to apartment house life? It is a pressing problem to reconcile this inevitable growth of apartment dwellings and permanent tenancy with the social benefits that flow from ownership of single-family residences. One answer to this problem may be found in coöperative ownership of apartment buildings.

(*d*) *Coöperative Ownership.*—When coöperative ownership of apartment buildings is discussed, two varieties of ownership should be carefully separated. The variety known as "group ownership" is simply the incorporation of the several owners of an apartment building, each one's ownership being limited by the amount of stock held. The owners may or may not occupy the building. The variety known as "tenant ownership" means that each tenant is part owner to the extent of the space he occupies. In this case the owners ordinarily occupy the building. When they move away, the tenant-owners have to dispose of their shares of ownership. Coöperative tenant ownership is a halfway station between tenancy and full ownership. The tenant-owner eliminates some of the disadvantages of owning a detached dwelling, but retains a "stake in the land." At the same time he takes upon himself the disagreeable features of apartment house life and the complications necessitated by the overhead features of joint ownership.

Coöperative ownership of dwellings is not a new idea. It has been in use in England, France, and Italy for centuries.[1] In the United States it has been used in New York for thirty years and in Chicago for ten years. In the former city one concern alone has sold over one hun-

[1] A. W. Swayne, "Coöperative Apartment Buildings," *National Real Estate Journal*, July 2, 1923, p. 41.

dred apartment buildings on this plan,[1] a plan which seems to be gaining in popularity in other large cities.

Advocates of this method of ownership justify it on the ground of economy, since it "cuts the cost of a desirable place to live by almost one-half." The savings are due to the fact that tenant ownership of an apartment building eliminates the following: (1) Losses from vacant apartments; (2) losses from uncollectable rents; (3) expense of management and advertising; (4) cost of excessive decorating and repairs demanded by tenants; (5) cost of repairs necessitated by frequent shifting of tenants; (6) the profit which an owner of a rented building would make on his investment;[2] this results in a 20-40 per cent saving in rent, it is said. In addition, this coöperatively owned apartment offers an opportunity for investing small savings in a home, which otherwise mght not be available.

The defects of coöperative tenant ownership have been largely administrative. It is often difficult to get each "tenant-owner" to do his share of the work, and, through lack of experience in property management, an inadequate allowance for depreciation and maintenance may be made. One difficulty inherent in the system itself is the difficulty of regaining money that has once been invested. Perhaps it is because coöperative ownership is not fully understood, since it is still comparatively new in this country, that the "marketability" of these coöperative shares is admittedly "somewhat less than that of other types of investment," although "possibly greater than that of private residence property."[3] Defects of management and investment may perhaps be overcome as coöperative ownership comes into wider use. In its present form tenant

[1] *Report of Mortgage and Finance Division*, National Association of Real Estate Boards, Nov., 1923.

[2] *Ibid.*

[3] Douglas L. Elliman, *Coöperative Ownership*, Pamphlet published by Douglas L. Elliman & Co., New York, 1923, p. 13.

ownership of this type is not invariably successful or desirable, but it is worth experimenting with as an attempt to work out a suitable system.

(*e*) *Leasing.*—Leasing is the only alternative to cooperative ownership where conditions prevent the owning of detached homes. Many people, particularly landlords, advocate long-term leases, but this is not an unmixed good. For those who expect to be permanently located in one community, a properly drawn long-term lease has some merits. On the other hand, those tenants who anticipate a frequent change of residence or who look forward to owning their home, do not want to be bound by a long-term lease. They want to be free to move when they wish.

The private ground lease system has sometimes been advocated as a means of encouraging home ownership. Ground leases of this character are chiefly long-term leases. Baltimore, Washington, and Philadelphia have used the private leasehold system extensively for residential land. In Baltimore, however, the type of home built on leased land was found to be generally inferior in quality, because a man has not the same interest in the buildings when the land is not his own.

This objection does not hold with equal force in the case of commercial property, and hence we find that an increasing amount of land in business and industrial districts is being developed under the private leasehold system. The business property in the "loop" district of Chicago, for instance, has been built up largely on land leased from private owners for a long term of years. The advantage of the private leasehold in such cases is that an owner who finds himself unable for lack of capital to utilize the land to the fullest extent may lease to others having the necessary capital the right to develop the land

intensively. Conversely, individuals who have enough capital to put up a tall office building may not have enough to do that in addition to buying the land outright. By paying a fixed rental under a leasing arrangement for a period of years they are able to make better use of their capital. These are the principal reasons why the utilization of urban land for commercial purposes has been based so extensively on the private leasehold system.

Moreover, private leaseholds have proved moderately successful for semi-public institutions, like universities, which desire to retain ownership of the fee while allowing the land to be utilized until the school needs it for future expansion.

The University of Washington is reported to have made good use of ground leases. The university's policy was based on a desire to capitalize its value-creating power in the community, while at the same time it controlled the land in the interest of future university expansion. The fears of opponents of the leasehold, that settlement would be attracted first to the freehold lands, were not realized in this case. The success of the private leasehold system in this instance was due in large measure to revaluations of property and readjustments of rentals at intervals not less frequent than ten or fifteen years. Furthermore, through its control of the leasing terms, the university was able to restrict apartment houses and commercial buildings, to segregate fraternities and sororities, to set aside land for primary and secondary schools, and to prevent speculations and political interference. On the other hand, some other universities using the leasehold system have not had the same success, probably due in great measure to less careful administration.

(2) *Private Ownership of Other Kinds of Urban Land.* —The congestion of population is fully as serious as the

problem of tenancy and home ownership. Realizing the menace to life, limb, and health of too great congestion, numerous regulations have been imposed upon private property, and many other schemes are proposed to solve the problem. Most of these new schemes would only aggravate the present conditions. In New York City, for example, it has been suggested that "three-deck" streets for pedestrians, street railways, and automobiles, be installed,[1] that more bridges be built across the Harlem and Hudson rivers, that more tunnels be placed under the rivers, and that new avenues be cut through or present streets widened. The experience of Manhattan Island after the subways were built should teach the lesson that these proposed measures are not permanent solutions of the problem. They would simply make it easier for a time for the existing population to move around. Sooner or later numbers are likely to increase and the congestion become as bad or worse than before.

The plan which at the present time seems most likely to afford permanent relief is the limitation of the height of buildings. If buildings over a certain height were prohibited, business centers would have to spread out, and sub-centers would probably increase in number and in importance. Many cities are working along this line already, by "bulk zoning" and "set-back" regulations.[2] Much remains to be done, however, in limiting the height of buildings to the point which will materially affect the congestion resulting from intensive utilization of land. The movement of many factories to small towns or suburban areas also contributes to the relief of this congestion in large cities.[3]

[1] *New York Times*, Aug. 19, 1923.
[2] Frank B. Williams, *The Law of City Planning and Zoning*, Macmillan, 1923. Part III, Ch. V; Part IV, Ch. III.
[3] Silas Bent, "Factories in the Country," *World's Work*, March, 1924.

(3) *Public Control of Private Property Rights in Land.*—These regulations of privately owned land used for commercial purposes illustrate the fact that in between full public ownership and exclusive private rights to land there is a "twilight zone" of public control of private rights. This is the "firing line" of most controversies concerning public or private policies of utilizing land. As was said earlier in this chapter, from the point of view of the private landowner, this regulated sphere of private rights constitutes the social or public side of private property. From the point of view of the public these regulations safeguard the public against misuse of private rights to use land. Under some circumstances public control may be an opening wedge which might possibly lead to complete public ownership, as was the case with the Detroit street railways a few years ago.

The justification of the restrictions imposed by legislatures and courts upon the private rights to use land is found in the public nature of the interests protected. The protection of health which building codes are intended to promote is without doubt a legitimate basis for restraining private rights. The protection of public safety embodied in limitations of the height of buildings is very evident when we consider the danger to life and limb in congested streets and also the difficulty of fighting fires in buildings more than 150 feet in height. Zoning laws are usually accepted as valid since they accomplish an object which has been called the "conservation of economic values," in the sense that land values are stabilized and preserved by a rational, orderly development of a city. Real estate license laws affect land utilization indirectly, of course, but they have been sustained on the ground that they serve to protect the public from fraud and deception. Reasonable regulations of private rights, to se-

cure the above objects, will meet with comparatively little objection.

The extreme limit to which we have gone in regulating private rights in land utilization is found in rent regulating laws and laws regulating street railways. The avowed purpose of these laws is to protect the public against economic coercion—that is to say, to protect the users of necessary services from possible extortionate charges for those services. Regulation in both instances involves fixing the price of the services, which in part are rendered by the land. The street railways, since we have granted them monopoly privileges in the form of exclusive franchises, can hardly object if public agencies see to it that the public is not exploited by exorbitant street car fares. But street railway owners may legitimately remonstrate if public regulation is carried so far and pushes fares so low that it amounts to public exploitation of private property. Where to draw the line between high service charges (private exploitation of the public) and low service charges (public exploitation of private property) is a complicated problem into which we need not enter.

The wisdom of rent regulation acts of New York, the District of Columbia, and other States, although admittedly only emergency measures, may fairly be questioned. Consideration of these acts raises the question: Is it reasonable to limit the rents which may be charged for dwelling space? The answer of the courts in passing upon the validity of these laws was: Yes, as an emergency measure, when an acute housing shortage like that of 1920 makes it possible for unscrupulous landlords to charge exorbitant rents for such a necessary service as shelter. The economic coercion which these laws sought to remedy was of this nature: A tenant, at

the expiration of his lease, had either to pay what the landlord asked or be evicted. The housing shortage was so acute that, if he were evicted, there was no other place for him to obtain similar shelter at less than the new charge. Hence, he had to stay and pay the price or go without suitable shelter. To protect the tenant, the government stepped in and said that the landlord may not evict for non-payment of a higher rent. In effect, the government said to the landlord: "You must continue to render the same service at the same price *to the same people.*" Thus the landlord is deprived of the right of regaining the use of his land when his tenants' leases expire.[1] According to present standards, this is certainly an extreme invasion of private rights, even for an emergency; since it essentially transformed the utilization of land for residential purposes into a *public utility,* and regulated it as such. Almost all of these emergency measures have been repealed or have automatically expired, but they serve as illustrations of the degree of public control of land utilization to which we might go, whether wisely or not, if the congestion of population and shortage of homes should call for such drastic action.

(4) *Public Ownership of Urban Land.*—In considering the problems of urban land ownership we must reckon also with the publicly owned area. Information about public land ownership has been obtained from a limited number of cities by the Institute for Research in Land Economics and Public Utilities and is tabulated in the appendix.[2] The figures to date show that a little less than 30 per cent of the total land area of thirty cities is pub-

[1] Block v. Hirsch, 41 Sup. Ct. 458 (1921). The present (1924) law in Germany goes even further in prohibiting the eviction of a tenant for non-payment of rent. England has similar legislation, more drastic than in the United States, but less extreme than in Germany.

[2] Table III, Appendix.

licly owned. Of this publicly utilized area considerably more than half is used for streets and alleys, and the remainder for parks, municipal buildings, and other purposes.[1]

It is quite likely that public ownership of urban land will necessarily be extended somewhat in the future. Increasing use of automobiles has intensified the demand for areas useful for traffic and parking. Also the area used for public parks will undoubtedly become larger with the growing recognition of the importance of light and air to the health of a congested community. But so far as public ownership for the purpose of developing land for private use is concerned, this had better wait upon such an improvement in public administration as will assure a rational and sufficiently rapid development. There are other ways of controlling the development of urban land to safeguard public interests which are at present better than the method of transferring land from private to public ownership. We may be obliged to come to public development in time, but not immediately.

As soon as public property is established, the great problem of public ownership is, whether the land should be used by public agencies or should be leased to private individuals for utilization. Experience has shown that the well-recognized public services, such as streets, parks, and schools, should be administered by public agencies. Some services which are just on the verge of being recognized as public are performed by private corporations operating under a franchise or lease granted by public agency with suitable restrictions. This is the status of most electric railway systems. Great care should be exercised in granting these franchises to use public land, lest their terms be so restrictive as to hamper the electric rail-

[1] Table I, Appendix.

way in extending its services to meet the community's needs. In some cities also the public owns a vacant area which might profitably be leased to private individuals for short terms with suitable restrictions, so that the public may regain exclusive control when the area is needed for some public use.

Enough has been said, no doubt, to show the nature of the problems which arise from the ownership of urban land and its effect upon land utilization, and the means of solving those problems. On the whole, property rights of urban landowners are more restricted by some means of public control than almost any other class of property rights. At the same time we have gone further and declared that certain services of land are so important to the public that the land which provides the services should be publicly owned. On the other hand, private ownership of urban land is, as a general rule, the best inducement to the rapid development of land for relieving the housing shortage and to the encouragement of home ownership for establishing desirable standards of citizenship.

The Ownership of Agricultural Land.—One of the objectives of a land policy is to secure a large production of agricultural products while keeping a sound proportion to other forms of production. Some writers believe that our present system of land ownership impedes production and that we shall not get the best production until the land is nationalized and becomes public property. Socialists have brought forth schemes for the public ownership and operation of land, but the experience of the world indicates that private property in agricultural land offers the best inducement to production. This is so because the nature of agriculture makes it so. The owner-operator is his own employer. Every hour he puts into intelligent labor brings its reward; hence the discussion of an

eight-hour day in agriculture is beside the point—except in those specialized types of agriculture in which substantially all work is done by hired labor. Every hour of labor adds to the product—which goes first of all to feed the farmer and his family and secondly to swell the surplus used to feed the urban population. It is by the sale of this surplus that the farmer supplies himself with the comforts and luxuries of modern life. If he stops working he hurts himself first of all. Russia's recent experiment in communistic production confirms this principle.

From the standpoint of the *distribution of wealth* probably no scheme could be devised which would secure to each farmer the fruits of his own toil so well as the present system of family-sized farms—granting always that the share going to farmers is a fair share of the production of wealth in general. If each farmer has the proper-sized farm, his income is ordinarily in direct proportion to his expended efforts.

Many object because the increase in the value of farm lands goes to the farmers, holding that this value was "created by society" and ought to go back to society. A full answer to this argument cannot be made here. It is perhaps enough to point out that in most cases those who cleared the land and brought it into use often went for several years without a full income and even at the present time are without a full income because the farm may not all be cleared. Up to about 1900 they had to accept ruinously low prices for their products. Meanwhile they sacrificed more lucrative opportunities, health, and their families while on the frontier, and sometimes pioneers even lost life itself—all this while they were living in the hope that increased land values would reimburse them for sacrifices. And if there is an "unearned income," how could it be distributed any better

than by having it go to the owners of land in proportion to the areas cleared and made productive? The distribution of agricultural land among 6,000,000 farmers is evidence of a fair distribution of the so-called "unearned increment" in land of this character.

(1) *Public Ownership of Agricultural Land.*—The question whether we should be able to get high productivity and efficiency of management under public ownership and operation is a serious one. Our past experience with public property leads us to the conviction that agricultural land is the least desirable of all properties for government ownership and operation. If public ownership were established all farmers would be agricultural tenants of the nation, and as tenants could not be expected to take great interest in developing a property which they did not own and from which they could not expect much increase in their income as a result of their added efforts. In all probability agricultural productivity would fall off instead of increasing.

The alternative to State tenancy would be public cultivation, which has many more serious practical defects. How can there be any unified superintendence in the cultivation of land by a State? Yet that is the kind of management which is necessary for best results under intensive cultivation. Experience in farm management has shown that the highest production is most often obtained when cultivation is under the superintendence of one man, and this requires farms of a comparatively small area. The impracticability of the alternatives to private ownership has prompted even some moderate socialists to make an exception of agricultural land when they urge public ownership of natural resources.

In presenting private ownership and operation of agricultural land as the standard form of tenure for policy-

makers to work toward, it is not intended to deny that there is some place for public ownership and operation of agricultural land. There is something to be said for the ownership of a limited amount of agricultural land by the government, for colonization purposes while such ownership for "agricultural experiment stations is taken for granted." The diffusion of knowledge gained from public agricultural experiments will do much to raise the standards of the agricultural industry. Moreover, California has shown that public colonization of land, if properly administered, can be successful. Notwithstanding these useful functions, the interests of individuals and of society are best served by a system of private owner-operation, and this should be the end which those who formulate utilization policies should strive to reach.

(2) *Farm Tenancy.*—It has been pointed out that *owner-operation* makes for stability of national life. The owner has a stake in the land. The propertyless individual thinks he has nothing to lose by a change and may expect to gain by a "new deal." This is true of both city and rural laborers and tenants, and a nation with a large number of these is in perpetual peril. Mexico is an example. From the standpoint of a stable agriculture, the highest production over a long period of time and the best social conditions are generally obtained by as much owner-operation and as little tenancy as are consistent with the circumstances of each country. A land policy must therefore include this important problem of keeping farm tenancy at a normal and healthy minimum.

For the past thirty years in the United States farm tenancy has been increasing. In 1880 25.56 per cent of all farms were occupied by tenants. This figure was increased to 28.4 per cent in 1890, to 35.3 per cent in 1900, to 37.0 per cent in 1910, and to 38.1 per cent in 1920.

The declining rate of increase may be taken as a promising tendency. In some States, Maine, for example, the percentage of farms occupied by tenants is less than five; in other States the percentage is very high, as, for example, in most Southern States, where over half of the farms are occupied by tenants.[1] However, these figures for tenant farms do not give a complete picture of the situation. For the United States as a whole 42 per cent of all improved land in farms was rented in 1920. In the tier of States running north from Texas to North Dakota about half the improved land is rented.[2]

The two sets of figures, taken together, give some insight into the real purpose of tenancy as a form of land tenure. The Northeastern States, which have a declining percentage of tenant farmers, have also a low percentage of rented improved land. The Middle Western States have had a climbing percentage of tenant farmers and a large percentage of rented improved land. New England's loss of agricultural supremacy in competition with the more fertile regions of the Middle West has brought with it abandoned farms and declining land values, making it easier for tenants to become owners and, instead of renting, to purchase at $20 to $30 an acre all the land that they can use. In the region known as the "bread basket of the nation" agriculture has boomed, land values have risen, and the young man starting in the industry has had to serve an apprenticeship as a tenant in order to accumulate the funds with which to purchase enough land at $100 to $200 an acre to "make a go" of his farm. Similarly many owners, who, with the aid of new machinery, find themselves able to handle larger farms than they are able to buy, rent improved land for a time before

[1] Table VII, Appendix.
[2] Table VIII, Appendix.

purchasing it, because the land values are so high that considerable capital is necessary in order to buy land outright. Tenancy is, in fact, as these figures are interpreted, a "rung on the agricultural ladder." And it is an increasingly used "rung" in regions where high land values have made necessary capital investments of $15,000 or $20,000 to start a farm. For a large number of aspiring young farmers a tenant period is simply a stage in the accumulation of experience and funds, by means of which the full stature of an owner-operator is attained.

Viewed in this light, farm tenancy is not altogether undesirable. But not all tenancy is of this character. Some tenants are not and never will be sufficiently competent to manage a farm on their own account. If they are poor workers as well, they are a liability rather than an asset to the industry and may profitably be weeded out and diverted to some other occupation more suited to their capacities; but there are other tenants who will never be capable of managing a farm, although they are excellent workers when adequately supervised and directed. To this class belong most of the "cropper" tenants of the South, largely negroes and "poor whites," who, left to themselves, are inefficient workers and are easily imposed on by others. However, it is the young farmers using tenancy as a path to ownership whom we should protect and encourage along the road.

Hardly anything has been done to improve the landlord and tenant relations on the farms of this country. Certain things need to be done. For one thing, because tenant contracts are usually for short periods, the tenant receives no encouragement to improve the property, since he realizes that the benefits of improvements may go to someone else at the expiration of his lease. Undoubtedly short-time leases are more desirable than long-term con-

tracts, since the short lease is much more flexible and adaptable to price changes. But under a short lease, if the landlord does not make improvements, the tenant certainly will not make improvements, since they would probably benefit someone else more than himself. Hence the farm stands still. In order to encourage tenants to make improvements under short-term leases, some method of paying him for unexhausted improvements is needed. England has a law compelling the landlord to pay the outgoing tenant the value, as determined by appraisers of any improvements made but not worn out by him. The English example is worthy of emulation. As suggested also by Dr. L. C. Gray, tenant contracts should be scientifically drawn up instead of being made by rough-and-ready methods; educational efforts to stir the tenant to make improvements and farm more efficiently should be redoubled; and the development by education and example of a custom of good landlordism would serve to reduce the most severe forms of oppression and exploitation practiced by some Southern landlords on their ignorant and helpless "cropper" tenants.[1] In short, the defects of farm tenancy are more often the defects of its application than defects inherent in the system. A properly controlled system of tenancy has a place in a desirable system of farm land tenure, chiefly, let it be noted, as a stepping-stone to ownership.

(3) *Colonization and Rural Credits.*—Other means which will help men to own farms must also be employed. Among these are colonization and a proper system of rural credit; and a policy of land ownership will also include these.

In framing colonization policies it must be remembered

[1] L. C. Gray, *Introduction to Agricultural Economics*, Macmillan, 1924, pp. 207-311.

that the ownership of land, and especially of agricultural land, is very important from the standpoint of national unity. Where a colony of non-Americans is located in a compact settlement they are likely to retain their Old World customs, languages, and traditions even to the second and third generation. This is true, of course, for cities as well as for the country; but the ownership of a compact area of agricultural land by an alien group gives to them complete control over the government and the institutions of that area. Town and county governments, schools, and churches are entirely under their control; and American ideals, language, and traditions penetrate such a group very slowly.

Colonization companies which make a specialty of settling foreign groups are trying to solve this problem. To place a Polish farmer in a region settled entirely by American farmers is undesirable. The contrast is too great, and the newcomer misses the contact with friends who can understand and sympathize with his problems. On the other hand, a close settlement of Poles, Germans, or any other nationality is undesirable for the reasons just mentioned. A proper distribution of foreign groups among other foreign groups and among Americans is the end for which colonizers should consciously strive. Then, by the influence of proper community centers, by neighborhood entertainments, by schools, libraries, and other educational institutions, these foreign-speaking groups can gradually become Americanized.

Where there are great differences in the standard of living, one group will often push out another group. We may as well take it for granted that certain racial and national groups will not intermix and intermarry, and will not even mingle socially in churches or in schools. In such cases the purchase of land by the lower standard

groups is likely to mean that the upper standard group is pushed out. Where such a change is in progress, land values drop and the institutional life of the area is broken up. This can be seen in its most acute form on the Pacific coast, where Orientals obtained a foothold on the agricultural lands. California and Washington have passed laws prohibiting the ownership of lands by Orientals and the leasing of land to them for more than three years. The Supreme Court of the United States recently decided that such laws are constitutional.[1] This may seem a harsh measure, but every English-speaking nation on the Pacific has similar laws, and Japan herself has measures restricting the ownership and use of land by foreigners.

(4) *Alien Ownership.*—Alien ownership of land is not consistent with the idea that the landowner is the backbone of the nation's stability. Such stability can be expected only where the owners are citizens. It may not be desirable to forbid alien ownership entirely, because our citizens are allowed to own land in foreign countries. But alien ownership is likely to lead to misunderstandings, especially if the landowner is also an absentee landlord.

(5) *Land Titles and Registration.*—The last factor to be mentioned in connection with the encouragement of private ownership of land is improvement in the system of land titles and land registration. If transfers of land can be effected with ease and certainty, the desire for land is more likely to be satisfied. Landed property is consequently becoming more fluid. It is easier in this way to get a proper distribution of men upon the land, thereby permitting the most efficient use of man and land power.

[1] Porterfield v. Webb, 44 Sup. Ct. 21 (1923); Terrace v. Thompson, 44 Sup. Ct. 15 (1923).

Enough has been said to show the close and important relation between the system of land tenure and the efficient use of agricultural land. Elsewhere we have noted how dependent the city population is upon the food supply furnished by agriculture. If agriculture fails to do its part or to function properly, the city population must reduce its standard of living, starve, or go back to the farm. We are continually being confronted with plans for helping the agricultural industry to become more efficient. Some of these plans, and the evils they would correct, arise out of the nature of the industry, as we saw in Chapter VII. Many proposals are made to improve social conditions in the country and to keep a wholesome balance between the rural and city populations. But it will be noted that rarely, if at all, do any of these plans, or proposals, or policies suggest that the mixed system of tenancy and owner-operation, the latter predominating, should be fundamentally changed. In other words, owner-operation of agricultural land, supplemented by a certain amount of tenancy, is on the whole the best means of inducing farmers efficiently to play their rôle in the economy of a nation and of the world.

Ownership of Forest and Mineral Land.—Heretofore we have stated that the public need of further development or more efficient production in the case of urban and agricultural land can best be met by a system of private ownership of the land, with some phases of ownership under public control. Quite a different situation must be dealt with in the case of forest land. The extreme consequences of allowing a policy of exploitation under private ownership to run its course are seen in the present wood famine. Repeatedly we have emphasized that less than one-fourth of our yearly production of timber is being replaced by reforestation. Our problem is,

therefore: What system of ownership will best supply adequate incentives to conservation and reforestation?

From past experience we know that private ownership does not meet this test of public need. The fault lies not so much with private owners as with the system of ownership and the peculiarities of the timber crop. It takes years to grow a forest, and during those years the land must be carried by private owners, who are naturally looking for a profit. When they do not see a profit, they will not grow trees to replace the timber that they cut. And it should be clear that no profit is in sight, with the carrying costs, including taxes, as high as they are now. To be sure, some private efforts at reforestation are bearing fruit; the paper industry is the leader in this work. But the total amount of reforestation falls far short of the amount needed to maintain an adequate supply of wood and timber products in the future.

If under private ownership there is insufficient inducement to plant a forest crop, there is no other alternative than public ownership. Public control of private forest owners may help to conserve the existing supply, but it cannot very well compel the production of a new supply. Tax reforms are helping to prevent the cutting of trees now standing, but the reduction of carrying costs and tax reforms have not gone far enough to stimulate much reforestation. The pulp and paper industries are growing some quickly maturing inferior grades of trees for their own use, but only the government is in a position to carry forest land until a high-grade forest crop matures in 75, 100, or even 150 years. Hence a change in the policies of ownership of forest land is dictated by the public need of conservation. The public interest can best be served by bringing into public ownership large tracts of land suitable for the growing of forests, and this will

involve transfers of privately owned cut-over and other land to public ownership.

The urgency of applying conservation measures to mineral land exploitation is not so great as it is in the case of forest land, because we are not sure that all the mineral deposits have been discovered. But the nature of mineral production is such that it must be carefully guarded. A policy of replenishing our timber supply may be carried out, but new supplies of minerals cannot be grown. Once taken from the earth they cannot be replaced, and the only way of increasing the available supply is to discover new mineral deposits. The oil industry is an outstanding illustration of the great need for guarding strictly the public interest in conservation. In some cases it may be desirable to have operation of public land by public agencies; in other cases private operation under lease from the public is more desirable. Whether mineral land is privately or publicly owned, a substantial degree of control is essential to protect the public interests.

Ownership of Water Rights.—Water rights in the semi-arid West fall, for the most part, in the same class as rights to forest and mineral land. However, this is not because the supply of water is dwindling and cannot be replenished. Public ownership of water rights is generally desirable because the supply of water is scarce in relation to the demand, and because public control of a resource which is vital to a great many people cannot be made as effective in other ways. As we saw in Chapter IX, private ownership of water rights with private exploitation has been tried, public control of private exploitation is being tried, and also public ownership with properly regulated private appropriation. Of the three systems there is little doubt that when water is so necessary and so scarce as it is in some of our Western States, the urgent

need for conservation is best met by public ownership of water with private beneficial use. However, when a different system has been evolved through a long period of years, certain vested rights appear; and it is often difficult and undesirable to extinguish these vested rights by a change to a system of public ownership.

The Social Side of Private Property.—It is very difficult, even if it were desirable, to lay down hard-and-fast rules governing the public or private ownership of land. The problem is primarily one of providing the best inducements to release or conserve the services of land. In general, the more necessary the services and the greater the need for conserving them, the more weight should be attached to public ownership. Short of a complete transfer to public ownership, the public interests can be protected adequately only by proper measures controlling privates rights. If all landowners had the idea that private property was a social trust and that private rights to the use of land were an opportunity to give social service, measures of control would be quite largely unnecessary. Since many people do not of their own accord recognize the social side of private property, we must expect that, to an increasing degree in the future, they will be forced to recognize public interests. This, at any rate, seems to be the present tendency expressed in a growing number of regulations, embraced collectively under what is called the police power, of the private use of land.

Summary

The ownership of land affects the efficiency of its use and the conservation of natural resources. Property in land is (1) public, (2) private, or (3) common. Property is not a thing but the rights over a thing; and public regulation modifies greatly the content of the "bundle" of rights that

constitutes private property in land. Urban land is mostly privately owned, and this is desirable because of the social advantages connected with home ownership and because private initiative brings about efficient utilization of land used for purposes other than homes; but the use of privately owned urban land is increasingly controlled in the public interest, and the publicly owned areas in cities will probably be extended very considerably in the future. Agricultural land is most efficiently used under private ownership; and owner-operation generally produces the best social and economic results, though farm tenancy has a place in a desirable system of land tenure, chiefly as a stepping-stone to ownership. Wise colonization schemes and rural credit systems will aid in bringing about a proper proportion between ownership and tenancy. An improvement in the system of land titles and registration is also desirable. More public ownership of forest land is needed to bring about conservation; and in the case of mineral lands attention must be given to measures designed to lessen waste of natural resources. Public ownership of water with private beneficial use seems best to meet the needs of the arid regions, although other systems of ownership of water rights which have been developed by hard experience have some advantages that should be carefully considered. The social side of private property is recognized to an increasing degree, and is expressed through regulations embraced under the police power of the State.

CHAPTER XI

LAND CREDIT

BUSINESS is run on credit in our modern economy. The great bulk of transactions,—millions of them take place daily between business men of all sorts,—are credit transactions. The transactions arising out of the utilization of land are no exception to this statement. Consider the fact that 41 per cent of the farms occupied by owners in 1920 reported a mortgage indebtedness, which amounted in the aggregate to over four billion dollars. There are no published statistics of the indebtedness of tenant farmers. Of the owned homes not on farms almost 40 per cent had mortgage indebtedness, which aggregated over six billion dollars in 1920. These figures give an idea of the magnitude of only a part of the credit operations involving land.

The importance of credit operations in the economic life of a country is well illustrated by the depression of 1920. Many farmers claim, with some justice, that the bottom dropped out of the market for farm products because the Federal Reserve Board issued orders to member banks to curtail the issuance of credit, and advanced the rediscount rates to accomplish this curtailment. The reasons why the Federal Reserve Board did not act sooner in checking credit inflation form too long a story for us to enter upon here. It will suffice to say that the successful financing of the last war loan depended, in the opinion of treasury officials, upon keeping the rediscount rate low.

The important point to notice for our purposes is that the course of prices, production, business enterprise, and land utilization was substantially changed partially as a result of changes in the credit policies of the banking institutions of the country.

We still hear the farmers' cry, "Give us more credit." Several bills are pending before Congress asking for agricultural credits in one form or another. These requests have been for credit in addition to credit already granted; and notable results are the revival of the War Finance Corporation authorizing loans to the total of $500,000,000, and the intermediate farm credit bill, known as the "Capper" bill, passed in 1923. Farmers want credit to enable them to export their surplus production. At the same time those who are building homes want credit to enable them to make up a shortage of homes, and are asking that banks be allowed to lend more than 50 per cent of the value of real estate.

Relation of Credit to Land Utilization.—Special credit instrumentalities are necessary for the utilization of land because it takes a long time to produce the commodities and services which land renders. A farmer who puts in a crop in the spring has to wait four, five, or six months before he can harvest the crop and get any return for it. Similarly the man who puts up a building on a city lot has to wait until the building is finished before he gets any income from the services of the land. Moreover, the services of the land as a building site (or as a farm) are durable, so that the investor finds his returns from capital applied to land are spread over a long period of years. This long period of production, which is especially characteristic of land, necessitates some sort of financing of the investor until his returns come in. If the community had to wait until the farmer had accumulated enough cap-

ital to buy his farm outright, to pay for seed, fertilizer, equipment, and labor, and to provide his own upkeep while the crop is maturing, starvation might be the fate of most of those dependent upon the farmer's crops. In the same way many city dwellers would be shelterless if they had to wait until they or some landlord had amassed enough capital to construct and equip a building without asking credit of someone. In short, the demand for an immense amount of commodities and services which land alone can produce, coupled with the length of time necessary to produce those services, makes credit indispensable for an adequate utilization of land. Land utilization waits upon credit. We venture to say that if credit had not been made available for the users of land, we should still be in an age of feudalism.

Nature of Credit.—The word "credit" has many meanings and shades of meaning, since it is one of those terms which economics has borrowed from the frequently inexact language of everyday life. One of the commonest of these meanings is indicated when we say that a man's credit is good or that he has good credit, by which we mean that he has the reputation of paying his debts promptly and has the ability to do so, and that therefore other men are willing to sell goods to him or advance funds to him and wait for their pay until a future date. Another important meaning of the word refers to the character, not of the man, but of the transaction itself. The transfer of goods or funds with the expectation of future payment or return is a credit transaction. This is the idea embodied in the word *credit* in the science of economics. Credit may be defined therefore as follows: *A credit transaction is a transfer of goods or funds for a promise of a future equivalent.*

First, it should be noticed that the transaction is partly

present and partly future, or, in other words, (1) credit contains an element of time. In the second place, it is to be remarked that (2) the transaction involves *confidence* (a) in the *character and resources of the borrower,* and (b) in the *sufficiency and security of goods* which he may have *pledged* for the fulfillment of his promise. A third factor frequently present is (3) a written *evidence of indebtedness,* given by the borrower to the lender, which constitutes the *instrument of credit.*

The Foundation of Credit.—Credit rests on savings, just as land utilization rests on credit. To appreciate this we need only look around at the institutions which furnish credit. They are the banks, insurance companies, building and loan associations, and other agencies which handle the savings of people. But savings, and credit which is based on savings, do not consist of paper but of actual goods or funds (purchasing power) over and above what is necessary for current needs. When credit is based on paper only, conditions develop like those distressing Russia and Germany and, to a less extent, France to-day. But when credit is based upon actual and increasing wealth, the first condition of a sound enlargement of credit is established. Confidence in the future repayment of the loan is so large an element of credit that it is important that the basis of credit in wealth shall be stable and secure. This means that the second condition that makes credit possible is a sound currency and a strong and stable government to enforce rights of persons, property, and contract. The credit rating of Russia is low because of lack of confidence in the stability and security of its wealth and of the government which protects that wealth.

By itself credit cannot be said to increase wealth, but it does act as a lubricant in the processes which do create wealth. When a bank lends money to the owner of a

city lot, the loan does not mean an increase in wealth until it is used for developing the lot. When we regard credit in its most general sense as a transfer of purchasing power from one person to another, it is apparent that the mere act of transfer is not an addition to wealth, but it may be the means of adding to wealth in the form of some commodity or service.

When the foundations of credit rest upon actual, stable, secure, saved wealth, the additional requisites of personal credit are what are colloquially called the "Three C's"; namely, Character, Capital, and Capacity. There is no invariable order of importance of these requisites, for the one which seems at first sight to be the most important may in some cases be the least important. To most people the capital back of a credit transaction might appear to be most important, but the late J. Pierpont Morgan once made the statement, which has often been quoted, that he had granted a loan of a million dollars simply upon the basis of the character of the man to whom the loan was made. On the other hand, a man without character is at a disadvantage in obtaining credit, for although he may have ample capital and capacity to repay the loan, he may dissipate his capital and leave his creditors helpless. Capacity is considered along with character when it is not regarded as a part of character. Capacity in the economic world means earning power; and earning power will produce the wealth necessary for repayment, while character gives confidence that the obligations of credit will be met when the earning power has borne fruit.

Land As a Basis for Credit.—For centuries land has been a basis for credit. Indeed, land has some very obvious advantages over other securities for credit. Land is indestructible, it cannot be moved away, and its services are durable. Moreover, we can see land, we can walk

on it or build a home on it, or raise food products to keep from starving. For all these reasons land is a good security for credit, since it is universally useful and widely desired. However, land has one disadvantage—the fixity of investments in land. It is difficult to withdraw capital which has been put into improvements of the land. Consequently land (or real estate) does not have the same degree of marketability that other more liquid investments have.

Classification of Types of Credit.—A classification of the types of credit is as important as the classification of the land itself. By hard experience it has been learned that credit does not perform its functions most advantageously unless the facilities for credit are established with reference to the needs of the various economic classes in the community. There may be ample credit for some purposes and at the same time a dearth of credit to support other equally necessary activities. One often reads in farm journals that manufactures and commerce are plentifully supplied with credit while many farmers are going bankrupt for lack of it. For this reason we need a credit classification which is related to the needs of the several groups engaged in production.

Upon examination it will be found that the needs for credit can be grouped best according to the length of time for which credit is required. Farmers, for example, very often need three kinds of credit, which vary in the time element. First, they may need credit for a short period, up to six or nine months. To denote the purpose we will call this "marketing credit." It enables the farmer to keep his enterprise going while the crop is maturing, until it is harvested and sold on the market. The money received from crop sales is the means of repaying the

loan. Second, many farmers need credit covering a period of one to three years—middle term or "intermediate" credit—to finance additions to their equipment or livestock. Finally, there is need for long-time credit for periods longer than three or five years. This may be called "investment" credit, because such loans are used mainly for adding permanent improvements to a farm, for increasing the farm acreage, or perhaps for buying a farm. The returns from these improvements are usually a long time in coming back to the farmer, who consequently needs a long time in which to repay the advances of credit.

Similar credit requirements occur in the utilization of urban land. A small fire with loss of rentals for a short period may give rise to a demand for short-time credit to tide the owner over a tight place. A home owner may decide to build a garage or add a wing to his house and expects to be able to repay the loan within two or three years. Finally, those who desire to put up office buildings or build homes need credit for periods of ten, twenty, or more years.

For the institution of credit to perform its full service in the community, an adequate supply of short-time, intermediate, and long-time credit is needed.

Instruments of Credit.—Short-time credit is ordinarily regarded as commercial credit, since it is commonly used in commercial transactions. Commercial credit really stands by itself because it is based upon deposits in banks subject to repayment on demand or upon transactions which begin and end within short periods. Three months is considered a standard length of time for commercial credit, although many loans run for only 10, 30, or 60 days. The standard period, however, is sometimes

stretched to nine months, and the Federal Reserve System is especially authorized to grant credit to meet the needs of agriculture for a period of nine months.

The instruments of commercial credit are several in number, but since they are of relatively small importance in the long-time transactions involving land, we shall do no more than give their names. The simplest and most extensively used commercial credit instrument is the *check* upon a bank. The element of time plays a very small part in this case as it does with the instrument known as a *bank draft,* which is simply a check drawn by one banker upon another. A third instrument is the *bill of exchange,* sometimes also called a *draft.* The bill of exchange is most often used in merchandising, and frequently involves a time period of 30 days. A fourth form of credit instrument is the promissory *note.* Here the time element is important, as is indicated by the fact that interest is generally paid on such instruments. Finally, *book credit* (or *book accounts*) is a form of short-time credit extensively used, in retail trade especially. Of these five kinds of short-time credit instruments the promissory note is probably the one most often used by those needing short-time credit to aid in the utilization of land.

Intermediate and long-time credit transactions generally use different instruments from those enumerated above. The promissory note alone often covers credit advances for middle-term periods, but for the most part long-term loans on a promissory note are made with the security of a mortgage, a real estate mortgage bond, or a land contract.

In addition to being the most widely used instrument for long-term credits, the mortgage is our oldest credit instrument. It dates back forty-one centuries or more.

The oldest existing mortgage carries the date 430 B. C., and has practically all the essentials of a modern mortgage.

A *mortgage* is a conveyance of property, real or personal, for the purpose of securing the payment of a debt. Under the common law the legal title to the property passes with the mortgage to the mortgagee (the one who loans the money) and the mortgagor (the one who borrows the money) does not regain the title to his property until the debt is paid. Under the so-called lien theory, which is prevalent in Wisconsin, New York, and a few other States, by the language of the mortgage the title is conveyed, but in practice the courts construe the instrument as though it did *not* convey the title, but simply constituted a lien on the property. Under this interpretation the legal title to the property passes to the mortgagee only if the borrower does not live up to the terms of the instrument. The latter "rule of equity" makes the mortgage simply a security for the loan, which is the average man's interpretation of a mortgage; whereas the "rule of law" interprets the mortgage as an actual conveyance of property.

There are several kinds of mortgages which may be mentioned in passing. There are first, second, or third mortgages, according to the priority of the claim or lien on the property mortgaged. There is the guaranteed mortgage, in which a person other than the mortgagor underwrites or guarantees the payment of the debt to the mortgagee. There is finally the chattel mortgage, which is a mortgage of personal property as distinguished from real estate. The essentials of all these different kinds of mortgages are the same.

The *real estate mortgage bond* is a mortgage cut up into small parts. As a credit instrument it arose about

twenty-five years ago to meet the requirements of an intensive use of urban land. The construction of large office buildings required a capital of millions of dollars, and only the exceptional individual can afford to venture a fortune in accepting one mortgage on a valuable piece of real estate. To draw together the small savings of a great number of investors, bonds in small denominations of $100, $500, or $1,000 were issued for the total amount of the mortgage and sold to the public by some investment house. The mortgage itself under this scheme of financing is conveyed by a trust deed to a trustee who holds the mortgage for the benefit of the purchasers of bonds. It may well be said that the real estate mortgage bond made possible the "skyline" of New York City and other large cities.

The *land contract* is a credit instrument usually preceding the mortgage in transactions involving the sale of land. A landowner who sells real estate on a land contract receives a small part of the total price paid down and agrees with the buyer on a land contract covering the payment of the remainder. The terms of the land contract generally provide that when the principal has been reduced to approximately 40 per cent of the total purchase price the owner will deliver to the seller a warranty deed subject to a mortgage for the remaining sums to be paid. Practically, therefore, the landowner advances credit to the purchaser on a land contract up to the time when the warranty deed and mortgage replace the contract. The use of this credit instrument is not at all uniform in the United States. In some localities it is very popular and in others it is used very little, depending a good deal on the way the courts treat the parties to the contract in case of default.

These three types of credit instruments—mortgage,

real estate mortgage bond, and land contract—the mortgage being accompanied by a promissory note, are almost entirely used for intermediate or long-term credits.

Agencies or Sources of Credit.—Early in the chapter it was stated that mortgages of city and farm real estate in 1920 amounted to more than ten billion dollars. Of course this figure does not represent all the credit that has been advanced on land or real estate as a security. For one thing, loans made on land contracts are not included. As a preliminary to the discussion of general policies of land credit it will be instructive to survey briefly the sources of this large supply of mortgage credit, as well as the sources of other forms of credit.

The agencies which make a business of extending credit are listed as follows: (1) Individuals; (2) commercial banks; (3) mortgage bankers and investment bankers; (4) second mortgage bankers; (5) building and loan associations; (6) coöperative credit unions; (7) insurance companies; (8) trust companies; (9) Federal Farm Loan System; (10) the War Finance Corporation; (11) public fund commissions; (12) the public treasury.

No one can tell exactly how much credit has been granted by individuals, but it is certain that a large amount comes from this source. Considering only intermediate or long-term credits affecting land, individuals generally advance credit in two ways. First, and perhaps the most important, when individuals sell property, they may accept a mortgage, a note, or a land contract in part payment of the full purchase price. This is so common a practice that it is almost taken for granted. Second, individuals having savings to invest may on their own account lend money with real estate as security. This is a more personal transaction than that involved in borrowing from a mortgage or bond house. Individuals who

thus make personal loans on real estate usually lend chiefly in their own community or neighborhood, because they are personally familiar with the degree of risk which they assume. One explanation of the comparatively low interest rates on farm mortgages in southeastern Wisconsin is that the lenders live in the neighborhood, are personally acquainted with borrowers, and know the property offered as security. Consequently they are disposed to extend credit on more favorable terms than if they made loans through some middleman, such as a bank or insurance company.

Commercial banks are the great sources of short-time credits; but by law and by the nature of their business they are strictly limited in the amount of long-time credit which they may advance on real estate security. Commercial banks in the Federal Reserve System may lend working capital for 90 days, or for nine months in the case of agriculture. State banks which are not in the Federal Reserve System and which usually operate under less strict State banking laws may and do lend large sums for longer periods, but they do so at their peril. A commercial bank must have assets that can be quickly liquidated, because at any time it may be called upon with short notice to meet its obligations to depositors. The market for long-time real estate credits is relatively narrow, as many insolvent banks in the northwestern grain States rediscovered when they tried to sell the real estate securities in which their credits were "frozen." Sound banking practice, as well as banking laws, limits the helpfulness of commercial banks in land utilization to transactions involving credit for short periods, certainly not longer than nine months, despite the serious proposals during 1923 to make the commercial banks sources of intermediate credits.

Mortgage and investment bankers are middlemen whose services in financing land utilization have become increasingly important, as larger credits for expensive apartments, hotels, and office buildings have become necessary. Without their services in bringing lenders and borrowers together the very intensive utilization of land in our large cities would have been accomplished with difficulty. This applies particularly to the investment bankers, who do business usually on a larger scale than the ordinary mortgage banker. Both types of bankers, however, adhere as a rule to conservative banking policies, in that credit is not advanced for more than approximately 60 per cent of a conservative value of the property. Commercial banks are restricted by law to loans equal to 50 per cent of the value of the property.

Second mortgage bankers extend credit to those who have already mortgaged their properties. Very often the credit extended on second mortgage, added to that on first mortgage, amounts to 90 per cent of the value of the property. Obviously the risk in a second mortgage is greater, and the charges for credit are apt to be much higher.

Building and loan associations in the United States have probably extended more credit to home owners of small means in recent years than any other credit agency. There are more than 10,000 local associations, with assets exceeding $3,300,000,000 and some seven million members. Most associations of this character are run on a coöperative basis. To become a member, one buys stock on the installment plan, receiving usually 5 per cent or 6 per cent interest. To become a borrower, one gives a mortgage (generally a first mortgage, rarely a second mortgage) on one's property, paying interest at a rate of 1 per cent to 2 per cent higher than that paid to stock-

holders. The advance of credit is repayable on the installment plan. Since credit is advanced only to members on security of well-known local real estate, and since in many States the associations are under State banking laws, they are unusually stable sources of credit, and failures are infrequent. Credits usually average about two-thirds of the value of the property securing them.

Very similar to the building and loan associations are the *credit unions,* which, however, are primarily concerned with short-time credits. In 1921 ten States had enacted laws providing for credit unions, but only in four States, —Massachusetts, New York, North Carolina, and Rhode Island—were such "credit unions" developed to any great extent. In North Carolina the thirty-three credit unions existing in 1921 were strictly rural in character, lending only to farmers. Historically, coöperative credit unions of the type mentioned are traceable back to the Raiffeisen credit association established in Germany in 1849.[1]

In 1921 $2,845,049,199 was lent on mortgage security by 198 insurance companies.[2] This great source of real estate credit is tapped only under a fairly rigorous policy of repayment, since the insurance companies must protect their policy holders and must have some resources in order to meet benefit payments. The Prudential Life Insurance Company, for example, usually requires that a certain amount in addition to the interest be paid regularly to amortize the loan. Although the number of insurance companies decreasing their mortgage investments during the years 1915-1921 was greater than the number increasing such investment, four of the largest life insurance

[1] L. C. Gray, *Introduction to Agricultural Economics,* p. 340.

[2] "Real Estate Mortgages as Investments for Life Insurance Companies," *Bulletin* of National Association of Real Estate Boards, June 20, 1923, prepared by Institute for Research in Land Economics and Public Utilities.

companies increased their mortgage investments in 1922.[1] According to the business statement of December 31, 1923, of the Metropolitan Life Insurance Company, the policyholders of this company owned $606,000,000 in real estate mortgages, which was almost twice as much as was invested in any other type of security. This shows the confidence reposed in the security of real estate.

Trust companies are another source of real estate credit on a long-time basis; but the supply from this source is limited, because such companies are necessarily very conservative on account of their trustee relationship with their clients. In granting credit on real estate trust companies accept only first mortgages and advance credit for not more than 50 per cent of the value of the security.

The credit agencies which have been described so briefly thus far are private agencies. In recent years several public agencies have been established, primarily to help the agricultural industry.[2] The first in time was the *Federal Farm Loan System,* established in 1916. This system provides long-term credits to farmers. The law authorizes two methods of advancing these credits, one under public auspices, the other under private auspices. According to the first method twelve Federal Land Banks have been created to advance credit to local farm loan coöperative associations composed of not less than ten farmers who wish to become borrowers. The banks are authorized to issue bonds up to twenty times their capital stock in order to collect funds to lend to farmers. These bonds are exempt from Federal income taxation. Loans are made on first mortgage security and are not to exceed fifty per cent of the value of the land and twenty per cent

[1] *Ibid.*
[2] Table X, Appendix.

of the value of the improvements. Under the amortization principle loans are ordinarily to be paid off in about 34 years. According to the second method joint-stock land banks are organized as private institutions to lend anywhere in the State in which they are located and in one adjoining State. They, too, may issue tax-exempt bonds, but only up to fifteen times the amount of their capital stock. Credits are advanced under arrangements similar to those governing the Federal Land Banks.

This system improves agricultural credit conditions in that it provides longer periods of repayment and lower rates of interest. The Farm Loan Banks make about 5 per cent of all the loans to farmers. Moreover, only about 13 per cent of all the loans made were for the purpose of buying land, and about one-third of these loans were made to tenants.[1]

The *War Finance Corporation* was created in 1918 to assist in financing war industries. It went out of existence for a time and then was revived in 1921 and empowered to make loans upon the security of exportable agricultural products, including livestock. Mainly these loans are made to banks in agricultural districts and to coöperative marketing associations. Since the loans are primarily to aid the marketing of products, the field of service of the War Finance Corporation is comparatively narrow.

To supplement the long-term credits of the Federal Land Banks, a system of Federal *Intermediate Credit Banks* was created in 1923 to make loans on agricultural paper maturing in periods from six months to three years. At the same time Federal Reserve Banks were authorized to accept agricultural paper maturing in nine months. It

[1] L. C. Gray, "Helping Landless Farmers Own Farms." *Yearbook of the United States Department of Agriculture*, 1920, p. 279.

should be noted in the case of these intermediate credits that the security consists of market transactions already made, or of chattel mortgages on livestock.

In addition to the above public agencies, some State governments have *public funds* from which loans are made. In Oklahoma, for example, a considerable fund was obtained from the sale of certain school lands granted to the State from the public domain. A public fund commission is authorized to make farm loans on first mortgage security for a period up to five years, renewable if the borrower remains a resident of the State and if other conditions of the property are satisfactory. Similarly Wisconsin makes real estate loans from the teachers' insurance fund. Finally, there is always the public treasury from which appropriations may be made by legislative bodies to extend credits to certain classes of citizens. At the time of writing, Congress has before it several bills providing for the use of public funds for credits to farmers.

Dangers of Credit.—Credit has its dangers; and, unwisely used, it results in loss. Too much or too easy credit often causes more waste than has been caused by too little credit. This is as true of land utilization as it is of commercial enterprises. In both cases over-expansion or over-development is usually the result of too much credit, and in the reaction which follows the losses are often very great. To realize this one need only examine the bankruptcy statistics and the reasons for bankruptcy. The list of half-developed subdivisions, foreclosed farm mortgages, and farmers who are just hanging on through the leniency of creditors, bears witness in many instances to the losses sustained because of too easy credit.

Agricultural Credit Policies.—The nature of the agricultural industry makes it necessary for the farmer to have

access to all three types of credit—short-time, intermediate, and long-time.

For the most part the needs of farmers for short-time credit are fairly well supplied through the existing sources of supply. The better class of farmers are usually able to obtain bank credit in sufficient quantities to tide them over their normal short-time needs. The poorer class of farmers are generally not situated so fortunately. Commercial banks do not advance money unless the chances are good that it will be repaid promptly. The 1923 amendment to the Federal Reserve Act, which permits Federal Reserve Banks to handle nine-months agricultural paper, opens the way to more liberal advances of bank credit. With the backing of the Federal Reserve System it may be that some banks will be tempted to lend too heavily on this kind of paper and thus endanger their deposits. Since the amendment was passed so recently, its effect upon the financial soundness of commercial banks cannot be determined positively. It is common knowledge, however, that the recent State bank failures in some of the Northwestern States are attributable largely to less strict State banking laws, which allowed these banks to put a relatively large proportion of their loanable funds in credit advances which turned out to be "frozen." If a choice has to be made between meeting the needs of creditors and protecting depositor's money, sound commercial banking practice dictates that the protection of depositors should be the first consideration.

Since the needs of less prosperous farmers for short-time credit may not be adequately met by commercial bank credit, there is room for the development of coöperative credit union. The advantage of such unions is that they may provide for supervision of the expenditures of farmers; for carelessness in spending is an important

factor in the less prosperous position of many farmers. There is an added advantage in credit unions of the type developed in North Carolina, in that loans are made only to local farmers whose character, capacity, and capital are well known to the managers of the union. The further development of these unions is probably desirable, particularly in the South, provided they are carefully directed by some responsible public or private agency and provided they are administered with adequate supervision of the borrower's expenditures to encourage and perhaps to compel thrift.

Until the Intermediate Credit Banks were authorized in 1923, farmers sometimes felt a shortage of this form of credit. Many commercial banks, particularly country banks, lent on this basis with mortgage security and found themselves later in an embarrassing position. Yet the needs of farmers for middle-term credit are often very urgent. Loans obtained for this period are usually devoted to purchases of cattle and of machinery and other equipment, which have greatly increased the efficiency of agriculture. Under the 1923 law, commercial banks are relieved to a great extent from making intermediate loans, which are placed in the hands of the Federal Farm Loan Banks and certain special private banking corporations organized for that specific purpose. While it is too early to come to final conclusions as to the effect of this legislation, there is little doubt that the credit facilities available to farmers have been improved.

The Federal Farm Loan System fills a vital need of the farmers for long-term credits, which are useful particularly for making permanent improvements and for buying land. For the most part, however, credits from the Federal Land Banks have been used to pay off old indebtedness and to make improvements. These banks

are wisely and necessarily conservative in the mortgage security which they accept, although they have filled a great need by providing longer periods of repayment on the amortization plan and lower rates of interest. The system has been criticized because it does not go further in helping the tenant farmer to achieve the status of owner. This criticism does not seem justified, because if credit is too easily obtained by tenant farmers, many who are unfit for owner-operation or who have insufficient capital to "make a go of it" are likely to become owners and subsequently fail. While it may be true that the Federal Land Banks meet the needs of a narrow group of farmers, there seems to be no good reason for discarding conservative banking simply to increase the supply of long-time farm credit. In the older and more stabilized agricultural regions the encouragement of tenants on the road to ownership will be accomplished more wisely on the whole by developing a system of second mortgage credits.

It is especially important that emphasis be put on the dangers of credit in discussions of land settlement and farm purchases. New agricultural regions are usually short of credit. In part this is due to the greater demand for credit in these localities, where initial costs of bringing the land to the point of productiveness are great. In part also a supply of credit is not attracted to these districts because land values are based more on anticipated productiveness than on actual yields, and land is consequently less desirable as security. In this situation farmers who are just starting in a new region are particularly desirous of obtaining a liberal supply of credit.

As a general proposition, it is not desirable from the social or individual point of view for a man to start a business—and farming is a business—unless he has

already accumulated some money. The capacity to earn and to accumulate is necessary to the successful operation of a farm or any other business. Consequently, it is considered good policy by both public and private colonization agencies not to extend credit to new settlers who have not accumulated a certain minimum amount of capital. "Every settler should have enough capital to protect the State against loss which might come from lack of thrift or experience on his part and to protect him by a reserve of credit in case he should be unable from any cause to meet his payments. The minimum should not be less than 10 per cent of the cost on the improved farm." [1]

At the present time, farm settlers obtain credit from both public and private sources. In California, on the two public colonization schemes, the State furnishes long-time credit at comparatively low cost to the settler. On the irrigation projects of the Federal Government settlers were granted relatively easy terms of repayment, but in many cases this reclamation land was saddled with a debt of $70 or $75, or even $90 an acre, which the ordinary settler could not pay, no matter how liberal the terms of repayment.[2] On private land settlement projects the colonization company furnishes the largest part of the credit. However, where private colonization companies demand payment within four or five years, the settler is apt to be in a hopeless position, whether or not he started with some capital of his own. The experience of new settlers in recent years shows, with hardly an exception, that the success of the venture depends not only on the possession of a certain amount of capital to start with and on long-term credit at low cost, but also, in the

[1] Elwood Mead, *Helping Men Own Farms*, Macmillan, 1920, p. 189.
[2] G F. Stratton, "Busted by Reclamation," *Country Gentleman*, March 15, 1924

case of irrigated land, on reasonableness of overhead charges.

Another problem of long-time credit is raised by the exemption of certain securities from taxation. At the present time there is an antagonism between the Federal Land Banks and other agencies supplying credit on farm mortgages, due especially to the fact that Federal Farm Loan bonds are free from taxation. This is felt to be a discrimination, and many real friends of the farmers believe that it injures the farmer. It is stated that the Federal Land Banks have supplied only 5 per cent of the entire amount of the loans to farmers from 1916 to 1922. The remaining 95 per cent was lent by private individuals, loan companies, and insurance companies.[1] Many investors who formerly placed their money with the private farm loan agencies now prefer tax-exempt bonds—not only the Federal Farm Loan bonds, but the local, city, and State tax-exempt bonds as well. In this way money is diverted from agriculture, and the only way it can be induced to return is by raising the mortgage rate of interest, which means a higher rate to farmers.

It has been proposed to exempt from Federal taxation to a certain extent the income from loans made upon the security of real estate. In the long run such a proposal would only aggravate the conditions of real estate credit and real estate taxation. Exemptions reduce the amount of taxable property (and real estate is now suffering from this) and create difficulties of assessment. Without going into a detailed analysis, the disadvantages of tax exemption outweigh the possible gain of a temporary increase in the amount of capital for real estate operations.

Laying aside all considerations but those of the gen-

[1] Hearings before the Committee on Ways and Means of the House of Representatives, on Tax Exempt Securities, Jan. 16, 18, 19, and March 7, 1922, pp. 60-61, 62-63.

eral welfare, tax exemptions of this character are generally contrary to sound public policy. Certainly no new exemptions should be considered without conclusive proof of their desirability, and many existing exemptions should be eliminated as soon as possible. The credit facilities of the farmer as well as those of the utilizer of urban land would be considerably improved if exemptions of certain securities from taxation were discarded.

Urban Land Credit Policies.—The credit needs of urban landowners are primarily met by long-time loans, and it is in connection with home building that the greatest need is manifested at the present time. For people of large wealth and valuable land holdings the insurance companies frequently furnish all the credits needed, and do so at a low rate of interest. In great cities private individuals also can often be found who will furnish credit. A large part of the credit needed for putting up great office buildings has been furnished in recent years through the sale of real estate mortgage bonds.

Relatively high land values and taxes, and increased building costs have tended to intensify the demand of prospective home owners for long-term credit. A considerable part of this credit is furnished by landowners on a land contract. Builders and real estate subdividers also provide credit in large amounts, taking a mortgage on the property, which they may sell to some private individual. But on the whole the building and loan associations are the largest single source of the six billion dollar mortgage indebtedness on urban homes.

A mortgage is not necessarily an evil and undesirable thing, although many people consider it so. To be sure, it is security for indebtedness, but that does not mean always that it is a sign of impoverishment. We have to consider the circumstances surrounding the mortgage.

In many cases—perhaps in most cases—a mortgage indicates that people are getting ahead. This is particularly true when the funds lent on mortgage security are being used to create additional wealth, and when payments of interest and of a part of the principal are regularly made; for under such circumstances the mortgage is a device for saving money. It is generally a good policy of mortgage credit to include some reasonable and moderate provisions for amortizing the loan. If these are lived up to, the mortgage is a sign of prosperity and a means of creating more wealth.

For the construction of homes, building and loan associations are probably the most desirable source of mortgage credit. These associations are coöperative institutions usually operating under articles of incorporation issued by the State. The members (of whom there are seven million in the United States) are either saving members or borrowing members. The former use the associations as a savings bank for the small sums set aside from wages, salary, or other income. The borrowing members may receive credit for buying, building, or repairing a home, or for any other useful purpose, and they repay their loans systematically with their savings. The time it takes to pay off a loan on the installment plan varies according to the amount one pays weekly or monthly, but ordinarily the period of amortization is from eight to twelve years. Many associations pay 6 per cent on savings of investors, and in the case of associations corresponding to the true mutual type, such income up to $300 is free from the Federal income tax. According to the present law, the exemption does not last beyond 1927; but it may be safely said that if any income tax-exemption is warranted, it is this very modest one, limited to an income of $300 and encouraging investments for

the construction of homes. This should be the last exemption to go.[1]

As credit institutions these associations are unexcelled, for the reason that while they furnish credit they encourage the accumulation of wealth, which is the basis of credit; for, as we said early in this chapter, credit finds its limitations in actually existing wealth. For this reason general participation in these associations is desirable, and it should not be limited to those who contemplate the use of funds for building. Savers and investors are important, as well as savers and borrowers.

If the splendid returns, coupled with the maximum of safety, were known to the public, the investment in building and loan associations would soon be doubled, which would double the amount now available for homes —an amount sadly inadequate in most places to meet the demands of would-be home owners. The legislation covering these associations in many of the States is satisfactory; for example, that of New York and Wisconsin, by which building and loan associations are placed under the supervision of the Banking Department. In some other States legislation is defective, and the task is to bring the backward States up to the level of the best. Standardization in practice and procedure is now needed.

Supplementing the building and loan associations, the formation of second mortgage credit associations would probably be a desirable part of urban land credit policies. In many cases the credit advanced on a first mortgage is insufficient to complete the building of homes. But at the present time the high rate of interest on second mortgages tends to discourage the use of this credit instrument where it would often be desirable to employ it. A group

[1] R. T. Ely, "The Building and Loan Association," *The Review of Reviews, of Reviews,* Dec., 1923.

of business men in Niagara Falls, New York, have solved this problem by organizing a "Manufacturers and Employees Mortgage Corporation" to handle second mortgages on the homes of their employees and others at lower rates of interest than the prevailing market rates on this type of mortgage. They now charge only six per cent and losses have been negligible. This represents a desirable step in the direction of more adequate credit facilities for would-be home owners and deserves imitation. This is helping self-help and is good business as well as altruism and patriotism. But, naturally, the risk of second mortgages is often very great, and associations formed to handle them must be carefully administered. Otherwise the purpose of the mortgage, which is to facilitate the creation of wealth, will be endangered.

SUMMARY

Land utilization, like other forms of business, involves credit transactions, but it needs a special form of credit because of the length of time that elapses between the investment in land and the securing of a return on that investment. A credit transaction is a transfer of goods or services for a promise of a future equivalent. It involves (1) a time element, (2) confidence in the borrower and in the security he offers, (3) a credit instrument; that is, a written evidence of indebtedness. The foundation of credit is saved wealth. Wealth in the form of land is a good security for credit, but it has one disadvantage—the fixity of investments in land. Three kinds of land credit are needed: short-time credit, intermediate credit, and long-time credit. The credit instrument used for short-time credit is usually the *promissory note,* and this, alone, is often used for intermediate credit also, although for intermediate credit the promissory note is sometimes secured by mortgage; for long-time credit three instruments are used, (1) the promis-

sory note secured by *mortgage,* (2) real estate *mortgage bonds,* (3) the *land contract.* These various forms of credit are granted by a number of different agencies—individuals, commercial banks, mortgage and investment bankers, second mortgage bankers, building and loan associations, coöperative credit unions, insurance companies, trust companies, the Federal Farm Loan System, the War Finance Corporation, public fund commissions, and the public treasury. Credit has its dangers; if it is too easy, it may result in losses; this should be remembered in the framing of land credit policies. Both agricultural and urban land credit policies should aim to provide each of the several different types of credit needed; institutions are being developed to meet these needs more adequately, but further progress is possible.

CHAPTER XII

LAND VALUES AND VALUATIONS

THE function of land values is to furnish a guide for the utilization of land. Prices in general, which are values expressed in terms of a common monetary unit, function as regulators of consumption and production in our modern economy. The consumer who has a limited income with which to buy want-satisfying goods or services is guided in his purchases by the prices he has to pay. Thus he satisfies what he regards as necessary wants first, and if the prices of these necessary commodities or services are so high that most of his income is used up, the remaining wants are unsatisfied. The producer, too, adjusts his purchases of the means of production according to the prices he has to pay and according to the prices he expects to get for the finished products. In some such fashion as this, the supply of, and demand for, commodities and services are brought into equilibrium by means of our system of prices.

That the uses of land, like any other commodity or service, are regulated by this same pricing process will be more apparent after one or two concrete examples are given. What is the economic significance of a price of $15,000 a front foot for an urban site? For all urban sites a number of uses compete. An urban site may be used for a residence, a factory, a store, an office building, a garage. Normally, a price of $15,000 a front foot will narrowly restrict utilization to large mercantile, financial,

or office-building uses, because it will not pay to use the site for a residence or a factory. Moreover, the number of people demanding store or office-building sites decreases as the price rises, because comparatively few people can pay $15,000 a front foot and still derive a net income from using the land. Reduce the price and the demand for the site increases. If the price is reduced enough, say to $300 a front foot, demanders of residence sites may compete with the others.

Now let us assume that there are six commercial sites of substantially the same characteristics and desirableness. This constitutes the available supply of these sites. If no price were attached to these sites, there would be a large number of people seeking them. Thus we say the supply of commercial sites of the given quality is scarce in relation to the demand. As soon as a price is put upon these six sites, some prospective buyers or utilizers drop out of the market. By increasing the price up to $15,000 a front foot, all purchasers except six, one for each site, theoretically will cease to be active and all the sites will be sold.

This is a hypothetical and greatly simplified illustration. It does not conform strictly to reality, for in practice the pricing or valuing of land is much more complex, as we shall presently see. However, this hypothetical case shows the function of a price, that is to say, a value, which is to restrict demand in order to bring it in conformity with the available supply and to put each piece of land to its highest use. The illustration might be carried further to show how land is restricted to certain uses by reason of the prices asked for the different kinds of land. This inevitably follows from the function of a price—namely, bringing demand into equilibrium with supply.

Significance of Land Values.—Although prices perform a definite function in modern economy, that is only part of their significance in land economics. Consider all that a value placed on a particular piece of land signifies. It expresses the worth of the land to prospective or actual buyers and sellers, it expresses the money investment in the land, it indicates the security back of a mortgage on the property, it is *the capitalized earning power of the land,* and it is the basis of taxation. To the economist, land values reflect the state of the market as well as furnish a key to the most economical utilization of land. To the legislator, land values are a source of government revenue and a guide to public policies with respect to land. To the city planner, values are indicators of proper use zoning, and something to be preserved and stabilized by wise planning. To the banker, land values are security for many loans, as they are also security to many investors. The real estate dealer is probably more exclusively concerned with land values than other single group of people, for he is a merchandiser and appraiser of values.

At the outset let it be understood that the subject of land valuation is little explored. Economists and real estate appraisers are still feeling their way toward guiding principles. There are certain elements of value and trends of values which are fairly well established, but to what extent these will be true at other times and places will be revealed by further study of the history, basis, and movements of values.

Values of Urban Realty and Farm Realty Compared With Total Wealth of United States.—It is estimated that in 1919 urban and farm real estate combined constituted 52 per cent of the total internal physical wealth of the United States. Of this 52 per cent, approximately 31 per cent was urban real estate. Moreover, urban real

estate is valued at a greater figure than any other class of wealth, with farm realty in second place, and manufactured products, other than machinery and tools, in third place. The relative importance and development of urban real estate values is shown in the following table:

TABLE X[1]

Estimated value at the beginning of the year of the total internal wealth of urban realty and farm realty and the proportion which each class of wealth shown bears to the total physical wealth, measured in prices current in the specified years.

(Millions of Dollars.)

	Values			Percentages		
	Urban Realty and Mines	Farm Realty	Total Internal Physical Wealth	Urban Realty to Total Wealth	Farm Realty to Total Wealth	Urban & Farm Realty to Total Wealth
1909	$64,432	$33,849	$164,241	39.2	20.6	59.8
1910	66,096	34,801	173,822	38.0	20.0	58.0
1911	73,274	35,289	185,701	39.4	19.0	58.4
1912 *	74,644	36,032	187,739	39.7	19.2	58.9
1913	77,010	38,092	197,077	39.0	19.4	58.4
1914	80,011	39,095	203,208	39.3	19.3	58.6
1915	81,845	40,530	204,420	40.0	19.8	59.8
1916	82,726	44,823	218,233	37.9	20.5	58.4
1917	84,447	48,347	243,684	34.6	19.8	54.4
1918	86,649	52,950	266,783	32.4	19.9	52.3
1919	87,801	59,900	284,498	30.8	21.1	51.9

* Figures for this year are taken from United States Census of Wealth, Debt, and Taxation.

Although these figures are not entirely suited to our purpose, they are the best obtainable at the present time. Dr. King made his estimates on the basis of census statistics of the assessed value of real estate and the ratio of assessed value to true value. Direct city reports are avail-

[1] W. I. King, "The Net Volume of Saving in the United States," *Journal of the American Statistical Association*, Sept., 1922, p. 322.

able from the largest cities, which dominate the totals; and where obtainable, these were substituted for the Census figures. It should be remembered that these figures are only approximations, indicative of the trend of values.

The Value of Land is Due to Its Services and Commodities.—Land is desired because it yields services and commodities useful in the satisfaction of human wants. These wants are generally of two kinds: (1) The wants of direct consumption as in the case of a home; and (2) the wants of production (indirect consumption) as in the case of a factory. Sometimes a given piece of land, like a farm, will satisfy both wants simultaneously. But in cities these uses of land—to gain a livelihood and to enjoy living—are more frequently separate. We may say, therefore, that individuals desire land for enjoyment and for earning an income.

The degree of enjoyment-desirability which a purchaser or owner attaches to an urban residence lot or a farm depends upon a great number of factors, all of which the real estate appraiser should take into account. These factors may be grouped as follows: (1) Characteristics of the land, such as elevation, view, size of lot, neighborhood, nearness to transportation; (2) characteristics of the improvements such as architecture, convenience, color; (3) the strength of the appeal which these characteristics have for individuals; and (4) the size and proportion of the income which the individual is able or is willing to use for this form of enjoyment. Enjoyment-desirability is largely psychological and varies from community to community and from individual to individual. Hence, it is difficult to lay down hard-and-fast rules or principles for the valuation of these factors. But as a whole, this psychological enjoyment forms a substantial part of the income from land useful for resi-

dential purposes. Even in the case of farm land, which ordinarily is regarded chiefly as a productive unit, this form of desirability is much stressed.[1]

The desirability of land as a means of *earning an income is more and more looked upon as the chief basis of land values from the point of view of demand.* The desirability of commercial, industrial, forest, and mineral land is certainly a matter of its earning power, while the desirability of agricultural land is largely due to its money-income yielding possibilities. All the factors which affect either the size of the money income of the land or its "enjoyment-desirability" affect its value.

The income of land is the basis for arriving at its value. A few words must be said about land income even though the subject is complicated and involves the profoundest economic theory.[2] The theory of rent or of land income was first considered in connection with agricultural land and perhaps it is well to use this type of land to illustrate the theory because of its simplicity. Agricultural land yields physical products—bushels of wheat, tons of hay, or pounds of vegetables, whereas urban land generally yields services which are to a greater extent of an intangible kind. Suppose an acre of land yields 30 bushels of wheat with an expenditure of $15 for labor and capital (tools, equipment, fertilizers, etc.). If wheat is 50 cents a bushel, the gross income per acre will just cover the labor and capital costs, and nothing is left for the land; hence, we say, there is

[1] In a recent bulletin on "Farm Land Appraisal Practice," by Ernest M. Fisher, of the National Association of Real Estate Boards, prepared from a questionnaire sent out by the Farm Lands Division of the National Association, this conclusion is reached: ". . . The total value of a farm is certainly as much affected by its home value as by its value as a production plant, if not more. There is no system of accounting that can show the weight of this factor, for no set of books can be kept on the value of a home."

[2] See R. T. Ely, *Costs and Income in Land Utilization*, Edwards Brothers, Ann Arbor, Michigan, 1922.

no rent. The term "marginal land" is applied to such land. If wheat rises to 60 cents a bushel, the gross income per acre will be $18, from which the labor and capital costs are subtracted, leaving a surplus of $3, or a rent of three dollars.

The determination of the rent of a city lot is made in the same way. From a known income are subtracted such charges as interest on the investment in the building, depreciation, obsolescence, and other charges. What is left is the income from the land itself.[1]

The above discussion assumes a given product, but this product may be increased if more labor and capital are employed. In agriculture this means more labor, more fertilizer, or more equipment per acre; in urban land higher or more expensive buildings. In either case there is a limit to the product, under given prices for products or services, because of the law of diminishing returns. We assume, therefore, that the proper combination of land, labor, and capital has been made in all cases.

The determination of land income is, therefore, a matter of bookkeeping. From a gross income we subtract certain costs, and it is just these costs that are very often neglected in discussing land income. The labor and capital costs involved in producing the crop or the building are obvious enough. What is neglected is the fact that there are costs chargeable against the land itself. The clearing, improving, fencing, and draining of agricultural land are among such costs. An urban lot is not ready for use unless it is surveyed, laid out, provided with streets and public utilities, and in some cases graded, filled, or levelled, as the case may be.

Among such land costs are also taxes. If an acre of land yields a rent of $5 and taxes are $1 per acre, the net

[1] E. M. Fisher, *The Principles of Real Estate Practice*, pp. 116-125.

disposable income of the land is but $4, just as if the bushels per acre had been reduced by that proportion. The purchaser of the land will pay for it on the basis of the $4 rent and not on the basis of the gross income of $5.

In some drainage projects there is an annual pumping charge. Such an annual expense will reduce the net income in the same manner as taxation and the land is less valuable than if the owner did not have to pay for drainage. For this reason many drained lands producing heavy crops are on the margin or even below the margin from the *economic* standpoint.

If the owner of land lets his property to another he charges the tenant for the use of the land, or, in other words, for the privilege of obtaining the land income which previously went to the owner. A contract is made between the two fixing a price for the use of the land. This "contract rent" may be for a sum greater or smaller than the "economic rent" as we have described it, but it will tend to be near this figure. A tenant pays for the use of the land and the landlord receives the rent for a *definite length of time,* a month, a year, even perhaps ninety-nine years. A purchaser of the land bargains for the right to the use of the land or for the right to receive the land income, not for one year, but *forever.* Land being a durable, permanent, and potentially inexhaustible source of income is, therefore, capable of yielding a succession of annual incomes in perpetuity. This is one of the characteristics of land which differentiate it from capital goods.

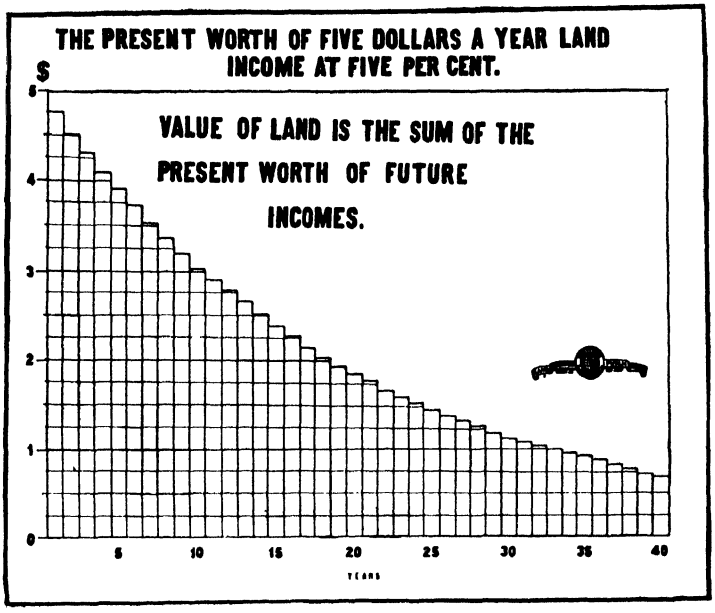
Converting Income Into Value.—The series of expected annual incomes is *capitalized* into a fund of value, which is called in economics the *capital value* of land, and in popular terminology the *selling price* of land. The

capital value of land represents a sum of money invested at a certain rate of interest. Note that the capital value does *not* determine income, but the income determines capital value. It is very often assumed that because land sells for a certain price per front foot, square foot, or acre, it ought to yield a certain income which represents a fair return on the investment. This is far from true. The price to be paid for land depends on what *it will yield or is expected to yield, not* on what it *ought* to yield. And what land will yield in income depends in turn upon the prices which can be obtained for the commodities and services of land.

This process of capitalizing land income into a capital value is the heart of the problem of land valuation. The process itself has been aptly described as the transference of a flow of income into a fund of value. That is to say, the expected series of annual incomes is summarized in one figure or symbol which represents the present value of the succession of incomes.

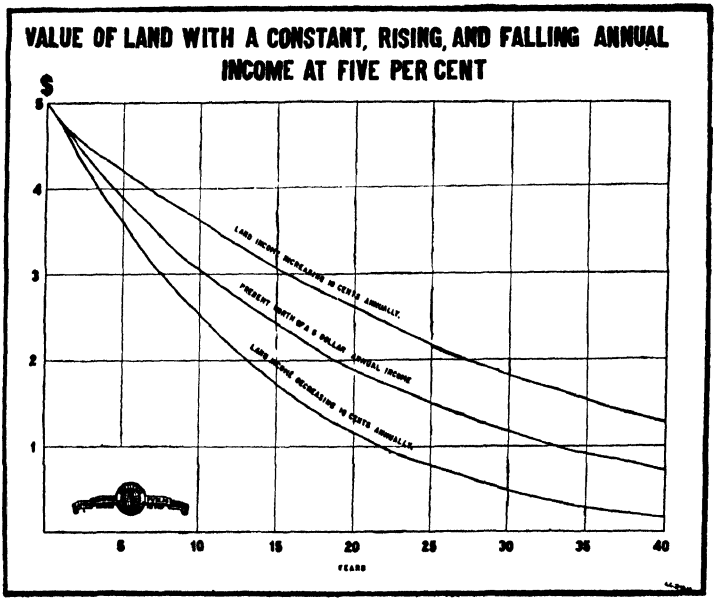
(1) *The Process of Capitalizing a Constant Income Into a Capital Value.*—How much will be paid for the right to receive a series of annual incomes stretching into infinity? If the income of a certain piece of land is assumed to be $5 per year and the annual incomes of the piece of land be added together for an infinite number of years the sum would be infinitely large, evidently an impossible price to pay for land. As a matter of fact, these future incomes are less desirable than a present income and the further they are in the future the less they are desired. Men are so constituted that they are impatient for income. They so prefer income in the present to income in the future that they are willing to discount the future income in order to have it now. The rate of discount or rate of impatience for the community

DIAGRAM IV



Future land incomes are discounted at the prevailing rate of interest. The sum of such discounted future incomes equals the capitalized value of the land. The sum of the forty discounted future incomes shown in the above diagram is $85.79, only about fourteen dollars less than if an infinite number of annual incomes had been discounted, or if the formula $v = \frac{a}{r}$ had been used.

DIAGRAM V



As in diagram IV, the value of the land is indicated by the area *below* the curves. The sum of the discounted future incomes for forty years, increasing at the rate of ten cents annually, is $108.74; for an *infinite number of years* it is $160. The land therefore sells for $160 an acre, even though it yields but five dollars a year now. Is the value inflated? What is the ratio of incomes to land value?

Where the future incomes are expected to decrease at the rate used in the diagram the selling value is but $40 (the sum of the discounted incomes for an infinite number of years), and the sum of the discounted incomes represented in the diagram is $62.83.

is the prevailing rate of interest.[1] However, the rate of impatience varies with practically every individual.

Let us apply this to the piece of land whose assumed income is $5 a year and assume 5 per cent as the prevailing interest rate. Five dollars available a year from now, discounted at 5 per cent, represents a *present* value of $4.76+. Stated in another way, $4.76 put on interest at 5 per cent will amount to $5 in a year, a principle that is used in figuring the interest on the thrift stamps and United States Treasury certificates.

An income of $5 available after two years of waiting is worth only $4.53+ to-day at a compound interest rate of 5 per cent. By discounting all the future incomes of land at 5 per cent and adding the figures so obtained we arrive at the present value of that land.

Diagram IV on the preceding page shows the present value of each $5 income up to 40 years; the part of the diagram represented by the bars represents the present value of the land.

The above computation presents the theory back of the calculation converting land income into land values. The method usually employed is to divide the annual income ($5) by the rate of discount or prevailing rate of interest (5 per cent), the quotient being $100, the value of the land.[2]

The sum of the present values of the 40 anticipated

[1] For an explanation of the rate of interest and its influence on the value of commodities see Irving Fisher, *Elementary Principles of Economics*, pp. 354-432.

[2] See H. C. Taylor, *Agricultural Economics*, Macmillan, 1919, pp. 204-207; for the mathematics involved in the calculation. It is here shown by algebraic formulæ and proved that this succession of expected incomes, discounted to present value and added, equals the value of the land; also that this complex formulæ can be reduced to $V = \frac{a}{r}$ where V is the value of the land, a is annual income, and r is the rate of interest. The two methods are in fact identical. See also L. C. Gray, *Introduction to Agricultural Economics*, Macmillan, 1924, pp. 250-254.

incomes shown in the diagram is $85.75 which is about $14 short of the sum of the present value of an infinite number of incomes. This shows that incomes beyond 40 or 50 years have little influence on the present evaluation of the land. In most cases the value of the land is seldom more than 20 to 25 times the value of the rent.

The British usually express value of land in terms of annual rents, called "purchase." They say that a certain piece of land is sold for "20 years' purchase" or "24 years' purchase." This expression shows the intimate relation between rents and value. In the United States land values often have so little relation to earning power that we are likely to think in other value terms. Nevertheless, if we did think more in terms of earning power, it might have a sobering effect on those why buy land at prices all out of proportion to the income from the soil.

(2) *Variables in the Capitalization Process.*—Having laid down the principle underlying land values we are ready to depart from it! We have *assumed* several figures and regarded them as *fixed,* whereas in reality they are highly variable in time and place.

In the first place the rent is not going to be $5 every year nor will it fluctuate around $5 as a norm; it may be constantly increasing, or in other cases, gradually decreasing year by year. The $5 a year rent was obtained by subtracting labor and capital costs (which may vary) from gross income, which also may vary from year to year with the amount of products per acre and the price of the product. The charges against the land may increase, as taxes have increased during the past few years, and as they increase the amount to be capitalized into value shrinks in proportion.

The first method of capitalization is applicable to an increasing or a decreasing annual income. If land income

should increase by 10 cents a year and such income be discounted at 5 per cent interest the present value of each income would not drop as rapidly as before. Diagram V shows this second curve superimposed on Diagram IV. A third curve shows the value of land if there is a decline in the annual income of the land.[1]

Another variable is the interest rate. The mortgage rate of interest in the United States varied from 4.6 per cent in Wisconsin to over 9 per cent in the Western States according to the 1920 census. It makes a great deal of difference which figure is chosen as the rate of capitalization. This is shown by the following table:

TABLE XI

VALUE OF LAND YIELDING A CONSTANT RENT AT VARYING RATES OF CAPITALIZATION

Rent	Interest Rate	Value of the Land
$5.00	2%	$250.00
$5.00	3%	166.66
$5.00	4%	125.00
$5.00	5%	100.00
$5.00	6%	83.33
$5.00	8%	62.50
$5.00	10%	50.00

The interest rate is not going to be stationary in the future and there is no way of predicting just what it will be.

Furthermore, we assume a rate of discount of 5 per cent cent for all time. Are we justified in assuming that the

[1] The formula for capitalizing an income increasing at a constant arithmetical rate is:

$$V = \frac{a}{r} + \frac{i}{r^2}. \quad E.g., V = \frac{5.00}{05} + \frac{.10}{(05)^2} = \$140.00$$

V = value of land; a = annual net income; i = increase in net income; r = rate of capitalization.

G. C. Haas, "Sale Prices as a Basis for Farm Land Appraisal," *Minnesota, Technical Bulletin No. 9*, pp. 5-7.

J. D. Black, "The Division of Farm Income Between Landlord and Tenant," in *Proceedings* of American Association for Agricultural Legislation, 1919, p. 145.

individual will have the same rate of discount the second ten years as the first? How much ought we discount the future income 40 or 60 years from now, a span of time beyond the active life of the individual?

(3) *Elements in Land Value Not Found in the Capitalization Process.*—Present market values of land tend to be higher than is justified by the rates of return on other investments because elements of value which are largely personal in character are introduced in the reckoning. By way of illustration, the pride of ownership will induce many people to accept a comparatively low rate of return upon land investment. This is the same as saying that they value land at a higher figure than if it were an income-producing investment like a bond. Farm land values, for example, include an element of "home-value." Also in the case of farmers a lower rate of return (or a higher value) is accepted because they do not consider any alternative investments which might yield a larger income.

In new and rapidly developing regions like the Mississippi Valley in the nineteenth century and in fast growing cities, market values of land often vary considerably from the values found by the capitalization of net income method. In these localities, when all other factors are taken into account, the most important single explanation of the low rate of return from land (or high market values) is that men expect a substantial increase in the price of the services of land or of the price of land, which amounts to the same thing. In other words, a high valuation is put upon land in the present because an increment in value is expected in the future. This is done the more willingly since the services of land are durable and cannot be duplicated at will.

Summarizing we may say that the valuation of land in

the present is subject to the following uncertainties: (1) A change in the rate of capitalization, which represents a change in the premium put on the present over the future; (2) a change in the net incomes from land in the future; (3) the introduction of other more or less intangible factors which are largely psychological or personal in nature. The presence of so many uncertainties gives a speculative character to the buying of land. At the present moment there is great need of careful investigation and analysis of all these uncertainties in order to divest land investments of the taint of bad speculation. Such research will at the same time reduce the uncertainties although they cannot be wholly eliminated. The various rules used in appraising the value of real estate represent a step in this direction. But these rules apply to the area of city lots, to corner influence, or to the physical and economic depreciation of buildings, and not specifically and adequately to the underlying economic factors of land valuation.

Forces Which Affect Land Income and Land Values.— In our discussion so far we have assumed that men are operating under perfect competition—buying, selling, and renting with the idea of profit. But there are other forces at work which modify such an assumed situation. Custom, monopoly, and public authority modify methods of land tenure, and "contract" rent under such conditions may be a very different figure from the economic rent.

In early and primitive society payments for the use of land were based upon *custom.* Under the "metayer" or share-renting system, for example, the landlord received from all tenants alike a fixed proportion of the produce (usually one-half and sometimes two-thirds in the metayer system) and there was no question of raising or lowering rents. Share-renting was gradually displaced by a

cash-renting system, based primarily on competition rather than custom, although the share-renting system still persists in some localities, particularly in the United States. After cash-renting became well established, certain customs affecting payments for the use of land grew up and tended to grow stronger as the country became older and more stabilized. In one locality of Scotland a well-informed gentleman said in 1913 that he knew of only one case in that locality in which, during the past forty years, the rent of land had been raised, outside of cases where it was a payment for actual outlay of capital by the landowner—for example, in the erection of buildings. Besides determining directly the amount to be paid for the use of land, custom affects the income from land indirectly in cases where the landowner traditionally feels obliged to contribute certain sums of money for the community welfare, that is for charity, for community improvements, and the like. The incomes of English landowners have been especially reduced, sometimes to the point of becoming deficits, in this manner through the force of custom. Elsewhere we have related how customs of production or of consumption tend to restrict land utilization to familiar forms even though a change of custom would increase the income.[1] Many customs affect, directly or indirectly, incomes from land, although in a "new" country like the United States their effects are slight compared with those in older countries. The general tendency of these customs is to stabilize conditions and to smooth the irregular movements of land incomes.

Competition tends to accentuate and widen the fluctuations of land incomes over a period of time. Since the time when custom gave way to competition as

[1] *Supra.*, p. 56.

a ruling force in economic life, the fluctuations have increased. One explanation of this effect is that competition is based on unrestricted enterprise and free transfer of land from one person to another, so that the prospect of a small advantage is usually seized promptly and magnified. It is a principle of human nature that when some lead others follow, particularly when no restrictions hold them back. To this principle should be added the companion principle that men tend to over-estimate the prospect of future gains and under-estimate the losses. This too roseate view of the future, set free by competition, played a large part in the inflated values of agricultural land in many parts of the United States a few years ago. Certainly our present proportioning of production and consumption is based upon the theory of competition or free purchase and sale. In practice we depart from the competitive principle in many instances and have departed from it to an increasing extent in recent years. Nevertheless a substantial degree of competition prevails and may be expected to prevail in the future. From the long-time view of land incomes, a strengthening of the force of competition will not only accentuate the *fluctuations* in the landlord's income over a period of time but also will accentuate the *differences* in income between one locality and another and between different grades of land. A lessening of competition would tend to have a stabilizing effect.

In general, monopoly is a force which tends to stabilize income curves, although not in the same degree nor on the same level as is the case with custom. However, we may fairly disregard the force of monopoly in the case of land incomes, because the supply of land is ill adapted to unified control, except possibly in rare instances like anthracite coal deposits or water power, where there is a

great scarcity without great possibilities of almost equally suitable substitution.

The effect of public authority on the long-time movement of incomes depends on the way it is exercised. In emergency rent-regulation acts, such as we have in two or three States, and in zoning laws, the tendency is for incomes to become fixed much as they are by custom. Rent regulation in this country is simply an emergency measure and doubtless in many cases has prevented real hardships resulting from rapidly rising rents. But before introducing such measures of public authority, their effects should be carefully considered. If they prevent the flow of capital into home building by holding down rents, they may make a bad situation worse. When public authority is exercised through the taxing power, the effect upon land incomes may likewise be transferred to the utilization of land sometimes with undesirable results. Some taxes, as the general property tax on forests, tend to encourage a policy of exploitation which may end in high scarcity prices. Other taxes may take such a large portion of the land income that land utilization is discouraged and values are depressed. We will see later that this is one result of the present high taxes upon farm lands.[1]

The importance of considering these forces in forecasting land incomes is chiefly in their effect upon long-time movements of prices. Custom and competition largely affect the rapidity and *not* the direction of movements of land incomes. Monopoly is of slight, if any, effect. The effect of public authority is generally to limit incomes, but in particular cases it determines the direction, either up or down, of land income movements.

Forecasting Land Values.—Prophecy is a dangerous business in the present state of our economic information;

[1] Chap. XV.

yet every investor and every business man prophesies daily and acts accordingly. We cannot escape the fact that the productive process is continuous, "waits for no man," and that man looks to the trends of value in the future for guidance in present valuations. An explanation of values at a particular moment of time is incomplete if it does not include the dynamic aspects of the problem.

Forecasting means looking to the future. In primitive times forecasting was bound up with religious practices and superstitions of every kind and description. We do not believe any longer in magic and incantations, although certain almanacs which influence men with respect to their future still seem to have a surprising vogue, especially among farmers. Until quite recently forecasting has generally been an individual operation and has been largely guesswork. It has been based for the most part on present prices, and as it has been individual, and as each individual makes the same sort of guess, the result has been that mistakes have been made, one extreme following another. One farmer thinks the time has come to raise sheep; but the same motives which led him to make this conjecture, being very general, lead to excessive production of mutton and wool. The United States Department of Agriculture now gathers agricultural statistics in an attempt to afford guidance so as to avoid relative over-production and relative under-production of particular crops or animals.

Forecasting may be either for short-time periods or for long-time periods. Forecasting the near future is the object of such business services as those furnished by the Harvard Committee of Economic Research, Brookmire, Babson, and others. Short-time estimates are adequate for commercial and industrial enterprises which can be

adjusted quickly to changing conditions, but the necessity for long-time forecasting of incomes is greater in the case of land than in the case of other forms of wealth.

The factors whose effects upon land values are of relatively short duration generally make themselves felt in one or a few localities but not usually over a large territory like the United States. A real estate boom, sponsored by real estate dealers, private speculators, chambers of commerce, or private corporations, may inflate values in one restricted locality. Buyers of Iowa farm lands during such a boom also know how the collapse of booms brings down land values almost over night. These local disturbances rising suddenly from the general movement of land values and as suddenly subsiding are also due in large measure to fluctuations of the business cycle. When business conditions are generally good, the optimism of a few leaders induces others to follow in what often amounts to a temporary and local inflation of values. However, these short-time, local increases or decreases in land values do not have very great effect upon the general long-time movement of values with which we are chiefly concerned; in fact they are in many cases quite independent of the land values in other communities.

Forecasting for long periods of time must concern itself with those factors which will increase or decrease the supply or demand for land. Supply and demand are like the two blades of a pair of shears; we can hold one of them stationary and move the other, or reverse the process, or move both simultaneously. If both move in the same direction, the movement of one blade may so counteract that of the other that the shears will not cut. On the other hand such a double movement may accelerate the cutting.

Nature of the Demand for Land.—The demand for

land comes through a demand for the services of land. Land yields the materials for food, clothing, shelter, comforts, and luxuries. The demand for a new luxury produces a demand for land in many direct and indirect ways. The craving of the public for grape fruit has induced men to utilize thousands of acres of Florida land to produce this fruit. But this is just the first step in the demand for the services of land. After the fruit is grown it must be boxed, shipped, transported, distributed, and delivered to the table of the consumer. One's imagination pictures thousands of men at work to carry out this simple process, every step of which increases the demand for land for production, transportation, or site purposes.

Growth of population, therefore, is the first factor in creating a demand for land and its services. A recent writer makes the statement that it takes 2½ acres to support an individual at European agricultural efficiency and therefore the world's population will reach a maximum of five billion people with the agricultural efficiency of the present age.[1] All such arbitrary assumptions leave out of consideration the fact that a given population does not necessarily mean a given and definite pressure upon land. There is always the possibility of changing our diet as well as of making more efficient use of land.

The demand for the services of urban land must be considered more specifically. Probably the four most important factors, producing an upward tendency of urban land values, are: (a) The development of industry and commerce; (b) the development of communication and transportation; (c) the quantity and quality of public improvements; (d) a restriction of the area available for use, in the face of a growing population.

The development of industry and commerce attracts a

[1] E. M. East, *Mankind at the Crossroads*, Scribner, 1923, p. 69.

larger population to a city and generally increases the community's purchasing power. The development of communication and transportation through improved roads and railroads and wider use of the automobile generally operates in the same way. A restriction of a city area for topographical or political reasons tends to cause rising values as the growing population approaches a complete occupation of the limited area. The effect of a city's expenditures for public improvements, such as streets and parks, is to strengthen a rising movement of land values established by other causes. Independently of other factors, public improvements ordinarily do not cause increased values, but when joined with other influences they have an effect in that direction. However, the additional value increments produced by public improvements must be offset by deductions for the special assessments or increased taxes covering these expenditures. Unwise public expenditures of this kind have been known to decrease instead of increasing land values, because the burdens exceeded the benefits conferred.

A great deal depends upon the size of the unit selected for study. Obviously if only a small section of a city is studied, the development of industry may depress values in that section, although an increase in values is noted elsewhere in the city. Land values on Manhattan Island, New York City, have increased, although the population living on the island has decreased. Naturally a wrong conclusion might be reached if Manhattan Island alone were studied. In the case of our larger cities it is necessary to take the entire metropolitan area as the unit.

Many other factors undoubtedly contribute to an upward trend of incomes or values in certain localities. Sometimes a reduction of freight rates to or from one city and not applicable to other cities will boost land

values. Another interesting study could be made of the effect on land values of a growing university located in a city. Other influences, more peculiar to a few localities than common to a great many localities, may occur to the reader or will be brought to light when additional studies are undertaken.

A downward trend of values in some localities is brought about (1) by over-expansion of a city's area, (2) by the decay of industries, (3) by the movement of industries to more favorable localities, and (4) by other factors less common in occurrence. Superior, Wisconsin, is an excellent illustration of what over-expansion will do to land values. The city was laid out for a population of over a million, because it was anticipated that the city would become a great inland port, surpassing Duluth, Minnesota. This expectation was not realized, and the city finds itself burdened with a great reserve area of idle, unimproved land which tends to depress the prices that can be asked for improved land. Some towns are built up by a population whose sole income is derived from working in a mine or a forest. When the mine is closed or the forest is cut down, people drift away and land values dwindle to nothing, or almost nothing. In Chapter I a decadent copper-mining town of this nature in Australia was mentioned, illustrating how land and improvements, though serviceable, can lose all value for lack of people to use them. In the United States, also, there are mining and lumbering towns which have the same history. The movement of industries to more favorable localities has an effect on land values similar to that of decaying industries.

Influence of Purchasing Power and Standard of Living.—Although mere numbers of people are a determining factor in the movement of land values, the purchasing

power and standard of living of the population are of more immediate and concrete significance. Some of the Chinese and Indian cities have great density of population but very low prices compared with the level of prices of land in the United States. The scarcity of land may be as great, but the prices are much lower, partly because the purchasing power in those Oriental cities is relatively low, partly because all values in those countries are low compared with our standards.

Foreigners are astounded at the high rents paid for business corners in American cities or for urban residential property. This is largely explained by the high general average of economic well-being, by the readiness with which wealth is generally expended, and by the willingness of the American to pay for the prestige of fashionable location.

The advertiser is aware of the necessity of creating the "intensity of customary use" for his article. He appeals to the public by the "exclusiveness" of his goods and creates in their minds the idea of the desirability of fashionable and exclusive dress, automobiles, suburbs, or residence sections. If a certain section of a city once has the distinction of being for the select, rentals and prices will be paid all out of proportion to physical or tangible factors that ordinarily determine value. "The very cracks and crannies of fashionable districts, narrow side streets and dark back rooms, when touched by this potent charm, command high rentals, notwithstanding their intrinsic unattractiveness."[1]

In the business districts fashion likewise explains the high rentals and high land values of certain shopping districts. The high average well-being of Americans makes them careless of small savings. "Time is money" is the

[1] F. W. Taussig, *Principles of Economics*, Macmillan, 1911, Vol. II, p. 80.

excuse. The restaurant or drug store on a crowded corner has a large advantage over another similar establishment just around the corner because the average American is unwilling to go a few steps to save a dime. This trait has become hardened into custom and fashion until the American is far less free than the European to eat, shop, or amuse himself regardless of surroundings. The influence on rentals and land values is obvious.

Rural lands suitable for country estates, ranches and orchards of wealthy men who made their money in other industries and who become "farmers" because of fashion or whims also acquire a value far out of proportion to their productive value. In such cases the "home" value or psychic value is the main factor in the price of land. Farms in the hands of "dirt" farmers near such "play" farms soon reflect the value of the latter.

The effect of a high standard of living on land values should not be interpreted too broadly, for a demand for goods and services of a better quality does not invariably mean that more land will be required. Fashion may dictate that residences have spacious grounds; that, of course, necessitates the use of more land. But when fashion decrees that house furnishings be more expensive and of better quality, the effect upon the use of land and upon land values is negligible. In the case of agricultural products greater expenditures of wealth may give rise to a demand for a better quality of eggs or fruit, but no more land is required to furnish the better quality products, although more labor and capital may be necessary. There is a limit, therefore, to the influence exerted on land values by high standards of living.

The purchasing power of peoples, however, has a larger significance. The United States has been the source of supply for much of the meats and breadstuffs of Europe.

The purchasing power of Europe has been seriously diminished by the war; they are buying less of our products, and with the lessened demand, prices fell. If this market is again restored to us, prices of agricultural products will tend to go up, and with this movement will come an upward turn in agricultural land values, other things being equal.

We know also that the countries of Europe are making an effort to become more nearly self-sufficing with respect to agricultural products. To the extent that they buy at home and do not buy from the United States, this cannot fail to affect the purchase of American products by those countries. Already a decline in the amount of their purchases is noted, although this is due more to unsettled currencies and political and economic conditions generally than to greater self-sufficiency. The effect of this decline has been to enlarge the unmarketable surplus of American export grains, which, being thrown back on the domestic market to be absorbed at a lower figure, if at all, has tended to depress agricultural prices and land values. This experience shows how important it is to consider among other things the trend of events in distressed parts of the world and especially in Germany, which, if prosperity returns, may become a large purchaser of American farm products.

On the other hand the number of customers of the American farmer is increasing within our own borders, since the cities increase in population faster than the country districts. Futhermore, this growing city population is probably the "wealthiest aggregation of consumers anywhere on earth," as one writer has previously been quoted as saying.[1]

The forecaster of land values must, therefore, note not

[1] *Op. cit.*, see pp. 99-100.

only the growth in population but purchasing power, purchasing habits, customs and fashions of buyers of the products and services of land.

The Supply of Land.—The other blade of the shears is the *supply* of land. The scarcity of land is a fundamental condition of its value. If the supply of land were abundant enough to satisfy the wants of all, land would command no price,—that is to say, would have no value. With an abundant supply no one could be asked to pay for the use of land, because, if he were, he could avoid doing so by appropriating land elsewhere.

What is the nature of this fundamental scarcity? Obviously it is not a physical shortage of land, for there is always more land that can be used for building sites or farms. It is incorrect, therefore, to speak of a scarce supply of land in the physical sense. Scarcity is an economic term. In a previous chapter attention was called to the fact that land is of various grades with respect to fertility or advantageous location. Some farms produce more per acre than others; some sites are better suited for office buildings than others. These differences give a clue to the meaning of the term *scarcity* in land economics. For every use of land there is a scarcity of land best adapted to that use. Even this statement requires further explanation. It is theoretically conceivable that the supply of a particular grade of land suitable *for only one use* is more than sufficient to satisfy all the demand for it. In that event there is no scarcity of that grade of land, and it commands no price on the market. Such a situation does not conform to reality. Actually the growth of population has given rise to demands for certain uses of land in excess of the supply of land *best* adapted to those uses. Hence we say that scarcity refers to the dearth of supply in *relation* to the demand. We find,

therefore, (1) that scarcity is a fundamental cause of value, (2) that scarcity is not a physical shortage, and (3) that scarcity is a shortage of particular grades of land in relation to the demand for those grades of land.

Two essential phases of scarcity are characteristics of the land itself: (1) its gradations in fertility and in advantageous location, (2) its immobility. If all land were equally suitable for all uses, there could be no scarcity as long as some portions of the earth's surface were unutilized. Similarly, if land could be freely moved from place to place or freely reproduced, the scarcity of one grade of land in one locality could be made up from the plenty of another locality.

In the chapter on the "Present and Potential Supply of Land" the question of the possibility of increasing our *economic* land supply is discussed. It is necessary to emphasize the fact that *area* is no measure of the supply of land whether it be urban, agricultural, or forest land. Certain kinds of natural resources are fixed in quantity. There is probably a definite amount of coal, petroleum, natural gas, gold, iron, and other minerals, and the problem in connection with lands yielding such products is one of conservation. The same holds for irrigation water, water power, and, to some extent, also of forests. But in agricultural land, forest land, and forms of utilization depending on site, the products or services of land can be increased. As stated before, such increase, while *physically unlimited,* may be *economically impossible* because *under a given technique* the law of diminishing returns will fix the economic limit. This law is always based on a *given* technique and a given level of prices. Ancient Rome had its "skyscrapers," but their height was fixed by human endurance in climbing stairs. The elevator, together with modern steel frame construction, has

made 30-story buildings practicable. If Ford can supply the world with a cheap fertilizer, we may see a revolution in agricultural production which may upset land values tremendously. A practical cotton picker may do the same for the South. A new cheap explosive for blasting stumps probably changed the whole land-clearing situation in the Lake States and helped to stabilize land values during the present depression. The automobile and good roads have helped to shift land values in both rural and urban communities. Space does not permit further illustrations; we can only suggest that the technique of land utilization, transportation, and kindred factors must be closely watched by the economist and appraiser who attempts to forecast land values. Changes like these have shifted and altered peaks of land values from one section of the country to another and even from one continent to another.

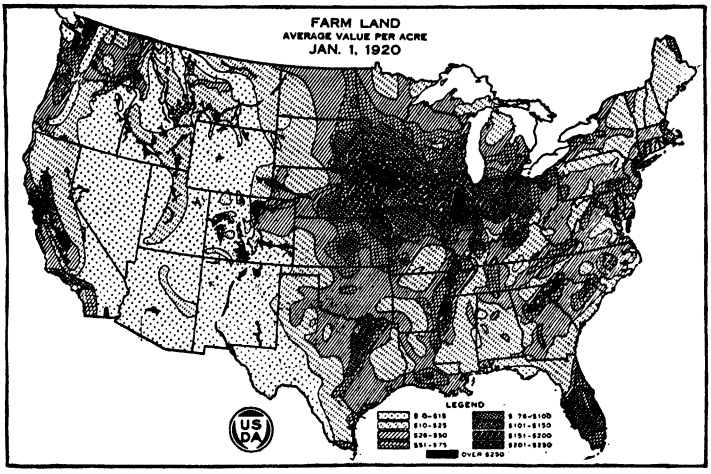
The increase in the efficiency of utilizing land may be accomplished in a number of ways. In the past the efficiency of utilizing urban land was immensely increased by the development of building with structural steel, so that a given area of land could supply a much larger demand for office and store space. Normally we would expect this great increase in the available services of land to depress prices. This, however, is based upon the premise of a stationary or slowly growing population with a relatively small change in demand. As a matter of fact, the use of structural steel, electric and motor transportation, and other technical improvements made possible and supported a great concentration of population in cities. Thus the normal effect of increasing efficiency of land utilization was lost and more than offset by the increased population, so that an increase in values, rather than a decrease, resulted. In the case

of farm land, it is safe to say that much higher land values would have resulted from the growth of population in the last 100 years if the development of farm machinery and agricultural technique generally had not tended to hold down prices.

The effect of increased efficiency becomes more apparent if we consider a case in which the population and its purchasing power are stationary. Increased efficiency then makes possible the satisfaction of the given, stable demand with the utilization of the existing or a smaller supply of land at a lower cost and lower prices. Because population has increased in every major country this tendency is generally overlooked. Studies of certain cities which have stationary or slowly growing populations are now being made, however, and results so far seem to substantiate this conclusion, as far as the local effects are concerned.[1] Furthermore, in the United States we know that our rate of population increase is a declining rate, although in aggregate numbers population is increasing. As this rate of population increase declines still further, in other words, as we approach a stationary population, the effect of improvements in land utilization will become more apparent. The relation between these factors may be stated as a law of the movement of land values: *Other things remaining equal, in a progressive society with increasing wealth and stationary population, land values will decline.* We need further investigations into the growth of population in order to determine accurately what rate of growth counterbalances the tendency of land values to decline as land utilization becomes more efficient.

The farmer looking at the land situation from his own standpoint must consider also the increasing supply of

[1] Results of these studies will be found in a doctoral dissertation by Mr. Arthur J. Mertzke, University of Wisconsin, 1924.



Yearbook of the United States Department of Agriculture, 1922

VALUE OF FARM LAND PER ACRE, 1920 AND 1910

State	1920	1910	State	1920	1910	State	1920	1910
Iowa	$199.52	$82.58	Mass.	$51.17	$36.69	Mississippi	$35.27	$13.69
Illinois	164.20	95.02	Michigan	50.40	32.48	Arkansas	34.82	14.13
Indiana	104.57	62.36	Kentucky	48.62	21.83	West Virginia	32.11	20.65
California	94.77	47.16	Delaware	44.59	33.63	Colorado	31.22	26.81
Minnesota	91.00	36.82	Rhode Island	43.75	33.86	Texas	28.46	14 53
Ohio	85.69	53.34	Oregon	43.29	35.23	Arizona	26.98	33.97
Nebraska	78.87	41.80	No. Carolina	42.84	15.29	Nevada	25.18	12 99
Missouri	74.60	41.80	Utah	41.78	29.28	Alabama	21.24	10.46
Wisconsin	73.09	43.30	Tennessee	41.40	18.53	Maine	21.09	13.73
South Dakota	64.42	34.69	Pennsylvania	41.12	33.92	Montana	19.73	16.74
New Jersey	62.29	48.23	Virginia	40.75	20.24	Vermont	19.58	12.52
Idaho	61.11	41.63	New York	38.45	32.13	N. Hampshire	18.21	13.70
Washington	60.22	44.18	Louisiana	38.29	17.99	Wyoming	17.86	10.41
Maryland	54.62	32.32	Florida	37.78	17.84	New Mexico	8.04	8.77
Kansas	54.50	35.45	Oklahoma	36.66	22.49			
Connecticut	53.28	33.03	North Dakota	35.33	25.69	United States	$57.36	$32.40
So. Carolina	52.08	19.89	Georgia	35.28	13.74			

AVERAGE VALUE PER ACRE OF FARM LAND

The Corn Belt is conspicuous on this map, average land values in central Illinois and northwestern Iowa having risen to over $250 an acre in 1919. Since then there has been a decline. The irrigated areas are also shown on the map as having land values of over $250, but this is not true of all the districts. Even the larger irrigated areas were too small to show other than in black, and many smaller districts could not be shown at all. The regions of low land values are the arid and semi-arid land of the West, the sandy, thin, or stony soils of the upper Lakes area and the North-Atlantic States, and the light or leached lands in parts of the South where also much of the farm may be in forest. The first box in the legend should read $0—$19, the second box $11—$25.

land yielding identical and competing products. Assuming no increase in demand for his products the dairy farmer of Wisconsin has reason to fear the development of dairying in the West or the South. Fortunately the past few years have witnessed a rapid growth in the demand for such products, so that the increased supply from Western and Southern dairy farmers has not depressed the prices of dairy products. But the tropical fats and oils are offering real competition, which is being fought by legislation. The corn and hog farmers are also interested in the competition of these vegetable oils from the South and the tropics. The rate of development of new lands in Siberia, Australia, South America must be considered by the forecaster who is concerned with the trend of land values in the United States.

The urban subdivider has a similar problem. What is the saturation point of the settled area of the city before it is wise to plan a new subdivision? If he is not the only one to discover this point, he may find a dozen new projects competing with his own and depressing values in all of them.

Up to this point we have been discussing factors which have to do with the size of the income from land. But even if the size of the income remains constant, a rise in the rate of capitalization tends to depress land values. This will happen in the same way that values will rise when the rate of capitalization falls, a process which has already been sufficiently explained. Capitalization at a higher rate of interest coincides approximately with a rise in the interest rates, more particularly with the interest rates on farm mortgages.

There are innumerable other factors tending to raise or lower land incomes or values generally over a comparatively long period of time. Some of them, of course,

are more important than others. Among the most important, perhaps of equal rank with those discussed above, are the quantity, quality, and efficiency of labor, the rates of wages, the influence of taxes and of public improvements. But in order to gauge accurately the force of these influences we need far more data than we now have.

The general impression conveyed by an analysis of groups of necessary forecasting data and by an interpretation of their probable influences on agricultural land values of the United States and their relationship to one another, does not lead one to anticipate any general upward movement of land values in the near future. Indeed, a downward trend of land values during the next ten years is not improbable. But a sober view, based on carefully gathered and carefully interpreted data, is in the long run more wholesome than a false optimism. The merchandiser of land knows only too well that faulty forecasting of an optimistic nature makes customers more dissatisfied than satisfied. It is, therefore, to his own interest, despite a possible immediate advantage in a contrary policy, to correct optimism by the facts. The farmer, too, is vitally concerned with scientific forecasting. He knows, or ought to know, the disastrous consequences of valuing farms at high figures when prices are falling below the point where they will yield him an adequate return on the investment. It is advantageous to the farmer in the long run to keep capitalized values and prices in a correct and sound relation to each other. A sound relationship between farm values and agricultural prices cannot be maintained very well without forecasting. Not only to these groups of people, but to people generally, it will be distinctly beneficial to base expectations of the future on scientific forecasting rather than on mere guesswork.

Summary

Land values furnish a guide for the utilization of land. The prices of the services or products of land tend to effect a restriction of the demand in order to bring it into conformity with the available supply. Through the price system those who utilize land are guided in selecting the best use for each piece of land. Land prices have significance in many other relations also. The value of land is derived from the value of the services and commodities that it yields, either directly, for consumption, or indirectly, when it is used for earning an income. The latter is more and more looked upon as the chief basis of land values in so far as they are affected by the demand. Therefore, the income of land is the basis for the determination of its capital value. The process of determining capital value when income is known is called *capitalization.* Capitalization of land income is done by getting the present worth of all the expected future incomes discounted at the current rate of interest. Market values of land often differ from the figures obtained by capitalizing the income. One reason for this in new and rapidly developing countries is because a higher present valuation is put on the land, owing to an expected future increment in value. Another reason is that land income is not constant but changing; its rate and amount of change are affected by the economic forces of custom, competition, monopoly, and public authority. Forecasting of land values for long periods of time must concern itself with those factors which increase or decrease the supply of or the demand for land. The growth of population is the chief factor in creating a demand for the services of land. The demand for the services of urban land are especially affected by the development of industry and commerce, by the development of transportation and communication, by the quantity and quality of public improvements, and by a restriction of the area available for use, in the face of a growing population. The purchasing power of the people

and their standard of living also greatly affect the demand for land. The supply of land in general is not less than the demand for it, but there is scarcity in the supply of particular grades of land in relation to the demand for those grades of land. This scarcity is due (1) to gradations in fertility and in advantage of location, (2) to the immobility of the land. Area, however, is not a measure of the economic supply of land, since with the same area the economic supply of the services of land can be increased by improving the efficiency of utilization. Other factors also influence the value of land, such as the quantity and efficiency of labor, rates of wages, taxes, and public improvements. The scientific forecasting of values will promote the interests of all who have to do with land, even if it sometimes corrects a false optimism with regard to land values.

CHAPTER XIII

THE SOCIAL ENDS OF LAND UTILIZATION

THE foregoing chapters form a basis for the study of the objectives of land utilization. If the use of land in certain ways leads to undesirable social consequences, it is an undesirable use and should be changed. For example, if owner operation with a healthy minimum of tenancy (chiefly as an aid to ownership) tends to bring better methods of production and higher standards of living, it should be encouraged. If zoning urban land helps to stabilize real estate values and preserve the amenities of living, the selfish interests of a few individuals seeking private enrichment should not be allowed to stand in the way. These matters are in the realm of policy, and after all it is policies which the legislator, the real estate man, the investor, the economist are all seeking, to guide them in their daily transactions which involve natural resources. A land policy, it should be repeated, means planning the utilization of natural resources to reach desired ends. These aims of a land policy form a yard-stick by which to measure the wisdom and efficiency of any particular form of utilization.

The Individual Ends of Land Utilization.—Profits are universally regarded as the mainspring of private enterprise in our present economic system. But it should be borne in mind that the prize is not gross profits, but net profits or net income over and above costs. This incentive to private initiative in the use of land will occur to

everyone. What is not so evident is the nature of the home owner's net income. He gets no money income from his home. In place of that, however, he gets an income in the form of shelter and the psychic satisfaction derived from the amenities of his residence. From the seller's point of view the amenities are the equivalent of money income, since a buyer is willing to pay for their possession and use.

If the wishes of the private individual alone were considered, that use of land which yielded the highest net income would be the most desirable. This in fact was the theory and practice of business enterprise a century ago. It was based on the belief that what was best for the individual was also best for the community.

This view is not so widely held at the present time. During the last fifty or sixty years it has come to be recognized that the individual is not a unit by himself, but a unit of a society, and that the interests of the individual and of the community do not always coincide. Evidence of this change in attitude is found in the increasing number of limitations and restrictions which governments have placed on business enterprise. We now have on our statute books the Sherman and Clayton anti-trust laws, a series of laws regulating railways, a great body of labor legislation, and a multitude of other regulations affecting business relations. Of special importance for land problems are the homestead exemption laws, the real estate brokers' license laws, city planning and zoning laws, rent regulation laws, and the like. Some of these laws have proved beneficial to the real estate business, but that was not the central objective of the legislators; laws designed to benefit one relatively small group of people fall within the category of unconstitutional class legislation. The purpose of these laws was the

coördination and harmonizing of conflicting private interests and the protection of the public interest from the results of unrestrained profit-seeking. In other words, the legislators contemplated certain public ends which are more important than the enrichment of some private individuals.

The Social Ends of Land Utilization.—The social ends of land utilization are: (1) A balanced production and distribution of wealth; (2) the conservation of natural resources; and, (3) the increase of the amenities of living so far as they are dependent upon the use of land. What do we mean by these aims and how are they to be accomplished? In practice the two problems of ends and means are inseparable, but for purposes of analysis they are discussed separately.

The best production of wealth, from an economic point of view, is not necessarily the largest production of any one commodity. It is a common fallacy to look upon the largest production as the aim of all economic enterprise, because it is felt that then each person's share of wealth will be larger. This error is at the bottom of many of our so-called economic ills or maladjustments to-day, and it rests on a misconception of our economic system, since it neglects the fact that production and exchange are based upon a delicately adjusted price system. What we need is not the largest possible production of wealth, but a *balanced production*—neither too much nor too little coal, wheat, houses, or any other commodity or service. In other words, a balanced production occurs when the supply of commodities is in equilibrium with the demand for them or when production and consumption are adjusted. Again we turn to the wheat market for illustration, because its history brings out so excellently the fallacy of the idea of largest production. During the war every

effort was bent toward getting the largest possible wheat supply. Now it is estimated that we have about 10,000,000 acres too much land in wheat, and prices are low. The loss to society in bankrupt farmers, in lost savings through the failure of banks in the wheat districts, and in many other ways, is very great. The point is that this loss might have been considerably lessened if a *balanced* production, rather than the largest possible production, had been the aim. The oil market during 1923, the potato market, the corn and hog markets, all reveal the same confusion of the largest production with a balanced production.

It is rarely possible to obtain a system of production which is completely in equilibrium; our present system is always in the process of becoming balanced. From the point of view of the demand for products, this is primarily due to the shifting of population and of its needs. From the point of view of the supply of commodities, our unbalanced production is chiefly due to the lack of knowledge of price movements and to inability to forecast accurately the trend of costs and incomes in the future, although in the case of agricultural production these shortcomings are complicated by the unpredictable whims of nature, such as unexpected variations in weather. Notwithstanding our apparent inability to attain it, a balanced production is a desirable end to work toward, because it will yield the minimum waste and maximum benefit to the community.

Just as the largest possible production is not always the most desirable socially, so a distribution of wealth which gives each person an equal share is not most desirable. The distribution of wealth is used in two senses. Economists are accustomed to speak of production as the creation of a fund of wealth, and the distribution of

wealth is the parceling out of that fund among those who contributed to its creation. It is traditional in economics to regard wealth as the product of labor, capital, natural resources, combined into working units by management, and to consider the product as distributed in wages, interest, land income (rent), and profits among the laborers, capitalists, landowners, and managers respectively, in proportion to their services in production. This is a *factoral* distribution of wealth and should be distinguished from the *personal* distribution, which refers to the size of each individual's income, regardless of whether he is laborer, capitalist, landowner, or manager. We are using the term "distribution of wealth" in this latter sense.

Two things are important in the ideal distribution of wealth. First, the size of each individual's share of the national income should be sufficient to maintain an adequate standard of living. Second, the shares of this total fund of wealth should be proportioned so as to bring forth just that supply of productive effort necessary to achieve a balanced production. The maintenance of a standard of living well above the poverty line is obviously desirable in the distribution of wealth. The second point, however, needs further elucidation.

For the past few years there has been a movement of farm workers to city industries. They are attracted mainly by high wages, which are greater than can be earned in agriculture. This population movement indicates that the returns to labor and land are not properly proportioned. Apparently there is not enough factory labor to satisfy the demand, and rather too much land in agriculture to give to all agricultural workers a livelihood equal to that in many other occupations. In time it may be expected that the reward to agricultural labor

will compare favorably enough with factory wages to lessen this movement greatly. In some such fashion as this the balancing of production is accomplished through balancing the distribution of wealth by the mechanism of private initiative. Does society or can society aid in balancing production and distribution by appropriate action? This question will be considered presently.

Conservation of natural resources is the second great end of wise land policies. The depletion of our forests is growing more apparent every day. In the case of minerals, the danger of depletion is not so immediate or striking, except perhaps in the case of the naval oil supply; but it is none the less urgent when the long-time point of view is taken. In the arid West water is a commodity of great value because it is so scarce, and steps have been taken to conserve it. Even though the supplies of many natural resources are sufficient to meet the needs of two or three generations, it is often "penny wise and pound foolish" to burden future generations with a shortage which can be eliminated or postponed by present economies.

As forest products become more scarce, it will be necessary to curtail our consumption to make the supply go around. Although we may never reach the point of absolute depletion, we must accept a greatly reduced standard of living so far as dependence upon forest products is concerned. This tendency of consumption to decline as shortage increases is usually forgotten when it is estimated that our forests will last only 40 or 50 years. If the present rate of cutting and of consumption were continued, this prophecy might be fulfilled, but cutting and consumption will not continue at the same rate, because the increasing scarcity of wood will tend to raise prices and thereby induce a decline in its consumption. Still,

no one looks forward with eagerness to the time when wood, coal, oil, or any other natural resource will be so high in price, because of scarcity, that consumption must be cut down sharply. Hence it is an unquestioned part of a comprehensive land policy to consider ways and means of avoiding this situation in the future.

The third great aim of land utilization is the increase of the amenities of living. There should be no confusion about the meaning of the term *amenities*. As already defined, amenities are such things as beautiful scenery, a congenial environment, pleasant neighbors, a healthful neighborhood, attractive homes. These yield primarily psychical forms of income, but they are a part of income because their presence will be paid for and their absence will be discounted. Most people spend a large part of their lives in their homes. That is why the amenities of land are so important, especially in the case of residential property. Their increase is not only a benefit to the individual but to the community as well.

In recent years the amenities of city life have increased more rapidly than the amenities of life in the country. This tendency partly explains the concentration of population in cities. If city life continues to be so much more attractive than country life, it is not inconceivable that some time in the future a shortage of man power in agriculture may cause a marked rise in the prices of food products. What can be done to forestall this possibility is a problem of ways and means of accomplishing the social aims of land utilization. To that problem, with the companion problems of how production can be balanced and natural resources conserved, we shall now turn.

Means of Social Control of Land Utilization to Secure These Ends.—How are these social ends to be accomplished? *Social ends* suggest that we use *social means*—

namely, government regulation, legislation, police power, taxation, or the conversion of private into public property, or the reverse. The problem is to use such means as will accomplish these ends under a régime of private property.

(1) *Price Fixing or Rate Regulation by the Government.*—There are certain forms of land utilization in which "price fixing" as a means of social control is justified and others in which it is an entirely inadvisable policy. In all cases more can be said in justification of the exercise of this power of the State as a temporary emergency measure than as a permanent policy. Public utilities are important utilizers of land and the control of their rates and prices is a necessary governmental function, desirable for both the good of the industry and the best interests of the public. We may say in general that, when land is utilized by a monopoly, price regulation is necessary; and also that, when certain lands are monopolistically held or are very scarce, such as wharf and dock property, price regulation, if not public ownership, has much to be said in its favor.

But this power of government is often misapplied. We say we want balanced production and point out that our wheat acreage is ten million acres too large. The result is low prices and agricultural distress. So far as this applies to the present situation it is not entirely due to the misjudgment of the farmers. During the war the price of wheat was fixed by the government to induce wheat production. The cry, "Food will win the war," and the insistent public demand for wheat encouraged farmers to raise this staple, in some cases without material profit. Suddenly the war ceased, conditions changed over night, and farmers found themselves with an overexpanded crop area which could not be reduced in a short

time. Despite this experience with government price fixing during the war, the same device is advocated in some quarters to-day as a means of relieving distressed wheat farmers. It seems plain that the "pegging" of prices at a certain point higher than the present market price of wheat in order to assure at least the expense of production to all wheat farmers, would only accentuate the present condition of wheat production and possibly increase the area in utilization. Government price fixing would not *balance* production, but would preserve the existing *unbalanced* production because it would encourage wheat farmers to keep in cultivation more land than is necessary to supply the needs of the market.

It is a very difficult and delicate problem to adjust prices so that the demand will just be met and balanced production result. Particularly is this the case where the product is sold in a world market, produced by a great number of operators in many different parts of a country. The difficulties of urban rent regulation seem almost insuperable, but, since it involves a local market and an inseparable service, it should be much easier to accomplish than to fix successfully the price of farm products.

(2) *Disseminating Useful Information.*—The service of the government in obtaining balanced agricultural production on the farms already established must therefore be confined to the gathering of data and the interpreting of trends so as to guide producers in their selection of crops and their livestock enterprises. In this way the government avoids offering artificial inducements to the farmer, but helps him to estimate the strength of the inducement which the natural movement of prices has for him.

(3) *Adjustment of Internal Immigration Policies and*

Other Policies to Needs.—In so far as there is *general* agricultural over-production, the government can also withhold public lands from sale and withhold aid for reclamation, drainage, irrigation, and State clearing of cut-over lands, until there is need for more land. A large number of States have immigration departments whose purpose is to bring more land into use. A wise land policy (in which the Federal Government and States would coöperate) would adjust the activity of such departments to the demand for land and prevent undue advertising and high pressure salesmanship on the part of public officials. Here again we see the principle that a land policy *may,* and perhaps in the very nature of the case *must,* hurt certain private businesses in order to promote the general welfare. Thousands of individuals and corporations have invested money in potential farm lands with the expectation of developing them and selling them at a profit. "Development" may mean anything from high class colonization to mere speculation on the rise of land values. A public policy of stimulating immigration through State immigration departments has been an indirect subsidy to the business of those dealing in potential farm lands. Their advertising was emphasized and strengthened by that of the State, the cities, and the semi-official corporations such as railways and chambers of commerce. Their clients were publicly helped through the researches and the extension work of the agricultural colleges and through the county agent system. It is admitted that thousands of settlers have in this fashion been put upon sub-marginal land through private agencies aided and abetted by public agencies. The attitude of the educational institutions has been, "The poor fellows are on the land; let us help them." In so far as all this is a conscious

or unconscious public system or philosophy of action, it is a *land policy.*

At the present time the tendency of public officials to warn against further expansion of agriculture by settlement on sub-marginal land is being resented because it interferes with private business and hinders the expected development of the country. The fact of the matter is that the proper use for much of this land is forestry, and the public must be educated to see this in order to prepare the way for a land policy which will permit the proper utilization of the land. In a short time there will be an *under-production* of forest products which will manifest itself in high prices, curtailment of the use of timber, less housing, and a lower plane of living. Here is a problem of over-production and under-production which requires for solution the coöperation of all government agencies and the use of more stringent social means than those noticed above.

(4) *The Police Power of the Government.*—The police power, with the companion powers of eminent domain and taxation, is a legal term whose meaning and scope are defined in the decisions of courts.[1] In its broadest sense the police power is the power of government to regulate the use of life, liberty, and property in the interest of the general welfare. This is the basis of regulatory legislation which sets the limits within which individuals may act on their own volition,—in fact, the basis of the general legislative power of the government. As a matter of practice the laws which legislatures enact to carry out a policy of social control are subject to review by the courts, so that the exact determination of what legislatures may or may not do under the police

[1] T. M. Cooley, *Constitutional Limitations,* Little, Brown, 7th ed., ed. Lane, 1903, Ch. XVI.

power is a judicial function. In other words, the courts define the police power. Consequently, in a narrower and more accurate sense, the police power is that power of the courts committed to them by American constitutions, whereby they must shape property and contract to existing social conditions by settling the question of how far social regulations may, without compensation, impose burdens on property. Laws which require real estate brokers to be licensed are police power regulations which interfere, to be sure, with the liberty of every man to pursue a lawful occupation and to obtain the highest income by whatever means, but which have been sustained by the courts as a reasonable exercise of the police power to protect the public. Similarly, zoning laws in some measure restrict property rights and the possibility of getting an income from those rights, but these laws have been upheld by some courts because they control the use of property to the advantage of the public.

By restricting the possibility of getting a higher income, police power regulations indirectly affect the distribution of wealth. They are also used to bring about the conservation of natural resources, and especially to preserve or increase the amenities of land. The immediate effect of police power regulations is to control the scope of private rights in land for the purpose of effecting one or the other of these social ends. Licensing laws seek to protect the public from fraudulent practices of real estate dealers; zoning laws seek to preserve land values and increase the amenities flowing from land; rent regulation laws seek to protect the renting public from the extortion of unscrupulous landlords who try to take advantage of the unbalanced production of homes; building laws seek the safety and health of the public by estab-

lishing minimum standards which can hardly fail to affect the amenities of life.

Previously we have called attention to the fact that a large part of the rural population is being drawn into the cities. At present the inducements are so much greater in the city,—opportunities to "make money" (therefore to obtain a larger share in the distribution of wealth)—that millions of farmers and farm laborers have left the farms to go to the cities. The resulting congestion of population in cities raises many difficult problems of land utilization, and if this movement is continued for a considerable period, a shortage of man power in agriculture is likely to develop. This migration will continue until inducements are balanced. In part, but only in part, we can rely on changes in prices to remedy this situation. A public policy of increasing the attractiveness of country life will supplement private initiative. Such a policy, already in operation in some localities, uses the police power of the government to pass rural planning laws, or the taxing power to accomplish road improvements. Undoubtedly other methods are used or will be advocated whereby the powers of government are being enlisted or may be enlisted to increase the amenities of living in the country.

(5) *The Power of Eminent Domain.*—The power of eminent domain is the power of government to take property for public use *with* just compensation.[1] This is substantially different from the police power. Police power regulations *in effect* take away private property rights, but this "taking of property" proceeds ordinarily without the payment of compensation to private individuals because the regulation is a reasonable exercise of the police

[1] *Op. cit.*, Cooley, *Constitutional Limitations*, Ch. XV.

power. However, even though the exercise of the police power is reasonable, the State may as an act of grace grant compensation, as in the case of laws providing for the destruction of diseased animals. It should be noted, too, that a police power regulation takes property rights away from an individual, but the government does not use the rights that are thus taken. On the other hand, when the government takes rights under the power of eminent domain, it uses those rights for the benefit of the public and it must make compensation to the individuals whose rights are taken.

The extreme limit to which the courts will go in allowing the use of the power of eminent domain is shown in the opinions sustaining the Massachusetts regulation of the height of buildings around Copley Square in Boston. The statute provided for compensation to the private owners of the building affected. The State Supreme Court said: ". . . If the statute is merely for the benefit of individual property owners, the purpose (to preserve the architectural symmetry of Copley Square) does not justify the taking of a right in land against the will of the owner. But if the legislature, for the benefit of the public, was seeking to promote the beauty and attractiveness of a public park in the capital of the commonwealth, and to prevent unreasonable encroachments upon the light and air which it had previously received, we cannot say that the law-making power might not determine that this was a matter of such public interest as to call for an expenditure of public money, and to justify the taking of private property."[1] This decision was later sustained by the United States Supreme Court.[2] A similar attempt to limit the height of buildings around a

[1] Attorney-General v. Williams, 174 Mass. 476 (1899).
[2] Williams v. Parker, 188 U. S. 491 (1902-3).

public square was nullified by the Wisconsin Supreme Court in 1923.[1] This statute, however, was a police power statute, since it provided no compensation. It is a well-established rule of the courts that the police power cannot be invoked to regulate property for æsthetic purposes alone; that is, for the promotion of civic beauty. This purpose requires the use of the power of eminent domain.

The requirement that the power of eminent domain must be used for the public benefit and not for private benefit is well shown in two contrasting cases involving public utility corporations. In the first case a railway condemned land for a spur track leading to a private plant. If this had been the only factor in the case, the condemnation might have been declared illegal. But this spur track was also to be used for car storage to relieve a traffic congestion which affected shippers generally. This wide diffusion of benefits from the spur track transformed the use from a private to a public use and justified the application of the power of eminent domain.[2] In the second case,[3] the Maine legislature chartered an electric light and power company, which contracted to sell its entire output of current to a single manufacturing customer, except so much as it might need for supplying electric light customers. The company wanted to condemn land for an extension of its power lines so as to serve this manufacturing customer. The use of the power of eminent domain was denied in this case because the benefits would accrue to a private enterprise, and not to the public.

The power of eminent domain is used to convert pri-

[1] Piper v. Ekern, 180 Wis. 586 (1923). The limitation of the height of buildings was later sustained because the second statute applied to the State as a whole and was a reasonable regulation to promote health and public safety, *i.e.*, protection from fire, Atkinson v. Piper, 195 N. W. 544 (1923).

[2] Hairston v. Danville & W. Ry. Co., 208 U. S. 598 (1908).

[3] Brown v. Gerald, 100 Me. 351 (1905).

vate property into public property. We have already indicated how the power of eminent domain can be used for civic betterment, *i.e.,* increasing the amenities of land. But the power of eminent domain is perhaps more important as a means of conserving natural resources and incidentally of balancing production, particularly in relation to forest products. Its use would be particularly significant in connection with that great area of cut-over land which is popularly supposed to follow the formula, "from forest to farm," when in reality much of this land is eminently suited for reforestation and for nothing else.

To the private individual owning timber or minerals, conservation means postponement of present exploitation. This means that carrying charges, in the form of interest, taxes, and other overhead expenses, will pile up. If he can see future prices sufficiently high to cover all such charges, he will conserve the resources for future utilization—otherwise not. This is why taxation, the interest rate, and other factors affecting carrying charges are of such importance in this field, and why government action and aid are necessary. We have noted the effect of present taxation on forest and mineral exploitation elsewhere. The government is in a position to borrow money at a lower rate of interest than its citizens; and for this and other reasons it is considered the function of government to carry certain natural resources until the nation needs them. Development and exploitation can be left to private initiative under proper regulations safeguarding the public interest. Certainly the experience of the world shows that despite the remedial effects of certain new taxation policies, much of the land suitable for forests must be made public property in order to secure conservation and a supply of forest products in a balanced relation to other products. To make such a policy of conserva-

tion effective requires the use of the power of eminent domain to change private to public property.

The power of eminent domain should not be used lightly, because it affects indirectly the distribution of wealth, in addition to its other more direct social results. When forest land is made public property, obviously no one can obtain a private income from the ownership of such land, just as no one is making a fortune out of the ownership and control of the post office in the United States, although the post office has been a private enterprise in some foreign countries.[1] So, too, the transfer of land for parks from private to public ownership and the transfer of railway rights of way from one private owner to another constitute a change in the distribution of wealth.

In our studies so far we have indicated the kind of property best fitted to secure the highest production in the various kinds of land. The reason why private property is conducive to the best production in agricultural land, for example, is that distribution reacts on production. When the inducement to production is taken away, production is curtailed or ceases. When the Russian peasants were told that their land was public property under a communistic state and that any product over and above a certain amount deemed to be sufficient for their subsistence would be taken by the State, they refused to produce more than this amount. This method of obtaining the surplus to feed the city workers therefore proved to be a failure, and a new arrangement, much like private property in land as we know it, had to be made. Realizing these effects, the American courts are chary of sanctioning the use of the power of eminent domain to convert private property into public property unless the benefits are

[1] R. T. Ely, *Property and Contract*, Macmillan, 1914, p. 82.

clearly public and cannot be obtained without extinguishing private rights.

(6) *The Power of Taxation.*—The taxing power of the government has been used primarily for the purpose of obtaining revenue, and less often for the deliberate purpose of social control of property. Nevertheless taxation for revenue through its *indirect* effects has been a method of social control. Increasing the tax burden on some forms of property has discouraged investment along those lines, and, *vice versa,* a lightening of the tax burden has encouraged investments. Because of the widespread effects of taxation and because of the latitude given to the government's taxing power by the courts, this power is an appropriate, even if narrowly limited, instrument for effecting a policy of social control.

A deliberate use of taxation for social control of property utilization to balance production is found in the New York law enabling municipalities to exempt new buildings until 1932. The ultimate purpose of this law was to set up inducements to build more homes for the relief of the housing shortage. In application, however, the law has not accomplished all the desired results, in that the exemption of houses has only increased the tax burden on the land. Not only in this instance, but also in the cases of other cities where taxes on the land are proportionately higher than on other forms of property, the inducement to acquire land for residence utilization has been lessened. High building costs are perhaps the most powerful factor in decisions not to build, but high taxes aggravate the situation and often are decisive. A similar tendency is noticeable in many farming communities which are burdened with high taxes.

That the taxing power of the government redistributes wealth is apparent on every side. A progressive income

tax takes more from individuals with large incomes, but the governmental services supported by this revenue are given equally to all, regardless of the size of their income. In the case of landed property we shall see later that it bears a greater tax burden than personal property does; and yet both kinds of property receive the same protection from the government. This is nothing other than a change in the distribution of wealth,—a taking from some to give to others. Consequently it is important to examine carefully the redistribution of wealth brought about by using the taxing power in order that the redistribution may actually accomplish the desired social ends.

Conservation of natural resources is adversely affected by taxation in the case of forest and mineral land. Realizing this, some States have changed their taxation policies, substituting for the general property tax a "severance tax" in the case of some minerals and a "yield tax" in the case of timber lands. In these instances taxation is more a means of social control than a means of getting revenue, though the distinction is a matter of degree only.

An increase in the amenities of life that flow from the utilization of land may be accomplished both directly and indirectly by the use of the taxing power. When the government dispenses free public services in the form of parks, playgrounds, or better roads, expenses of upkeep are usually defrayed out of receipts from taxes which fall heavily upon land. Here is a direct use of the taxing power. But should the land pay an increasing proportion of the local taxes in order to support these increasing social welfare expenditures of governments? Sooner or later this tendency is likely to have bad effects on the utilization of land. This phase of public policy will be considered in greater detail in Chapter XV, particularly with reference to the use of the taxing power for road im-

provements. Indirectly also the use of the taxing power affects the increase of the amenities of land, in so far as higher or lower taxes create stronger or weaker inducements to utilize land in the best ways.

It is a difficult task to determine in advance which governmental power should be used and when it should be applied in order to bring about the desired results of land utilization. Each of the powers described above affects directly or indirectly to a greater or less degree all of the social aims of land utilization. In some instances the use of the taxing power alone is sufficient; in other instances the more stringent police power or the power of eminent domain is necessary; while in a great many cases the best results will be obtained simply by disseminating information. To formulate rules or principles for applying these governmental powers requires an accumulation of facts and a detailed, scientific analysis of those facts, which cannot be given here. We can, however, state two general principles of social control: (1) When private individuals are powerless to accomplish, or indifferent to the need of accomplishing well-recognized social ends of land utilization, any one or all of the governmental powers described above may be applied; (2) the need for a policy of social control increases with the growing density of population.

Nature of a Land Policy.—The proper relation of means to ends and of governmental powers to private initiative is a matter of delicate adjustment, and it is the core of a public policy of land utilization. In the past, the American States have given private initiative great latitude. Lately, however, the sphere of governmental powers has been enlarged so that the individual to-day finds himself hedged in with innumerable regulations. It is all part of the process of making more certain the

accomplishment of social purposes. So far as governmental powers are concerned, their part in this process consists either of laying down limits to human behavior, within which limits private initiative will more surely work toward the desired goal, or of supplementing private initiative when private efforts fail. With the growing complexity of economic life an enlargement of this sphere of social control may be expected.

Summary

The individual in utilizing land seeks as an end the maximum net income, including both money and psychic income. His interests, however, do not always coincide with those of society, and, when this is the case, his pursuit of them must be regulated to secure the *social ends* of land utilization. These are (1) a balanced production and distribution of wealth, (2) conservation of natural resources, (3) the increase in the amenities of living contributed by the land. The social means that have been used, sometimes wisely, sometimes not, to achieve these ends are (1) price and rate fixing; (2) dissemination of useful information; (3) the adjustment of immigration policies and other policies to needs; (4) the police power of government; (5) the power of eminent domain; (6) the power of taxation. In any case circumstances must determine which of these means should be used and when it should be applied.

CHAPTER XIV

POLICIES OF LAND SETTLEMENT AND DEVELOPMENT

DURING the past few years a great deal has been written in newspapers and magazines about the shortage of homes in cities and the distress of farmers. Consideration of these two problems is essential in the framing of economic policies of land settlement and development.

The year 1923 was the greatest year in the building industry in the United States. The Copper and Brass Research Association estimates that some $6,000,000,000—a billion dollars more than for 1922—were spent for construction; and of this amount almost 40 per cent was put into private dwellings, apartments, and hotels. Yet the housing shortage is still with us. The National Housing Association announces that "there is a shortage of between 800,000 and 1,000,000 homes in the United States to-day."[1] Coincident with this announcement is the report of the United States Department of Labor that the average family throughout the United States during 1923 spent for shelter 63.4 per cent more than in 1913, and reached the high point thus far in the upswinging curve of house rents.[2] At the same time, the Bureau of Housing of New York reports that high rents, bad sanitary conditions, poor ventilation, and great congestion characterize New York City tenements.

So the cry goes up, "More houses." Various plans

[1] *Literary Digest*, Jan. 26, 1924, p. 16.
[2] *Monthly Labor Review*, Nov., 1923, p. 100.

have been made and policies adopted. New York and the District of Columbia initiated an emergency policy of regulating rents. The National Housing Association urges, among other things, that banks make loans for over 50 per cent of the value of the building, that builders be content with smaller profits in order to stimulate construction, and that cities improve suburban properties, installing sewers, water mains, and electricity, so that the land will be available for building operations.[1] The building industry, the rent-paying public, and governmental agencies are all apparently convinced that a rapid development of urban residential land is both necessary and desirable. The shortage of housing, created by the curtailment of this type of construction during the war, should be made good; production should be balanced.

Contrast this situation with the policies of agricultural development. The settlement policy of the Federal Government in disposing of the formerly great area of public lands was based upon a rapid rate of development. The homestead acts made it easy to acquire a slice of the public domain. Consequently, the settlement of the agricultural Middle West was quickly accomplished. The same basis is found in the Federal irrigation policy. The settlement policy of New Zealand, on the other hand, has been designed for slower development and "closer settlement." This is the result of the influence of the so-called Wakefield theory, according to which a "sufficient price" should be asked for new land in order to discourage the purchase of land until laborers have enough experience and enough capital to make their settlement really successful.

During the war the rate of agricultural development in the United States was accelerated. The expansion of

[1] *Literary Digest*, Jan. 26, 1924, p. 16.

the wheat-producing area was deliberately encouraged by government price fixing and other stimuli. Events of the past three years have shown that new lands were opened up too rapidly. Since the World War certain agricultural products have been sold for less than their cost to the farmer, many agricultural products have found no market at all, and corn has been burned for fuel. The government's war policy of expansion has given way to emergency relief measures, such as the extension of government credits to distressed farmers, revival of the War Finance Corporation, and encouragement of exports, of coöperative marketing, and of diversified agriculture. The private policies of many farm land dealers have been at cross-purposes with the Federal public policy in many respects. Some private dealers depend for their profits on opening up new lands and encouraging farm settlements. The farmers, too, do not always see clearly why they should reduce the acreage of their crops. Let the next farmer do it! Consequently, it is not surprising that public policies tending to discourage too rapid development meet with disfavor in many quarters. Public agencies are, therefore, reluctant to run counter to this popular feeling. Nevertheless, some Western States have recently adopted a policy of not encouraging further settlements of farm land at the present time. The Commissioner of Agriculture of Wisconsin stated recently: "It is a serious mistake to try to induce people to take up sub-marginal lands for farming purposes. In some cases this policy was induced by a sincere motive of increasing production because the immense growth of city population led people to believe that there would be a scarcity of food and that, in order to maintain a balance of production and consumption, the development of these sub-marginal lands is necessary. . . .

What we need is a little sound thinking and a sound policy which recognizes that we now have sufficient land under cultivation." [1]

The general situation at the time of writing is one of unbalanced production. On the one hand, there is under-production of urban homes in a great many localities; on the other hand, there is over-production of certain food products. In either case, public policies of developing land utilization are partly, if not largely, at fault. Certainly the shortage of homes is due in part to official discouragement, during the war period, of all construction except that for definite war purposes. It is almost equally certain that an extension of agricultural land utilization was very much stimulated by the government's policy of price fixing during the war; and over a longer period of time the quick development of the West was distinctly encouraged by the Federal homestead policy and by State immigration policies. The net result is seen in unbalanced production, high urban rents, and a high percentage of farm bankruptcies.

In the light of accumulated experience it is evident that the determination of the proper rate of land development is fundamental to a sound and wholesome balance in the fields of food production and home production. The *rate of development* is then an essential preliminary to the formulation of public or private policies of subdividing or settling land. In determining the proper rate of development, full consideration should be given to the trend of prices and general business conditions. In view of the periodic and comparatively wide price fluctuations, known as the business cycle, it is perhaps wiser to have a slower rate of agricultural development than has existed in American experience heretofore.

[1] *Wisconsin State Journal*, Feb. 12, 1924.

Elements of Subdivision Policies.—Policies of urban development are largely policies of "subdividing." In the aggregate, urban subdividing probably affects directly more people than do farm settlements, and the results in terms of home ownership are no less important to the common welfare. Subdividing in its most general sense means breaking up into parts what formerly was handled as a unit. In common usage, however, subdividing refers to the development of land adjacent to the built-up sections of a city. In contrast with farm settlements, subdividing deals almost entirely with locations and the production of sites, and scarcely at all with soil fertility and the production of food.

Attention has already been called to the fact that policies are either public or private, the plans of public agencies or of private individuals or corporations. Elsewhere in this book our use of the word *policies* has been chiefly in connection with the plans of public agencies. In the remainder of this chapter the word will be used to refer also to the policies of private individuals or corporations. Only where there is danger of confusing the double sense of the word will we indicate the kind of agency responsible for the policy. For the most part, however, policies of subdividing are private policies.

(1) *Determination of the Type of Subdivision.*—Subdividers have to determine first what policy they shall adopt with respect to the selection of land for urban development. The success of the enterprise and also the public welfare depend on selecting the right land for the right use. The first task is the selection of the right use. This involves a careful analysis of the growth of the city and the character of the new population. The choices open to the subdivider are (1) an industrial subdivision of factory sites; or (2) a residential subdivision,

which may be built up with high-class homes, medium-sized homes, workingmen's homes, duplex houses, or apartment houses. The type of residential subdivision which should be developed, assuming the growth of the city to be sufficient to justify development, depends on the demand of the new population, which in turn is based on their incomes. If the growth of the city is industrial in character, a subdivision of workingmen's dwellings easily accessible to the factory district is more desirable than a high-class residential section. If the growth of the city is primarily commercial, probably a subdivision of medium-sized homes is most desirable. If the community is becoming suburban in character, a higher class of residences may be in demand.

(2) *Danger of Premature Subdivision.*—Premature subdividing is the great danger in planning a subdivision policy. Although there may be a shortage of homes in the country as a whole, it does not follow that every community is in need of more homes. Balancing the production of homes according to the needs of local communities is just as important a part of a land policy as the balancing of agricultural production on a national or international scale. Many smaller cities have partially developed subdivisions that show the results of a failure to appreciate this fact.

Since no public policy of direct control of subdividing has been inaugurated, almost the only obstacle to premature subdividing in this country is the real estate dealer's estimate of his probable net income. No subdivider will start a subdivision unless he sees a good chance of making a profit out of it. In many cases this is an effective check. But it would be more effective if the social consequences of hasty subdividing were appreciated. Some German cities prohibit developments in ad-

vance of the approved city extension plan. In Canada premature subdividing is discouraged "by a low rate upon unplatted agricultural land, with a large increment tax upon all land that is patted and changed from agricultural to urban use."[1] Neither a prohibition policy nor an increment tax is needed in this country, if those engaged in subdividing base their policies of development on a scientific analysis of the needs and trends of the community.

(3) *Selection of the Land.*—As soon as a policy of subdividing is entered upon in response to real needs of the community, the problem of selecting the best land for the needed use arises. Many factors must be taken into account. There is first of all the question: What amenities are needed to make the property salable? If high-grade residences are to be built, spaciousness, a good view, and the possibility of using attractive architecture are desirable. These qualities will usually be found in the hilly sections of a city. If workingmen's homes are to be built, the essential qualities to be sought are nearness to places of work and low prices of land; but they should be made attractive as well. Suitable amenities add to the values and salability of residential property.

Another factor in the selection of land is the zoning law. The private individual in this connection must adjust his policies to conform to the public policies established by governmental agencies. Subdivisions should be located with reference to the established zones. Locating a high-class residential subdivision in the path of an industrial district tends to reduce the prices that might be asked for such property. On the other hand, proximity to an industrial district is a desirable quality of workingmen's

[1] E. M. Fisher, *The Principles of Real Estate Practice*, Macmillan, 1923, p. 204.

residence districts. In the same way subdividers should consider the effect of commercial zones on residential values.

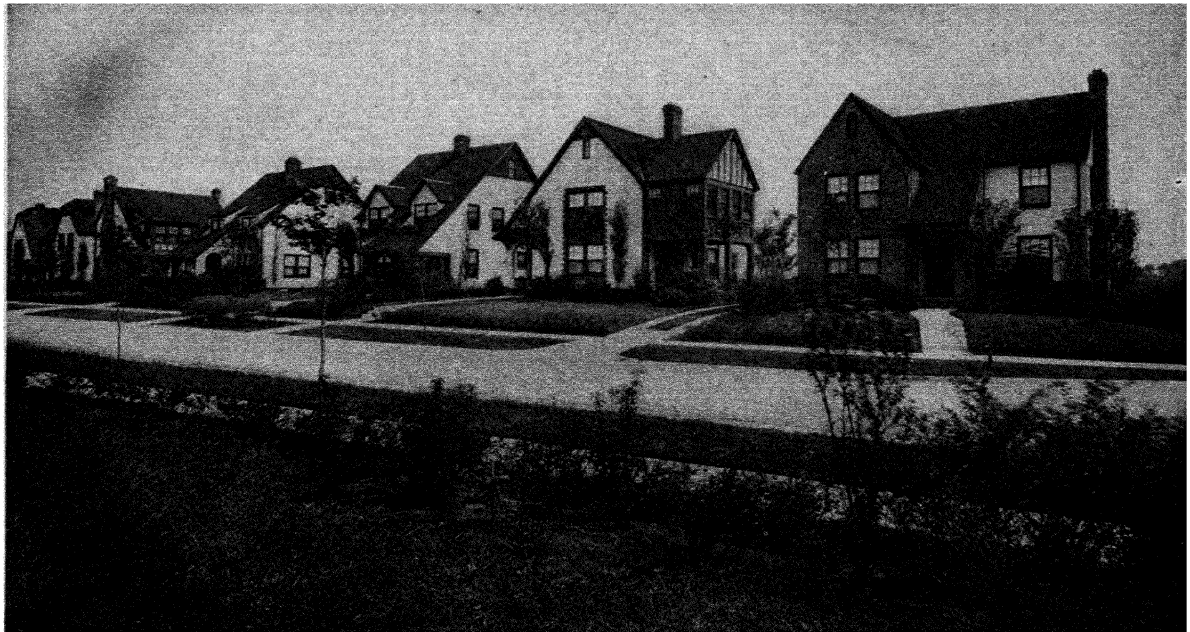
A third factor of importance in selecting land is transportation. A subdivision may be a complete failure because of inadequate consideration of transportation facilities. Transportation to and from work is essential for a workers' district, while transportation to and from the shopping district is hardly less essential for other subdivisions. Industrial subdivisions are located usually near railway lines. The importance of this factor is seen in the movement of property values along the lines of transportation. In developing residential land where transportation facilities are absent, the subdivider is ordinarily obliged to subsidize for a time a "bus" line or a trolley extension. Where adequate transportation facilities are available, it has been found that property values have been higher and the subdivision has been sold out quickly, if otherwise based on sound principles.

(4) *Laying Out the Subdivision.*—The lay-out of the subdivision should be planned to meet the needs of the settlers, and the welfare of the community. Very often the tract is platted into such small lots that the buildings shut out light and air, endangering the health of the community and its safety in case of fire. In locating streets the traffic requirements are of importance. The mistake is sometimes made of putting in streets far too wide for the requirements of the community. This is not only a waste of area, but a source of increased expense in furnishing adequate utilities. The natural routes of traffic and its density should be estimated and the width of streets governed accordingly. Avoidance of irregular lots, or the planning of such lots as parks or playgrounds, will do much to simplify the building of homes. Also,

the proper location of schools, commercial areas if needed, parks, and community centers, will help to increase the desirability and hence the values of the property.

Another illustration of the benefits of social control of the use of land is found in the relations between city planning and zoning agencies and the agencies engaged in subdividing. Irregular lots may be avoided and the proper location of parks, playgrounds, retail store centers, and community centers may be accomplished if the subdivider consults in advance some public authority, such as the city planning commission. Those German cities which have established public agencies to subdivide land have thereby obtained desirable control in these matters. In the United States, where subdividing is done mainly by private enterprise, the avoidance of inharmonious and value-depressing development is achieved partially through zoning, city planning, and building laws which carry out a few public policies. If private policies are formulated in conformity with these public policies, the benefits to the community and to individual property owners are incalculable.

(5) *Improving the Subdivision.*—There are wide variations in private policies of improving subdivision property. Some subdividers plan the tract, plat it, grade and mark the streets, and do nothing else. It is left to the buyers to build their own streets, to arrange for the city to put in sewers, water, gas, and electricty, and to plan and build their own houses. The tendency, however, is to furnish more improvements. At the present time a buyer may find many subdivisions where he has only to select his home, make financial agreements, and move in. The advantage of such a completely developed subdivision, from the social point of view, is that it can be



Courtesy of J. C. Nichols, Kansas City, Mo.

A RESIDENTIAL STREET IN A SUCCESSFUL SUBDIVISION

These home sites in the Country Club District of Kansas City, Missouri, were produced from raw land. Note how the buildings are set back from the street to give light, air, and the effect of spaciousness. These homes show how a subdivider may make architecture both harmonious and varied.

planned and worked out as a harmonious unit. Moreover, the subdivider can give his client better service. For one thing, he furnishes all public utilities, in less time, if not at less cost, than would be needed if the home owner himself negotiated with the city. In making the homes attractive the subdivider who improves the tract completely preserves the amenities of the community as a whole, whereas one or two individuals looking only to their own advantage might lower the quality of the land for residences.

(6) *Property Restrictions.*—Restrictions on the use of lots are a convenient method of preserving amenities and stabilizing values. The most common restrictions are: (1) the so-called "set-back," a building line at a certain distance from the street, in front of which buildings may not be erected; (2) restrictions on the type and appearance of buildings.

Minimum property restrictions are inevitably a part of public policies with respect to land development, and these may be added to in private policies by means of restrictive clauses in the contracts and deeds transferring property from one owner to another. The restrictions which are a part of public policies are found mainly in building codes and in zoning and city planning laws. The building codes lay down minimum specifications pertaining to sanitary arrangements, ventilation, use of fire-proof materials, "set-back" from the street, area of lot which may be covered by a building, height of building, and so on, Zoning and city planning laws or ordinances directly restrict and regulate the uses of land. Indirectly, through control of land utilization, they also restrict the type of buildings. When certain sections are restricted for industrial and commercial use, obviously the type of building to be constructed is restricted at the same time.

The private policies of subdividers may include additional property restrictions. To give spaciousness to a residential district a subdivider may establish in his sale contracts a larger "set-back" than that required in the building code. In planning the utilization of a new area, corner groceries and garages may be prohibited because these are often regarded as nuisances tending to lower lot values in residential districts. Sometimes, however, the subdivision is so far from the shopping district that some conveniences of this kind are necessary. In that case it is part of a good subdivision policy to reserve a certain area for such commercial purposes.

Privately imposed restrictions on the appearance of buildings are meant to preserve the subdivision against ugly structures. This may be accomplished by inserting in land contracts and deeds a requirement that all buildings must cost a certain minimum amount, or that all building plans must be approved first by the subdivider. The latter method is more effective in preventing the invasion of architectural atrocities.

Along with the "set-back" and building restrictions, certain area restrictions, designed to safeguard the appearance and desirability of the subdivision as a whole, are often included in private subdivision policies. It is advantageous to reserve a strip of land at the rear of each lot for public utilities, thus avoiding the tearing up of streets for repairs. Furthermore, a certain area of each subdivision is often set aside for public use as a park or playground, or for a school, a fire station, or a community center. If the subdivision is within the city limits, the expense of maintaining this public area is usually borne by the city, but if the subdivision is outside the city limits, each owner of subdivision land bears a fixed charge for its maintenance.

There are many other kinds of privately imposed restrictions in practical use. Those listed above are commonly used and are the most important from the point of view of the community's welfare. Their purpose is to make the character or quality of the subdivision more attractive to prospective purchasers and to stabilize the values of subdivision property. The best policy of restriction, either public or private, must be elastic enough to take care of changes in city life. In many cases property restrictions, of whatever kind, limit the market for the property; but in the long run this is often desirable in an avowedly fashionable subdivision, as a means of preserving the values of property.

(7) *Financing the Subdivision.*—Not much has been said heretofore about the expense of bringing a subdivision into use, although it is a fundamental consideration in the policies of all subdivisions. In planning the enterprise the expenses of developing a tract are often very great, because the tract may be low or hilly or rocky. Sometimes the demand for a subdivision is not urgent enough to bring an income sufficient to repay the expenditures, in which case it may be said that the land is not ripe for subdivision use. Not only the expense of furnishing the utilities and other services mentioned above is involved, but also the expense of acquiring the land, platting it, improving it, preparing title papers, selling it, paying taxes and interest on borrowed money; these are all an essential part of the balance sheet. Unless the prospect of meeting all these expenses is reasonably favorable, the project is a questionable undertaking, from either the individual or the social point of view.

For the formulation of the financial part of a private development policy, certain precepts have been worked out as a result of experience. It is quite often said that the

subdivider, after developing his tract, may provide out of sales for the expense of carrying the subdivision. This is an unsound policy because it is so difficult to foresee how long it will be necessary to carry lots. If this policy were adopted, the subdivider might find himself forced to sell some lots at a reduced price, which would affect the prices of all other lots. Consequently it is better for a subdivider to have in hand or in sight not only the funds to buy the tract, develop and sell it, but also the funds to carry the subdivision until the lots are sold.

Another aspect of financial policies is the system that is used with reference to the sale of vacant lots. In the past, vacant lots were not infrequently sold to investors who speculated on an appreciation in values. It is becoming more apparent that these investors do not realize all the expense involved in holding vacant lots. As a protection to these misinformed investors, and as a contribution to the public interest in a high percentage of home ownership, it is a good plan either for the subdivider to build homes out of his own funds or for him to finance the owner in building his own home. Subdividers who have a social point of view formulate their policies with the ideals of community building and home ownership as standards.

(8) *Relation of Private Policies of Land Development to the Social Ends of Land Utilization.*—Since most subdivisions are residential in character, they contribute to the wealth of the community by the production of homes. It should be reiterated that overproduction of home sites is just as poor a policy as overproduction of agricultural products. The best interests of the community are served by a balanced production of homes—the furnishing of homes as the demand for them arises. How can this desirable social aim be achieved? By pri-

vate initiative or by some form of social control? The market for homes is almost entirely local in extent, whereas the market for agricultural products may be national or international. A comprehensive public policy of controlling land utilization in order to balance production is much easier to formulate when the market is national or international in extent, than when it is local. Some localities may be overstocked with residences while others are undersupplied. Consequently a broad policy of stimulating home building may relieve one locality while it aggravates the situation in another. Any effective policy of social control of urban development must be local in application, if not local in extent.

Except for building, zoning, and city planning laws, which affect production only indirectly, we have only isolated instances of a State or local public policy of controlling directly the production of homes, unless the lack of any policy is construed as a "let-alone" or "go-ahead" policy. For the most part we rely on private initiative for the development of land, and private control of land development enterprises is limited to persuasion, an appeal to the self-restraint of individuals. Control through persuasion is exercised by means of market analyses. Housing surveys have been made by various organizations and the National Association of Real Estate Boards has recently undertaken a systematic survey of the urban land market. By the facts disclosed in these surveys individuals are to a certain extent restrained or encouraged in their plans for developing urban land; but it can hardly be called an effective method of control, as the great number of disastrous subdivisions bears witness.

Subdivisions also contribute to the community's wealth in so far as they increase the amenities of living. Services that used to be regarded as luxuries are now being

classed as necessities; and an increasing proportion of local, State, and national revenues are being spent in furnishing these "necessary" public services. The amenities of land are in the same class. As the dangers to health and life of crowded living conditions are being perceived, more and more amenities are being demanded. At the same time our city population is becoming more dense, and the problem of furnishing this denser population with the amenities of living connected with home ownership is becoming more acute.

Finally, subdivisions, properly managed, increase or preserve the value of property. It is quite possible for an improperly planned subdivision to lower economic values, but if proper policies are developed, a subdivision signifies an increase in stabilized property values.

A large degree of social control is exercised for the purpose of increasing amenities and stabilizing property values, and certainly these purposes are much more subject to social control than is the balancing of the production of homes. Building, zoning, and city planning laws directly and obviously transform what formerly were regarded as amenities to be enjoyed by rich and luxurious people into everyday necessities. Parks, playgrounds, community centers, sanitary and well-ventilated dwellings are made possible largely through public action. At the same time zoning ordinances help to stabilize or preserve property values. These aims are part of the public policies with respect to urban land utilization and development. This is in marked contrast with the lack of a constructive public policy with respect to balancing the production of homes.

Elements of Agricultural Land Settlement Policies.—When we turn to the development of agricultural land, we find that public policies play a greater part than in

the case of urban land development. Nevertheless, in some phases of the problem the methods of many leading farm land dealers are more desirable socially than certain public policies.

(1) *Selection of the Land to be Settled.*—One of the first requirements of an agricultural settlement policy is the selection of the land best suited to meet the needs of settlers and the needs of society. There are four classes of reclaimable land on which settlements are made at the present time. These are: (1) land that must be irrigated; (2) drainable land; (3) land that must be cleared before it can be utilized for crops; and (4) unimproved pasture and range land. The West has about 30,000,000 acres of irrigable land awaiting development. Then there are 30,000,000 acres of wet land requiring drainage only, most of which (27,000,000 acres) is in the East. Approximately 50,000,000 acres, also mostly in the East, require clearing only, and 60,000,000 acres require drainage and clearing. Finally, there are 127,000,000 acres of unimproved pasture and range land which probably will stay in their present use.

In selecting any of these types of land for settlement the first thing to consider is the costs, in terms of time, effort, and money, of bringing the land into profitable use. In most cases the expense of clearing or irrigating is too great for the individual settler to bear unaided. In some cases, too, the expense is too great even for a private colonization company. This is true of most of the irrigable land, and the important irrigation projects of recent years have been financed out of public funds, to be repaid later by the settlers. This policy of a Federal "subsidy" for land settlements has not been uniformly successful, owing in large measure to failure to take account of the burden of expenses placed later on

the settler. The field for private colonization is largely cut-over and drainage lands.

Even when the expense of preparing land for use is comparatively low, it will sometimes be unprofitable to settle new land on account of marketing conditions. If there is enough wheat being produced at the present time it would be folly to settle new wheat farms. The existing and future balance of supply and demand is a vital factor in the success of any settlement policy. If the products of the new land are not going to find a market, or are not going to bring the settler an income sufficient to repay all the costs plus a net profit for himself, the settlement will not be successful or desirable. This prospect of a net income is a matter not only of the market demand for products but also of soil fertility, marketing facilities, and the expense of preparing the land for use.

(2) *Selection of Settlers.*—Many colonization projects have failed because the right type of settlers was not chosen. The people going to the "new frontier" of undeveloped farms are usually people with little capital, little knowledge, and often little ability and capacity to tackle hard problems. The colonization company which is interested in doing more than merely "closing the deal" investigates carefully the experience and character of prospective settlers. State immigration departments also interview settlers before advising them to carry out their plans; while California, in its public colonization projects, selects settlers very carefully. The life of the pioneer is so arduous that it is becoming increasingly important to select as settlers men who have patience, perseverance, the capacity for hard work, the intelligence necessary to grasp farm problems, and at least a small amount of capital with which to start.

(3) *Selection of Land for Individual Settlers.*—Prob-



UNCLEARED CUT-OVER LAND IN STATE OF WASHINGTON

Should the "farm follow the forest" in this case? Consider the expense of clearing this land and making it a productive farm. Weigh this expense against the expected income from crops over a period of years. If this land is not suitable for agriculture, what should it, and 120,000,000 acres like it, be used for?

ably the most fundamental need of the settler is advice in the selection of land. Many of the settlers come from cities, foreign countries, or other parts of the United States, and do not know what chemicals are needed in the soil, or what limitations are imposed by topography and climate. To meet this need, soil maps and soil surveys showing the character of the soil and the form of utilization for which it is best fitted are furnished to their settlers by many colonization companies, by American States, and by the Canadian province of Alberta.

(4) *Determination of Size of Land Holdings.*—In planning the settlement of a tract of rural land it is essential to divide the tract into farms of the most economic size. In Chapter VII the economic size of farms was discussed in some detail. A few general considerations will be set forth here at the risk of repetition, because this problem is such an important part of both public and private agricultural settlement policies.

A great many factors enter into the determination of the economic size of farms. In the first place it should be remembered that the unit to be considered is the family farm. Second, from a purely economic point of view the economic size of a farm is that which yields the greatest net income to the operator; but this economic holding may not be altogether socially desirable. When it calls for large-scale enterprise, large production may be the result, but at the same time it tends to make tenants and hired men out of the rural population, and undermines the economic stability which depends in large measure on a wide diffusion of land ownership.[1]

In the past the determination of the size of farms has been either a matter of trial and error or of legislation. The homestead laws standardized farms to a certain size

[1] For a discussion of other phases of this subject, see Chap. VII.

regardless of economic requirements. Inheritance laws have had a great influence, particularly in England, Ireland, and France. At the present time the size of farms is affected by taxation when large holdings are assessed at a higher rate (as in New Zealand) or when land is assessed improperly.

In the last analysis the ability of the individual farmer is the fundamental test of the proper size of farm. By way of example, a recent study of Wisconsin dairy farmers showed that the "best class of men, with virtually the same amount of labor, handle four times as many cows as do the farmers in the group lowest in efficiency."[1] The scientific judgments of experts in soils and crops, as well as of experts in economics, are likely to be wrong if this factor of individual ability is not considered.

(5) *Planning the Settlement.*—Seventy-five years ago little planning was necessary to open up prairie land and prepare it for production, mainly self-sufficing. At the present time both private and public colonization agencies are rural planners. They take a tract of over a thousand acres, in general preferably of forty thousand acres, divide it into farms, lay out roads with an eye for efficient marketing, build towns, schools, churches, and community centers, and furnish the settler with a farm home and buildings, equipment, and expert advice in the early years of development. These things are done partly because they are necessary to make new land speedily profitable and partly because settlers cannot be attracted and held against city allurements and comforts without some such social amenities.

The need for rural planning or regional planning is not limited to new settlements. Regions which have been

[1] A. B. Cox, *Social and Economic Analysis of an Agricultural Community*, Ph.D. Thesis, University of Wisconsin.

settled for a number of years will profit greatly by a better organization of the community. The movement to extend rural planning, following the city planning movement, is growing, because rural communities are beginning to recognize that they must make their neighborhood more attractive if they are to check the movement of the rural population to the cities.

(6) *Financing the Settlers.*—One of the most urgent needs of the new settler is credit. Public colonization in California arose because of financial defects of private colonization. It was found (1) that the price of the land was so high that little of the settler's capital was left for equipment; (2) that the three to eight years' time allowed in which to pay for the farms was too short; and (3) that interest rates ranged from 6 per cent to 10 per cent, instead of from 2½ per cent to 5 per cent, as in countries with public colonization. The government is in a position to meet these defects by allowing payments at a low interest rate on a moderately priced farm to be spread over a thirty-year period. In fact, that is the chief advantage which public colonization has over private colonization. However, the best private companies that have sufficient capital and the intention of remaining in business for a long time, are fully as capable of meeting the financial needs of settlers.

Relation of the State to Private and Public Colonization.—Public policies relating to agricultural land settlement are framed primarily to meet the needs of settlers in two ways: (1) Protection of the settler who comes in under a private colonization scheme; and (2) operation of colonization projects by public agencies.

Protection of the settler is accomplished in a variety of ways. Some fourteen States and British Columbia have laws licensing real estate men, and the license may

be revoked if the dealer is found guilty of fraudulent practices. Such regulations do not imply that all dealers in farm or urban real estate are in the business of defrauding investors. However, although many real estate dealers have regard for the public interest, there are dealers in both farm and urban real estate who are solely interested in "closing the deal" and "pocketing the money." License laws protect new settlers and the investors in farm mortgages against these unscrupulous operators. The Wisconsin Real Estate Brokers' Board, for example, revoked the license of one real estate firm in 1923 because it falsely gave the impression in advertisements that it would collect mortgage interest in behalf of those who bought mortgages through the firm.

Most of the Western States have immigration departments, the duties of which include interviewing and advising prospective settlers, furnishing soil maps and making soil surveys, and keeping in touch with the settler after he has entered the State. Furthermore, most of the States have county agents, and many operate demonstration farms. All these methods of protecting the settler are desirable, particularly the soil maps and soil surveys. But the efficiency of immigration departments can be improved if the trends of business and of prices are analyzed and, on the basis of this information, if the new settler is told when he is likely to produce for an already plentifully supplied market.

Only one American State, California, has engaged to any extent in operating settlements as a public enterprise. California has had moderate success, although public colonization has had some success in Canada, in Australia, and in various European countries. Finding that a large portion of new settlers failed because of financial difficulties, California experimented with two

settlements, one at Durham (6,300 acres) and the other at Delhi (8,750 acres). Both these experiments are based on a policy of long-term credits at a low rate of interest. The latter settlement has not been as successful as the Durham experiment, largely because of the agricultural depression, but also because of poorer selection of land.

Colonization and the Social Ends of Land Utilization. —Both private and public colonization are justified when there is a widespread demand for, and need of, an increase in agricultural area in order to balance production. Public colonization in this country is still in the experimental stage, and has not yet proved its superior efficiency conclusively, although in the matter of rural planning it has shown greater possibilities of success. Whichever form of colonization contributes most to the social welfare will be entitled to hold the field against the other. No great harm is done, however, by having public and private colonization work side by side, each profiting by the mistakes of the other.

The limiting factors of successful settlement policies in the future are two in number: (1) the need for increased agricultural production; and (2) the amenities of rural living. If agricultural production is unbalanced and an extension of area is needed, the limiting factor then is the amenities of rural living. Contrast with city life is so vivid that settlement projects of the future will have to furnish more social attractions in order to hold settlers. This means more and better rural planning to meet the psychological needs of settlers.

Social control is more extensive in the development of agricultural land than it is in the case of urban land development. The Federal Government furnishes funds for irrigation projects, subsidizes agricultural experiments, and supplies a great deal of useful information through the

Department of Agriculture. It is also in the business of supplying farm credits through the regular Farm Loan Bank System or through the Emergency War Finance Corporation. The various State governments provide agricultural schools and experimental farms and disseminate much information, not only through the schools, but also through the State departments of immigration and agriculture.

However, the public policies which these sundry activities express are directed mainly toward aiding the farmer *after* he is settled on the land and thus indirectly they encourage more people to settle agricultural lands. The United States Department of Agriculture and some of the various State departments of immigration and agriculture are awaking to the fact that public policies of this sort are *remedial* but not *preventive* of the real ills of agriculture. Traditionally, the United States as a whole has encouraged a rapid rate of agricultural development. It appears now that in some respects agricultural lands have been developed too rapidly, and public agencies are turning their attention to a public policy which will have for its main purpose the balancing of agricultural production. Such a policy will tend to hinder and prevent too rapid development of land utilization rather than to remedy the evils after they occur.

Summary

The shortage of homes in cities and the distress among farmers are present and striking illustrations of the need for sound land policies. Policies of urban development are largely private policies of subdividing. These must determine for subdivisions (1) the type, (2) the time, (3) the choice of land, (4) the method of laying out, (5) the method of improving, (6) the property restrictions that

should be imposed, (7) the financial policy to be pursued. Public policies with reference to urban land are expressed in city planning and zoning laws and building codes; but definite policies looking toward the balancing of home production in cities are lacking. Agricultural land settlement policies must (1) select the land; (2) select the settlers; (3) select the farm for the individual settler; (4) determine the size of the settlers' holdings; (5) plan the settlement; (6) finance the settlers. Public policies with reference to agricultural settlement are framed to meet the needs of settlers in two ways: (1) by protecting the settler who takes up land under a private colonization scheme; (2) by public operation of colonization projects. They have in the past been concerned too largely with remedies for the ills of agriculture, instead of preventing these ills by controlling the development of land utilization so as to secure balanced production.

CHAPTER XV

POLICIES OF LAND TAXATION

"FARMERS are losing their margins of profit on account of high taxes, others are losing their homes, and still others are discouraged from taking up the vocation of farming because of the high overhead."[1] This statement by the president of a Federal Land Bank, particularly as it applies to the effect of taxation, has statistical support, as will be shown later. Although the farmers may be suffering more heavily than others from the present burdens of taxation, they do not suffer alone. Urban property owners also complain of high taxes. One investigation shows that one-seventh of the income of all people of the United States is paid out as taxes, directly or indirectly. The same investigation reveals that the total per capita taxes have risen from around $23 in 1912-1913 to about $80 in 1920-1921.[2]

The great increase in the share of the national income going to the government in the forms of taxes is made necessary by the increase in the expenses of government. In the case of the Federal government the World War produced the largest part of the increased expense, although at the same time the expenditures for social welfare have greatly increased. In the case of local governments, the expenditures for social welfare have increased proportionately more than the ordinary expendi-

[1] Letter to Richard T. Ely from President E. G. Quamme, of the Federal Land Bank of St. Paul, Minn.

[2] National Industrial Conference Board, *Report No. 55.*

tures. The following table presents this situation in concrete form.

TABLE XII [1]

Governmental cost payments of cities over 30,000 in population, not including "expenses of public service enterprises," with amount and proportion expended for social welfare, 1905-1921.

Year	Governmental cost	Expenditures for social welfare	Percentage of social welfare expenditures to other expenditures
1905.....	$546,151.179	$170,835,032	31.3
1910.....	736,681,306	240,124,685	32.6
1915.....	967,630,063	332,754,090	34.4
1921.....	1,271,085,100	500,073,000	39.3

When one compares the items of governmental expenditure to-day with those of a hundred years ago, one is impressed with the amount and variety of free services rendered by the government to the community to-day. For example, a hundred years ago there were no public health nurses; now there are many, and governments do not stop there. New York City has gone so far as to have the fire department furnish water showers for the children in the city streets. The revenue to support these expenditures comes from taxation in one form or another.

Burdens of Present Taxation.—In the case of land taxation we are concerned primarily with State and local taxation and only secondarily with Federal taxation, because almost all of the taxes on land are levied by local governments. An examination of the statistics of State and local taxation not only warrants the statement quoted above from President Quamme of the Federal Land Bank of St. Paul, but also warrants the further statement that, unless present taxation policies are changed, we shall approach the time when the government will confiscate through taxation the entire value of farm land, since it

[1] *Statistical Abstract of Cities,* United States Census, for years indicated.

will take practically all of the annual net income from land in taxes. The following table, illustrating the present stage of this tendency, was prepared, after careful investigation, by the United States Department of Agriculture.[1]

TABLE XIII[1]

Percentage which property taxes constitute of net rent before taxes are deducted, tax levies of 1919

State and county	Number of farms studied	Net rent per acre before deducting taxes	Property taxes per acre	Ratio of taxes to net rent before deducting taxes (Percentages)
Michigan, Lenawee County..	111	$4.40	$1.67	38%
Wisconsin, Dane County....	106	3.98	1.18	30%
Minnesota, McLeod County.	87	3.49	.85	24%
New York, Delaware County.	137	1.23	.38	31%
Pennsylvania, Chester County	177	1.83	1.20	66%
Indiana, Tipton County.....	77	9.38	1.41	15%

It is bad enough when property taxes take from 15 per cent to 66 per cent of the net income from land. This situation appears yet more ominous when we learn that taxes on Ohio farm land, for example, increased 77 per cent from 1913 to 1921, and taxes on Kansas farm land increased 171 per cent during the same period. Should this tendency be allowed to continue at this rate, within a generation or two all the income from farm land would go to the government in taxes and farm land values would fade away.

Property taxes do not eat into incomes from urban property so much as they do into incomes from farm lands, according to the meagre statistics now available. Nevertheless, it has been ascertained that 22 per cent of

[1] Prepared by Mr. C. O. Brannen, Bureau of Agricultural Economics, United States Department of Agriculture.

the incomes from 18 New York city blocks was paid to the tax collectors over a 30-year period.[1]

The United States Department of Agriculture has gathered the figures given in the following table.[2]

TABLE XIV

Ratio of Taxes to Net Rent (before Deducting Taxes) for Urban Real Estate Rented for Cash in 1919

State and county	Number of properties	Ratio of taxes to net rent (before deducting taxes)
Wisconsin, Dane County.....	10	11.0%
Minnesota, McLeod County....	27	24.8%
Indiana, Tipton County.....	22	15.8%

Although we have quite inadequate data on the burden of property taxation upon incomes from urban property, we do know that urban real estate bears approximately two-thirds of the burden of city taxation. To be more exact, in cities having 30,000 or more people, real estate bears on the average 65 per cent of the local taxes levied. In one city in 1910 real estate was estimated to have borne 95 per cent of the local taxation.

The situation of the community with respect to government financing is, to say the least, critical. As already stated the expenditures of both Federal and local governments, particularly the social welfare expenditures, are increasing. These expenses must be met by increased revenues. They may, of course, be met by bond issues or by depreciating the currency, as many European nations have recently done, but either of these alternatives results eventually in the situation which now embarrasses Germany and France. Since these expenses must be met out of taxation, governments may increase taxes on exist-

[1] Based on investigation by Dr. G. B. L. Arner, for the Institute for Research in Land Economics and Public Utilities.
[2] Prepared by Mr. C. O. Brannen.

ing taxable subjects or may broaden the base of taxation so as to include property and income which were not taxed before. Both the Federal, State, and local governments have, on the whole, increased tax rates on existing subjects of taxation, instead of tapping new sources of taxation. Thus, the Federal government now derives about 60 per cent of its revenue from direct taxation, while the local governments have increased property taxes to a point where, as previously shown, they are on the border line of what amounts to confiscation.

Functions of Taxation.—Taxation has a double function. First, it is a means of obtaining revenue to defray governmental expenditures; and, second, it is a means of controlling the use of property. The revenue aspect of taxation has been emphasized in the foregoing remarks about balancing governmental budgets. We have also to consider that taxation is a means of social control in that it controls, deliberately or unintentionally, the behavior of men in their use of property.

The social control aspect of taxation is foremost in the advocated reforms in forest taxation, which are intended to encourage conservation. It is also the theory according to which New York City exempts small buildings for housing from taxation for a period of years in order to stimulate the construction of more single-family dwellings. These are examples of attempts at the deliberate control of economic behavior by taxation. But taxation for revenue purposes also, although unintentionally, may control the use of property, as when taxes take so large a part of income from property that it does not pay to use certain kinds of land. Although taxation for revenue may have consequences that were not intended, those consequences should not be omitted from consideration. In fact, the unintentional effects of taxation are

often the most significant factors to be considered in formulating a taxation policy.

Historical Background of Land Taxation.—Taxes on land are among the oldest, if not the oldest, sources of revenue. They were originally charged according to the gross produce of the cultivated land, as in ancient Egypt, or according to land area, as in Rome and in England at one time. In medieval times the Roman system of taxation was displaced by a confusing variety of taxes. Gradually there emerged general property taxes growing out of the land tax. Land, houses, and personal property were all included in this general property tax, because they were considered presumptive evidence of income. European countries quite generally shifted the emphasis from property to the income from property as a basis of taxation, just as the English land tax became eventually a rent charge. The United States, however, took over the general property tax and made of it the chief source of local revenue.

The general property tax became firmly lodged in the United States about the middle of the last century, when most States incorporated the so-called "uniformity" clauses in their constitutions. At that time taxing authorities were disturbed by the increasing amount of intangible personal property, such as stock certificates and bonds, which was escaping the general property tax. Accordingly, "uniformity" clauses were adopted, providing that all property, both real and personal, tangible and intangible, should be taxed at a uniform rate. Later in this chapter we shall note the effects of these uniformity clauses and the methods by which they were modified, either by judicial review of tax legislation, or by direct action of the State legislatures.

Present Practices of Taxation.—Theoretically the gen-

eral property tax is assessed against all property, both real and personal, according to its selling value. Practically, most of the personal property, particularly intangible personal property in the form of stock certificates and bonds, cannot be "found" by the assessors and escapes taxation. Furthermore, the assessed value of "found" property is not always identical with full selling value, even when such is the intention, being sometimes more, and often less. Local assessors, however, are supposed to base appraisals on records of sales of the specific property or a similar property, although in practice they frequently if not usually make assessments on the basis of their personal judgments of property values.

There are, of course, variations from the general property tax system. One of many illustrations is afforded in New York City which, as already stated, under authority of a State law, exempts from taxation certain types of dwelling houses for a limited period. Minnesota taxes mineral lands specially, and also has established different ratios of assessment to full selling value for the different classes of property.[1] Wisconsin has a unique system of controlling local assessments.[2] Moreover, the tax rates, methods of assessment, and administrative machinery differ from State to State. But the essential principle of the general property tax is embedded so firmly in most State constitutions that it cannot be entirely dislodged, despite severe condemnation of the tax in many quarters.

Special Assessments.—Special assessments are a special exercise of the general taxing power distinct from the general property tax, and are common in the United States, althoug not extensively used in other coun-

[1] See below, p. 326.
[2] See below, p. 329.

tries. A special assessment is levied against a specific property in proportion to the benefits conferred by a specific improvement, the expense of which is to be defrayed out of assessment receipts. The additional burdens thus put upon land may be a stimulus to proper land utilization if the assessments are used with caution and carefully administered. There is danger that expensive improvements will result in such a large assessment that a decrease in property values, rather than the expected increase in values, will be forthcoming. Special assessments are commonly used to finance street improvements. Some people are urging that improved roads in rural districts be obtained in the same way. The defect in this suggestion is that improved roads do not always bring increases in property values to the owners of abutting property, although to owners just off the improved road they may be a great boon.[1] It should be remembered that with the prevalence of automobiles to-day an improved road attracts a relatively heavy traffic, and that these motorists are not too scrupulous about recognizing the property rights of the roadside farmer, as many irate farmers will testify. To provide for the construction of better roads, there is a better method than the special assessment. A gasoline tax, plus increased motor license taxes, would place the burden of improving roads on the users of those roads.

Taxation of Increments in Land Values.—An increment tax is levied against the increases in land values. Increment taxes have been widely used in Germany, in England from 1909 to 1920, in some Canadian cities, and in the United States under another name. The Federal income tax law and the several State income tax laws pro-

[1] J. G. McKay, *The Development of Highway Legislation, Finance and Policies Among the Several States,* 1890-1921, Doctoral Dissertation, University of Wisconsin, 1921.

vide that in the sale of real estate the increase in value from a certain base year is taxable as income. In effect this is an increment tax since it is levied against the increases in land values. Not many years ago the increment tax was advocated by a New York commission appointed to investigate additional sources of revenue, and, in fact, a bill was introduced in the State legislature in 1915 providing for a "surtax" on value increments dating from a basic year. This bill differed fundamentally from the German increment taxes. The proposed New York surtax was to have been levied each year when the assessment showed a value greater than in the previous year. The German practice, however, is to collect an increment tax every time a sale is made at a price greater than the last purchase price.

Neither system of increment taxation should be incorporated into the American system of local taxation before the effects of increment taxes have been carefully studied. The experience of Canadian cities apparently shows that increment taxes tend to discourage land development for the reason that development only increases land values, and these value increments are taken by the government in taxes. To offset this tendency buildings have been exempted from taxation in some cities. The immediate effect was a great extension of building activity, which resulted in some Canadian cities in an over-expansion of real estate development. What happens in fact, and this applies to the present New York law exempting improvements until 1932, is that the tax burden on land is increased in proportion as taxes on buildings are reduced, unless new sources of taxation are uncovered at the same time.

Another undesirable effect of increment taxation, particularly of the German system, is the tendency to dis-

courage free transfer of land. The taking by the government of a substantial portion of land values whenever a transfer is made inevitably has this effect, human nature being what it is. Yet, if free transfer of land does not prevail, there is less probability of the land falling into the best hands.

Finally, it is urged against the increment tax that its purpose is already accomplished by the present property taxes. The increment tax is designed to capture the increase in value *after* it occurs. But a property tax based on estimated selling value taxes part of the value increment *before* it occurs, since present selling values customarily discount future appreciations in value. Judged, therefore, by the effects of the increment tax upon land utilization, and by comparison with present property taxes, the disadvantages of the increment tax outweigh the advantages.

The Single Tax.—The single tax would take all of the income from bare land, thus effecting a complete confiscation of bare land values. The idea was popularized in the United States by Henry George in 1879,[1] although in recent years its adherents have apparently lessened in numbers. According to the single tax theory all land is a gift of nature to society; consequently all the returns from utilizing land as distinct from improvements belong to society, not to any individual owner. Part of the theory is that the taking of land rents will bring such revenue to the government that all other taxes may be discarded; hence the name, single tax.

The single tax has serious defects which it will be well to consider briefly. In the first place, it is clear that the expenses of government have increased so rapidly in recent years that the single tax will not yield enough revenue

[1] Henry George, *Progress and Poverty*, Appleton, 1879.

to meet those expenses. It is estimated that barely 60 per cent of the normal governmental expenses could be paid by taxing all the net income from land. In the second place, if the State takes all net income by taxation, it should logically reimburse an individual for a net loss. In the third place, the effect of the single tax would ultimately be a system of State tenancy. If all the net income from land were taken in taxes, the desire for owning land would disappear, so that in effect the State would own the land while private individuals utilizing land would be in the position of tenants of the State, paying to the government the net land income as a rent.

Some Defects of the General Property Tax.—Of the many criticisms that have been levelled against the general property tax, four are stressed most often. These are (1) the inequality of the tax burden on real property compared with personal property; (2) the failure to classify the subjects of taxation so as to avoid unequal assessments; (3) the unscientific methods of assessment; and (4) the failure to adapt taxation to social policy.

Although real estate constitutes about half the total wealth of the country, it is bearing considerably more than half of the city tax burden. The reason for this disproportionate burden lies in the nature of real property. It is tangible and fixed in location, and hence cannot escape the watchful eyes of an assessor. On the other hand, personal property is largely intangible and easily escapes assessment. In this connection, agricultural property is more disproportionately taxed than any other form of property. Intangible personal property is not very abundant among farmers, while the tangible property, both real and personal, is visible and easily perceived by the assessor. Consequently, less agricultural property escapes taxation than is the case with any other

taxable subject, as was shown by the table given previously.[1]

The failure to classify the subjects of taxation is largely due to the presence of the "uniformity" clauses in the State constitutions and the inability to remove them. Several attempts to amend constitutions in this respect have failed during the last few years. The most determined opposition came from the farmers, who regarded it as a move in the direction of the single tax on land. In the assessment of urban land the results of not classifying land are seen in the application of uniform percentage rules to lots used for different purposes. Those versed in real estate values know that street frontage is more essential for retail stores than for most factories, which can use an interior lot with an alley entrance without suffering loss of earning power. And yet the front portion of a lot useful as a factory site is valued in many cities by the same rule that is applied to a retail frontage. A similar practice of assessment prevails in the case of land useful for apartment houses and for single-family residences.

The unscientific methods of local assessors are largely due to politics and lack of training. The lack of training is not surprising, since local assessors are commonly elected for short terms by direct vote of the people whose property is to be assessed by them. An assessor who conscientiously tries to assess all the taxable property at its full selling value according to law frequently fails of reëlection. Moreover, the office is not a full-time, well-paid position, so that trained assessors are not often found in office. Consequently it is complained that in the same district some assessed values are 80 per cent, and some 120 per cent, of the full selling value.

Finally, it is asserted that the general property tax

[1] *Supra.*, p. 316.

cannot be adapted to social policy. The outstanding example of this is the inclusion of forest land within the general property tax. When the full selling value of forest land is taxed year after year, the accumulated expense of taxes will eventually equal what might be received from cutting the timber. Naturally, therefore, every encouragement is given to premature cutting of the timber. It is forgotten that forest land does not yield an annual crop, like agricultural land, and it is taxed just as is agricultural land.

Remedies for These Defects.—The committee on a Model Tax System, of the National Tax Association, proposes to remedy the inequality of the present tax burdens by substituting three taxes for the exclusive general property tax: (1) A classified property tax which will fall on real property and on tangible personal property. (2) A personal income tax which will fall on incomes from most sources, but particularly from intangible personal property which is not reached adequately at the present time. (3) A business or occupation tax. Most States have business taxes of some kinds, and a good many States have a personal income tax. But the classified property tax has not yet superseded the general property tax.

The movement to classify the subjects of taxation is part of the general classification movement which reveals itself in other connections by zoning laws and practices of real estate development. It is a rebound from the uniformity movement of the past century. The "uniformity" clauses of seventy-five years ago fixed the general property tax as the dominant system of local taxation. The classification movement now seeks to remove these clauses from the State constitutions.

Although several attempts at a classified property tax

have failed, one State, Minnesota, has achieved the same result without amending the constitution. A Minnesota tax law authorizes different ratios of assessed values to full selling values for different classes of property. This law, known as the "Classified Assessment Law," was passed in 1913 and creates four classes of property assessments: Class I, iron ore, which is assessed at 50 per cent of its selling value; Class II, household goods, which are assessed at 25 per cent of full value; Class III, all unplatted (farm) real estate, livestock, agricultural produce, manufactured products, and merchandise, which are assessed at 33⅓ per cent of full value; Class IV, platted (urban) real estate and personal property not in above classes, which are assessed at 40 per cent of full value. The Minnesota Tax Commission reports that this arrangement has worked successfully in equalizing the tax burden. However, the advisability of assessing farm and urban real estate and other classes of property at different ratios is very questionable. Classification in a few States has set apart forest land, and experiments are being made to find a tax which will encourage conservation.

The feeling that classification can make little headway until the "uniformity clauses" in the several State constitutions are stricken out is not justified, in view of the decisions of many State courts in tax cases. The courts have set up a doctrine of "reasonable classification," by means of which the classification movement may make considerable progress without violating the constitutions. According to this doctrine a property classification which has a reasonable relation to a valid public purpose will be sustained as a proper exercise of the government's taxing power. By conforming to this principle legislatures may modify the existing system of property taxa-

tion without going through the cumbersome process of amending the constitution.

Reforming the methods of assessment is of almost equal importance in equalizing the tax burden. The basis of assessment in Continental Europe is the income from land; in England it is called the rental value, which is substantially the same thing; but in the United States selling value is the basis. In Iowa an attempt is being made to tax farm land according to its income, but this basis of assessment is not universally desirable because it tends to encourage the holding of vacant land. With income as the basis of assessment, vacant land would escape all taxation, since it yields no income. A disproportionate burden would thus be placed on improved land. The motives for taxing land according to its income are of course to bring taxation in line with the principle of ability to pay. For this purpose the English system of taxing according to rental value would be better, since vacant land would not escape entirely. But it is possible to correct the methods of assessment without going so far as to change the basis of assessment from full selling value. This cannot be done, however, until the machinery of assessing is modified.

More scientific appraisals undoubtedly could be obtained if local assessors were appointed by the State tax commission instead of being elected by property holders. Along with this change should go an increase in the size of the assessment district, a lengthening of terms of assessors (during good behavior, perhaps), the payment of higher salaries for full-time positions, and supervision by experts. Two developments in this direction may be noted. In Wisconsin the State tax commission appoints income tax assessors to cover districts embracing a number of smaller assessment districts. Among the duties

of these income tax assessors, who hold office during good behavior under civil service rules, is the supervision of local assessors. By this method the scientific quality of local assessments is improved. In West Virginia a statute of 1921 made the county the assessment district and provided for the election of a local assessor in each district for a four-year term at salaries ranging from $1,100 to $5,000. Lengthening the term of office and making it a full-time, well-paid position are steps in the right direction.

Finally, tax reform is being directed toward the accomplishment of social policies. Classification of taxable subjects is essential for this. As long as forest land is treated like any other form of real property and taxed annually on its full selling value, forest conservation is discouraged. To correct this anti-social result, some 29 States practically subsidize timber land by assessing it at less than full selling value. Ten States completely separate forest land from the general property tax. In those States the land is taxed annually, but the timber is not taxed until harvested, whence the name "yield tax."

A Policy of Land Taxation.—These remedies, admirable in their way, do not attack the heart of the tax problem. They are based on the assumption that merely by increasing taxes in the ways indicated governments will secure enough revenue without causing undue harm to the processes of economic life. We doubt (1) that the increased expenditures of government in the future can be paid without broadening the base of taxation; and (2) that present taxes can be increased without discouraging the best utilization of land. The statistical tables given in the early part of this chapter justify these doubts and suggest further that a complete overhauling of our present system of taxation is needed. These data partly ex-

plain also why popular feeling against high taxes is so great in this country, as it is in other countries also.

First, let there be no confusion about the effect of increased taxes on the utilization of land. The high percentage of land income, particularly income from farm lands, which is now being paid in taxes, is already discouraging people from developing or undertaking the utilization of land. An increase in taxes will only aggravate this situation. We do not mean to say that an expansion of land utilization is universally needed or desirable at present. Certain uses of land are over-expanded today, while others are under-developed. In the future, however, an increase in population may call for more intensive or extensive utilization of land, which may not be accomplished when needed because high taxes take away the incentive to bring new land into use. Moreover, if taxes increase to the point where they take practically all of the land income, the individual becomes nothing more than a tenant of the State, and much of his incentive to produce more efficiently is lessened. The uneconomical effect of high taxes is seen also in the field of Federal income taxation. Surtaxes on large incomes were placed so high during the war that a great deal of investment capital was driven into tax-exempt securities from which a higher net return could be obtained. The abundance of capital seeking tax-exempt securities, which are largely State and municipal bonds, has made it more tempting to State and local governments to cover their expenditures by a bond issue instead of paying their bills out of current taxation. The inevitable result has been a piling up of interest charges to burden the future and to make yet more difficult the task of increasing taxes without harming the utilization of land.

Enough has been said to indicate that the present trend of taxation is toward the confiscation of land values by the government. The nearer we approach this end the nearer we come to destroying free enterprise in the use of land.

Second, in order to increase governmental revenues without increasing present taxes to a harmful extent, we must broaden the base of taxation. New sources of taxation must be uncovered. Heretofore our system of income and property taxation has taxed the earnings and the accumulation of wealth. The field of indirect taxation, or taxes upon expenditures for consumption, has been inadequately developed. The two systems differ greatly in results. Under the present system the men and women who have saved and accumulated property to support them in their old age are taxed heavily, while their young contemporaries may escape taxation by spending their earnings. Thrift is penalized and relatively lavish expenditures are thereby encouraged. If more taxes on expenditures were levied and taxes on accumulated property were reduced, some of the unnecessary expenditures of modern life would probably be saved, thrift encouraged, and wealth accumulated.

The effectiveness of a tax on expenditures is attributable to the price system. Through the process of pricing commodities, taxes on luxurious consumption tend to reduce expenditures of this nature. A decline in the demand for articles of luxurious consumption, owing to a tax, results in a decline in the productive effort and capital devoted to producing those articles. Effort and capital are thereby released for the production of more essential commodities, such as durable forms of wealth useful for further production. This field of indirect taxation is a rich source of revenue, and this revenue can be obtained with-

out harmful consequences, and even with positive benefit. Take, for example, the improvement of roads. If funds for road improvements are raised entirely by assessments upon abutting landowners, the tax burden on the land is increased, while a large proportion of the road users make no contribution. By means of a gasoline tax and an automobile license tax, graded according to the weight of the vehicle, as in Wisconsin, the burden of road improvements can be more equitably laid upon all the users of the roads. Undeniably the use of indirect taxation offers great difficulties of policy and of administration, but here and now we cannot enter further into this complex subject, the proper treatment of which would require a volume larger than the present work.

It is entirely fitting to close this study of the elementary principles of land economics with the problem of taxation. Taxation is an intricate and pressing problem, and in this chapter it is not possible to do much more than offer a few suggestions of a critical and constructive nature in the hope that they may lead to further study and research. Not only do present taxes eat into the incomes of landowners and utilizers with untoward results, but, what is worse still, they often encourage an anti-social exploitation of natural resources, as in the case of forest land. When we consider the desirable effect which home ownership has upon the prosperity and vitality of a people, it is alarming to find that many people are discouraged from home ownership by the prospect of high taxes. The other side of the situation is the constantly growing expense of government. Undoubtedly, one of the greatest problems of land economics is the critical examination of taxation as it affects land utilization. In our opinion such an examination should lead to modifications in these directions:

(1) Classification of property under the property tax to relieve the inequitable tax burdens now borne by real estate; (2) some reduction of present taxes upon property; (3) development of direct income and occupation taxes; and (4) enlargement of the range of taxation to include certain carefully selected indirect taxes upon expenditures for consumption.

Summary

The expenditures of government, particularly for social welfare, have increased and are still increasing. To meet these expenditures increased taxes are needed, and a disproportionate share of the added burden of taxation has fallen on land. Taxation performs two functions: (1) it is a means of obtaining revenue for government; (2) it is a means of controlling the use of property. The land tax is one of the oldest sources of government revenue; in European countries generally it has become a tax on land income but in the United States it has become part of the general property tax, which bears with undue severity on real estate.

The United States alone make a very large use of the system of special assessments, which are levied on real estate to defray in part the expenses of public improvements from which the property in question is assumed to receive special benefit. While the system has many excellent features, it should be administered with caution. Increment taxes have been tried in certain countries; but their disadvantages appear to outweigh the advantages they offer. The *single tax,* which would confiscate all the value of land by taking all the net income in taxes, would not provide, as its advocates claim, enough revenue to meet all the expenses of government. Against the *general property* tax several criticisms have been brought: (1) the fact that it places an unfairly heavy burden on real property; (2) the failure to classify the subjects of this tax; (3) the un-

scientific methods of assessment; (4) the failure to adapt this type of taxation to social policy. Various remedies for these defects have been suggested, and some have been tried with more or less success. A policy of land taxation should be carefully worked out, keeping in view the effect of taxation on the utilization of land, and it should lead to modifications in these directions: (1) classification of property under the property tax; (2) reduction of the present taxes on property; (3) development of income and occupation taxes; (4) enlargement of the range of taxation to include carefully selected indirect taxes on expenditures for consumption.

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APPENDIX

TABLE I[1]

Per Cent of Total Land Area Devoted to Various Classes of Uses in Sixteen Cities, 1923

	Total land	Publicly Utilized Area				Privately Owned Area				
						Unimproved	Improved			
		Total	Streets and alleys	Parks	Miscel.	Total	Total	Residential	Commercial	Industrial
Columbus, Ohio	100.0	36.1	27.0	2.0	7.1	3.3	60.6	32.9	12.1	15.6
Davenport, Iowa	100.0	18.7	14.5	3.7	.5	36.8	44.5	42.7	1.2	.6
Detroit, Mich.	100.0	30.0	25.0	4.0	1.0	14.0	56.0	33.5	4.5	18.0
Duluth, Minn.	100.0	32.9	26.9	5.0	1.0	64.1	3.0	1.8	.2	1.0
Flint, Mich.	100.0	22.4	16.5	2.3	3.6	21.3	56.3	52.8	.5	3.0
Knoxville, Tenn.	100.0	22.8	21.1	.9	.8	17.7	59.5	48.5	1.9	9.1
Lynchburg, Va.	100.0	18.7	13.2	2.8	2.7	13.5	67.8	50.8	10.2	6.8
Minneapolis, Minn.	100.0	32.3	20.3	10.9	1.1	22.8	44.9	36.3	1.5	7.1
Norfolk, Va.†	100.0	36.2	23.3	2.4	10.5	9.5	54.3	33.4	2.5	18.4
Oak Park, Ill.	100.0	34.3	32.5	1.4	.4	9.2	56.5	49.8	6.5	.2
Portland, Ore.	100.0	25.1	20.8	2.7	1.6	18.7	56.2	42.1	5.6	8.5
Salt Lake City, Utah	100.0	28.2	16.7	3.1	8.4	33.4	38.4	36.6	.5	1.3
San Francisco, Cal.	100.0	35.1	22.3	6.2	6.6	26.7	38.2	32.7	3.3	2.2
St. Paul, Minn.	100.0	25.7	20.3	3.0	2.4	41.1	33.2	26.1	1.3	5.8
Toledo, Ohio	100.0	28.6	19.2	5.4	4.0	22.3	49.1	27.3	1.7	20.1
Tulsa, Okla.	100.0	23.9	22.0	1.9	*	8.0	68.1	56.3	8.0	3.8

* Extensive parks and other public lands outside city limits.

† Excluding 7,500 acres recently annexed but undeveloped as to streets, parks, etc.

[1] Compiled by H. B. Dorau of the Institute for Research in Land Economics and Public Utilities from returns from questionnaires sent to various city officials. These figures represent the best estimates available, but, although they have been carefully edited, they cannot be guaranteed as absolutely accurate.

APPENDIX

TABLE II[1]

VACANT LAND IN THIRTEEN AMERICAN CITIES *

City	Total land area—acres	Unimproved land area—acres	Per cent unimproved
Spokane	25,235	16,029	63.5
St. Paul	33,363	17,330	51.9
Salt Lake City	32,981	11,000	33.4
Chicago †	120,233	37,334	31.0
St. Louis	39,040	11,634	29.8
San Francisco	27,000	7,200	26.7
Toledo, Ohio	18,160	4,042	22.3
Flint, Mich.	18,750	4,000	21.3
Youngstown, Ohio	15,360	3,000	19.5
Boston	29,770	5,052	16.9
Dayton, Ohio	9,920	1,000	10.0
Milwaukee ‡	16,290	651	4.0
Columbus, Ohio	17,422	570	3.3

* As reported by the city for 1921 or 1922.
† Last report was made in 1911.
‡ 1920—now estimated about 3 per cent.

[1] Compiled by H. B. Dorau of the Institute for Research in Land Economics and Public Utilities from returns from questionnaires sent to various city officials. These figures represent the best estimates available, but, although they have been carefully edited, they cannot be guaranteed as absolutely accurate.

APPENDIX

TABLE III[1]

PROPORTION OF URBAN LAND AREA PUBLICLY OWNED IN CERTAIN CITIES [a]

City	Per cent publicly owned	City	Per cent publicly owned
Altoona, Pa.	20.0	Miami, Fla.	24.1
Berkeley, Cal.	32.2	Minneapolis, Minn.	32.3
Boston, Mass.	37.5	Muskogee, Okla.	30.0*
Brockton, Mass.	9.4[b]	Norfolk, Va.	36.2[d]
Brookline, Mass.	19.3*	Oak Park, Ill.	34.3
Butte, Mont.	30.5*	Pontiac, Mich.	21.1
Columbus, Ohio	36.1	Portland, Ore.	25.1
Danville, Ill.	39.5	Salt Lake City, Utah	28.2
Davenport, Iowa	14.5	San Francisco, Cal.	35.1
Detroit, Mich.	30.0	Somerville, Mass.	24.4
Duluth, Minn.	32.9	St. Paul, Minn.	25.7
Flint, Mich.	22.4	Toledo, Ohio	28.6
Kenosha, Wis.	26.4	Tulsa, Okla.	23.9[c]
Knoxville, Tenn.	22.8	Waterloo, Iowa	26.8
Lynchburg, Va.	18.7	Wichita Falls, Tex.	22.4

* Approximate.

a 1922-23.

b Accounted for by 70 per cent unimproved area.

c Extensive parks owned outside of city.

d Excluding from total 7,500 acres, recently annexed, but largely unimproved.

[1] Compiled by H. B. Dorau of the Institute for Research in Land Economics and Public Utilities from returns from questionnaires sent to various city officials. These figures represent the best estimates available, but, although they have been carefully edited, they cannot be guaranteed as absolutely accurate.

APPENDIX

TABLE IV

PROPORTION OF OWNED AND RENTED HOMES, BY SECTIONS AND GEOGRAPHIC DIVISIONS, 1890-1920[1]

Section and division	Per cent of all homes not on farms							
	1920		1910		1900		1890	
	Rented	owned	Rented	owned	Rented	owned	Rented	owned
United States	**59.1**	**40.9**	**61.6**	**38.4**	**63.8**	**36.2**	**63.1**	**36.9**
The North	58.6	41.4	61.2	38.8	62.4	37.6	60.9	39.1
New England	64.6	35.4	67.4	32.6	66.2	33.8	64.9	35.1
Middle Atlantic	66.3	33.7	69.4	30.6	70.1	29.9	67.8	32.2
East North Central	52.3	47.7	54.2	45.8	55.5	44.5	53.3	46.7
West " "	47.8	52.2	49.6	50.4	53.4	46.6	54.5	45.5
The South	62.3	37.7	66.2	33.8	70.4	29.6	72.0	28.0
South Atlantic	63.3	36.7	68.5	31.5	72.7	27.3	73.1	26.9
East South Central	64.4	35.6	67.1	32.9	71.4	28.6	72.5	27.5
West " "	59.1	40.9	61.6	38.4	64.8	35.2	68.4	31.6
The West	56.1	43.9	53.3	46.7	57.1	42.9	55.9	44.1
Mountain	55.1	44.9	53.2	46.8	52.9	47.1	50.9	49.1
Pacific	56.6	43.4	53.3	46.7	60.0	40.0	59.2	40.8

[1] *Mortgages on Homes*, Census Monograph II, Bureau of the Census, United States Department of Commerce, 1923, p. 39. Edited and revised by Richard T. Ely, collaborating with H. W. Bohlman, of the staff of the Institute for Research in Land Economics and Public Utilities.

APPENDIX

TABLE V

PROPORTION OF FREE AND MORTGAGED HOMES BY SECTIONS AND GEOGRAPHIC DIVISIONS, 1890-1920 [1]

Section and division	Per cent of owned homes not in farms							
	1920		1910		1900		1890	
	Free	Mortgaged	Free	Mortgaged	Free	Mortgaged	Free	Mortgaged
United States	**60.3**	**39.7**	**66.9**	**33.1**	**68.3**	**31.7**	**72.3**	**27.7**
The North	56.0	44.0	62.7	37.3	63.7	36.3	67.1	32.9
New England	48.3	51.7	55.8	44.2	57.4	42.6	63.5	36.5
Middle Atlantic	48.7	51.3	55.1	44.9	57.7	42.3	63.8	36.2
East North Central	58.4	41.6	66.0	34.0	66.5	33.5	70.7	29.3
West " "	67.6	32.4	72.3	27.7	72.9	27.1	68.1	31.9
The South	73.2	26.8	78.9	21.1	81.6	18.4	91.6	8.4
South Atlantic	70.7	29.3	77.1	22.9	76.8	23.2	87.8	12.2
East South Central	77.3	22.7	80.0	20.0	82.9	17.1	94.7	5.3
West " "	74.0	26.0	80.7	19.3	86.3	13.7	95.7	4.3
The West	64.0	36.0	71.4	28.6	81.1	18.9	82.0	18.0
Mountain	70.5	29.5	80.1	19.9	86.6	13.4	88.4	11.6
Pacific	61.1	38.9	66.7	33.3	76.8	23.2	77.0	23.0

[1] *Mortgages on Homes*, Census Monograph II, Bureau of the Census, United States Department of Commerce, 1923, p. 41. Edited and revised by Richard T. Ely, collaborating with H. W. Bohlman, of the staff of the Institute for Research in Land Economics and Public Utilities.

APPENDIX

TABLE VI[1]

Comparative Percentages of Homes Owned, of Owned Homes Mortgaged, and Average Number of Families per Dwelling, for the Cities Having a Population of 100,000 or More in 1890, with a Separate Average for the Ten Cities of this Class Showing the Largest Increase in Population: 1920-1890.

Cities	Per cent of homes owned		Per cent of owned homes mortgaged		Families per dwelling	
			1920	1890	1920	1890
Average, 26 cities	**26.9**	**22.8***	**60.2**	**37.8***	**1.74**	**1.53***
Average, 10 cities	**25.3**	**21.7**	**64.3**	**39.0**	**1.92**	**1.66**
Baltimore	46.3	26.1	46.1	24.4	1.22	1.20
Boston	18.5	18.4	66.2	38.8	2.07	1.70
Buffalo	38.6	40.0	60.9	47.3	1.57	1.38
Chicago	27.0	28.7	63.8	43.2	1.86	1.72
Cleveland	35.1	39.1	59.0	36.7	1.57	1.21
Detroit	38.3	41.7	61.1	37.0	1.43	1.14
Milwaukee	35.5	42.1	59.5	45.6	1.59	1.26
New York	12.7	10.6†	78.7	41.1†	3.49	2.95†
Philadelphia	39.5	22.8	70.2	38.7	1.14	1.10
St. Louis	23.8	20.5	44.8	26.5	1.61	1.51
Cincinnati	28.7	19.2	43.2	29.0	1.69	1.90
Denver	38.3	29.1	42.7	36.0	1.22	1.10
Indianapolis	34.5	33.1	57.0	36.1	1.13	1.09
Jersey City	19.7	18.8	63.8	37.1	2.16	1.86
Kansas City, Mo	34.7	23.1	63.2	46.2	1.34	1.16
Louisville	29.8	24.3	34.2	7.5	1.27	1.32
Minneapolis	40.9	31.1	54.5	53.8	1.40	1.30
Newark	20.2	22.0	72.9	47.3	2.25	1.67
New Orleans	23.1	21.5	30.1	5.0	1.11	1.13
Omaha	48.4	25.9	52.9	44.0	1.17	1.11
Pittsburgh	28.3	27.6‡	46.3	37.4‡	1.39	1.22‡
Providence	23.5	20.7	58.4	38.0	1.54	1.66
Rochester	42.5	44.0	69.2	51.1	1.21	1.14
St. Paul	46.1	40.2	43.6	51.1	1.28	1.23
San Francisco	27.4	21.5	40.5	28.5	1.37	1.11
Washington, D. C.	30.3	25.2	55.4	24.0	1.33	1.13

* 28 cities in 1890.
† Adjusted to include Brooklyn.
‡ Adjusted to include Allegheny.

[1] *Mortgages on Homes*, Census Monograph II, Bureau of the Census, United States Department of Commerce, 1923, p. 59. Edited and revised by Richard T. Ely, collaborating with H. W. Bohlman, of the staff of the Institute for Research in Land Economics and Public Utilities.

APPENDIX

TABLE VII

PERCENTAGE OF FARMERS WHO WERE TENANTS, 1920[1]

Georgia	66.6	Minnesota	24.7
Mississippi	66.1	New Jersey	23.0
South Carolina	64.5	Colorado	23.0
Alabama	57.9	Pennsylvania	21.9
Louisiana	57.1	California	21.4
Texas	53.3	New York	19.2
Arkansas	51.3	Oregon	18.8
Oklahoma	51.0	Washington	18.7
North Carolina	43.5	Arizona	18.1
Nebraska	42.9	Michigan	17.7
Illinois	42.7	West Virginia	16.2
Iowa	41.7	Idaho	15.9
Tennessee	41.1	Rhode Island	15.5
Kansas	40.4	Wisconsin	14.4
Delaware	39.3	Wyoming	12.5
South Dakota	34.9	New Mexico	12.2
Kentucky	33.4	Vermont	11.6
Indiana	32.0	Montana	11.3
Ohio	29.5	Utah	10.9
Maryland	28.9	Nevada	9.4
Missouri	28.8	Connecticut	8.5
Virginia	25.6	Massachusetts	7.1
North Dakota	25.6	New Hampshire	6.7
Florida	25.3	Maine	4.2

Average for United States, 38.08 per cent.

[1] *Yearbook of the United States Department of Agriculture*, 1921, p. 498.

APPENDIX

TABLE VIII

IMPROVED FARM ACREAGE RENTED, 1920[1]

Georgia	59.6	Tennessee	35.1
South Carolina	57.7	Missouri	33.9
Texas	56.5	New Jersey	32.2
Illinois	55.1	New Mexico	30.0
Oklahoma	53.5	Pennsylvania	29.3
Kansas	52.0	Arizona	28.3
Delaware	52.1	Idaho	28.1
South Dakota	50.9	Michigan	27.6
Alabama	50.8	New York	27.4
Mississippi	50.3	Florida	26.1
Iowa	50.1	Kentucky	25.1
Washington	50.0	Montana	24.6
Nebraska	49.8	Virginia	24.1
Indiana	44.9	Wyoming	23.5
Arkansas	43.7	Wisconsin	21.5
Louisiana	43.5	Rhode Island	20.6
North Dakota	42.4	Utah	19.3
California	41.2	Vermont	17.0
North Carolina	41.0	Nevada	16.6
Indiana	40.3	West Virginia	16.4
Oregon	39.7	Connecticut	12.6
Ohio	39.1	Massachusetts	9.4
Minnesota	39.4	New Hampshire	8.7
Colorado	36.1	Maine	5.2

Average for the United States, 42.12 per cent.

[1] This table differs fundamentally from that found in the *Yearbook of the United States Department of Agriculture*, 1921, p. 498. The above table is based on the proportion of improved farm acres that are rented, whereas the *Yearbook* percentages refer to the proportion of improved acres *operated by tenants or croppers*. For example, in Montana 24.6 per cent of all improved acres are rented, but only 12.7 per cent of the improved acres are operated by tenants or croppers. The difference represents the improved acres rented and operated by owners in addition to their own farms.

APPENDIX

TABLE IX[1]

AVERAGE VALUE OF FARMS AND PERCENTAGE OF VALUE IN LAND, BUILDINGS, MACHINERY, AND LIVESTOCK

State	Average value	Per cent in Land	Buildings	Machinery	Livestock
Iowa	$39,941	78.4	10.8	3.6	7.2
South Dakota	37,835	79.0	8.6	4.0	8.4
Nebraska	33,771	79.3	9.1	3.6	8.0
Nevada	31,546	59.6	6.9	3.6	29.9
California	29,158	81.1	8.5	4.0	6.4
Illinois	28,108	78.7	11.2	3.3	6.8
Arizona	23,418	67.0	6.7	3.8	22.5
North Dakota	22,651	72.7	11.9	6.5	8.9
Wyoming	21,235	63.1	7.1	3.5	26.3
Minnesota	21,221	72.6	14.5	4.8	8.1
Kansas	19,982	75.0	10.7	4.7	9.6
Colorado	17,966	71.0	9.5	4.6	14.9
Montana	17,095	70.2	8.6	5.6	15.6
Idaho	17,008	71.5	9.7	5.4	13.4
Oregon	16,304	71.6	10.9	5.1	12.4
Washington	15,952	75.4	11.6	5.2	7.8
Indiana	14,831	72.4	14.8	4.2	8.6
Wisconsin	14,143	60.5	21.3	6.2	12.0
Missouri	13,654	72.2	13.0	3.9	10.9
Utah	12,130	67.8	10.5	4.3	17.4
Ohio	12,060	65.1	20.9	4.7	9.3
New Mexico	10,896	60.4	7.8	3.0	28.8
New Jersey	10,499	45.6	34.6	8.2	11.6
Texas	10,200	73.0	10.2	3.5	13.3
Connecticut	10,019	44.6	39.3	5.8	10.3
New York	9,879	41.6	33.1	8.9	16.4
Maryland	9,678	56.0	27.3	6.3	10.4
Massachusetts	9,389	42.5	40.0	6.4	11.1
Michigan	8,976	54.4	27.1	6.9	11.6
Oklahoma	8,649	70.6	11.6	4.8	13.0
Pennsylvania	8,551	41.9	34.8	9.5	13.8
Rhode Island	8,238	43.1	35.3	7.2	14.4
Delaware	7,903	52.5	28.3	8.5	10.7
Vermont	7,661	37.3	34.2	9.5	19.0
Virginia	6,425	63.2	22.4	4.2	10.2
Florida	6,116	69.2	16.0	4.1	10.7
New Hampshire	5,782	40.0	35.9	8.0	16.1
West Virginia	5,687	62 0	20.8	3.7	13.5
Maine	5,609	42.3	33.2	9.8	14.7
Kentucky	5,587	69.5	16.8	3.2	10.5
Tennessee	4,953	64.5	17.3	4.3	13.9
South Carolina	4,946	67.8	17.4	5.2	9.6
North Carolina	4,634	68.6	17.5	4.4	9.5
Georgia	4,366	66.1	17.8	4.7	11.4
Louisiana	4,354	65.0	15.3	5.6	14.1
Arkansas	3,974	65.8	15.7	4.7	13.8
Mississippi	3,546	66.5	15.4	4.1	14.0
Alabama	2,698	60.2	18.5	5.0	16.3
United States	12,084	70.4	14.7	4.6	10.3

[1] *Yearbook of the United States Department of Agriculture*, 1921, p. 497.

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