CHAPTER IX

LAND AND RENT

170. Land the Prime Source of Wealth.—The primary source of all wealth is nature itself. The materials which are turned into commodities by the various processes of production are products of nature. The forces which become the servants of man as he utilizes them in these processes are forces of nature.

Just as all kinds of productive efforts are included in the comprehensive term "labor," so are all natural sources of the materials and of the forces requisite to production included in the term "land." This term, in the economic sense, therefore embraces much more than what is ordinarily understood by it. It embraces not only arable soil, building sites and forests, but also mines, waterfalls, fishing grounds and the like.

In order to obtain raw materials from land, it is generally necessary to perform more or less preparatory labor. Before wheat can be reaped, the land must be plowed and fertilized and the seed sown. Provision must be made to store the grain for protection against rain and storm. Coal is obtained principally by first sinking shafts and installing mining machinery. Inasmuch as most of the results of this work are inseparable from the land, those who perform the work and those who furnish the necessary appliances can be protected in the ownership of those results only by a concession of the exclusive right to the occupancy of the land. For this reason land has become private property.

171. Land Distinguished from Improvements Thereon.—Land, as a factor of production, presents a feature which is possessed by no other form of capital. The labor required for the production of like things in different localities is not equal, but depends upon location and fertility of the land. Where these characteristics are favorable, the same results can be ob-

tained easier than elsewhere. It is for this reason that the value of products, according as they are obtained from one or another piece of land, may exceed, or be equal to, or even fall below the normal charges for the efforts exerted and the capital goods employed in production. Of course, where it is found that the value of the products is in the average less than the cost of their production, this land will no longer be used for that particular purpose. But where the products obtained have a value exceeding this cost, the excess constitutes a profit to which the term "rent," in the sense of "economic rent" as distinguished from "gross rent," has been applied (139).

If land which yields such profit, or rent, is offered for lease, competition obliges the lessor to pay for its use a charge practically equal to this rent (323). And if it is offered for sale, competition for its ownership raises its value to a point proportionate to the profit yielded. It is the profit-yielding feature of land that gives it a market value.

In studying the nature of land values, the value of the preparations for its use, that is to say, the "improvements" made upon the land, must be considered separately from that of the land itself. The value of real estate is therefore made up of two items, namely, that of the land and that of the improvements. We are at this point concerned only with rent and with the value of land apart from that of improvements (173). The latter are to be considered as capital goods, the economic status of which will be discussed in the next chapter.

In some instances improvements become so incorporated in the land that the distinction we have here in view partly or wholly disappears. This is the case in clearing land of rocks, or reclaiming it from swamps, and so forth. We shall revert to this feature of the subject when the taxation of the land is to be considered (331).

172. **Ricardo's Law of Rent.**—As regards the causes that bring about and regulate rent, there is practically no difference of opinion among modern economists. All agree upon the main points of the proposition known as "Ricardo's Law

of Rent" (130). Since its promulgation, in the early part of the nineteenth century, only a few unavailing attempts have been made to discredit it, and these have resulted merely in confirming its truth. Such divergence of opinion as still remains relates only to minor details.

The nature of rent and the law that regulates it were recognized, in a measure, by some writers before the close of the eighteenth century, but since Ricardo was the first to propound the law in a well defined and comprehensive form, it is now distinguished by his name. A brief excerpt of his presentation is here quoted:

> On the first settling of a country, in which there is an abundance of rich and fertile land, a very small portion of which is required to be cultivated for the support of the actual population, . . . there will be no rent; for no one would pay for the use of land when there is an abundant quantity not yet appropriated, and, therefore, at the disposal of whosoever might choose to cultivate it.
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> . . . If all land had the same properties, if it were unlimited in quantity, and uniform in quality, no charge could be made for its use, unless where it possessed peculiar advantages of situation. It is only, then, because land is not unlimited in quantity and uniform in quality, and because, in the progress of population, land of an inferior quality, or less advantageously situated, is called into cultivation, that rent is ever paid for the use of it. When, in the progress of society, land of the second degree of fertility is taken into cultivation, rent immediately commences on that of the first quality, and the amount of that rent will depend on the difference in quality of these two portions of land.
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> When land of the third quality is taken into cultivation, rent immediately commences on the second, and it is regulated as before, by the difference of their productive powers. At the same time, the rent of the first quality will rise, for that must always be above the rent of the second, by the difference between the produce which they yield with a given quantity of capital and labour. With every step in the progress of population, which shall oblige a country to have recourse to land of a worse quality, to enable it to raise its supply of food, rent on all the more fertile land, will rise.
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> Thus suppose land—Nos. 1, 2, 3—to yield, with an equal employment of capital and labour, a net produce of 100, 90, and 80 quarters of corn. In a new country, where there is an abundance of fertile land compared with the population, and where therefore it is only necessary to cultivate No. 1, the whole net produce will belong to the cultivator, and will be the profits of the stock which he advances. As soon

as population had so far increased as to make it necessary to cultivate No. 2, from which 90 quarters only can be obtained after supporting the labourers, rent would commence on No. 1, . . . In the same manner it might be shown that when No. 3 is brought into cultivation, the rent of No. 2 must be ten quarters, or the value of ten quarters, while the rent of No. 1 would rise to 20 quarters; for the cultivator of No. 3 would have the same profits whether he paid twenty quarters for the rent of No. 1, ten quarters for the rent of No. 2, or cultivated No. 3 free of all rent.[57]

In following up his argument, Ricardo proceeds:

The reason, then, why raw produce rises in comparative value, is because more labour is employed in the production of the last portion obtained, and not because a rent is paid to the landlord. The value of corn is regulated by the quantity of labour bestowed on its production on that quality of land, or with that portion of capital, which pays no rent. Corn is not high because rent is paid, but a rent is paid because corn is high (359); and it has been justly observed, that no reduction would take place in the price of corn, although landlords should forego the whole of their rent. Such a measure would only enable some farmers to live like gentlemen, but would not diminish the quantity of labour necessary to raise the raw produce on the least productive land in cultivation.[58]

173. **Graphical Representation of Ricardo's Law.**—In the proposition so clearly stated by Ricardo the reader will readily recognize the principle which underlies the theory of value discussed in a preceding chapter (56–61). Ricardo has really paved the way for a clear understanding of the actions and reactions by which market values are regulated. He recognized the principle of the varying cost of production which forms the basis of what we called the "sellers' price limit" and represented by a rising curve. Later writers recognized a similar variation in regard to the desire for any given product and supplied the final link necessary to formulate the law of value.

If the item of *rent* is left out in figuring the *cost of production* (61), this cost becomes a varying quantity that can be represented by a rising curve, and the graphic method for illustrating the interaction of supply and demand can then be used advantageously to illustrate the law of rent.

[57] Ricardo, pp. 35–36. [58] *Ibid.*, pp. 38–39.

The owner of a piece of land will not put it to use unless the market price of his products at least covers the three items: cost of supplies, current charges for the capital goods employed and value of his labor and that of those whom he may employ. This sum, then, is "cost of production" from the standpoint of the landowner and becomes his price limit as a seller of his products. This price limit is different for the owners of different pieces of land, for the cost of production in each case is affected by the varying fertility and location of the land.

Now let us suppose that the curve SS' of Fig. 20 represents the possible *supply* of a certain product that can be furnished to a given market, the elements of this supply being ordered in rising series of their respective cost or "price limit," and let us further assume that the curve DD' represents the *demand* for this same product. The intersection of these two curves will then locate the marginal point a. Accordingly, the ruling price of the entire supply of the market will adjust itself to the rate Op, no matter what difference there may be in the cost of producing the separate elements, and only those elements of the possible supply as are at and inside of the margin a will be continuously produced and actually supplied in the market.

Concentrating our attention on the element q', it can be seen that the proceeds $q'r'$ from its sale are divided into two parts, $q's'$ and $s'r'$, of which the first consists of cost of supplies, returns of capital goods and wages of labor, while the second constitutes the "rent" afforded by the land from which the element q' is obtained (323). This profit is primarily acquired by the user or cultivator of the land when he sells his products in the market, but if tenant, he pays it over to the landlord for the use of the land.

Land rented to a tenant usually carries improvements. If so, the landlord really supplies at least a portion of the capital goods used by the tenant in his work (171). In this case the stipulated rent paid by the tenant contains two items in addition to the economic rent, which are (1) reimbursement for deterioration of the improvements, viewed as means of pro-

duction, and (2) current returns for the use of the improvements, viewed as capital goods. It will be recalled that the gross income $q'r'$ is composed of the rent $s'r'$ and of the cost $q's'$, embracing cost of supplies, returns of capital goods and wages of labor. The first of these items, reimbursement for deterioration, is really a portion of the cost of supplies, while the second item is part of the returns of capital goods. Hence it is to be seen that after paying the stipulated rent, the tenant's residual share is composed of wages of his labor and that of his employes, and the returns due to that part of the capital which he himself furnishes.

174. Misinterpretations of Ricardo's Law.—The objections that have been raised against Ricardo's law of rent are mostly based on a misinterpretation of his statement of the law or on a too narrow construction of it. His land No. 1 is obviously that land, whatever its area may be, from which, under the existing circumstances, the greatest amount of produce can be obtained with a given amount of labor. It is not necessarily the land which yields the greatest crop per acre.

By showing that rich land often requires great effort to clear, drain and prepare it for cultivation, and that the early settlers of a country, instead of cultivating the rich river bottoms, raised their first crops on the hillsides which have a natural drainage, Henry C. Carey attempted to refute Ricardo's law. But, as a matter of fact, this illustration constitutes a confirmation rather than a refutation. The settlers selected the land which, under the circumstances, yielded the greatest crop with the least effort.

In many respects the illustration given by Ricardo must be interpreted liberally and with due regard to general conditions. For instance, if different fields yield corn of different quality, it stands to reason that the "quarters" used for measuring the poorer grades should be conceived so much enlarged that "equivalent" rather than "equal" amounts of the different grades will be compared. Ricardo gives the gist of the law in terms which, where occasion requires, must be recast so as to be adapted to the case in question.

That the term "fertility" may have reference to mineral

as well as agricultural land, was also clearly shown by Ricardo. The cost of mining equal quantities in different mines depends on a number of conditions, all of which have some influence on the profit that may accrue to the mine owner.

Nor should fertility alone be considered. Wheat raised on more fertile land which happens to be less advantageously situated may cost more by the time it is brought to market than that obtained from less fertile land so located that less labor is required to bring it to market. In many cases *location* is indeed the only advantage utilized, as is the case with land in cities. In a store located in the business centre of a city more and larger sales can be effected with equal effort, or, what is the same, at equal cost, than in smaller stores in outlying districts. The labor of the salesman is more "fruitful," so to speak. So do advantages from location accrue to bankers, manufacturers, shippers and others. "Fertility" then loses its literal significance, and commercial and industrial advantages take the place of agricultural advantages. It matters not whether the cost of production is influenced through varying fertility or varying location, whether land is used for agriculture or for mining, for commercial or for industrial purposes, the law of rent is the same. Rent is always the value of the advantage derived from the possession of land, a value which, if the occupant is a tenant, goes in general to the landowner with the stipulated rent.

175. The Margin of Cultivation.—The objection which has been urged most persistently against Ricardo's law is based on a denial of the existence of "no-rent" land, namely, land the use of which can be obtained without the payment of rent, land which has not yet been brought into use because of the limited demand for its products. If it were true that there is no ultra-marginal land, or that there is no point of diminishing returns, Ricardo's law of rent would have no basis, for we can measure the advantages which one piece of land affords only by adopting as a standard of comparison some other land, the advantages of which are taken as zero.

There is no justification for denying the existence of "no-

rent" land while there are vast tracts of land still uncultivated in various quarters of the globe, or while it is still possible to reclaim land from swamps or seas, or even as long as the intensity of cultivation of land already in use can be still further increased (178).

The denial of the existence of no-rent land is seemingly justified by the fact that land which is at the margin for some particular use is not rent-free. Thus suburban land which to all appearances is just beyond the margin of urban utility, even though at the moment lying idle, cannot be obtained without the payment of rent. We shall presently see, however, that this affords no basis for the denial, and that this condition is quite consistent with the theory of rent.

176. Cumulative Rent.—Land is adapted for various alternate uses. It may be used for grazing, for growing wheat, for raising garden truck, for residences, or for manufacturing, bank or office buildings. These different uses range themselves in the order of their importance about market centres. In the heart of a city the demand for land for mercantile use is greater than for any other purpose. In the zone surrounding the centre the prevailing demand is for factories and dwellings. At a still greater distance the margin for this use is passed and truck farming and other forms of intensive culture is in place. Then comes land given to extensive farming, and finally, farthest away, cattle ranges and woodlands will be found, interspersed with areas wholly unused.

In our study of this topic complications can be minimized if we at first apply the argument to a single market centre and assume that the surrounding land is throughout of equal fertility and that the cost of transportation from all directions to the centre is proportionate only to distance. Under these conditions the different uses to which the land can be put naturally range themselves in a series of concentric zones around the market. The cattle raiser occupies the most distant land, bordering on the actual margin of cultivation. Those stretches of this land which are nearest to the market centre are slightly preferable to the more outlying parts and are therefore slightly rent-bearing, hence the line where agri-

cultural use begins is already a zone of land that can no longer be had without paying rent, and the margin of farming is not no-rent land. The marginal farmer must compete with the intra-marginal rancher.[a]

The farms that are nearer the market are preferred to those that are more distant and therefore yield a higher rent. Thus it happens that the marginal truck farmer must pay a rent equal to that returned by the most favorably located farm land. In short, the land lying at the margin of any one of the uses affords a rent consisting of the cumulation of the rent afforded by the less important uses of the land which lies between this margin and the outermost margin of cultivation.

But the uniformity in the characteristics of land which we have assumed in the above illustration does not really exist. The concentric arrangement of the several margins is therefore to be taken in a figurative sense. The lines by which the several uses are separated are in reality exceedingly irregular for quite obvious reasons. The markets for many products are actually outside of their margin of cultivation, as in the case of tropical fruit, spices and mineral products. We furthermore must consider that the number of markets is practically unlimited, each competing with its neighbor for the products of the adjacent lands, and that for this reason the marginal lines are completely interwoven. For all that, the general theory of rent, and, coincidently, that of cumulative rent, is not thereby vitiated, but only enveloped in a multitude of complications.

177. **Intensity of Cultivation.**—The yield of any piece of land is not a fixed quantity, but depends on several conditions, among others on the amount of labor and capital applied to its cultivation. Land can be cultivated with greater or less "intensity," and for each degree of cultivation its yield is different.

For the present we shall leave out of consideration the effect of all other variable factors, such as the weather and the more or less intelligent management, by assuming these

[a] *Cf.* Seager, pp. 230–232.

to be normal. The latter variations affect principally chance profits in one case, and manager's wages in the other.

The yield of land is increased with the application of more labor and capital, or, to put it briefly, of greater effort. But it does not increase in the same proportion as the effort. The productivity of land holds a relation to the intensity of cultivation similar to that existing between productivity of labor and amount of capital. The increase of productivity of land does not keep pace with that of effort applied to it, the progression in that respect being more or less similar to the curve shown in Fig. 14, illustrating the relation of capital to the productivity of labor.

In the present study, however, the diagram will be more instructive if the yield is presented, as in Fig. 16, in a differentiated instead of an integrated form. Land cultivated with little effort will bring forth little; but each additional effort will increase the output. Imagine successive instalments of effort, *Oa, ab, bc,* and so forth, to be laid off on the horizontal axis of Fig. 21, and the output of each separate instalment to be laid off in the vertical direction, so that the yield of the first instalment of effort *Oa* is represented by the area *Oaa'Y*, the yield of the second instalment *ab* by *abb'a'*, etc., the curve *YY'* denoting the land's productivity.

Figuratively speaking, we may consider the piece of land under consideration to be composed of a number of superposed layers of land—successive stories, so to speak—each of which can take up no more than one of the increments of effort. The yield of the first layer, when put under cultivation, would equal the area *Oaa'Y*, that of the second *abb'a'*, and so on, each succeeding layer yielding less than the preceding one.

178. **The Point of Diminishing Returns.**—Having assumed all the successive instalments of effort and, accordingly, of cost, to be equal, this cost can be represented by the ordinate of the horizontal line *CC'*. The diagram then elucidates the fact that the instalment *cd* is the last one which produces a yield greater than its cost. The point *d* is manifestly the point of "diminishing returns" and delimits the most advantageous

intensity of cultivation. The area *Odd'C* then represents the value of the total efforts, while the area *Odd'Y* measures the value of the total yield, and, accordingly, the area *Cd'Y*, which indicates the excess of the value of the product over its cost, represents the rent yielded by the piece of land.

It is now seen that the total value of the produce of the land in question, represented by the area *Odd'Y*, is divided into two parts. Of these, the part *Odd'C* represents the cost of producing the goods, comprising cost of supplies, value of labor and charges for the use of the capital other than land. The other part, *Cd'Y*, goes as rent to the landlord for the use of the land (185).

Now suppose that the demand for the produce of the land is increased, say through an increase of population. In consequence the value of the produce rises and is then represented by the curve *ZZ'*. It then pays to increase the intensity of cultivation to the point *f*. To use our figure of speech, two more layers or "stories" are brought into use and the yield is increased not only in value, but also in absolute quantity. It is also apparent that the rent of the land rises from *Cd'Y* to *Cf''Z*.

Before the increase of demand as here assumed takes place, the layers or "stories" *de* and *ef* are beyond the margin of cultivation, since the value of their yield is then less than the cost of cultivation. By an increase of the demand they are brought into requisition, just as any previously existing ultra-marginal land would be put to use under like circumstances. From this viewpoint it can be seen that there is marginal land (175), at least in a figurative sense, in the midst of highly cultivated sections, nay, in the very business centres of cities, and these marginal sections are free even of cumulative rent. The erection of lofty office buildings is nothing else than bringing into requisition the marginal layers or "stories"—an expression which in this case is literally applicable—of the land, by increasing the "intensity of cultivation."

179. **The Personal Factor in Rent.**—The yield of land, and with it the rent, is influenced not only by the intensity of

cultivation, but also by the personal ability and foresight of the occupant, both as regards the selection of the special use to which the land is to be put and the intelligence and energy with which the productive efforts are applied.

An acre of land in the centre of the city of New York, if used for raising potatoes, would bring materially less rent than if used for office buildings or stores. An equal area of land in the country, say a hundred miles from New York, would, on the contrary, bring a higher rent as a potato patch than as a store site. And if this acre were in the north of Texas, the distance of the nearest market would even forbid the growing of potatoes, the land being available only for the lowest degree of cultivation, such as the grazing of cattle. The judicious selection of the use of any piece of land, according to circumstances, is an essential factor in obtaining the highest possible rent from it.

But even as regards a given use, the returns obtainable depend further on the personal ability of the user. Taking an acre best adapted for raising potatoes, it is found that one man is able to raise a larger crop than another, because of difference in intelligence, diligence and skill.

Among those desirous of utilizing any piece of land there are always some who can put it to better use than others, and these can always outbid their competitors. For the land of a commercial or industrial centre the banker, the merchant, the manufacturer are the highest bidders, and when these have secured their location, they are eliminated as competitors for the use of the more distant land which is open to competition among the remaining competitors. It is in this way that under the impulse of competition the occupancy of land is so adjusted among the different possible occupants that the land finds its most productive use and accordingly yields the highest rent, taking into account the different capabilities of those different occupants.

It must, of course, be understood that we are here dealing only with general tendencies. The theoretical result is not necessarily realized in each separate case. Yet, generally speaking, the facts are in accord with this theory. The most

advantageous land returns a particularly high rent because it is being put to the most advantageous use by those most capable of doing so, the less advantageous land being left to those who, in their turn, can get the most out of it.

180. The Source of Rent.—Rent, like wages, can be conceived in three forms. Of two settlers one may have taken up land that is more fertile than that taken up by the other, and who therefore can maintain his existence with less effort. He obtains rent in the form of greater comforts of life. This may be regarded as the basic form of rent. The second develops when these settlers as farmers bring their produce to market. Supposing the settler on the poorer land to be at the margin of cultivation, he will obtain a price for his produce which pays him only as much as he could earn at market rate of wages. His more fortunate neighbor, inasmuch as he can grow a greater quantity with the same amount of effort, can sell his produce at a price that nets him an income exceeding what he could earn as a farm hand. This excess, the second form of rent, appears as a definite profit, usually in the form of money. And if the owner of the intra-marginal land leases it to a tenant, he obtains rent in its third form, namely as a stipulated periodic payment of money or its equivalent. At this point we are concerned mainly with rent in its second form, namely in the form of a share of the gross income of a productive group, and with the way in which that share is determined.

The process by which rent, viewed as a share of the total value of the produce of land, is determined, has been clearly set forth by Ricardo. Products obtained from intra-marginal land require less labor to prepare for the market than equal products obtained from land at the margin of production (7). But in the market equal products, however obtained, command an equal price, a price determined by the marginal cost. The excess of the price over the cost of things produced on intra-marginal land is rent. It is due to the advantages afforded by conditions of fertility and location of the land (154) and accrues in the first place to the user of the land.

By way of illustration we may assume that for obtaining a given amount of produce, the cost on land No. 1 is $50, on land No. 2 it is $60, and on land No. 3 it is $70. It is understood that cost is here meant to embrace all anterior charges, normal wages of labor, including that of superintendence, and current interest on the capital goods employed, but no charges for the use of land.

If now the demand for the produce of the land is such that the yields of land Nos. 1, 2 and 3 will just fully supply it, then land No. 3 is at the margin and the market price of the given amount of the produce is $70 (62). The cultivators of land Nos. 1 and 2, in producing and selling the given amount, accordingly score a profit of $20 and $10, respectively.

Those who buy the produce of land No. 1 give $70 in exchange for that which normally costs only $50 to produce. The difference, namely, $20, is the rent realized through the sale of the given amount of the produce of land No. 1. These $20 represent just so much of the value of the purchaser's labor. It is therefore manifest that rent is a value furnished, not by the producers of the goods sold, but by the purchasers of those goods (323, 370).

Where land is used for industrial and commercial pursuits, equal amounts of effort have greater or less effect, according to location and surroundings; hence the above conclusion is true for such land as well as for agricultural land.

Reverting to diagram Fig. 20 it will be seen that by the sale of the total quantity *Oq* of the produce at the normal price *qa*, the cultivators of the land from which the various elements of the supply come receive value represented by the area *Oqap*, while, as will be understood by remembering that the effort of producing the element *q'* is represented by *q's'*—they actually expend efforts of a value equal to the area *OqaS*. The sellers furnish services measured by the area *OqaS*, while the purchasers furnish services measured by the area *Oqap*, hence the difference measured by the area *Sap* is an excess of services rendered by the purchasers, and this excess constitutes rent. Rent, then, is the result of an exchange of unequal services. It is acquired by the owners of the land, but is produced by the

efforts of the purchasers of the products and, accordingly, by the community in general. The significance of this fact will be considered later.

181. **Land Values.**—The portion *BE*, Fig. 13, of the net income of a productive group which goes to capital is ordinarily divided into at least two parts, namely rent *BC* and capital interest *CE*, of which, in many cases, a portion *DE* accrues as interest to lenders of money. The conditions which determine the first of these parts have now been fully discussed. But, as stated before (131), we must not only find why each one of the three forms of capital brings an income, but also why it is that the rate of this income is practically equal for all three forms. To elucidate this in relation to land, we must ascertain why it is that the ratio of the landowner's gains to the value of his land agrees with the current rate of interest. To this end we must now seek for the causes which determine the value of land.

Since land is not produced by labor, we cannot arrive at its value through the "marginal effort" of its production. Nor can we turn to "final utility," since land devoted to industry and commerce is not in course of consumption, and its utility exists only in a latent or potential state. We must have recourse to the method of "capitalization" (65), by comparison of land with money or with capital goods on the basis of the one property which they have in common, namely the power of bringing an income (190).

It has indeed long been recognized that the value of land depends upon two items, namely, the rent it returns and the current rate of interest, and this relation is usually put in the form of the statement that *the value of land equals the rent capitalized at the current rate of interest.*

This statement of the case needs qualification in the light of two considerations. In the first place, experience tells that land is subject to continued changes of value, the rule being that land values steadily increase. This increase is known as the "unearned increment." The owner of land derives a profit from this source as well as from rent. Accordingly, *the*

gross gain derived from land is increment in addition to rent.

In the second place, real estate is subject to a tax, and where this tax is in proportion to the value of the estate, the rate of taxation has a reacting influence on the value of the land. The value of real estate consists of the value of the land and that of the improvements. Since the latter must be regarded as capital goods, the tax apportioned to them must here be left out of account. But that portion of the tax imposed on the value of the land has a direct bearing on the subject before us, as it reduces the profits of the landowner.

The *net profits* derived from land are therefore equal to rent plus unearned increment minus tax, or, putting it in algebraic form, $R + U - T$, where R is the annual rent, U the annual unearned increment and T the annual tax assessed on the land. *The landowner retains only a portion of the gross profits.*

The unearned increment is governed principally by three conditions: (1) by the gradual increase of rent, for the most part due to the growth of population, to the increase of means of communication and to other conditions that make the location more advantageous; (2) by the gradual change that takes place in the rate of interest which, according to experience, has been generally falling; and (3) by a possible change in the rate of land taxation. A study of the operation of these three causes would lead to complications which for our purpose may be avoided by considering, in each specific case, the unearned increment as a known quantity, indicated by past experience.

There are cases of land values which are actually falling. In such cases the unearned increment has to be treated as a minus quantity.

Furthermore, it may also happen that the value of land, expressed in dollars, rises or falls as a result of changes in the value of gold in relation to other things generally. In such case a rise would be merely apparent and would not be an "unearned" increment at all, nor would such a fall in value be other than merely nominal.

182. The Law of Land Value.—The proposition that land values equal the rent capitalized at the current rate of interest is obviously not correct. To put it right, "net profits" must be substituted for "rent" in the statement. The owner of land will sell it only for a sum of money which, when loaned or invested, brings returns equal to these net gains.

This law of land values can be expressed algebraically. Let V be the value of the land, R the annual rent, U the annual unearned increment, T the annual tax, I the landowner's profit, i the current rate per cent. of pure interest and t the actual rate per cent. of land taxation (327, 328*a*). This last rate, it should be observed, is not necessarily the nominal rate of taxation. Where it is customary to assess land a certain percentage below the actual market value, the factor t should be obtained by reducing the nominal tax rate in the same proportion, so that this corrected factor represents the ratio of the tax actually assessed to the actual selling value of the land.

The value of land may then be expressed by the formula:

$$(1) \qquad V = 100\,(R + U - T) \div i.$$

By substituting for T its value, $t \times V$, and solving the equation for V, it will be found that:

$$(2) \qquad V = 100\,(R + U) \div (i + t).$$

This last equation may be interpreted as follows: Land values tend to equal the gross gains $R + U$, capitalized at a rate obtained by adding the actual rate of taxation to the current rate of pure interest.

An illustration will make this clear. Suppose a piece of land to bring an annual rent of $900, while the annual unearned increment amounts to $300. Let the current rate i of pure interest be 4 per cent. and the rate t of land tax 2 per cent. According to the last equation the value of this land will be $1200 capitalized at $4 + 2$, that is, at 6 per cent., which will make the value $20,000 (328*b*). The tax, at the rate of 2 per cent., will then be $400 and the net gain accruing to the landowner $800, and this, in fact, represents an income of 4 per cent. on an investment of $20,000.

183. Speculative Land Value.—If we had assumed the simpler case, in which the land value is stationary and the rent of $900 the only source of gain from the land, we should have found that the value of this piece of land would be $15,000 instead of $20,000 (278, 328). The excess of the value of the first over that of the second case, namely $5000, has been termed "speculative land value" (361), as it cannot be accounted for by the rent alone, but is due to an expected increase of value likely to occur in the future.

It is quite consistent with the result of our analysis to consider land values as being made up of two items, namely, the value directly due to the rent and that due to the unearned increment. In the above illustration the first item would be equal to the rent of $900 capitalized at 6 per cent., or $15,000, while the second item would be normal increment of $300 treated in the same way, resulting in $5000.

184. Division of the Gross Profits Derived from Land.—From formula (2) we can derive further information. The net profit I of the landowner equals i per cent., or i one-hundredths, of the value of the land, namely:

$$I = i(R + U) \div (i + t), \tag{3}$$

and the land tax equals t per cent. of the same value, namely:

$$T = t(R + U) \div (i + t), \tag{4}$$

and this in our illustration yields $800 and $400, respectively.

We find, accordingly, that the total gross gain derived from land, namely $R + U$, is divided into two shares, I and T, which bear the same ratio to one another as the current rate of interest i bears to the rate of taxation t. The one constitutes the gain of the landowner, the other an income of the community. It follows that *the gross profit yielded by land, namely rent plus increment, is really shared between landowner and community, the respective parts having the same ratio as that which the current interest rate bears to the tax rate.* This being true for the sum $R + U$, it is also true if the two items R and U are considered separately (324, 325, 327).

The value here discussed is, of course, the value of the land independent of the improvements that may be located on it.

It is scarcely possible to reiterate too often that our reasoning relates to general tendencies. In individual cases exchanges may be effected at rates more or less departing from the results indicated by these formulas.

185. **Summary.**—In our quest for the causes which control the division of the net income BG, Fig. 13, of productive groups, we have seen how one of the items of the division, namely the rent BC, is definitely determined. Fig. 20 clearly illustrates the process by which the net income of a group is divided into two parts. To illustrate: the net income $q'r'$ of the group furnishing the portion q' falls into two parts, of which $s'r'$ goes to the landowner (178),[59] the other part, $q's'$ being left to pay for the services of the other forms of capital and of labor. The economic forces which determine this division are universally recognized. Of the three shares: rent, capital returns and wages, the first, namely rent, represented by BC in Fig. 13, equals the advantages which the land employed affords over marginal land, and therefore depends on relative fertility and advantages of location.

We have also found why it is that the rate of the total net gains of land ownership in relation to the value of the land itself is as a rule the same as the current rate of interest (131, 267), and that the reason lies in the fact that the value of land adapts itself to the interest rate, rising as the rate of interest falls, and *vice versa*. But what it is that determines the rate of interest we have yet to discover, and until this is found we cannot bring our analysis of land values to a definite conclusion (323).

[59] The fact that the landowner must subsequently share his income $s'r'$ with the community through taxation of the land cannot react on the division of the net income $q'r'$ of the group into the two shares $q's'$ and $s'r'$.