

XXII. THE NONHUMAN ORIGINAL FACTORS OF PRODUCTION

1. General Observations Concerning the Theory of Rent

IN the frame of Ricardian economics the idea of rent was an attempt at a treatment of those problems which modern economics approaches by means of marginal-utility analysis.¹ Ricardo's theory appears rather unsatisfactory when judged from the point of view of present-day insight; there is no doubt that the method of the subjective-value theory is far superior. Yet the renown of the rent theory is well deserved; the care bestowed upon its initiation and perfection brought forth fine fruits. There is no reason for the history of economic thought to feel ashamed of the rent theory.²

The fact that land of different quality and fertility, i.e., yielding different returns per unit of input, is valued differently does not pose any special problem to modern economics. As far as Ricardo's theory refers to the gradation in the valuation and appraisal of pieces of land, it is completely comprehended in the modern theory of the prices of factors of production. It is not the content of the rent theory that is objectionable, but the exceptional position assigned to it in the complex of the economic system. Differential rent is a general phenomenon and is not limited to the determination of the prices of land. The sophisticated distinction between "rents" and "quasi-rents" is spurious. Land and the services it renders are dealt with in the same way as other factors of production and their services. Control of a better tool yields "rent" when compared with the returns of less suitable tools which must be utilized on account of the insufficient supply of more suitable ones. The abler and more zealous worker earns a "rent" when compared with the wages earned by his less skillful and less industrious competitors.

The problems which the rent concept was designed to solve were for the most part generated by the employment of inappropriate terms. The general

1. It was, says Fetter (*Encyclopaedia of the Social Sciences*, XIII, 291), "a garbled marginality theory."

2. Cf. Amonn *Ricard als Begründer der theoretischen Nationalökonomie* (Jena, 1924), pp. 54 ff.

notions as used in everyday language and mundane thought were not formed with regard to the requirements of praxeological and economic investigation. The early economists were mistaken in adopting them without scruple and hesitation. Only if one clings naively to general terms such as *land* or *labor*, is one puzzled by the question why *land* and *labor* are differently valued and appraised. He who does not allow himself to be fooled by mere words, but looks at a factor's relevance for the satisfaction of human wants, considers it a matter of course that different services are valued and appraised differently.

The modern theory of value and prices is not based on the classification of the factors of production as land, capital, and labor. Its fundamental distinction is between goods of higher and of lower orders, between producers' goods and consumers' goods. When it distinguishes within the class of factors of production the original (nature-given) factors from the produced factors of production (the intermediary products) and furthermore within the class of original factors the nonhuman (external) factors from the human factors (labor), it does not break up the uniformity of its reasoning concerning the determination of the prices of the factors of production. The law controlling the determination of the prices of the factors of production is the same with all classes and specimens of these factors. The fact that different services rendered by such factors are valued, appraised, and dealt with in a different way can only amaze people who fail to notice these differences in serviceableness. He who is blind to the merits of a painting may consider it strange that collectors should pay more for a painting of Velasquez than for a painting of a less gifted artist; for the connoisseur it is self-evident. It does not astonish the farmer that buyers pay higher prices and tenants higher leases for more fertile land than for less fertile. The only reason why the old economists were puzzled by this fact was that they operated with a general term *land* that neglects differences in productivity.

The greatest merit of the Ricardian theory of rent is the cognizance of the fact that the marginal land does not yield any rent. From this knowledge there is but one step to the discovery of the principle of valuational subjectivism. Yet blinded by the *real cost* notion neither the classical economists nor their epigones took this step.

While the differential-rent idea, by and large, can be adopted by the subjective-value theory, the second rent concept derived from Ricardian economics, viz., the residual-rent concept, must be rejected altogether. This residual-claimant idea is based on the notion of *real* or *physical* costs that do not make any sense in the frame of the modern explanation of the prices of factors of

production. The reason why the price of Burgundy is higher than that of Chianti is not the higher price of the vineyards of Burgundy as against those of Tuscany. The causation is the other way around. Because people are ready to pay higher prices for Burgundy than for Chianti, winegrowers are ready to pay higher prices for the vineyards of Burgundy than for those of Tuscany.

In the eyes of the accountant profits appear as a share left over when all costs of production have been paid. In the evenly rotating economy such a surplus of the prices of products over and above costs could never appear. In the changing economy differences between the prices of the products and the sum of the prices that the entrepreneur has expended for the purchase of the complementary factors of production plus interest on the capital invested can appear in either direction, i.e., either as profit or as loss. These differences are caused by changes which arise in the prices of the products in the time interval. He who succeeds better than others in anticipating these changes in time and acts accordingly, reaps profits. He who fails in his endeavors to adjust his entrepreneurial ventures to the future state of the market is penalized by losses.

The main deficiency of Ricardian economics was that it was a theory of the distribution of a total product of a nation's joint efforts. Like the other champions of classical economics Ricardo failed to free himself from the Mercantilist image of the *Volkswirtschaft*. In his thought the problem of the determination of prices was subordinated to the problem of the distribution of wealth. The customary characterization of his economic philosophy as "that of the manufacturing middle classes of contemporary England"³ misses the point. These English businessmen of the early nineteenth century were not interested in the total product of industry and its distribution. They were guided by the urge to make profits and to avoid losses.

Classical economics erred when it assigned to land a distinct place in its theoretical scheme. Land is, in the economic sense, a factor of production, and the laws determining the formation of the prices of land are the same that determine the formation of the prices of other factors of production. All peculiarities of the economic teachings concerning land refer to some peculiarities of the data involved.

2. The Time Factor in Land Utilization

The starting point of the economic teachings concerning land is the distinction between two classes of original factors of production, viz., human and nonhuman

3. Cf., for example, Haney, *History of Economic Thought* (rev. ed. New York, 1927), p. 275.

factors. As the utilization of the nonhuman factors is as a rule connected with the power to utilize a piece of the earth, we speak of land when referring to them.⁴

In dealing with the economic problems of land, i.e., the nonhuman original factors of production, one must neatly separate the praxeological point of view from the cosmological point of view. It may make good sense for cosmology in its study of cosmic events to speak of permanency and of the conservation of mass and energy. If one compares the orbit within which human action is able to affect the natural environmental conditions of human life with the operation of natural entities, it is permissible to call the natural powers indestructible and permanent or—more precisely—safe against destruction by human action. For the great periods of time to which cosmology refers, soil erosion (in the broadest sense of the term) of such an intensity as can be effected by human interference is of no importance. Nobody knows today whether or not cosmic changes will in millions of years transform deserts and barren soil into land that from the point of view of our present-day knowledge will have to be described as extremely fertile and the most luxuriant tropical gardens into sterile land. Precisely because nobody can anticipate such changes nor venture to influence the cosmic events which possibly could bring them about, it is supererogatory to speculate about them in dealing with the problems of human action.⁵

The natural sciences may assert that those powers of the soil that condition its serviceableness for forestry, cattle breeding, agriculture, and water utilization regenerate themselves periodically. It may be true that even human endeavors deliberately directed toward the utmost devastation of the productive capacity of the earth's crust could at best succeed only with regard to small parts of it. But these facts do not strictly count for human action. The periodical regeneration of the soil's productive powers is not a rigid datum that would face man with a uniquely determined situation. It is possible to use the soil in such a way that this regeneration is slowed down and postponed or the soil's productive power either vanishes altogether for a definite period of time or can be restored only by means of a considerable input of capital and labor. In dealing with the soil man has to choose between various methods different from one another with regard to the preservation and regeneration of its productive power. No less than in any other branch of production the time factor enters also into the

4. Legal provisions concerning the separation of the right of hunting, fishing, and extracting mineral deposits from the other rights of the owner of a piece of land are of no interest for catallactics. The term land as used in catallactics includes also expanses of water.

5. Thus also the problem of entropy stands outside the sphere of praxeological meditation.

conduct of hunting, fishing, grazing, cattle breeding, plant growing, lumbering and water utilization. Here too man must choose between satisfaction in nearer and in more remote periods of the future. Here too the phenomenon of ordinary interest, entailed in every human action, plays its paramount role.

There are institutional conditions that cause the persons involved to prefer satisfaction in the nearer future and to disregard entirely or almost entirely satisfaction in the more distant future. If the soil is on the one hand not owned by individual proprietors and on the other hand all, or certain people favored by special privilege or by the actual state of affairs, are free to make use of it temporarily for their own benefit, no heed is paid to the future. The same is the case when the proprietor expects that he will be expropriated in the not too distant future. In both cases the actors are exclusively intent upon squeezing out as much as possible for their immediate advantage. They do not concern themselves about the temporally more remote consequences of their methods of exploitation. Tomorrow does not count for them. The history of lumbering, hunting, and fishing provides plenty of illustrative experience; but many examples can also be found in other branches of soil utilization.

From the point of view of the natural sciences, the maintenance of capital goods and the preservation of the powers of the soil belong to two entirely different categories. The produced factors of production perish sooner or later entirely in the pursuit of production processes, and piecemeal are transformed into consumers' goods which are eventually consumed. If one does not want to make the results of past saving and capital accumulation disappear, one must, apart from consumers' goods, also produce the amount of capital goods which is needed for the replacement of those worn out. If one were to neglect this, one would finally consume, as it were, the capital goods. One would sacrifice the future to the present; one would live in luxury today and be in want later.

But, it is often said, it is different with the powers of land. They cannot be *consumed*. Such a statement is meaningful, however, only from the point of view of geology. But from the geological point of view one could, or should, no less deny that factory equipment or a railroad can be "eaten up." The gravel and stones of a railroad's substructure and the iron and steel of the rails, bridges, cars, and engines do not perish in a cosmic sense. Only from the praxeological point of view is it permissible to speak of the consumption, the eating up, of a tool, a railroad, or a steel mill. In the same economic sense we speak of the consumption of the productive powers of the soil. In forestry, agriculture, and water utilization these powers are dealt with in the same way

as other factors of production. With regard to the powers of the soil, too, the actors must choose between processes of production which render higher output at the expense of productivity in later periods and processes which do not impair future physical productivity. It is possible to extract so much from the soil that its later utilization will render smaller returns (per unit of the quantities of capital and labor employed) or practically no returns at all.

It is true that there are physical limits to the devastating powers of man. (These limits are sooner reached in lumbering, hunting, and fishing than in tilling the soil.) But this fact results only in a quantitative, not in a qualitative difference between capital decumulation and soil erosion.

Ricardo calls the powers of the soil “original and indestructible.”⁶ However, modern economics must stress the point that valuation and appraisal do not differentiate between original and produced factors of production and that the cosmological indestructibility of mass and energy, whatever it may mean, does not enjoin upon land utilization a character radically different from other branches of production.

3. The Submarginal Land

The services a definite piece of land can render in a definite period of time are limited. If they were unlimited, men would not consider land a factor of production and an economic good. However, the quantity of soil available is so vast, nature is so prodigal, that land is still abundant. Therefore, only the most productive pieces of land are utilized. There is land which people consider—either with regard to its physical productivity or with regard to its location—as too poor to be worth cultivating. Consequently the marginal soil, i.e., the poorest soil cultivated, yields no rent in the Ricardian sense.⁷ Submarginal land would be considered entirely worthless if one were not to appraise it positively in anticipation of its being utilized in later days.⁸

The fact that the market economy does not have a more ample supply of agricultural products is caused by the scarcity of capital and labor, not by a scarcity of cultivable land. An increase in the surface of land available

6. Ricardo, *Principles of Political Economy and Taxation*, p. 34.

7. There are areas in which practically every corner is cultivated or otherwise utilized. But this is the outcome of institutional conditions barring the inhabitants of these regions from access to more fertile unused soil.

8. The appraisal of a piece of soil must not be confused with the appraisal of the improvements, i.e., the irremovable and inconvertible results of the investment of capital and labor that facilitate its utilization and raise future outputs per unit and future inputs.

would—other things being equal—increase the supply of cereals and meat only if the additional land's fertility exceeded that of the marginal land already previously cultivated. On the other hand, the supply of agricultural products would be increased by any increase in the amount of labor and capital available, provided the consumers do not consider another employment of the additional amount of capital and labor more appropriate to fill their most urgent wants.⁹

The useful mineral substances contained in the soil are limited in quantity. It is true that some of them are the outgrowth of natural processes which are still going on and increasing the existing deposits. However, the slowness and length of these processes makes them insignificant for human action. Man must take into account that the available deposits of these minerals are limited. Every single mine or oil source is exhaustible; many of them are already exhausted. We may hope that new deposits will be discovered and that technological procedures will be invented which will make it possible to utilize deposits which today cannot be exploited at all or only at unreasonable costs. We may also assume that the further progress of technological knowledge will enable later generations to utilize substances which cannot be utilized today. But all these things do not matter for the present-day conduct of mining and oil drilling. The deposits of mineral substances and their exploitation are not characterized by features which would give a particular mark to human action dealing with them. For catallactics the distinction between soil used in agriculture and that used in mining is merely a distinction of data.

Although the available quantities of these mineral substances are limited, and although we may academically concern ourselves with the possibility that they will be entirely exhausted one day, acting men do not consider these deposits rigidly limited. Their activities take into account the fact that definite mines and wells will become exhausted, but they do not pay heed to the fact that at an unknown later date all the deposits of certain minerals may come to an end. For to present-day action the supply of these substances appears to be so abundant that one does not venture to exploit all their deposits to the full extent which the state of technological knowledge permits. The mines are utilized only as far as there is no more urgent employment available for the required quantities of capital and labor. There are therefore submarginal deposits that are not utilized at all. In every mine

9. These observations, of course, refer only to conditions in which there are no institutional barriers to the mobility of capital and labor.

operated the extent of the production is determined by the relation between the prices of the products and those of the required nonspecific factors of production.

4. The Land as Standing Room

The employment of land for the location of human residences, workshops, and means of transportation withdraws pieces of soil from other employments.

The particular place which older theories attributed to urban site rent need not here concern us. It is not especially noteworthy that people pay higher prices for land they value more for housing than for land which they value less. It is a matter of fact that for workshops, warehouses, and railroad yards people prefer locations which reduce costs of transportation, and that they are ready to pay higher prices for such land in accordance with the economies expected.

Land is also used for pleasure grounds and gardens, for parks and for the enjoyment of the grandeur and beauty of nature. With the development of the love of nature, this very characteristic feature of "bourgeois" mentality, the demand for such enjoyments increased enormously. The soil of the high mountain chains, once merely considered a barren dreariness of rocks and glaciers, is today highly appreciated as the source of the most lofty pleasures.

From time immemorial access to these spaces has been free to everybody. Even if the land is owned by private individuals, the owners as a rule have not the right to close it to tourists and mountain-climbers or to ask an entrance fee. Whoever has the opportunity to visit these areas, has the right to enjoy all their grandeur, and to consider them his own, as it were. The nominal owner does not derive any advantage from the satisfaction his property gives to the visitors. But this does not alter the fact that this land serves human well-being and is appreciated accordingly. The ground is subject to an easement that entitles everybody to pass along and to camp on it. As no other utilization of the area concerned is possible, this servitude completely exhausts all the advantages the proprietor could reap from his ownership. Since the particular services which these rocks and glaciers can render are practically inexhaustible, do not wear out, and do not require any input of capital and labor for their conservation, this arrangement does not bring about those consequences which appeared wherever it was applied to lumbering, hunting, and fishing grounds.

If, in the neighborhood of these mountain chains, the space available for the construction of shelters, hotels, and means of transportation (e.g., rack railroads) is limited, the owners of these scarce pieces of soil can sell or rent

them on more propitious terms and thus divert to themselves a part of the advantages the tourists reap from the free accessibility of the peaks. If this is not the case, the tourists enjoy all these advantages gratuitously.

5. The Prices of Land

In the imaginary construction of the evenly rotating economy buying and selling of the services of definite pieces of land does not differ at all from buying and selling the services of other factors of production. All these factors are appraised according to the services they will render in various periods of the future, due allowance being made for time preference. For the marginal land (and, of course, for the submarginal land) no price is paid at all. Rent-bearing land (i.e., land that, compared with the marginal land, bears a higher output per unit of input of capital and labor) is appraised in accordance with the degree of its superiority. Its price is the sum of all its future rents, each of them discounted at the rate of originary interest.¹⁰

In the changing economy people buying and selling land take due account of expected changes in the market prices for the services rendered by the soil. Of course, they may err in their expectations; but this is another thing. They try to anticipate to the best of their abilities future events that may alter the market data and they act in accordance with these opinions. If they believe that the annual net yield of the piece of land concerned will rise, the price will be higher than it would have been in the absence of such expectations. This is, for instance, the case with suburban land in the neighborhood of cities growing in population or with forests and arable land in countries in which pressure groups are likely to succeed in raising, by means of tariffs, the prices of timber and cereals. On the other hand, fears concerning the total or partial confiscation of the net yield of land tend to lower the prices of land. In everyday business language people speak of the "capitalization" of the rent and observe that the rate of capitalization is different with different classes of land and varies even within the same class with different pieces of soil. This terminology is rather inexpedient as it

10. There is need to remember again that the imaginary construction of the evenly rotating economy cannot be carried consistently to its ultimate logical consequences (see above, p. 248). with regard to the problems of land one must stress two points: First, that in the frame of this imaginary construction, characterized by the absence of changes in the conduct of affairs, there is no room for the buying and selling of land. Second, that in order to integrate into this construction mining and oil drilling we must ascribe to the mines and oil wells a permanent character and must disregard the possibility that any of the operated mines and wells could be exhausted or even undergo a change in the quantity of output or of current input required.

misrepresents the nature of the process.

In the same way in which buyers and sellers of land take into account anticipated future events that will reduce the net return, they deal with taxes. Taxes levied upon land reduce its market price to the extent of the discounted amount of their future burden. The introduction of a new tax of this kind which is likely not to be abolished results in an immediate drop in the market price of the pieces of land concerned. This is the phenomenon that the theory of taxation calls *amortization* of taxes.

In many countries the owners of land or of certain estates enjoyed special political legal privileges or a great social prestige. Such institutions too can play a role in the determination of the prices of land.

The Myth of the Soil

Romanticists condemn the economic theories concerning land for their utilitarian narrow-mindedness. Economists, they say, look upon land from the point of view of the callous speculator who degrades all eternal values to terms of money and profit. Yet, the glebe is much more than a mere factor of production. It is the inexhaustible source of human energy and human life. Agriculture is not simply one branch of production among many other branches. It is the only natural and respectable activity of man, the only dignified condition of a really human existence. It is iniquitous to judge it merely with regard to the net returns to be squeezed out of the soil. The soil not only bears the fruits that nourish our body; it produces first of all the moral and spiritual forces of civilization. The cities, the processing industries, and commerce are phenomena of depravity and decay; their existence is parasitic; they destroy what the ploughman must create again and again.

Thousands of years ago, when fishing and hunting tribesmen began to cultivate the soil, romantic reverie was unknown. But if there had lived romanticists in those ages, they would have eulogized the lofty moral values of the hunt and would have stigmatized soil cultivation as a phenomenon of depravity. They would have reproached the ploughman for desecrating the soil that the gods had given to man as a hunting ground and for degrading it to a means of production.

In the preromantic ages in his actions no one considered the soil as anything other than a source of human well-being, a means to promote welfare. The magic rites and observances concerning the soil aimed at nothing else than improvement of the soil's fertility and increase in the quantity of fruits to be harvested. These people did not seek the unio mystica with the mysterious powers and forces hidden in the soil. All they aimed at was bigger and better crops. They resorted to magic rituals and adjurations because in their

opinion this was the most efficient method of attaining the ends sought. Their sophisticated progeny erred when they interpreted these ceremonies from an "idealistic" point of view. A real peasant does not indulge in ecstatic babble about the soil and its mysterious powers. For him land is a factor of production, not an object of sentimental emotions. He covets more land because he desires to increase his income and to improve his standard of living. Farmers buy and sell land and mortgage it; they sell the produce of land and become very indignant if the prices are not as high as they want them to be.

Love of nature and appreciation of the beauties of the landscape were foreign to the rural population. The inhabitants of the cities brought them to the countryside. It was the city-dwellers who began to appreciate the land as *nature*, while the countrymen valued it only from the point of view of its productivity for hunting, lumbering, crop raising and cattle breeding. From time immemorial the rocks and glaciers of the Alps were merely waste land in the eyes of the mountaineers. Only when the townfolk ventured to climb the peaks, and brought money into the valleys, did they change their minds. The pioneers of mountain-climbing and skiing were ridiculed by the indigenous population until they found out that they could derive gain from this eccentricity.

Not shepherds, but sophisticated aristocrats and city-dwellers were the authors of bucolic poetry. Daphnis and Chloe are creations of fancies far removed from earthy concerns. No less removed from the soil is the modern political myth of the soil. It did not blossom from the moss of the forests and the loam of the fields, but from the pavements of the cities and the carpets of the salons. The farmers make use of it because they find it a practical means of obtaining political privileges which raise the prices of their products and of their farms.