John B. Clark

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DISTRIBUTION AS DETERMINED BY A LAW OF RENT.

THE law of rent has become an obstacle to scientific progress: it has retarded the attainment of a true theory of distribution. Yet it is itself capable of affording such a theory. The principle that has been made to govern the income derived from land actually governs those derived from capital and from labor. Interest as a whole is rent; and even wages as a whole are so. Both of these incomes are "differential gains," and are gauged in amount by the Ricardian formula.

Wages and interest are incomes that may be treated as static in their nature: they would exist if society were to remain in an unprogressive state, with its forces in a certain balanced condition that excludes internal changes. Disturb this equilibrium of forces, make structural changes in society, create a condition in which labor and capital begin to move from one point in the general system to another, and you furnish opportunities for the creating of another income that is distinctively dynamic. We shall call this pure profit. It is a product of unbalanced forces, and exists, under natural law, only while society is changing. Eliminate those internal movements of the industrial forces that we have indicated, and you destroy it. The remaining product of social industry will then resolve itself into wages and interest; and both of these are rents, or differential products due to permanent agents. In this respect they are analogous to the income from land as it appears in current theories, and they in fact include that income with others. The true method of attaining a law of distribution is not, therefore, first to eliminate from the

earnings of society the element of ground rent, and then to try to find principles that will account for the remaining elements: it is to eliminate what is not rent,—namely, pure profit,—by reducing society to a static condition, and then, by a use of the rent law, to account for all that remains.

Five changes of social structure need to be excluded, if society is to be reduced to a static condition; and by a use of the scientific imagination we will exclude them, and create that state. These are: first, changes in the character of social wants; secondly, changes in the mechanical processes of production; thirdly, alterations in the mode of organizing industry; fourthly, shiftings of labor and capital from place to place within the system; and, fifthly, increase or diminution of the amounts of capital and labor in existence. The movements in which the dynamic quality of actual society consists would respectively be brought to a stand-still if we should in some way make human wants constant in character and degree, arts unprogressive, modes of organization stable, the magnitude of different industries normal and permanent, and the total amounts of labor and capital fixed. We must in this way create for our own purposes an imaginary state, in which for a time social forces and relations are stable. Yet we make in this way a study that is completely realistic, since the static forces are dominant in the world of actual business. We isolate them, in order that we may know their nature. In the end,—though not in this article,—we shall take account of all essential changes that in reality take place, and attain the dynamic laws of distribution.

The term "rent" has become synonymous with differential gain by an evolution in language that needs to be briefly traced. In popular speech rent is a payment made by one man to another for the use of something: in scientific language it means not a payment, but a product. The

mere transfer of the stipulated amount from hand to hand passes out of sight, and rent becomes whatever the thing earns in the hands of the man who hires it. The rent of the farm or the shop is the wealth that it brings into existence. To society as a whole rent is always a product, and not a payment, since there exists no outside party of the second part to whom the social organism can let a thing for hire. In its conception of rent science takes the social point of view.

Again, to the common mind, anything whatever may be a rent-producer, provided it is let for hire; and to many persons the typical rent is a payment for the use of a dwelling-house or a room. Scientists have chosen to restrict the term to the product of land, on the ground that the income afforded by things that are artificially made tends to conform to the cost of making them. If buildings pay ten per cent. on their cost, there will in due time be more buildings; and in the end they will earn what is equal to current interest on the amount spent in constructing them. Land is not produced, and has no normal cost. It earns what it can; and that is an amount that is independently fixed, according to the Ricardian formula. While the annual income derived from a house tends to become a certain fraction of the value of it, the market value of a piece of land tends to become a certain multiple of its annual earnings. The cost of the thing is the starting-point of the calculation in the one case, and the income is the fixed element in the other.

Here is a seemingly radical distinction; but it will vanish, as our analysis proceeds. It is true, indeed, that the income derived from buildings conforms to the cost of making them; but this simply means that, if buildings are especially productive, there will occur a transfer of wealth from other forms of investment to this one. Men and working appliances will be diverted from the making of various other commodities, and will be directed to the

creating of the one that is more profitable. This is merely a movement tending to equalize interest in its various forms of investment. In the industrial field as a whole there is a current rate of interest; and, by making now more of one thing and now more of another, society causes each to earn, in the long run, about the prevailing percentage. This equalization of the earnings of different forms of capital is a process that has a secondary significance. Of primary consequence is the question, What fixes the general rate to which the interest on "money" invested in a building tends to conform? What determines the earnings of capital as a whole? We shall see that it is a law of rent. Buildings, indeed, tend to earn, in proportion to their cost, as much as is on the average earned by tools, ships, engines, mercantile stocks, etc.; but the general earnings of all these things are fixed, like ground rent, by the Ricardian law. In the end we shall see that this law applies primarily to the general fund of invested wealth, and only secondarily to land. What we have here to emphasize is the fact that the supposed law of interest that governs the income afforded by a particular made instrument resolves itself into a mere equalizing tendency,—a movement that causes interest at one point to equal interest at another. One artificial thing may, as an investment, pay as well as another. What they all pay is determined by the law with which the Ricardian study of land has made us familiar.

The study of the earnings of land has revealed the general principle of differential gain; and the word "rent" has lately been used in an abstract way, as meaning any gain whatever that exemplifies this principle. "Rent of ability" and "consumers' rent" are now familiar terms. Scientific language here cuts loose from historical moorings. There is nothing in the conscious thought of the business world that corresponds to this mathematical idea of an income made up of surpluses or differences. To the

practical man rent is nothing if not concrete. It is the lump sum that he gets every year from some material possession or other. It is the dollars per annum that as an owner he gets out of a house, a farm, a machine, etc. It is therefore doubtful whether, in the end, the various other gains that come to men in accordance with the differential law will continue to be called by the name that is popularly used in so concrete a way. In the present study, we use the term "rent," in order that we may bring our analysis into connection with recent scientific studies, and, in particular, in order that we may have all the benefit that it is possible to derive from the Ricardian theory. Ground rent is a useful type of the two static incomes that we have to examine.

The most interesting of recent applications of the principle of differential gain is the study of "Consumers' Rent" by Professor Marshall. This is something that practical men think of, but not in any connection with the product of land, buildings, etc., and therefore not in a way that would ever suggest the use of the term "rent." This gain that consumers realize is rent simply because it results from that principle that the case of land has made familiar to us. There is a similarity between the personal gain that a consumer realizes by buying a necessary article cheaply and the income that a landlord gets from his estate. Labor spent on the poorest land in cultivation earns wages only. This is marginal labor, and the product of it affords the standard from which may be measured the earnings of similar labor expended elsewhere. In tilling a better field the worker creates a surplus above this standard product, and the excess is the rent of the superior field. It goes to the owner of this field, since the man who tills it gets the same wages as the marginal worker.

There is another variety of marginal labor that sets a standard from which differential gains may be estimated: it is the last increment of labor applied to the good land

itself. Agriculture is subject to the law of diminishing returns: the early increments of labor expended on a given area are more productive than the later ones, and the last increment of all creates a product that is equal to that created on the land of poorest quality. This is a marginal product, in a more refined sense of that term; and it is entirely absorbed by the wages of the man who creates it. The farmer gets nothing for himself out of the last increment of hired labor that he puts upon his land. All earlier increments create surpluses above the standard set by the last. The sum of all these surpluses is the rent of the land; and it goes in the first instance to the farmer, since the earlier workers are paid at the same rate as the last. By the competition of different farmers this sum is handed over to the landlord. This variety of rent, the surplus created by early increments of labor expended on a given field, is the best type of differential gain.

Consumers' rent is realized in an analogous way: we get it when we buy for a dime the loaf that nourishes us. The benefit derived from the first dime that we spend is very large as compared with the benefit derived from the last one. Our purchases arrange themselves in a series, in the order of their importance. In spending our income we first make sure of what is imperatively necessary, then get what is desirable, and end by getting that which affords the smallest gratification afforded by anything that we buy at all. The things that come early in the list have a high "subjective value" as compared with those that come later, since they render a far more important personal service. This excess of utility in early purchases is a differential service rendered to the purchaser, or a consumers' rent. It may be illustrated, for an average man, by a dinner where the articles are selected from a *menu* on the European plan. A substantial dish renders the largest personal service to the consumer; while the delicacy that he hesitates in ordering represents the marginal purchase. If the

two chance to be of equal cost, the former dish affords a large consumers' rent.

It will be seen that the radical difference between this gain and the income from land is that the one is subjective and the other objective. This advantage that comes from the buying of cheap and highly serviceable articles is purely personal, resolving itself into an effect on the sensibility of the user.

Now, there are, in fact, other forms of subjective rent that are equally important. All of them together constitute a generic variety of differential gain, that is related to ordinary rent much as subjective value, in recent studies, is related to objective. Subjective rent is a fundamental element in the philosophy of distribution. As a whole, it is the basis of the distributive law, and it is the practical end of the productive and the distributive processes. It embraces the total personal advantage secured by industry.

Professor F. H. Giddings has recently called attention to the increasing onerousness of successive hours of labor put forth by a man in a single day. The first hour of work costs little or nothing, since the weariness entailed by it is no greater than health and enjoyment require. The fourth hour may entail a positive sacrifice, the eighth imposes a large one, and the tenth and last is so wearying as to bring the work to an end, unless by some complications of the industrial system the man is forced to continue working. The mere wages of another hour of service would not induce him to render it.

Now, for our present purpose, we need to notice that, if wages are uniform through the series of hours, there is a special gain derived from the work performed in the earlier and less onerous ones. On the supposition that the man is working by the piece and can stop when he pleases, he would naturally stop when he is so weary that further work would cost him personally more than it would bring

to him in the way of gratifications.* In the last fractional hour of his labor he earns just enough to offset the sacrifice that this final increment of labor costs; and, if circumstances force him to work longer in order to retain his employment, he will rebel against his fate and join an eight-hour movement. Here, then, is a point of equilibrium of gains and sacrifices involved in wage-earning. The final increment of labor put forth in a day costs the worker personally just what it brings him. Earlier increments bring the same wages, and cost the worker less. They afford a differential gain that we may term laborers' subjective rent.

In a full analysis of the wages problem it will appear that, if the number of workers be limited, the amount of work to be had for hire depends on the length of the working day. The final increment of labor offering in the market is the labor put forth in each day in the latest working hour. By a commercial principle this final increment offered sets the general rate of wages. We notice, in passing, that the location of the no-rent period, or the point of equilibrium of gains and sacrifices resulting from labor, has a determining influence on the rate of wages. It fixes the quantity of work for sale. Determined in amount as it actually is, labor at every period of the day except the last insures a differential gain to the worker, and this represents the entire personal advantage that he gets from earning money by labor. Consumer's rent represents the entire advantage that he gets in spending the money. Earning a dollar by work that entails less than a marginal dollar's worth of weariness, and spending or investing it in a way that affords more than a marginal dollar's worth of gratification,— these two operations in-

* Of course the desire to provide for a family and to accumulate wealth for future needs is included among those to be gratified through the fruits of labor. Work naturally stops when the fulfilment of any desire whatever that can be insured by the wage of another hour is estimated by the worker at less than its personal cost.

sure to the worker net personal gains. They represent the advantage afforded by work and wages over idleness and starvation.

Labor is not the only sacrifice incurred in the creating of wealth: abstinence entails sacrifices, and it increases the fruits of industry. The part of the social product that is insured by capital is traceable to a personal process that is costly. What is here important is that acts of abstinence arrange themselves in a series, according to their costliness, like the succession of hours in a working day. Putting the last dime of a day's wages into the savings-bank entails the present loss of the last and least of the gratifications that a day's work might have secured. Saving a second dime cuts more deeply into the pleasures of the present, and the saving of the last increment of income that is actually put into the fund of capital entails the foregoing of a gratification that is so intense that whatever can be had through this means in the future barely offsets the sacrifice involved in waiting for it.

If we arrange the units of wages secured by the labor of a day in order, according to the increasing personal sacrifice involved in earning them, we shall have a series that, if placed in an inverted order, will represent the increasing difficulty of saving them. It costs the worker practically nothing to earn his first dime, while it costs him about what a dime is subjectively worth to earn the last one. The last dime that is earned is the first one that is saved. Putting this one into the savings-bank costs the man subjectively little, since it means only the foregoing of a luxury; while saving the first dime that is earned would mean the foregoing of bread itself. Somewhere there is a limit where abstinence naturally ceases, because the gains of it just offset the personal cost that it entails. Saving that is practised before the limit is reached insures a net personal gain that is the capitalists' subjective rent and corresponds in quality to the laborers' subjective rent that we have already analyzed.

We noticed in passing that, if the number of laborers be fixed, the total amount of labor offering in the market depends on the prolonging of the working day, or on the extending of what we termed the point of equilibrium of gains and sacrifices into the later hours. In like manner, if the number of abstainers be fixed, the amount of capital that is to be had for hire depends on the foregoing of more coveted pleasures, or on the crowding of the capitalist's point of equilibrium of personal gains and sacrifices into the region of increasing sacrifice. As the last hour of labor in a day figures as the final unit in the supply of labor, and determines, in a way that we shall soon clearly see, the rate of wages, so the last dime saved in a day constitutes the final increment in the supply of capital, and figures in a corresponding way in the adjustment of interest. Wages and interest depend on the location of the two marginal lines of subjective equilibrium of gains and losses entailed by production. They are also the lines from which the two varieties of producers' subjective rent are measured. These two rents are the differential gains accruing from what we may term *intra-marginal* labor and abstinence, or the working and the waiting that cost the men personally less than do the working and the waiting that insure the final increments of labor and capital.*

This subjective rent of producers and consumers is the sole object of industry, statically regarded. Wages and interest as embodied in money, or wealth in a convertible form, are objective rent; and this is always a means to the subjective end. Men exert themselves to get money: they realize a producer's subjective rent in making it and a consumer's subjective rent in spending it. If we can get a dollar at a small sacrifice to ourselves, and spend it for a large personal gratification, we are gainers; our industry is profitable.

* For the bearing of these facts on the general law of value see the summary at the end of this article.

Actual society is dynamic; and, when we study it statically it is with no purpose of ignoring the changes to which it is subject. By a series of static studies we determine the nature of the changes that are actually taking place, as we might ascertain the movements of particles of water in a stream by making a series of cross-sections of it. This series of studies affords a theory of industrial dynamics.

In one instant of time none of the structural movements of society are possible; and we will, as it were, artificially prolong such an instant. We will create a period long enough to allow labor to go on, and to get and consume its wages, and let the social structure continue through the interval as it was in the beginning.

In actual life there is always too much labor and capital in some industries and too little in others. The working groups are always somewhere out of balance; and in our static study we may, if we choose, leave them so. We may take society as we find it at a particular instant, making too much of commodity A, too little of B, about enough of C, etc., and suppose that it continues in this unsymmetrical condition. Men and money ought to move from one place in the system to another, but they do not. This would be like making a static study of the surface of the ocean by freezing its waves fast in all their irregularity. A simpler way would be to reduce them to a level; and the better plan for our study of society is to suppose that the industrial groups are not out of balance. Capital and labor are in normal quantities in them all. An equilibrium in the amount of capital and labor in the different groups is artificially created at the beginning of the period that we study, and is held throughout. The relative amounts of silk, iron, etc., that are in process of production are normal.

We need now to define the productive agents, social labor and capital, if the use of the term "rent" in connec-

tion with them is not to have a look of absurdity. Labor and capital, in current theories, are the antithesis of the typical rent-producer, land. Yet wages in the aggregate constitute the income derived by society from its entire fund of pure labor energy; and interest is, in like manner, the product of a fund of pure capital. Both are differential gains, and completely amenable to the Ricardian law.

Capital may be studied from two points of view. Science has used both, the one intentionally and the other unconsciously and blunderingly. It has alternated in the same discussion from the one view to the other, to the confusion of the analysis. In formal definitions a concrete view has been taken, and capital has been treated as a mass of instruments for aiding labor. It is tools, buildings, materials, etc. In the actual treatment of the subject capital has been regarded in a way that is more in harmony with practical thought. It has been considered abstractly, as a fund or quantity of wealth devoted to productive uses. In this view it is what a business man has in mind when he speaks of his invested capital as a hundred thousand dollars; and it is what the treasurer of a corporation designates in the same way in his published statement of assets and liabilities.

Both views are essential in economic analysis: the common and practical though abstract view is the more serviceable in the solution of problems of distribution. Capital itself is in reality one and the same thing in whichever way it is treated.

Regard capital in the concrete, and it will appear that the mass of things that constitute it is changing at every instant: bread, clothing, furnishings, etc., are passing continually out of the stock, and new things are taking their places. Men begin to eat, wear, and otherwise consume articles that until now have figured as a part of some one's stock in trade; and, while doing this, they, by their own

industry, replenish the stock from the other end. They produce new raw materials and advance old ones at the same time nearer to completion. They wear out tools, and make new ones. The essential fact is that the things that in each brief period are taken out of the stock are of substantially the same value as those that are put into it: the capital is therefore intact. In actual life the amount of capital in existence changes slowly: in a static view it is supposed not to change at all.

The things, then, in which society invests its fund of productive wealth are changeful, while the fund itself is permanent. The things lose their identity continually, while the fund retains its identity, as does a river of which the component elements, particles of water, are changing at every instant. In the concrete view that for certain purposes it is necessary to take, social capital is a shifting list of things always worth a certain sum; while, in the abstract view that for our present purpose it is necessary to take, social capital is a fund of wealth fixed in amount, though invested in a shifting list of things.

An essential fact concerning what we may now term pure capital is that its outward forms must change continually if the fund itself is to continue to exist. Completed articles must be taken from the stock, unfinished ones must be completed, materials must be advanced towards completion, and new raw materials must be secured. If the process stops, capital perishes. By means of these continuous changes the productive fund is made to take the forms that circumstances require. If an instrument is ill adapted to the service demanded of it, it will be replaced, whenever it is worn out, by a better one. Like the vital tissue of plants and animals, concrete capital, except in the case of land, perishes and is renewed; and the new tissue is sound and adapted to its purpose. In particular does the new concrete capital adapt itself in form to the number of men who are to make it serviceable.

A large fund for the use of few workers takes one set of forms, while a small fund for many workers takes a wholly different set. A static view of pure capital represents it as constant in quantity, and as used by a constant number of men. The tissue that is restored by industry is therefore of the same kind as that which is destroyed by use. Change in amount either the working force or the capital, and you introduce a dynamic element into the situation, and you make it necessary to change the outward forms in which the productive fund is invested. Double to-day the capital of an isolated society, and you will not simply duplicate its shovels, ploughs, looms, etc.: you will give it new machines, more solid buildings, new roadways, etc. With two thousand dollars' worth of pure capital per man, the workers need to have in their hands a list of instruments quite different in kind from those that served their purposes when they were using a thousand dollars per man. Vary pure capital quantitatively, and you change working instruments qualitatively.

As the capital that figures in our present problem is the pure social fund of productive wealth, so the labor in our problem is a corresponding fund of human energy. This is a fact as real and important as the former one, and as fully attested by the current thought and language of the business world. It is the interests, the rights, and the struggles, not so much of particular laborers, as of labor as a permanent force, that absorb the attention of practical men. Workers are distinct from work. For the purpose of a study of distribution they are related to it as capitalists are related to capital. They own it, and therefore they justly claim its products. They control the shape that the labor takes to the same extent that the capitalist dictates the forms of investment of his "money." A working man determines whether his labor shall take the form of planting, of quarrying, of weaving, of writing, etc. Concretely regarded, labor is a list of acts that men

perform in the creating of wealth. They are as unlike in themselves as are the tools that workmen use. Planting, weaving, etc., are dissimilar outward forms of working energy.

Abstractly regarded, labor is this fund of pure energy itself, as changeful in its forms as is pure capital. As a fund, it is kept intact by the young generation of workers who come upon the scene and take the places of the older ones who depart. Laborers are perishable, but social labor is continuous. This permanent fund of human energy, ready to take shape in such concrete working acts as the needs of industry may require, is the second generic element with which a philosophy of distribution has to deal. The parallelism between capital pure and concrete, on the one hand, and labor pure and concrete, on the other, is a fact of primary importance.

We noticed that, if the working force be constant, capital changes in kind whenever it changes in quantity. Labor is subject to the same law. One man with a thousand dollars at his command will work in a different way, will perform a set of acts different from those that two men will perform if they have the same capital. To change the labor force quantitatively, while other things remain the same, is to change it also qualitatively. In a static view quantity and quality remain constant. There is a fixed number of men, working at the same trades and by the same processes. When a carpenter dies a carpenter's apprentice replaces him, and uses the same tools in the same way.

We are now ready to prove our theses. Interest is the rent of the social fund of pure capital. It is a differential gain, in the fullest sense of the term. It is measurable by the Ricardian formula, and will bear all the tests to which a rent-producer can be subjected.

Ground rent is useful as a type of different gain, and

here the major service of the traditional theory of rent ends. The type itself is not a complete one: it fails at one point, but up to that point the income that a landlord gets from his property illustrates the nature of what society gets from its fund of pure capital.

Let us simplify the current law of rent by disregarding for a moment the existence of what has figured as an auxiliary capital, and consider that land is worked by labor that is practically empty-handed. The change affects no principle now under consideration, since the thing that we have to prove could be established as completely if we were to keep the formula in its more cumbersome form. The differential gain of labor alone applied to fertile land is the more useful type of true rent. This labor is subject to a law of diminishing returns. Put one man only on a square mile of prairie, and he will get a rich return. Two laborers on the same ground will get less per man; and, if you enlarge the force to ten, the last man will perhaps get wages only. All the earlier men will create surplus products over and above their wages, and the sum of these surpluses is the rent of the field.

For a fixed area of land read now a fixed fund of pure social capital. At one moment this is, in reality, an exact sum; and by our own hypothesis we have prolonged the conditions of that moment. In a static view pure capital is a fund of a given amount invested partly in land and partly in made instruments. These instruments lose their identity, as old ones are used up and new ones are created; but they keep their general character. A hoe replaces a hoe, and a ship replaces a ship. The last man who works in connection with the fixed social fund is like the last man who is set tilling the square mile of land: he creates less than any of his predecessors.

If we pursue the common method of illustrating this principle, we shall introduce workers into the force one at a time, and note the product created by each of them.

On this supposition one particular man is the last in point of time. The supposition makes the study for the moment dynamic, since, in addition to the change in the number of the workers, it involves changes in the forms that the fixed fund of capital assumes. When the workers are few, the instruments will have a certain character; and, when the men are numerous, the appliances will have a different character. Such a dynamic study is, however, admissible as an introduction to a study of a static condition. We more readily see how interest and wages are determined in a stationary state by noting the way in which the condition is reached. Let the fund of capital, then, be fixed in amount, and let a force of workers be gradually introduced, as was done in the case of the field in the typical illustration of rent. It will be seen that the pure capital is like the field, in that it is subject to a law of diminishing returns. A few men using a large fund create a large product per man: new men joining the force add less to the output, and the last man who comes adds least of all. Each earlier worker creates a surplus over and above the amount created by the last one, and the sum of all these surpluses is the rent of the fund.

We might treat the whole world as an isolated society, such as, indeed, it ultimately will be if the flow of capital and of labor from place to place shall ever become sufficiently unimpeded. On the other hand, we may take as typical a smaller society working in isolation. An island in the sea not reached by ships or an inland country with a prohibitory tariff on the importation and the exportation of both men and material wealth would afford the illustration that we seek. We need no one to tell us that, here as elsewhere, we are so simplifying the ideal society that we make it, as a picture, grotesquely unlike the actual world. It is like it in certain primary facts, and it is these that we are studying. We isolate these facts,

and by a study of them get principles that are real, and that will outlive the changeful influences that modify their operation.

Give to an isolated community a billion dollars' worth of capital, and introduce gradually a corresponding force of workers. Put a thousand workers into the rich environment that the conditions afford, and their product *per capita* will be enormous. Their work will be aided by capital to the extent of a million dollars per man. This sum will be invested in such forms as the workers can use; and, if we were to allow ourselves to imagine the forms that such a condition would require, we should bring before the mind a picture of automatic machinery, electrical motors, chemical wonders in the way of soil creating, and the like. It is the picture of a state that is slowly and remotely approached wherever capital greatly increases relatively to population.

Enlarge the number of workers to ten thousand, and with the appliances at their service, changed in form as they must be to adapt them to the uses of the larger number of men, the output per man, though smaller than before, will still suggest the gains of a fortunate gold-hunter. Decuple the force again: the working environment will still be a marvel of fruitfulness, but the product per man will be greatly reduced. Decuple it once more, and let a million workers use a billion dollars' worth of capital: the situation now approaches the actual condition of the world; and the output of a man's labor may be supposed to be correspondingly near to that which actual conditions afford.

It would be pleasant to be able to show the detailed way in which this diminution of the product per capita is brought about. In certain earlier studies I have indicated the nature of the sterilizing of the worker's environment that is the cause of the diminution, and expect in due time to present it more fully. A small capital per man means

a list of working appliances that is scanty and cheap. It means land that is contracted in area and badly improved, buildings that are unsubstantial, roadways that are poor, and tools and machines that are of a makeshift character. It means that what instruments of production there are are cheap and perishable, and that there are not enough of them. There is little danger that either scientists or practical men will dispute the fact that, in the sense in which we are using terms, a reduction of the fund of pure capital entails a *per capita* diminution of the product. If the fund of capital remains the same, an increase of the working force has the same effect.

In our assumed case the last man added to the working force earns wages only. Why is this? Here, indeed, is a point of much consequence. We made the same statement in regard to land: the last worker on a section of fertile soil earns his wages, and no more; and so does the last comer in the working force employed in connection with a fixed amount of pure capital. The reasons for it in the two cases are different; and a study of the nature of the difference shows that the earnings of land are a sort of mock rent. They are equal to a differential product, but are not the genuine thing; while the earnings of the entire fund of social capital, as embodied in land and in all other productive instruments, are a true differential product.

Why does the last man on the farm earn wages only? The farmer is here the master of the situation, and he hires men from other employments till the product that he gets by means of their labor only offsets the sums that he must pay to them. In the general range of employments there is fixed, in some way, a standard of wages: a farmer must pay the current rate if he is to retain his men. It is, of course, true that agriculture is a part of the broader industrial field in which wages are fixed, and that what is paid in agriculture has its effect on the amount that must elsewhere be paid, if men are to be lured away

from the farm to the shop, the railroad, etc. That which is important and is not likely to be disputed is that in any limited section of the general field of labor wages must conform to a standard that is set in and for that general field. Competition tends to equalize wages: it causes them to take, in any one employment, a level that is, with certain well-known allowances, uniform for all employments. What determines that level? What fixes general wages? The Ricardian law of ground rent affords no answer to this question; but the more comprehensive law of differential gain answers it in a twofold way. It guides us to one solution of the problem, and directly gives us another.

The last man added to the force that works with a fixed fund of social capital earns only his wages, but this is not because he is lured into the system from without and must be paid just the wages that elsewhere prevail. When we speak of the general field of industry, and the entire fund of capital, there is no *without* in the case. The man is in the system from the first, and must stay there; and the conditions existing within it fix his wages. The law in the case is that he gets what he is worth to society. If natural tendencies could completely have their way, the final man would get as a wage what he actually produces. It is the final productivity of labor that fixes its pay.

In a static view of the system, we abandon the conception of a working force gradually enlarging, as it was made to do in our illustration. Capital and working force are both fixed in amount through the period that we consider. There is no particular man who is the last to arrive in point of time, but any one may become the final man by giving up his work for a few days and then applying for it again. He tends, as we have said, to get as wages what his presence in the working system is worth. Let him stop working and continue eating, estimate the net diminution of the social income, and by natural law this will be his

wage; and this will be the wage of every other man. What society loses when one man stops working, or what it gains when he recommences working, sets the general standard.

How do we know that this is true? Frankly, more needs to be said on this point than there is room to say here. It is the competition of employers that, under the free working of natural law, gives to the marginal man the full amount of his product. If employer A is making more out of the man's labor than he pays to him, employer B is interested to overbid his competitor and get the man away. The presence, not of B only, but of C, D, E, etc., insures that, in the end, the worker will get his value.*

What is now evident is that each of the earlier increments of labor employed in connection with a fixed fund of pure social capital creates a surplus, over and above the product of the last one, and that the sum of all these surpluses is the rent of the social fund. Each surplus is a true differential product, a difference between the amount created by a particular increment of labor and that created by the final increment. As the product of the final increment sets the standard of general wages, the earlier products may be measured by comparing them with wages: we may say that each of the early laborers creates a surplus above what he gets as pay. This, however, is introducing a secondary standard of measurement and taking from the surplus that we are testing the character of a true differential gain. The ultimate fact is that each earlier worker creates more than the last one. The rent of the fund of

* In a full analysis of the subject it will appear that we ought strictly to speak, not of marginal men, but of final quantitative increments of pure labor energy. The last fractional hour of labor expended in a day by an entire working force is the true final increment of labor that enters the market; and a minute fraction of it is furnished by every man in the force. It is the product of this very composite final increment of labor that sets the standard of wages. Only for simplicity of illustration do we speak of the last man added to the force as furnishing the final increment.

pure capital — which is interest as an aggregate — is the sum total of these differences.

It is now clear that, in the strict sense of terms, the rent of land is not a true differential product, though it is equal to one in amount. The surplus products of the early increments of labor applied to agricultural land are amounts remaining in the farmers' hands after wages are paid. The farmer hires men at the rate of pay that the general market has established, till no further increase is profitable. The general rate of wages controls the last man's product, since it determines how many men shall be employed on a fertile field. In a similar way the prevalent rate of wages determines what quality of land shall be taken into cultivation: it locates what is called, in the simple and common form of the Ricardian law, the "margin of cultivation." Wage-earners are at liberty to use rentless land, and they do so when they can earn as much there as elsewhere. If the pay of laborers in the general range of employments were to rise, the poorest land now in use would be thrown out of cultivation: if it were to fall, poorer land than any now used would be taken into cultivation. The product of labor at the margin will always conform to general wages, simply because the margin itself will advance or recede till this conformity results. Philosophically, therefore, the rent of a piece of land, if for simplicity auxiliary capital be disregarded, is its product less the wages of the labor that tills it. The pay of the farmer's men conforms directly to the rate that prevails in the general labor market; and the data for calculating the landlord's claim are, therefore, the product of the farm and the rate of general wages.

If, however, land were the only instrument in use, the case would be different. The margin of tillage would not advance and recede as wages in industries mainly outside of agriculture should fall or rise: there would be no industries outside of the agricultural limit, and the product

of the last increment of work applied to the soil itself would constitute the standard of wages. The land in this case would yield a true differential product, since the rent of it would consist of the sum of the differences between the products of the earlier increments of labor applied to it and the product of the last one. This is exactly the case in reference to the rent of the social fund of capital. It is a true differential gain, consisting of the sum of the differences between the products of the earlier increments of labor used in connection with it and the product of the last one.

We have now a law that fixes the rate of wages and the aggregate amount of interest. We can get the total amount of wages by a simple process of multiplication; and we can get the rate of interest by a process of division. We can, however, apply the law in a reversed order, and get wages as an aggregate and interest as a rate. Let the labor force be fixed in amount, and let the fund of capital that it uses increase. It is the successive increments of capital that are now subject to the law of diminishing returns. Mass the labor, for illustration, in some isolated and desert corner of the earth, and give to it, in the form of soil and simple tools, a first instalment of capital. The product of this little fund of productive wealth will be very great. As we multiply the amount of the fund that is invested in working instruments, we shall reduce the amount per unit that it produces. Of a succession of units of pure capital brought into use in connection with a fixed labor force, each one adds less to the output of industry than does any of its predecessors.*

The parallelism is complete between the phenomena of

* As the fund increases, its forms of embodiment adapt themselves to the needs of the men who are to use them; and, on the other hand, the forms of labor itself, the nature of the concrete acts in which the fund of pure working energy expends itself, adapt themselves in character to the instruments that are at hand.

a fixed fund of social capital with an increasing force of labor, and, on the other hand, the phenomena of a fixed force of social labor with an increasing fund. The last unit of social capital in our present illustration fixes by its product the general rate of interest, as in the former illustration the last increment of labor fixed by its product the rate of wages. All the earlier units of capital now create surpluses over and above the standard set by the product of the final unit, and the sum total of these surpluses is the rent of the labor force. It is the aggregate of the differential gains resulting from the application, in connection with the fixed labor force, of the earlier increments of capital. Wages in the aggregate are the rent of a fund of human energy.

With extreme brevity we have stated a law that is as comprehensive as anything in economics. We have not referred to the obstacles that the law encounters in practice, nor have we made an attempt to measure the deviations from the theoretical standard that the actual distribution of the social income reveals. As real as gravitation is the law that determines the standard. The inference that we draw is already established as an unquestioned fact in the consciousness of business men; namely, that, as capital increases, while other things remained unchanged, interest falls, and, as the labor force increases, if other things remain the same, wages fall. The prospect of high wages depends on a relatively rapid increase of capital. The principle of differential gain that is at the basis of this conclusion does not figure in the popular mind. This principle has further applications that rival in importance those that we have stated, and that can only be indicated here in concluding paragraphs. It dominates production as well as distribution, is an element in determining rates of exchange, and furnishes the ultimate standard of measurement of market values. It, in fact, identifies production with distribution, and shows that

what a social class gets is, under natural law, what it contributes to the general output of industry. Completely stated, the principle of differential gain affords a theory of Economic Statics.

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1. In the above study we first excluded pure profit from consideration, on the ground that it is a dynamic income. What is commonly and loosely termed profit is partly the wages of directive labor; and this labor is included in the social fund of human energy that we have studied. The earnings of the work of management are, therefore, rent in the same sense as are the earnings of other labor.

There is another element in the composite returns of employers that is profit in an accurate sense of the term. It results from an unbalanced condition of industrial groups. Conditions are continually appearing in which too little is produced of certain commodities to meet the normal demand for them, and in which they sell for more than enough to pay interest on all pure capital and wages on all the working energy employed in producing them. Included in this total interest will be the rent of any land that may be used in these industries, and included in wages will be the rewards of managers' time and effort. Above all these claims, the selling price of the goods may afford a residuum of pure profit. A discovery that should make the production of aluminium cheap would afford a profit on the making of it, until this industry should become so much enlarged as to put upon the market as much of this metal as, under the new conditions, would be normal. After the discovery the competition of different producers would enlarge the production of this metal till the point would be reached at which it would not be profitable to move labor and capital from other working groups to this one. At this point the returns of the industry would be, theoretically, absorbed

in wages and interest. In a balanced condition of industries superior managers will earn more than others, and superior workers of every kind will do the same; but that gain which results from the distinctively dynamic cause, the discovery or change that throws production temporarily out of balance, ceases to exist. Such a condition of universal equilibrium is never practically reached, and at many points in the industrial system — not for any length of time the same points — pure profit is always to be found. This changeful element of gain is the one part of the actual social income not governed by a law of rent.

2. As the product of land may be measured from a standard afforded by the returns from the poorest soil in cultivation, so the product of labor may be measured from a standard set by the returns from the least efficient men in the working force. Land that lies beyond the margin of cultivation would give crops of some kind, if it were tilled; but they would be so scanty as not to reward the labor that it would require to get them. So the labor of men who are so weak, ignorant, or untrustworthy as to be beyond the margin of employment would yield something if it were utilized; but this yield would be so meagre as not to reward the capital that it would be necessary to use in connection with it. An *entrepreneur* cannot afford to intrust to such men any part of his productive fund. In the case of labor we locate the no-rent line in a qualitative way when we find men whose room in the complex system of social industry is worth just as much as their company. The product of all labor above this line — and that is the sum total of wages — may be treated as rent of superior personal quality.

In the same way, it may be shown that interest is due to the superior quality of those working instruments in which pure capital is invested. There are appliances of every kind in existence that are so poor that it does not pay to expend any labor in connection with them. There

are no-rent buildings, ships, machines, mercantile stocks, etc. If we so desire, we may measure the products of better appliances by comparing them with what might be had by using these. In a qualitative way these instruments lie on the margin of utilization.

3. It is said that there is no-rent land, but that there is no such thing as no-interest capital; and that land and artificial instruments are in this way radically unlike. Here is a confusion of ideas and a false deduction. There is rent-paying land and rentless land; and there are rent-paying buildings, machines, ships, etc., and there are rentless ones. Good land, on the one hand, and good buildings, etc., on the other, embody pure capital; and this always pays interest. The poor land and the poor buildings, etc., embody no pure capital, and, of course, yield no interest. The true difference between land and other things does not lie here.

4. A point of paramount importance is the mode of measuring the two funds, those respectively of pure capital and of working energy, that figure in distribution. In what sense, for example, does the capital of society need to become large, in order to make wages high? The standard of market value here fails, since a social capital might, by this standard, seem large, when by a truer standard it is small. Put a colony of men on a rocky island, and give to them just seeds and tools enough to keep them from starvation. The *value* of what they have will be great, and by the standard of the market the capital in their hands will seem to be a large one; but it is clear that it will not aid labor efficiently.

The true standard of measurement is here that of *total utility*. A colony on a fertile continent, with all the working appliances that they could well handle, might have a capital that would be smaller, if measured by its market value, than the one in the former illustration; but its total utility would be very large. Give to the colo-

nists the appliances one at a time, estimate the value of each increment of capital as it comes, add all these values together, and you have the measure of the total utility of their social capital. When this is large wages are high. On a limitless and fertile continent, where men and tools were scarce, the returns from labor might be large, though the capital, if measured by the standard of market value, might be almost nothing. For such static measurements as are made when one man's capital is compared with another's, while the social fund, as a whole, remains unchanged, the market standard suffices. The labor force of society is measured by a similar process that gives its total efficiency.

5. The principle of rent in its profounder applications furnishes an ultimate basis for the measurement of all values. Labor has been loosely taken as the final standard that is as satisfactory as any; but labor, concretely regarded, resolves itself into a heterogeneous list of acts that are incapable of being quantitatively compared with each other, and are quite incapable of being compared with commodities. The common element of personal sacrifice is present in most labor; but it varies in degree in the case of work of different kinds, and in nearly all occupations it is slight during the early periods of the working day.

Every worker has his point of equilibrium of gains and sacrifices involved in production, or the point in each day at which, if he had his way, he would stop work, because what he might earn by further work would not offset the sacrifice that it would cost. The "disutility" of the work at this point is just equivalent to the utility of the things secured by it. Now, if we fix this point in the case of every laborer in the entire force, the line that we draw through all these points becomes a social line of equilibrium of gains and sacrifices involved in production. Just at this line society, as a whole, stops working, because what it here gets by its labor barely offsets the burden of

working for it. An indefinitely narrow margin lying just within this outer boundary of social labor constitutes the true final increment of the fund of working energy. An influence that should call for more labor would tend, in the end, to affect the entire line of equilibrium, and to crowd the whole social margin of labor outwards.

The sacrifice entailed by the labor that is located along this entire social margin affords our ultimate basis for measuring values. The disutility of this labor just offsets the utility of the things secured by it. A brief study would show that these particular things are the final ones of their several kinds, and are therefore the ones that figure in the adjustment of market values. In other words, the social labor that yields no subjective rent just offsets, by the burden that it entails on workers, the service rendered by the things that it produces; and these are the particular things that appear as determining exchange values. It is true, also, that these are things that, as consumed by workers, yield no consumer's rent. We are here on the border of an intricate and extensive study. We have located a social line where work and its fruits are subjective equivalents. It is a psychological border region to which, as to a commercial mark, society brings its goods for valuation.

Labor is not the only sacrifice that results in producing goods. Abstinence entails, as we have seen, a burden that, in important respects, acts in a parallel way. Every capitalist has his point of equilibrium of sacrifice and gain, and society has its line of equilibrium. Marginal capitalization, or that which is barely remunerative, locates itself along this social line. Society in its organic entirety incurs by its abstinence a disutility that balances the utility of the things that it gets by means of it. Moreover, through goods produced by labor and by capital respectively, it is possible to establish a relation between the two different disutilities entailed on society by production, the

sacrifices respectively involved in effort and in abstinence. Here, again, we are nearing deep water. We can see that the sacrifice of deferring enjoyment is, like that of labor itself, a second basis for measuring values. Every subjective utility has its equivalent of the one kind as well as of the other; and the psychological currency that ultimately measures all values is inherently bimetallic. It is composed of two disutilities, both of which are distinctively social, or of two sacrifices made, in each case, not by particular men, but by an entire social force. What all laborers sacrifice in supplying the minute fraction of the day's work that lies just within the line of equilibrium that we have traced, also what all capitalists sacrifice in submitting to that final bit of abstaining or waiting that lies just within their own collective line of equilibrium,— these constitute the subjective double standard on which all measurements of value rest.

JOHN B. CLARK.

SMITH COLLEGE, NORTHAMPTON, MASS.