THE THEORY OF WAGES ADJUSTED TO RECENT THEORIES OF VALUE

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"LABOR, like all things which are purchased and sold, and which may be increased or diminished in quantity, has its natural and its market price." Thus Ricardo, as the best representative of the classical school of economists, distinctly enunciates the proposition that wages come under the general law of value and price. Having previously settled to his own satisfaction the theory of value, he then proceeds to develop his theory of wages in strict accordance therewith.

"Labor also has to be studied as a distinctly social element. It has its final increment, and the product of that increment fixes the rate of wages. On one grand law of variation depend the value of goods, the rate of interest, and the rate of wages. . . . It is an all-embracing law." * Thus Professor Clark, as one of the leaders in the new school of economists whose investigations centre around the Austrian theory of value, confirms the opinion of Ricardo that wages and value come under the same general law.

The classical English economists, after the example of their great leader, were seeking "The Nature and Causes of the Wealth of Nations," or how the national wealth might be increased. It was natural, therefore, that they should concentrate most of their attention upon the sub-

* "A Universal Law of Economic Variation," by John B. Clark, *Quarterly Journal of Economics*, April, 1894, p. 279.

ject of production, and treat exchange, distribution, and even consumption from the standpoint of their bearing upon the increase of wealth. Adam Smith's greatest contribution was his inimitable presentation of the productiveness of exchange, based as it is upon the principle of the division of labor. Ricardo's theories of rent and wages were intended to explain why goods were not produced more cheaply and abundantly. J. S. Mill, with great acuteness and consistency, from his standpoint distinguishes between productive and unproductive consumption. Clearly apprehending that fundamental principle of economic science which goes by the name of the law of supply and demand, these economists made a much more thorough analysis of the side of supply than of the side of demand. They knew perfectly well that the "effectual demand" for a commodity increased or diminished as its price fell or rose; but it was no part of their work, as they conceived it, to enter into an analysis of human wants to find out why it was so. It was reserved for a later school to call attention to the principle of the variability and satiability of wants, and to develop a new theory of value based upon that principle.

The classical economists, being concerned chiefly with the question of production, observed a general tendency in most commodities to exchange in the ratio of their costs of production. They quite naturally arrived at theories of "natural value," "normal price," and "natural wages" based upon the cost of producing commodities in the one case and of maintaining the supply of labor in the other. Accordingly, they gave a very thorough and complete analysis of the factors which enter into the cost of production of goods and a fairly complete analysis of the cost of production of labor. So far as the older economists went, they were eminently wise and consistent; and their fault, which was manifestly no fault at all, was that they had not completed the science by knowing all that

was to be known about it. Later developments in the theory of value, however, seem to make desirable a restatement of some of the problems that cluster around that theory.

In the first place, it is now apparent that cost of production is only one factor, and by no means the most important factor, in the determination of value. Cost of production is only one of the things that limit supply, and only in so far as it operates to limit supply does it enter into the question of value or price. The chief service of the theory of the variability and satiability of wants is to show us the principles which limit demand, as cost of production, in the case of those commodities which can be increased or diminished in quantity by industry, limits supply. Until we understand how demand is limited, no satisfactory reason can be given why every useful thing — air, for example — should not possess value. There is a limit to the supply even of air. Unless demand were in some way limited, even air must have a value. Air is not only limited, but it is appropriable. There are a certain number of cubic feet of air in my room. I can close the windows, and appropriate it; but I cannot sell it. The supply of air is so great that under ordinary circumstances our desire for it is fully satiated before any scarcity is felt. What any one may be able to appropriate does not, under ordinary circumstances, leave other members of the community with less than they want. Everything, of which the supply is so limited that any member of the community is unable to procure enough to thoroughly satiate his desire for it, has a value; and nothing else has. It is immaterial to the question of the value of a commodity whether its supply is limited by one cause or another.

With some things the supply is absolutely fixed, and cannot be increased by human exertion. Senior mentions meteoric stone as an example. The paintings of the old masters and other rare works of art also illustrate the same

point. In such cases, the cost of production does not enter into the question of value. There are some things, on the other hand, of which the supply is chiefly limited by the cost of producing them. In such cases, the final utility of successive increments decreases until it is no more than sufficient to repay the cost of producing them. Here production will cease, because no more could be produced without a loss. If the cost were less, production would go on further: if it were greater, production must have ceased earlier. If the production of silver, for example, becomes cheaper, the price of silver will not immediately be proportionately reduced; but the increased profits of mining will induce a greater production. The increased supply will ultimately reduce the marginal utility and the value of silver. If it becomes more expensive to mine silver, the increased cost is not directly added to the price of silver; but it will indirectly raise its price. The diminished profits will drive out the marginal producers of silver, so that the supply will ultimately be reduced, and the final utility and the value will be raised. In the case of silver and of most other commodities the efficient cause for the limitation of the supply is the cost of production.*

If we may interpret production to mean the placing of things in such relations that they may be utilized in the satisfaction of wants, we shall find that the principle of cost of production as limiting supply applies to land as well as to other commodities, but in a slightly different way. Throughout the community there is a certain fixed quantity of land that can be utilized. Until the limitations set by nature are reached,—in other words, so long as there is unoccupied land in the community,— the only

* It is true that the value in such cases corresponds to the cost of producing the most expensive increment, but it is as nearly correct to say that the value *determines* the most expensive increment as to say that the most expensive increment *determines* value. The value of the product determines the margin of cultivation quite as truly as the margin of cultivation determines value.

effective limits to the supply of land are those set by the cost of making use of it,— of cultivating the poorer qualities or of overcoming the obstacle of distance in the case of the more remote portions.

When we come to view the subject of cost of production in this light, it must appear that much of the discussion that has taken place in economic science is groundless. The disputants are looking at different sides of the same shield. Take, for example, the discussions of the past over the theory of rent. The Physiocrats, who held that rent was due to the productivity of land, or the "bounty of nature," were at least half right. But they overlooked the fact that nature was also bounteous in air and sunlight, yet they command no rent. Ricardo, who accounted for rent solely on the ground of the scarcity of fertile land, or the "niggardliness of nature," was scarcely more than half right; for nature is just as niggardly — speaking absolutely — of unproductive as of productive land, yet unproductive land commands no rent. The Physiocrats held that land would command a rent because its productivity made it a thing to be desired or demanded. Ricardo held that it would command a rent because the available supply was limited. The Ricardians very justly assert that land is only demanded where it is scarce, but the Physiocrats might with equal justice retort that land is only scarce where it is demanded; and we may also remark that the same two assertions may be made with regard to any other commodity. To the Ricardian argument that a piece of land yields a surplus only because land of like kind and quality is scarce, the Physiocrats might consistently reply that land of that particular kind and quality may be no scarcer than land of any particular kind and quality below the margin of cultivation, and that the difference is in the fact that people *want more* of that particular kind and quality.

Among rational writers on the subject of Interest, some

have held that it is paid because capital is productive, and others that it is a reward for abstinence. In the *Quarterly Journal of Economics* for October, 1893, I have attempted to show that both productivity and abstinence are necessary to the existence of interest. The productivity of capital is the basis of the demand for it; but, unless the supply were limited, it would be as impossible to get interest for capital as for air. The sacrifice of abstinence is the efficient cause for the limitation of the supply of capital. It is the purpose of this paper to attempt an analysis of the demand and the supply of labor, and to bring the question of wages under the same general law of value and price.

In tracing out the complex elements that enter into the question of wages, men are prone to wander from the primary fact that demand and supply fix the rate of wages just as they do the price of commodities. The productivity of labor, the standard of living of the laborer, his probable duration of life, the danger or disagreeableness of the work itself, and other similar conditions, only affect wages as they influence the demand for or the supply of labor. This statement ought to be as trite as any in economic literature; but, from a study of current writers on wages, it appears to be less trite than novel. This is perhaps a sufficient justification for appearing to ring the changes on demand and supply.

Demand, as Marshall emphasizes, is essentially a feature of consumption, and applies primarily only to consumption goods. The demand for the instruments of production is derived from that of the goods which they produce. In either case, the demand is based solely upon the utilities which the things afford,—directly in the case of consumption goods, indirectly in the case of instruments of production. A considerable portion of total demand for land is based upon the utilities which

land affords directly, as in sites for dwelling-houses, parks, and pleasure grounds. Similarly, a certain amount of borrowing is done for the purpose of direct consumption, and a certain amount of labor is employed in personal services. But by far the greater part of land, labor, and capital, is used for the purpose of producing goods for direct consumption. Moreover, the demand for these factors, whether for direct or indirect use, is based on the same law of variation. Therefore, for the purpose of this paper, we may ignore the difference in the two kinds of demand, and speak of the demand as based upon the productivity. It will make no difference in the final result.

The productivity of each of the three factors of production is subject to the same law of variation as the utility of consumption goods. The productivity of successive increments of either of the factors of production diminishes in the same manner as the utility of successive increments of consumption goods. This gives rise to the law of final or marginal productivity, corresponding to the law of final or marginal utility. As the value of any kind of consumption goods is determined by the amount of utility which the last and least useful increment affords *directly*, so the selling price of a factor of production of any special kind and quality is determined by the amount of utility which the last and least productive increment is capable of affording *indirectly*.

In the first place, if one of the factors of production — land, for example — is abundant, those commodities which land supplies will be abundant, and will consequently have a low marginal utility and value. Thus the land would produce a small amount of value. In a new settlement in a timbered country the products of the forest are cheap. Cattle on the plains of South America are worth but a few cents apiece. The land, under such circumstances, is probably capable of producing, with equal care,

as large quantities of beef or timber as in more thickly settled countries; but it produces less value. This same principle will apply equally well to labor or capital. Where labor is abundant, as in China, the distinctive products of labor will be cheap because of their abundance and their low marginal utility.

In the second place, neither land, labor, nor capital, is alone capable of producing anything of value. The co-operation of all is necessary. The laborer must at least have land to stand on. Even then, without the assistance of capital in some form, his power of production will be almost nothing. Land, if we except the spontaneous fruits of the virgin soil, is absolutely barren unless labor and capital are applied. Capital in the absence of land and labor is manifestly unproductive. Good results can only be obtained by the combination of all three factors. When any one of the factors is abundant relatively to the other two, it is at a disadvantage so far as the opportunity for profitable employment is concerned. Thus, if land is abundant relatively to labor and capital, it must suffer from lack of proper cultivation; and its marginal productivity, even of quantities of commodities, will be reduced, and its marginal productivity of values will be reduced in a still greater degree. The community would suffer less loss in total production if an acre of land were annihilated than it would if land were less abundant or labor and capital more abundant. If land were scarce relatively to labor and capital, each acre would contribute a greater share of the total value produced in the community than if it were abundant. Its cultivation would be more intensive; and the annihilation of an acre would displace more labor and capital, and cause it to be employed along a lower and less profitable intensive margin on the remaining portion. Consequently, land would, under these conditions, have a high marginal productivity; and the last increments of labor and capital, being

employed along a comparatively unprofitable margin of cultivation, would have a low marginal productivity. A certain quantity of labor or capital could be lost without so serious a diminution of the total product as would be the case if land were relatively more abundant. The loss would be taken off the least productive margin of cultivation, and in either case the marginal productivity of the remaining portion would be increased. But, when land is relatively scarce, cultivation is extended to a less profitable margin than when it is relatively abundant.

If capital is abundant relatively to land and labor, the opportunity for profitable investment is diminished. We must assume that at any given time the laborers are supplied with as much auxiliary capital as they can, with the knowledge they possess, make use of at the current rate of interest. If it is known to men that they can increase their profits by the use of more capital, there is no conceivable reason for their not using it. But, if men cannot see how they can profitably use more capital at current rates of interest, then there is a good reason for their not using more. This is one of the assumptions upon which the doctrine of the diminishing productivity of capital as well as of labor rests. Did the productivity of capital increase as fast or faster than its quantity, we might expect every user of capital to augment his supply of tools and machinery "world without end." But the manufacturer, as well as the carpenter or blacksmith, always comes to a point where the advantages of a few more tools are not sufficient to repay their cost.

If labor increases relatively to land and capital, the laborer is handicapped by lack of proper tools and sufficient room to work to the best advantage. He can therefore be less profitably employed than he can when there is a smaller number of laborers. The last laborer added to the supply adds less to the total product than his predecessors. The marginal productivity of labor is reduced.

The loss of a laborer would make less difference in the total product than if laborers were scarcer.*

Hitherto we have excluded the consideration of dynamic changes, such as the discovery of new processes or changes in consumption, etc. Under static conditions we have found that the marginal productivity of a factor of production varies inversely as the supply of that factor. Here we may remark that there are numerous dynamic elements that obscure, but do not obliterate, the workings of this law. A change in taste or fashion may increase the demand for those commodities in which labor enters as the chief factor, and diminish the demand for those in which land enters as the chief factor, and thus raise wages and reduce rent, even while labor is increasing faster than land. An invention may enable one of the factors to be substituted for another, and displace it to a certain extent. An improvement in construction which permits the erection of twenty-story buildings enables capital to displace land to a limited extent. The same service may be performed by a smaller quantity of land when twenty floors are used than when only ten can be used. This will have a tendency to keep ground rents lower than they otherwise would be.

There are, as we have already seen, two distinct reasons for the diminution of the productivity of the successive increments of the factors of production. First, the general diminution of the marginal utility of the products themselves operates to reduce the value produced per unit of either of the factors. Second, a relative abundance of one of the factors over the others tends to reduce, not only the values, but also the quantity of things dependent for their production upon each unit of the more abundant factor. The first may operate upon all three

*See Clark, "Law of Wages and Interest," and Stuart Wood, "The Theory of Wages," in vol. iv., *Publications of the American Economic Association.*

factors either simultaneously or separately. The second may only act upon them separately as their ratios vary.

The subject of the demand for capital is comparatively simple. The marginal productivity of capital tends to an equality throughout the economic community. Slight differences in rates of interest are easily accounted for. Capital differs from land in that it is mobile and capable of indefinite concentration, except in extraordinary cases, at the time and place of greatest productivity. It moves somewhat slowly and with a certain amount of friction; but, if time is given, it will find the point of greatest productivity. Thus there tends to be a common rate of interest in the community, and the subject of capital is not complicated by the question of rent. Capital differs from labor power in that it can be indefinitely increased or diminished in any of the multiplicity of forms in which it is capable of being employed. Those forms of capital which promise the greatest productiveness may be in general increased until their marginal productivity is reduced to the level of other forms.* There is always a flow of new capital seeking investment, and it tends to seek the most productive fields. But labor power is embodied in men, and it is not possible to indefinitely increase or diminish special forms of ability at will. Hence we have to deal with the question of difference of wages in different occupations. The flow of new labor power that is constantly seeking employment has its character largely predetermined by forces that are not subject to human direction.

Differences in rent are due to the inability to indefinitely concentrate land in the forms and the times and places of greatest productivity, and differences of wages are due to the inability to indefinitely concentrate labor power in the forms where it is most productive. Owing

*Patents, of course, are an exception. The extra profits due to such monopolies form a species of rent.

to the slowness with which capital moves, it frequently does, for limited periods, in certain forms or times and places, command a rent; but this cannot be permanent.

Here let us decide upon a distinction between labor power and capital. That between labor and land is clear, and that between land and capital does not concern us in this paper. We shall include under labor power all subjective means of production, whether native or acquired. This will include all those talents acquired by education, training, and those physical, mental, and moral qualities due to good food and family surroundings, as well as native and inherited qualities. Some have preferred to regard the expenses of education and training as an investment of capital, and the increased productiveness which results as interest. This may be quite logical, but it can scarcely conduce to clearness. There is no way of distinguishing between the expense of education and the general expense of rearing. It would be quite as logical to go still further, and regard the whole expense of rearing and also of maintaining the laborer as an investment of capital, and reduce the whole question of wages to one of interest. Then, if, with Professor Hadley,* we reduce the question of interest to "commuted profits," and follow out his argument consistently, by reducing rent also to commuted profits, we shall then be in the delectable position of having nothing but profits to deal with. In other words, we shall have the whole question of distribution to go over again to see what determines how much of profits are commuted as interest and rent, and how much of interest goes in the form of wages. The argument in favor of regarding the expenses of education as an investment of capital receives some support from the comparison with land and the improvements upon it. The objection to this line of argument is like-

* "Interest and Profits," *Annals of the American Academy of Political and Social Science*, November, 1893.

wise from the standpoint of convenience rather than of logical consistency. Improvements on a piece of land may in many cases be removed if a more profitable field presents itself; but education becomes a part of the man, and can in no case be transferred to another and more promising subject. Improvements on land are made solely to increase its value; while much that we call education is largely a matter of consumption, and is undertaken principally for the pleasure of it. The education itself is the reward, and whatever it adds to the man's productivity is a clear gain. Actual business practice enables us to determine approximately what share of the value of real estate is due to improvements and what to the land itself. We are accustomed to settling prices on real estate in every stage of improvement; and we have learned to estimate the value of most forms of improvements. The price of land and of capital goods is, as Böhm-Bawerk has shown, but the expression of the capitalized value of future production. This shows that in actual life men estimate the productive capacity of land and its improvements separately. But as yet we have no method of estimating what portion of a man's productiveness is due to native capacity and what to acquired talents. The fact that separate estimates are not made of the value of a man and his improvements on the basis of the capitalized future production of each is evidence that business practices are in favor of treating labor power as homogeneous, regardless of how the individual comes to possess it.

We have seen that the demand for labor is based upon its productivity, that the productivity of labor is subject to the law of diminution with successive increments of the supply, and that the effective demand for labor in general is based upon the productivity of the marginal increment. Wages will tend to a level with the productivity of the marginal laborer. The mentioning of the marginal laborer

suggests the question what determines the margin, or what determines the supply of labor. This brings us to another and equally important side of the question of wages. Unless the supply of labor is in some way limited within definite bounds, there will be no wages. Labor would increase until its marginal productivity reaches the zero point.

In the first place, the supply of labor is a quantity of two dimensions; and each dimension is limited by a somewhat different set of circumstances. The total supply of labor may be increased either by increasing the number of laborers or by increasing the intensity with which each labors. By intensity we mean the amount of productive energy expended by each laborer. The time during which he works is one of the factors of the intensity. This conception of intensity is somewhat at variance with the quantitative notions of labor as given us by Jevons.* He regarded the quantity of labor as the product of time and intensity, and intensity to consist in the quantity of work done or the painfulness of doing it. The painfulness of labor does undoubtedly help to limit the amount of labor performed, but it does not seem expedient to regard the painfulness itself as a part of the quantity of labor. Besides, the painfulness of labor limits the time quite as effectively as the rate of labor. On the whole, it seems better to treat both the time and rate of labor under the head of intensity, since the same cause — namely, painfulness — limits both. It is immaterial to the laborer whether he works long hours at a slow rate or short hours at a rapid rate, provided the pain or sacrifice is equal in both cases.

Any treatment of the subject of wages which ignores the question of numbers is incomplete. If we conceive of a man as living alone in a Robinson Crusoe state, the question of numbers might very well be ignored, and the subject be treated simply from the standpoint of a calcu-

* *Theory of Political Economy*, London, 1879, pp. 184, 185.

lus of pleasures and pains. There would then be no question of distribution, and the reward of labor would be purely a matter of production. We might then stop when we had shown that the laborer would quit working when the painfulness of further labor would outweigh the pleasure of further reward. But, when other laborers enter upon the island, a new element is introduced. The question of the reward of labor is still a question of production, but of production under changed conditions. The laborer has more limited means at his disposal, and also has a chance for co-operation and a division of labor. The introduction of numbers gives rise to a question of distribution.

As already suggested, the intensity of labor is regulated by the pain or the sacrifice involved in labor. The total sacrifice consists not only in the positive pain of weariness, but in the confinement which prevents the laborer from the fullest enjoyment of his earnings * and a number of other disagreeable features. Still, the factors which regulate the intensity of labor are comparatively simple.† But the factors which regulate the other dimension of the supply — namely, numbers — are more complex, and vary somewhat among different occupations. With the general class of unskilled laborers the question of the limitation of this dimension of the supply is mainly involved in the question of population.

Consistently with the cost of production theory of value which he held in common with the other classical economists, Ricardo endeavors at some length to show that the natural price of labor is fixed by the cost of producing laborers. "The natural price of labor is that price which is necessary to enable the laborers, one with another, to subsist, and to perpetuate their race without either increase

* Patten, "Cost and Expense."

† See Clark's "Law of Wages and Interest," "Possibility of a Scientific Law of Wages."

or diminution." In his subsequent argument he considerably modified this rigid form of statement by showing that this price depends largely upon what the laborers themselves consider necessary. Yet in the end he leaves no doubt that he believed that in the long run the tendency was to force the standard of living down to a subsistence minimum. Though Ricardo's form of statement is the more rigid, yet practically the same opinion had been common to his predecessors, including Adam Smith.* To Malthus belongs the credit of having first made a thorough application of the standard of living to the wages question. He first insisted upon the possibility and the importance of raising the standard of living of the laboring classes, by education and more liberal surroundings, so that an effective prudential check on population would be introduced. In common with the other early English economists he concurred fully in the cost of production theory of wages; yet he explained more fully than any one else in what the cost of production of labor consisted,—that it meant, in fact, simply the standard of living of the laborers.

So long as we limit the discussion to the general class of unskilled laborers, the correspondence is tolerably complete between the cost of production of other commodities and the standard of living of laborers. The one operates in essentially the same manner upon price as the other does upon wages.

1. A rise in the standard of living of laborers tends to reduce the amount of labor that will be supplied at any given rate of wages by diminishing the birth-rate, just as a rise in the cost of production of another commodity will reduce the amount of that commodity that will be supplied at any given price.

2. With a given standard of living, a rise in the rate of wages will result in a higher birth-rate and a larger

* *Wealth of Nations*, Book I. chap. viii.

supply of labor, just as, with a given cost of production, a rise in price of another commodity will result in a larger production of that commodity.

3. The laborer does not consciously estimate what it has cost to produce him, and then set the price of his labor accordingly. Neither does the farmer thus set the price of his wheat. In either case, production precedes sale; and the seller gets all he can, regardless of cost of production. But in either case, if the sellers are unable to get enough to induce a continuance of the same rate of production, the supply will be eventually diminished until the price does become a sufficient inducement to continue production. Though the nature of the motives that operate in the two cases are quite different, the effect on price is quite similar.

4. It must be conceded that the standard of living is not the only factor that limits the number of laborers. On the outside is the limit set by the physical capacity for human increase. But one of the important differences between economic man and the uneconomic animals is that with man reproduction does not begin so early nor continue so rapidly as is physically possible. But numerous other causes than economic considerations doubtless check population within the outside limits set by nature. For a variety of reasons society has placed its condemnation upon extremely early marriages. There are other legal and social restraints that also operate in the same way. With equal justice may it be said that cost of production is not the only factor that limits the supply of any commodity. With every commodity there are certain outside limits set by nature, and in many cases there are legal and social restraints. But within these bounds cost of production does operate. In fact, it operates to such an extent that the supply never reaches these outside limits, so that all other factors become *practically* inoperative. Similarly with population. Economic consid-

erations, the fear of lack of means of subsistence,—according to prevailing standards,—operate to limit population within the bounds set by other factors, so that they become *practically* inoperative; and the standard of living becomes the efficient cause for the limitation of numbers. After allowance is made for all other possible checks, the fact remains that the standard of living operates as a still further check. It adds considerably to the height of the dam that keeps back the flood of possible human increase. This is shown by the statistics of marriages.

In his paper on "Marriage-rates and Marriage-ages," * Dr. William Ogle has shown most conclusively that in England the marriage-rate varies with the value of exports, and that such statistics as are available indicate that it varies inversely with the number of the unemployed. The marriage-rate in Michigan for the last twenty years has noticeably fallen off in years of depression. In continental countries the marriage rate varies inversely with the price of rye. As might be inferred, the birth-rate varies with the marriage-rate.

These and other instances do but verify the conclusions that one might deduce from the general facts of observation and experience. The plain question of bread and butter enters into a man's calculations even on the subject of matrimony. If the man's standard of living includes not only butter on his bread, but sugar on his butter, it is then a question of bread and butter *and sugar* that enters into his calculations. In other words, if the question of means of living enters into his calculations at all, it must be a question of living according to some standard; and it makes a vast difference whether that standard be high or low.

The present tendency of economic science is toward a study of man as the economizer, the satisfier of wants, the chooser between pleasures and pains. Therefore, we may,

* *Journal of the Royal Statistical Society*, June, 1890.

with perfect propriety, treat man's domestic in common with his other wants, and study his satisfaction of these wants as a part of his economic activity. In accordance with the principle of the declension of utility and the satiation of wants, a man will procure first the thing that satisfies the most pressing want. But after a time that want becomes so far satiated as to be less pressing than another. Then the man's attention will be turned to the satisfaction of the next, and so on. A man will probably be sure of a certain amount of bread before he tries to procure butter. But, when his economic condition assures him of a partial satisfaction of his desire for bread, his desire for butter becomes stronger than his desire for an additional piece of bread. Then he will procure butter also. In the same manner, after his desire for bread and butter is assured of a certain degree of satisfaction, another desire — *e.g.*, that for sugar — becomes effective in giving direction to his activity; and thus, as his economic condition continues to improve, a larger number of desires rise above his horizon, and become effective in directing his economic activity. Somewhere in the scale of desires, his domestic affections have a place, and become effective in their proper order. The position of this particular class of wants in the scale makes what is called the standard of living. Thus it will appear that a high standard of living, when referred to the question of population, may mean one of two things. It may mean that the general scope of the people's wants has been widened and deepened, or that the domestic affections * have been weakened, or both.

On the whole, we have every reason for believing that the standard of living acts as an effective check on the

* For want of a better term we are compelled to use the term "domestic affections" in a somewhat general sense, including the sum total of those motives which impel toward marriage and the begetting of offspring. If we distinguish between the animal passions and the higher domestic affections, we shall find that the latter quite often check rather than increase population by making parents more considerate of the future of their children.

increase of numbers and the supply of laborers in general. Therefore, we conclude that the true theory of wages is to be found in a combination of the "marginal productivity," or the "no rent increment," theory of Professor Clark and the "standard of living," or "cost of production," theory of the classical English economists. The law of diminishing productivity furnishes the principle which regulates the demand for labor; and the standard of living, or the cost of production, furnishes the principle which regulates the supply. A suggestive addition to the cost of production side of the theory is attempted in the interesting works of Mr. George Gunton.*

Other writers have shown that different increments of the amount of labor which each man performs cost him different degrees of sacrifice. What we have called intensity of labor is subject to the law of increasing cost. Mr. Gunton has also pointed out that different laborers have different standards of living. This amounts to saying that different increments of what we may call the extensive dimension of the supply of labor are produced at different costs. While it is doubtless true that wages must in the long run be high enough to repay the cost of producing the most expensive increment necessary to carry on production, yet it does not follow that the standard of living of the marginal laborer *directly* fixes the rate of wages. The fact that a man has a high standard of living will no more enable him to get high wages than the fact that an individual bushel of wheat cost the producer a great deal will enable it to sell at a high price. The standard of living of laborers and the cost of producing wheat only affect wages and the price of wheat by limiting the quantity supplied. It is, perhaps, more nearly true to say that the marginal increment of labor is determined by the price of labor than to say that the price is determined by the marginal increment, though

* *Wealth and Progress* and *Principles of Social Economics.*

the influence of both is reciprocal. An interesting analogy exists between the price of land on the margin of cultivation and the marginal laborer whose standard of living is so high that he is prevented at current rates of wages from reproducing his kind. There is also an analogy to the intensive margin of cultivation in the probability that there is a limit to the size of the family of every man, and that this limit is affected by and varies with the price of labor. The essential point in these analogies is that different increments of the total supply of labor require different rates of wages to induce their production.

In addition to the intensity of labor and the increase of numbers, we must take account of the fact that labor is not equally painful to all laborers. With some the distaste for labor is so strong that they refuse to work unless they can get the highest wages. Accordingly, rather than accept lower wages they will remain idle. In this respect also there is an ascending scale of cost in the supply of labor, for we cannot regard labor as actually supplied until it is put on the market. Aside from the question of population there are different numbers of laborers that will offer themselves for work at different rates of wages. In this sense also there is a marginal laborer, or one who is just induced to work at any given rate of wages.

The two apparently contradictory theories of wages which we have been considering are to be harmonized in much the same way as the cost and utility theories of value and the abstinence and productivity theories of interest have been harmonized. The supply of labor will tend to increase until the last and least productive increment is just able to earn sufficient to compensate for the cost of production and maintenance of the most expensive portion, or until the price is just sufficient to induce the last increment to be put on the market. Wages will tend

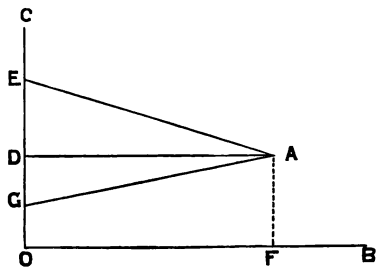
to correspond to both the marginal productivity and the marginal cost.

An obstacle to the perfect working of this law as applied to labor is the length of time necessary to greatly increase or diminish the total supply of labor. Population changes very slowly, though the fund of unemployed labor may act more quickly on the supply. But it will be difficult to find two commodities whose supplies can be increased or diminished with precisely the same degree of expedition. Labor is simply an extreme case among those commodities whose demand and supply are very slowly adjusted to one another. Yet there is the same tendency for such an adjustment to take place as has long been observed in regard to other commodities. But, in the case of wages, another fact affects the adjustment. A change in the rate of wages so slowly affects the population that the standard of living of the laborers may itself change before the change in the supply brings wages back to the former level. The harshness of the "iron law of wages" is materially softened by the fact that in a free society, and especially in a country of universal education, the standard of living is more easily raised than lowered. The tendency of freedom is to encourage aspirations and ambitions, while the inevitable result of education is to broaden the mental horizon and develop new desires. The inherent optimism of Malthusianism, when properly understood, appears in this connection. To this end Malthus became an apostle of free institutions and political equality, as being conducive to the development of self-respect, dignity, and thrift on the part of the laboring classes. He attributed habits of improvidence and other proletarian vices to "despotism, oppression, and ignorance." It is something more than mere prediction to suggest that along the lines of liberal surroundings, education, and culture lies the ultimate solution of the labor problem.

Hitherto we have considered the two dimensions of the supply of labor separately. In order to combine them, it will be necessary to adopt some kind of a labor unit. We have already seen that different increments of the expenditure of productive energy involve different degrees of sacrifice on the part of the individual laborer, and secure him different amounts of utility. We have seen, also, that different increments of the supply of laborers are produced at different degrees of cost, and have different degrees of productivity. Now, if we adopt a unit of labor consisting of an hour's labor of a single man at a given rate of expenditure of energy, we shall come naturally to the proposition that the different labor units are supplied at different degrees of sacrifice or cost, and produce different amounts of utility. The law of wages at which we finally arrive will be that *the price of a labor unit will equal the marginal productivity of labor units, on the one hand, and the marginal cost, on the other.**

Perhaps the most unfortunate result of a rigid adherence to the "cost of production" theory of wages appears in discussions of the causes of differences of wages in different occupations. Adam Smith lays down the proposition that "the whole of the advantages and disadvantages of the different employments of labor and

*This may be illustrated by the familiar diagram. Let the number of labor units be measured along the line OB, and let both the productivity and the cost of the labor units be measured along the perpendicular line OC. Let the productivity of successive increments of labor units be represented by the descending line EA, and their cost by the ascending line GA. The supply of labor will continue increasing until the line EA cuts the line GA. The height of this point of intersection, A, above the line OB, will represent the rate of wages. In this case, the rate of wages will be represented by the line OD, the length of which measures both the productivity and the cost of the last labor unit.



stock must, in the same neighborhood, be either perfectly equal or continually tending to equality. If in the same neighborhood there was any employment either more or less advantageous than the rest, so many people would crowd into it in the one case, and so many would desert it in the other, that its advantages would soon return to the level of other employments." * In his enumeration of the principal circumstances which "make up for a small pecuniary gain in some employments, and counterbalance a great one in others," he names "the small or great trust which must be reposed in those who exercise them." This contains the rather startling implication that it is a disadvantage to have confidence placed in one's self. This is manifestly carrying the cost of production theory a little too far. Moreover, in the other circumstances which he names, he assumes that the difference in the wages between skilled and unskilled occupations is entirely due to the difference in the expense of learning them. But the capitalization of the difference in wages will in many cases prove out of all proportion to the difference in the expense. It would be just as easy to account for differences in the rent of real estate on the basis of the difference in the cost of the improvements. In the case of labor, account must be taken of differences in native and hereditary qualities, just as we must take account of difference in situation and "original and indestructible powers of the soil" in the rent of land.

The marginal productivity of labor of any class determines the rate of wages of that class. But, with different kinds and qualities of labor, there are different causes for the limitation of the supply. Hitherto we have simply discussed the causes which limit the general class of unskilled labor. When we consider the supply of skilled or professional labor, we shall find some new factors entering in. There are certain forms of ability so unique and

* *Wealth of Nations* (Rogers ed.), vol. i. p. 103 *et seq.*