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able to any of these four sources of variations, which are the sole causes of alteration of value.

* When, in common language, therefore, we express the value any commodity, it may vary at one period from what it is at another, in consequence of eight different contingencies:—

. "From the four circumstances above stated, in relation to any commodity of which we mean to express the value.

. "From the same four circumstances, in relation to the commodity we have adopted as a measure of value." 1

This is true of monopolised commodities, and, indeed, of the market price of all other commodities for a limited period. If the demand for hats should be doubled, the price would immediately rise, but that rise would be only temporary, unless the stock of production of hats or their natural price were raised. The natural price of bread should fall 50 per cent. from some discovery in the science of agriculture, the demand would greatly increase, for no man would desire more than would satisfy his wants, and as the demand would not increase, neither would the supply; for a commodity is not supplied merely because it can be produced, but because there is a demand for it.

Here, then, we have a case where the supply and demand are scarcely varied, or, if they have increased, they have increased in the same proportion; and yet the price of bread have fallen 50 per cent., at a time, too, when the value of commodities which are monopolised, either by an individual or a company, vary according to the law which Lord Lauderdale has laid down: they fall in proportion as the sellers augment their quantity, and rise in proportion to the eagerness of the buyers to purchase them; their price has no necessary connexion with their natural value; but the prices of commodities which are subject to competition, and whose quantity may be increased in any moderate degree, will ultimately depend, not on the state of demand and supply, but on the increased or diminished cost of their production.


CHAPTER XXXI

ON MACHINERY

In the present chapter I shall enter into some inquiry respecting the influence of machinery on the interests of the different classes of society, a subject of great importance, and one which appears never to have been investigated in a manner to lead to any certain or satisfactory results. It is more incumbent on me to declare my opinion on this question, because they have, on further reflection, undergone a considerable change; and although I am not aware that I have ever published anything respecting machinery which it is necessary for me to retract, yet I have in other ways given my support to doctrines which I now think erroneous; it therefore becomes a duty in me to submit my present views to examination, with my reasons for entertaining them.

Ever since I first turned my attention to questions of political economy, I have been of opinion that such an application of machinery to any branch of production as should have the effect of saving labour was a general good, accompanied only with that portion of inconvenience which in most cases attends the removal of capital and labour from one employment to another. It appeared to me that, provided the landlords had the same money rents, they would be benefited by the reduction in the prices of some of the commodities on which those rents were expended, and which reduction of price could not fail to be the consequence of the employment of machinery. The capitalist, I thought, was eventually benefited precisely in the same manner. He, indeed, who made the discovery of the machine, or who first usefully applied it, would enjoy an additional advantage by making great profits for a time; but, in proportion as the machine came into general use, the price of the commodity produced would, from the effects of competition, sink to its cost of production, when the capitalist would get the same money profits as before, and he would only participate in the general advantage as a consumer, by being enabled, with the same money revenue, to command an additional quantity of comforts and enjoyments. The class of labourers also, I thought, was
that £2,000 of this capital is invested in fixed capital, viz. in buildings, implements, etc., etc., and that the remaining £13,000 is employed as circulating capital in the support of labour. Let us suppose, too, that profits are 10 per cent., and consequently that the capitalist's capital is every year put into its original state of efficiency and yields a profit of £2,000.

Each year the capitalist begins his operations by having food and necessaries in his possession of the value of £13,000, all of which he sells in the course of the year to his own workmen for that sum of money, and, during the same period, he pays them the like amount of money for wages: at the end of the year they replace in his possession food and necessaries of the value of £15,000, £2,000 of which he consumes himself, or disposes of as may best suit his pleasure and gratification. As far as these products are concerned, the gross produce for that year is £15,000, and the net produce £2,000. Suppose, now, that the following year the capitalist employs half his men in constructing a machine, and the other half in producing food and necessaries as usual. During that year he would pay the sum of £13,000 in wages as usual, and would sell food and necessaries to the same amount to his workmen; but what would be the case the following year?

While the machine was being made, only one-half of the usual quantity of food and necessaries would be obtained, and they would be only one-half the value of the quantity which was produced before. The machine would be worth £7,500, and the food and necessaries £2,000, and, therefore, the capital of the capitalist would be as great as before; for he would have, besides these two values, his fixed capital worth £15,000, making in the whole £20,000 capital, and £2,000 profit. After deducting this latter sum for his own expenses, he would have a no greater circulating capital than £5,500 with which to carry on his subsequent operations; and, therefore, his means of employing labour would be reduced in the proportion of £13,000 to £5,500, and, consequently, all the labour which was before employed by £7,500 would become redundant.

The reduced quantity of labour which the capitalist can employ, must, indeed, with the assistance of the machine, and after deductions for its repairs, produce a value equal to £7,500, it must replace the circulating capital with a profit of £2,000 on the whole capital; but if this be done, if the net income be not diminished, of what importance is it to the capitalist whether the gross income be of the value of £3,000, of £10,000, or of £15,000?
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In this case, then, although the net produce will not be diminished in value, although its power of purchasing commodities may be greatly increased, the gross produce will have fallen from a value of £15,000 to a value of £7500; and as the power of supporting a population, and employing labour, depends always on the gross produce of a nation, and not on its net produce, there will necessarily be a diminution in the demand for labour, population will become redundant, and the situation of the labouring classes will be that of distress and poverty.

As, however, the power of saving from revenue to add to capital must depend on the efficiency of the net revenue, to satisfy the wants of the capitalist, it could not fail to follow from the reduction in the price of commodities consequent on the introduction of machinery that with the same wants he would have increased means of saving—increased facility of transferring revenue into capital. But with every increase of capital he would employ more labourers; and, therefore, a portion of the people thrown out of work in the first instance would be subsequently employed; and if the increased production, in consequence of the employment of the machine, was so great as to afford, in the shape of net produce, as great a quantity of food and necessaries as existed before in the form of gross produce, there would be the same ability to employ the whole population, and, therefore, would not necessarily be any redundancy of people.

All I wish to prove is that the discovery and use of machinery may be attended with a diminution of gross produce; and whenever that is the case, it will be injurious to the labouring class, as some of their number will be thrown out of employment, and population will become redundant compared with the funds which are to employ it.

The case which I have supposed is the most simple that I could select; but it would make no difference in the result if I supposed that the machinery was applied to the trade of any manufacturer—that of a clothier, for example, or of a cotton manufacturer. If, in the trade of a clothier, less cloth could be produced after the introduction of machinery, for a part of that quantity which is disposed of for the purpose of paying a large body of workmen would not be required by their employer. In consequence of using the machine, it would be necessary for him to reproduce a value only equal to the value consumed, together with the profits on the whole capital.
the war terminates, and the annual expenses which it brings with it, cease.

If I were not called upon for a tax of £500 during the war, and which is expended on men in the situations of soldiers and sailors, I might probably expend that portion of my income on furniture, clothes, books, etc., etc., and whether it was expended in the one way or in the other, there would be the same quantity of labour employed in production; for the food and clothing of the soldier and sailor would require the same amount of industry to produce it as the more luxurious commodities; but in the case of the war, there would be the additional demand for men as soldiers and sailors; and, consequently, a war which is supported out of the revenue, and not from the capital of a country, is favourable to the increase of population.

At the termination of the war, when part of my revenue reverts to me, and is employed as before in the purchase of wine, furniture, or other luxuries, the population which it before supported, and which the war called into existence, will become redundant, and by its effect on the rest of the population, and its competition with it for employment, will sink the value of wages, and very materially deteriorate the condition of the labouring classes.

There is one other case that should be noticed of the possibility of an increase in the amount of the net revenue of a country, and even of its gross revenue, with a diminution of demand for labour, and that is when the labour of horses is substituted for that of man. If I employed one hundred men on my farm, and if I found that the food bestowed on fifty of those men could be diverted to the support of horses, and afford me a greater return of raw produce, after allowing for the interest of the capital which the purchase of the horses would absorb, it would be advantageous to me to substitute the horses for the men, and I should accordingly do so; but this would not be for the interest of the men, and unless the income I obtained so much increased as to enable me to employ the men as well as the horses, it is evident that the population would become redundant and the labourer's condition would sink in the general scale. It is evident he could not, under any circumstances, be employed in agriculture; but if the produce of the land were increased by the substitution of horses for men, he might be employed in manufactures, or as a menial servant.

The statements which I have made will not, I hope, lead to the inference that machinery should not be encouraged. To eluci-
date the principle, I have been supposing that improved
machinery is suddenly discovered and extensively used; but
the truth is that these discoveries are gradual, and rather
operate in determining the employment of the capital which is
saved and accumulated than in diverting capital from its
actual employment.

With every increase of capital and population food will
generally rise, on account of its being more difficult to produce.
The consequence of a rise of food will be a rise of wages, and
every rise of wages will have a tendency to determine the saved
capital in a greater proportion than before to the employment
of machinery. Machinery and labour are in constant com-
petition, and the former can frequently not be employed until
labour rises.

In America and many other countries, where the food of man
is easily provided, there is not nearly such great temptation to
employ machinery as in England, where food is high and costs
much labour for its production. The same cause that raises
labour does not raise the value of machines, and, therefore,
with every augmentation of capital, a greater proportion of it is
employed on machinery. The demand for labour will continue
to increase with an increase of capital, but not in proportion to
its increase; the ratio will necessarily be a diminishing ratio. 1

I have before observed, too, that the increase of net incomes,
estimated in commodities, which is always the consequence of
improved machinery, will lead to new savings and accumula-

tions. These savings, it must be remembered, are annual,
and must soon create a fund much greater than the gross revenue
originally lost by the discovery of the machine, when the demand
for labour will be as great as before, and the situation of
the people will be still further improved by the increased savings
which the increased net revenue will still enable them to make.

The employment of machinery could never be safely dis-
couraged in a state, for if a capital is not allowed to get the
greatest net revenue that the use of machinery will afford here,
it will be carried abroad, and this must be a much more serious
discouragement to the demand for labour than the most exten-
sive employment of machinery; for while a capital is employed
in this country it must create a demand for some labour;
machinery cannot be worked without the assistance of men, it
cannot be made but with the contribution of their labour. By
investing part of a capital in improved machinery there will be
a diminution in the progressive demand for labour; by exporting
it to another country the demand will be wholly annihilated.

The prices of commodities, too, are regulated by their cost of
production. By employing improved machinery, the cost of
production of commodities is reduced, and, consequently, you
can afford to sell them in foreign markets at a cheaper price.
If, however, you were to reject the use of machinery, while all
other countries encouraged it, you would be obliged to export
your money, in exchange for foreign goods, till you sunk the
natural prices of your goods to the prices of other countries.
In making your exchanges with those countries you might give
a commodity which cost two days' labour here for a commodity
which cost one abroad, and this disadvantageous exchange
would be the consequence of your own act, for the commodity
which you export, and which cost you two days' labour, would
have cost you only one if you had not rejected the use of
machinery, the services of which your neighbours had more
wisely appropriated to themselves.

1 "The demand for labour depends on the increasing of circulating and
not of fixed capital. Were it true that the proportion between these two
ports of capital was the same at all times, and in all countries, then, indeed,
we should consider the number of labourers employed as in proportion to the
wealth of the state. But such a position has not the semblance of
probability. As arts are cultivated, and civilisation is extended, fixed
capital bears a larger and larger proportion to circulating capital. The
amount of fixed capital employed in the production of a piece of British
muslin is at least a hundred, probably a thousand times greater than that
employed in the production of a similar piece of Indian muslin. And the
proportion of circulating capital employed is a hundred or a thousand
times less. It is easy to conceive that, under certain circumstances, the
whole of the annual savings of an industrious people might be added to
fixed capital, in which case they would have no effect in increasing the
demand for labour."—Barvon, On the Condition of the Labouring Classes of
Society, page 16.

It is not easy, I think, to conceive that, under any circumstances, an
increase of capital should not be followed by an increased demand for
labour; the most that can be said is, that the demand will be in a dimin-
ishing ratio. Mr. Barton, in the above publication, has, I think, taken a
correct view of some of the effects of an increasing amount of fixed capital
in the condition of the labouring classes. His essay contains much
valuable information.