

## CHAPTER XIV.

### THE EFFECTS OF MACHINERY.

**H**OW ignorance, neglect or contempt of human rights may turn public benefits into public misfortunes we may clearly see if we trace the effect of labor-saving inventions.

It is not altogether from a blind dislike of innovation that even the more thoughtful and intelligent Chinese set their faces against the introduction into their dense population of the labor-saving machinery of Western civilization. They recognize the superiority which in many things invention has given us, but to their view this superiority must ultimately be paid for with too high a price. The Eastern mind, in fact, regards the greater powers grasped by Western civilization somewhat as the medieval European mind regarded the powers which it believed might be gained by the Black Art, but for which the user must finally pay in destruction of body and damnation of soul. And there is much in the present aspects and tendencies of our civilization to confirm the Chinese in this view.

It is clear that the inventions and discoveries which during this century have so enormously increased the power of producing wealth have not proved an unmixed good. Their benefits are not merely unequally distributed, but they are bringing about absolutely injurious effects. They are concentrating capital, and increasing the power

of these concentrations to monopolize and oppress; are rendering the workman more dependent; depriving him of the advantages of skill and of opportunities to acquire it; lessening his control over his own condition and his hope of improving it; cramping his mind, and in many cases distorting and enervating his body.

It seems to me impossible to consider the present tendencies of our industrial development without feeling that if there be no escape from them, the Chinese philosophers are right, and that the powers we have called into our service must ultimately destroy us. We are reducing the cost of production; but in doing so, are stunting children, and unfitting women for the duties of maternity, and degrading men into the position of mere feeders of machines. We are not lessening the fierceness of the struggle for existence. Though we work with an intensity and application that with the great majority of us leaves time and power for little else, we have increased, not decreased, the anxieties of life. Insanity is increasing, suicide is increasing, the disposition to shun marriage is increasing. We are developing, on the one side, enormous fortunes, but on the other side, utter pariahs. These are symptoms of disease for which no gains can compensate.

Yet it is manifestly wrong to attribute either necessary good or necessary evil to the improvements and inventions which are so changing industrial and social relations. They simply increase power—and power may work either good or evil as intelligence controls or fails to control it.

Let us consider the effects of the introduction of labor-saving machinery—or rather, of all discoveries, inventions and improvements, that increase the produce a given amount of labor can obtain.

In that primitive state in which the labor of each family supplies its wants, any invention or discovery which increases the power of supplying one of these wants will

increase the power of supplying all, since the labor saved in one direction may be expended in other directions.

When division of labor has taken place, and different parts in production are taken by different individuals, the gain obtained by any labor-saving improvement in one branch of production will, in like manner, be averaged with all. If, for instance, improvements be made in the weaving of cloth and the working of iron, the effect will be that a bushel of grain will exchange for more cloth and more iron, and thus the farmer will be enabled to obtain the same quantity of all the things he wants with less labor, or a somewhat greater quantity with the same labor. And so with all other producers.

Even when the improvement is kept a secret, or the inventor is protected for a time by a patent, it is only in part that the benefit can be retained. It is the general characteristic of labor-saving improvements, after at least a certain stage in the arts is reached, that the production of larger quantities is necessary to secure the economy. And those who have the monopoly are impelled by their desire for the largest profit to produce more at a lower price, rather than to produce the same quantity at the previous price, thus enabling the producers of other things to obtain for less labor the particular things in the production of which the saving has been effected, and thus diffusing part of the benefit, and generally the largest part, over the whole field of industry.

In this way all labor-saving inventions tend to increase the productive power of all labor, and, except in so far as they are monopolized, their whole benefit is thus diffused. For, if in one occupation labor become more profitable than in others, labor is drawn to it until the net average in different occupations is restored. And so, where not artificially prevented, does the same tendency bring to a common level the earnings of capital. The direct effect

of improvements and inventions which add to productive power is, it is to be remarked, always to increase the earnings of labor, never to increase the earnings of capital. The advantage, even in such improvements as may seem primarily to be rather capital-saving than labor-saving—as, for instance, an invention which lessens the time required for the tanning of hides—becomes a property and advantage of labor. The reason is, not to go into a more elaborate explanation, that labor is the active factor in production. Capital is merely its tool and instrument. The great gains made by particular capitalists in the utilization of improvements, are not the gains of capital, but generally the gains of monopoly, though sometimes they may be gains of adventure or of management. The rate of interest, which is the measure of the earnings of capital, has not increased with all the enormous labor-saving improvements of our century; on the contrary, its tendency has been to diminish. But the requirement of larger amounts of capital, which is generally characteristic of labor-saving improvements, may increase the facility with which those who have large capitals can establish monopolies that enable them to intercept what would naturally go to labor. This, however, is an effect, rather than a cause, of the failure of labor to get the benefit of improvements in production.

For the cause we must go further. While labor-saving improvements increase the power of labor, no improvement or invention can release labor from its dependence upon land. Labor-saving improvements only increase the power of producing wealth from land. And land being monopolized as the private property of certain persons, who can thus prevent others from using it, all these gains, which accrue primarily to labor, can be demanded from labor by the owners of land, in higher rents and higher prices. Thus, as we see it, the march of improvement and

invention has increased neither interest nor wages, but its general effect has everywhere been to increase the value of land. Where increase of wages has been won, it has been by combination, or the concurrence of special causes; but what of the increased productiveness which primarily attaches to labor has been thus secured by labor is comparatively trivial. Some part of it has gone to various other monopolies, but the great bulk has gone to the monopoly of the soil, has increased ground-rents and raised the value of land.

The railroad, for instance, is a great labor-saving invention. It does not increase the quantity of grain which the farmer can raise, nor the quantity of goods which the manufacturer can turn out; but by reducing the cost of transportation it increases the quantity of all the various things which can be obtained in exchange for produce of either kind; which practically amounts to the same thing.

These gains primarily accrue to labor; that is to say, the advantage given by the railroad in the district which it affects, is to save labor; to enable the same labor to procure more wealth. But as we see where railroads are built, it is not labor that secures the gain. The railroad being a monopoly—and in the United States, a practically unrestricted monopoly—as large a portion as possible of these gains, over and above the fair returns on the capital invested, is intercepted by the managers, who by fictitious costs, watered stock, and in various other ways, thinly disguise their levies, and who generally rob the stockholders while they fleece the public. The rest of the gain—the advantage which, after these deductions, accrues to labor—is intercepted by the monopolists of land. As the productiveness of labor is increased, or even as there is a promise of its increase, so does the value of land increase, and labor, having to pay proportionately more for land,

is shorn of all the benefit. Taught by experience, when a railroad opens a new district we do not expect wages to increase; what we expect to increase is the value of land.

The elevated railroads of New York are great labor-saving machines, which have greatly reduced the time and labor necessary to take people from one end of the city to the other. They have made accessible to the overcrowded population of the lower part of the island, the vacant spaces at the upper. But they have not added to the earnings of labor, nor made it easier for the mere laborer to live. Some portion of the gain has been intercepted by Mr. Cyrus Field, Mr. Samuel J. Tilden, Mr. Jay Gould, and other managers and manipulators. Over and above this, the advantage has gone to the owners of land. The reduction in the time and cost of transportation has made much vacant land accessible to an overcrowded population, but as this land has been made accessible, so has its value risen, and the tenement-house population is as crowded as ever. The managers of the roads have gained some millions; the owners of the land affected, some hundreds of millions; but the working-classes of New York are no better off. What they gain in improved transportation they must pay in increased rent.

And so would it be with any improvement or material benefaction. Supposing the very rich men of New York were to become suddenly imbued with that public spirit which shows itself in the Astor Library and the Cooper Institute, and that it should become among them a passion, leading them even to beggar themselves in the emulation to benefit their fellow-citizens. Supposing such a man as Mr. Gould were to make the elevated roads free, were to assume the cost of the Fire Department, and give every house a free telephone connection; and Mr. Vanderbilt, not to be outdone, were to assume the cost of putting down good pavements, and cleaning the streets, and run-

ning the horse-cars for nothing; while the Astors were to build libraries in every ward. Supposing the fifty, twenty, ten, and still smaller millionaires, seized by the same passion, were singly or together, at their own cost, to bring in plentiful supplies of water; to furnish heat, light and power free of charge; to improve and maintain the schools; to open theaters and concerts to the public; to establish public gardens and baths and markets; to open stores where everything could be bought at retail for the lowest wholesale price;—in short, were to do everything that could be done to make New York a cheap and pleasant place to live in? The result would be that New York being so much more desirable a place to live in, more people would desire to live in it, and the landowners could charge so much the more for the privilege. All these benefactions would increase rent.

And so, whatever be the character of the improvement, its benefit, land being monopolized, must ultimately go to the owners of land. Were labor-saving invention carried so far that the necessity of labor in the production of wealth were done away with, the result would be that the owners of land could command all the wealth that could be produced, and need not share with labor even what is necessary for its maintenance. Were the powers and capacities of land increased, the gain would be that of landowners. Or were the improvement to take place in the powers and capacities of labor, it would still be the owners of land, not laborers, who would reap the advantage.

For land being indispensable to labor, those who monopolize land are able to make their own terms with labor; or rather, the competition with each other of those who cannot employ themselves, yet must find employment or starve, will force wages down to the lowest point at which the habits of the laboring-class permit them to live and repro-

duce. At this point, in all countries where land is fully monopolized, the wages of common labor must rest, and toward it all other wages tend, being kept up above it only by the special conditions, artificial or otherwise, which give labor in some occupations higher wages than in others. And so no improvement even in the power of labor itself—whether it come from education, from the actual increase of muscular force, or from the ability to do with less sleep and work longer hours—could raise the reward of labor above this point. This we see in countries and in occupations where the labor of women and children is called in to aid the natural breadwinner in the support of the family. While as for any increase in economy and thrift, as soon as it became general it could only lessen, not increase, the reward of labor.

This is the "iron law of wages," as it is styled by the Germans—the law which determines wages to the minimum on which laborers will consent to live and reproduce. It is recognized by all economists, though by most of them attributed to other causes than the true one. It is manifestly an inevitable result of making the land from which all must live the exclusive property of some. The lord of the soil is necessarily lord of the men who live upon it. They are as truly and as fully his slaves as though his ownership in their flesh and blood were acknowledged. Their competition with each other to obtain from him the means of livelihood must compel them to give up to him all their earnings save the necessary wages of slavery—to wit, enough to keep them in working condition and maintain their numbers. And as no possible increase in the power of his labor, or reduction in his expenses of living, can benefit the slave, neither can it, where land is monopolized, benefit those who have nothing but their labor. It can only increase the value of land—the proportion of the produce that goes to the landowner. And this being the



case, the greater employment of machinery, the greater division of labor, the greater contrasts in the distribution of wealth, become to the working-masses positive evils—making their lot harder and more hopeless as material progress goes on. Even education adds but to the capacity for suffering. If the slave must continue to be a slave, it is cruelty to educate him.

All this we may not yet fully realize, because the industrial revolution which began with the introduction of steam, is as yet in its first stages, while up to this time the overrunning of a new continent has reduced social pressure, not merely here, but even in Europe. But the new continent is rapidly being fenced in, and the industrial revolution goes on faster and faster.