

Science, Enemy of Slavery

Sociology

JAMES J. DAVIS, Secretary of Labor, in *Monthly Labor Review*.

It seems you will find man the busy inventor at all ages. When Cæsar conquered the Germanic peoples he found them using a machine for harvesting their wheat. A pair of oxen pushed it through the grain. Less than a generation ago the same type of machine was used here in America and known as the header. A revolving wheel bent the heads of wheat over a row of fingers or slots that tore off the grain as the machine was pushed along. Thus a harvester better than the one known to our grandfathers had been developed by a people the Romans regarded as "barbarous."

I cite the above for a reason. When Cæsar conquered those inventive people slavery was introduced among them. The result was that the machine passed out of use. It was cheaper and easier to force the slaves to do the work. A good slave could be bought for \$5, and that harvesting machine disappeared for centuries. What better proof could we want for the fact that the real conqueror of human slavery is science with its machinery? If you want to see at a glance what happens when science is not applied to industry, you see it in Cæsar's blow to that promising invention.

The truth is that the ancient peoples knew more than we give them credit for about the mechanical laws we have forced to serve us in such stupendous fashion. More than a century before the birth of Christ a man named Hero had invented a primitive steam engine. And, again, a mechanical device that might have led to the more rapid advancement of man was blighted by a less fortunate human device. Once more the abundance and cheapness of human slaves entered in, and Hero's engine remained a curiosity in a museum.

In the history of chemistry you find the same sad story. The spade of the explorer has turned up Babylonian tablets bearing five different recipes for the making of glass. Not only the formula is given but the process of manufacture is described. The wonderful part of it is that the glass mixed in Babylonia 3,000 years before Christ is the same as the

glass of to-day, except the Babylonian glass was rough, whereas the laboratory has given us the vastly refined glass. But to-day marvelous machines turn out our glass, so that thousands of workers whose lives used to be shortened by the heavy work of blowing it are released to other pursuits. In Babylon, of course, nobody cared if a \$5 slave died early. His place was quickly taken by another \$5 purchase.

I can think of only one activity in which science has not placed us far, far ahead of the ancients. That is in road building. To-day we build roads overnight. We wear them out nearly as fast. But that is because in this modern day we subject them to loads and usage unknown in the long ago, unknown even 20 years ago. The roads built by the Romans when Christ was a boy are still in use. Those Romans were willing to employ hundreds of thousands of men for many years in building a few miles of roadway. It is little wonder that the highways they constructed have lasted for thousands of years. Whether even their great roads would have lasted, however, if subjected to wear and tear from the thundering thousands of trucks and busses that rush at high speed over our concrete ways, is doubtful. But the chief point about the Roman road is, once more, that it was built by slave labor, and the labor broke the slaves.

What an enduring road for human progress we have built instead! In Roman days slave labor was too cheap for time to be wasted on machinery. To-day human life is too valuable to waste when machinery is so cheap and efficient. That is the road we have traveled, with science to lead us. And what an immense distance we have come! . . .

Because of all these things our whole method of measuring things is being changed. Prosperity used to be measured by the number of things sold. I firmly believe that within 10 years we shall accept what is to my mind the only true measure of prosperity—that is, the general distribution of employment. We are trailing along the old lines of economic theory in the matter of production, when the object sought was the production of more and more,

and ever more. I believe that within 10 years this theory of the old-time economists will be obsolete. I believe the real object to be sought in the future is the manufacture of just enough to satisfy the national demand and the orders that come to us from other lands, and no more.

More and more our industries are paying for brains rather than muscle. Manual skill alone is no longer enough. Brains are more and more demanded, and we are training the brainier worker to supply the demand. It is to be questioned whether automobiles, radio, the motion picture, lectures, and night schools would have appealed to the workman of a hundred and fifty years ago. At the end of his long day's work he was too tired to feel any interest in such opportunities and forms of amusement. Science has come to his aid, with lighter work, shorter hours, higher pay, and more "time to think." But the job is not finished, and science will carry us still farther.

If a Greek of 2,000 years ago were to return to earth he would be amazed by these developments of modern practical science. He would marvel at the steam engine and the radio, the telegraph and the telephone, the automobile, the electric light, and the enormous wealth our machinery is turning out. But after he had made the round of shop and mine and field he might inquire whether we had brought our minds and bodies along in pace with our machines. For the people of Greece cared more for a sound mind in a sound body than they did for amassing great wealth. The one thing that might reconcile a returned Greek to much of our modern life would be his discovery that human slavery as he once knew it has come to an end and that the machine has become the slave.

This is the crowning glory of our modern world, and science has been the giver. Having now freed man from much or most of his ancient labors, the next great work for science is to make this new freeman with "time to think" happier not by what amazing things he owns but by what amazing things he can think and do.

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