

# Mill, Marx, Einstein, and Hawking on Technology

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Writing in 1848, John Stuart Mill expressed his scepticism about the perpetual growth demanded by economists and the ability of capitalism to put technology to its proper use of improving life for everybody:

Hitherto it is questionable if all the mechanical inventions yet made have lightened the day's toil of any human being. They have enabled a greater population to live the same life of drudgery and imprisonment, and an increased number of manufacturers and others to make fortunes. They have increased the comforts of the middle classes. But they have not yet begun to effect those great changes in human destiny, which it is in their nature and in their futurity to accomplish. Only when, in addition to just institutions, the increase of mankind shall be under the deliberate guidance of judicious foresight, can the conquests made from the powers of nature by the intellect and energy of scientific discoverers become the common property of the species, and the means of improving and elevating the universal lot.

— JS Mill, *Principles of Political Economy*, Book IV Chapter VI

In Chapter 15 of *Capital* (published almost 20 years after Mill's book), Marx reproduces the first sentence of the above quote

and adds:

That is, however, by no means the aim of the capitalistic application of machinery. Like every other increase in the productiveness of labour, machinery is intended to cheapen commodities, and, by shortening that portion of the working-day, in which the labourer works for himself, to lengthen the other portion that he gives, without an equivalent, to the capitalist. In short, it is a means for producing surplus-value.

— Marx, *Capital*, Chapter 15

Marx died on March 14, 1883, four years after the German physicist Albert Einstein was born, also on March 14. In 1949 Einstein wrote a letter for the debut issue of *Monthly Review* magazine titled “[Why Socialism?](#)” in which he presents some of the usual complaints about capitalism as it developed to and during World War II, including the observation that “Technological progress frequently results in more unemployment rather than in an easing of the burden of work for all.”

Almost 70 years of advances in manufacturing later, Stephen Hawking (who, like Marx, died on a March 14th) echoed this pessimism toward capitalism as a system which is *still* unsuitable for managing mechanized production in a useful way (other than to make the rich richer):

If machines produce everything we need, the outcome will depend on how things are distributed. Everyone can enjoy a life of luxurious leisure if the machine-produced wealth is shared, or most people can end up miserably poor if the machine-owners successfully lobby against wealth redistribution. So far, the trend seems to be toward the second option, with technology driving ever-increasing inequality.

— Stephen Hawking, [Reddit AMA](#)