Wonders of the Machine Age

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STATEMENT OF POLICY

IN the present editorial, Mr. Hugo Gernsback not only sets forth an interesting discourse on the Machine Age but, at the same time, dispels a number of erroneous views held by various so-called authorities.

Incidentally, the subject is intimately linked with Science Fiction, and we know that it will be of more than passing interest to our readers.

We would very much like to learn from our readers how they feel on this important subject.

THE PUBLISHERS.

IT is a curious failing of the human race, that it has never been able to look to the future and to apply the lessons of past history to its own benefit.

Yet, we all know that the future is made by the past; and the trite saying, "History repeats itself," is a proved fact.

At the present time, when humanity finds itself in the throes of a world-wide depression, everybody is looking for light on the subject; and people ask themselves what is the cause of the depression, and particularly of unemployment.

Of late, a certain school of thought has cried persistently that all our present troubles, particularly unemployment, are directly traceable to our "Machine

Civilization." This attitude has been taken up by many economists and indeed, many so-called industrialists; and many books have been written on the subject. By reading this abundant literature, the reader very often will come to the conclusion that there must be something in their beliefs and that, indeed, the "machine monster" is beginning to swallow humanity and, pretty soon, we will be all at the mercy of the machine.[1]

We need not get very excited about the statements of these "authorities"; because, in the past it has been found that many authorities were usually wrong in their outlook on the future. Only about 25 years ago one of our greatest economists made the statement that by this time (that is, around 1930) there would not be enough wheat grown to keep the world's population from starving. Everybody can see the foolishness of that statement, because we have today more wheat than we have ever had.

Twenty years ago, an internationally-known scientist predicted that by 1925 the available petroleum would be exhausted. Yet, in 1931, we find the price of petroleum falling because we have too much of it.

When the automobile first came along, experts all over the world told us that it was the death-knell of the horse. Yet, in the United States in 1922 more farm horses were living and in service than there were before the advent of the automobile in 1900. (1900—18,267,000. In 1922—18,564,000.) Since then horses have declined somewhat, but the automobile will never make the horse extinct.

Then, it was confidently predicted also that the automobile was putting the railways out of business; and there are, even today, many authorities who still believe these fairy tales when, as a matter of fact, the railways are continually

[1] Marx's chapter on "Machinery and Large-Scale Industry" in Volume 1 of *Capital* begins with an analysis of the machine as a new mode of production that replaced handicraft or specialized manufacture during the Industrial Revolution. He writes that the machine constitutes an intensification of the organic limitations of the human: "The number of tools that a machine can bring into play simultaneously is from the outset independent of the organic limitations that confine the tools of the handicraftsman." (495) And when the skills of an individual laborer are turned into the specialized "organs" of a machine, the conventional division of labor between differently trained workers "no longer exists in production by machinery. Here the total process is examined objectively, viewed in and for itself, and analysed into its constitutive phases." (501)

But for Marx, the debate over whether the machine steals jobs or creates new ones overlooks the fact that the nature of that laborer's work is fundamentally changed under the conditions of mechanical production. Differences in mode of production are important to study because they create differences in the social relations of production. In this way, he sees Luddite revolts in which workers destroy factory machines (and, one would imagine, arguments that the "machine monster" caused the Depression) as a "crude form" of revolt: "It took both time and experience before the workers learnt to distinguish between machinery and its employment by capital, and therefore to transfer their attacks from the material instruments of production to the form of society which utilizes those instruments" (555).

See especially the section on "The Struggle Between Worker and Machine" and "The Compensation Theory," Karl Marx, *Capital, Volume 1*, trans. Ben Fowkes, (New York: Vintage Books, 1977), 553-575.

gaining ground and are now using the auto to truck themselves as a valuable adjunct to their business!

In the early '30's, a well-known Patent Examiner in Washington threw up his job because he had become convinced from his studies that everything worthwhile had been invented, and that there was no future for him in the Patent Office. That was before the day of the telephone, the X-Ray, the automobile, the airplane, radio, and thousands of other inventions made in the last sixty years. Yet, here was an expert in his line who could not see further than his nose, but he was certain that he was right; otherwise he would, of course, not have made such a colossal fool of himself.[2]

I have given these few examples only to show why people should keep a level head in these days of stress and not become unduly excited about the future. The Machine Age and Applied Science, far from destroying humanity, will now, and will forever be, humanity's servant.[3]

I will go on record and state that, with very few exceptions, practically all *useful* inventions and *useful* machines, so far invented, have not only helped the human race socially, but HAVE BEEN THE DIRECT CAUSE OF KEEPING MILLIONS OF PEOPLE EMPLOYED. It is the common talk of the misinformed, as well of the so-called informed classes, that the present unemployment situation is due to the machine.[4] The argument runs something as follows:

[2]For more on the myth of the Patent Office examiner who thought everything that could be invented, had, see **Imagination Versus Facts.**

[3]Here, Gernsback begins to develop ideas inspired by Technocracy, a short-lived political movement in the United States that blossomed during the Depression with its plan to put engineers and skilled technologists in charge of the government. Technocracy was originally inspired by the writings of Thorstein Veblen, the American sociologist who advocated in *The Engineers and the Price System* (1921) for a more equitable form of price management through what he called a "Soviet of Technicians." These engineers and technically educated managers would be able to govern more effectively the production and equal distribution of energy, goods, and quality of life than capitalist bureacrats or politicians. His ideas were picked up by Howard Scott, a leading figure in the movement who formed Technocracy Inc., an organization whose "militaristic demeanor, its rigid hierarchial structure, its special insignia, its special salute, its grey uniforms, and its fleet of grey automobiles" raised the eyebrows of more than a few observers during fascism's rise across Europe.

Howard P. Segal, *Technological Utopianism in American Culture*, (Syracuse University Press, 2005), 123.

Harold Loeb, another leading proponent, headed up the rival Continental Committee on Technocracy and wrote the utopian roadmap *Life in a Technocracy: What it Might Be Like* (1933), a book that advocated a theory of value based on units of energy. For Howard Segal, Technocracy and other associated efforts to forge a better society through technology (e.g. the New Machine, the Technical Alliance, the Utopian Society of America) marked a shift in the 1920s and 30s in utopian thinking from the possible to the probable.

Ibid., , 124-5.

For more on the Technocracy movement, see Daniel Bell, "Veblen and the Technocrats: On the Engineers and the Price System," in *The Winding Passage: Sociological Essays and Journeys*, (New Brunswick, N.J., U.S.A: Transaction Publishers, 1991) [1963] and William E Akin, *Technocracy and the American Dream: The Technocrat Movement, 1900-1941*, (Berkeley: University of California Press, 1977).

[4]A short-lived Gernsback magazine, *Technocracy Review,* attempted to capitalize on the political movement and serve as a forum for the exchange of Technocratic ideas. It lasted

A factory gives employment to a thousand men. A new invention is made and new machinery is installed in this plant, which then does twice as much work with half the men. Half of the men are thrown out of employment; consequently, the new machine bas been destructive, in that it put 500 men out of work.

This argument is pure foolishness; for, if its proponent stopped to think about it, he could reason that the argument of necessity was wrong. There is not a single useful machine or invention which has not given actual employment in the course of time, and actually created employment where none existed before.

In *Collier's, the National Weekly,* lately, was a most interesting article which I heartily recommend to all. It is entitled "The Job Making Machine" by John T. Flynn. The author takes a single machine, the automobile, and cites the following facts, which are not fancy or hearsay, but can be easily proved from reports of the Department of Commerce, and other industrial bodies, for all who care to look into the facts:

There are over a million men employed in the production of automobiles and their components: 427,000 automobile factory workers; 250,000 automobile parts workers; 135,000 tire workers; 72,000 in blast furnaces and steel mills; 18,000 in the production of copper and other metals; 18,000 lumbermen and wood workers; 76,000 in the production of textiles, glass and other materials; 7,000 producing coal and power. There are 170,000 making and marketing automobile accessories.

Then, too, there are 370,000 dealers and salesmen; 420,000 garage and service men; 650,000 chauffeurs and cabmen; 1,500,000 truck and bus drivers.

The total of those who derive their employment from the automotive industry and automotive operation reaches *four and half millions;* an increase of 1,275,000 in the past five years! The automobiles use more steel than any other industry—more than the United States produced thirty years ago; their tires use

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only for two issues, and Gernsback himself attempted to remain neutral in its pages save for the argument repeated here, that new inventions and machines produce employment. The inaugural issue of the *Technocracy Review* (February 1933) contained articles by Howard Scott ("Technocracy Speaks"), Paul Blanshard ("A Socialist Looks at Technocracy"), William Z. Foster ("Technocracy and Communism"), and Gernsback's assistant editor David Lasser ("Technocracy—Hero or Villain?").

According to Sam Moskowitz, Lasser was the prime mover behind the *Technocracy Review*. Lasser had become a member of the Socialist Party in 1933, inspired by its efforts to fight unemployment. But eventually, Gernsback was "made uncomfortable by the company he was keeping." In an interview with Moskowitz, Lasser recalls that Gernsback called him into his office and said, "If you like working with the unemployed so much, I suggest you go and join them." Sam Moskowitz, *Seekers of Tomorrow: Masters of Modern Science Fiction*, (Cleveland: The World Publishing Company, 1966), 357. This also meant Lasser lost his post as Managing Editor of *Wonder Stories,* a role in which he greatly increased the quality of fiction found in the magazine. Mike Ashley: "during the period of his involvement with science fiction, 1929 to 1933, he was without a doubt the best of the magazine editors. It is almost entirely due to Lasser that science fiction continued to develop and not stagnate during the years of the Depression. Science fiction's Golden Age really began with him." Mike Ashley, *The Gernsback Days: A Study of the Evolution of Modern Science Fiction from 1911 to 1936*, 1st Wildside Press Edition edition., (Holicong, PA: Wildside Press, 2004), 141.

more cotton than was used for all purposes thirty years ago. There are 60,000 men employed in the production of gasoline; 125,000 in road building and maintenance. On the railroads, 90,000 are employed through the transportation of motor cars. Vast amounts of building construction have been brought about, by the extended radius of travel which the automobile has given to the public.

"I have chosen the automobile industry," says Mr. Flynn, "to illustrate what is going on in industry as a result of the machine; because its effects are visible on a large scale. But what is true of the automobile is true in a smaller way of many other industries."

Now then, the automobile is only one machine; but the same case could be built up for any other useful machine, be it the steam engine, the printing press, the radio or thousands of others.

It is perfectly true that a new and revolutionary invention or labor-saving machine may throw out of employment, TEMPORARILY, some people. No one denies this; you cannot have revolutions without a temporary loss of some kind. But the point is, that the 500 men thrown out of employment, whom I mentioned above, are not going to be out of employment forever; they will find other jobs, *probably created, directly or indirectly, by the very machine that threw them out of work originally.* Our present civilization is so interdependent, as a little thought on the subject must convince the most skeptical, that in the final analysis the Machine and Applied Science will make employment for them.

What most people are apt to forget is that there were unemployment crises long before there was a Machine Age; and that there have been unemployment cycles from the earliest recorded civilization down to the present day. More than 150 years ago, there was certainly no Machine Age; yet there were world-wide depressions and unemployment cycles then, just as we have them today.

Famines, pestilence and other scourges were the usual thing long before the Machine Age, when there was no machine to put the blame on. Today, thanks to the Machine Age, we no longer have country-wide famines of the severity of the past; and thanks to science, we no longer have the scourges and pestilences that our ancestors had to contend with. Quick communication by rail, water, and air, tends to do away with both acute famine and widespread diseases.[5]

It is admitted, as I said before, that new machines, new inventions, may *temporarily* throw people out of employment; but, within a few years, this situation rectifies itself to the benefit of all concerned. It is even conceivable that the Machine Age in the end will do away with business cycles. However, since business

[5]The Technocrats took this argument even further. An early pamphlet reads, "In Technocracy we see science banishing waste, unemployment, hunger, and insecurity of income forever. … we see science replacing an economy of scarcity with an era of abundance. … [And] we see functional competence displacing grotesque and wasteful incompetence, facts displacing guesswork, order displacing disorder, industrial planning displacing industrial chaos." Ralph Chaplin, "Foreword," in *Science Versus Chaos*, (New York: Technocracy Inc., 1933). Quoted in Segal, *Technological Utopianism in American Culture*, 122.

fluctuations are caused principally by human nature, it may take centuries, and indeed, thousands of years, before the millenium is reached—if ever.[6]

All nature runs in cycles. Just as the sun has its sunspots in a regular cycle; just as the earth has its cycles of earthquakes and cycles of drought; just so economics will have its cycles—its ups and downs. There are many causes to which the present unemployment situation is attributable; for they are world-wide and are just as acute in the non-mechanized countries as they are in the more industrial ones. We need not go into these causes, because I really believe that no one knows all of them.

Certainly, the Machine Age is not an important cause and, if we did not have our machine civilization, it is quite certain that the depression would be far more severe than it is today. It is certain that the cycle would, as it has done in past ages, run for a longer period than it does today.

The reason is, that the causes of all of our troubles lie not in the machine, but are really found in human nature. When people start to hoard their money, when they are afraid of their own shadow, and when they tremble at the future for no reason at all, the machine certainly cannot be blamed.

For my part, I have always felt that the present depression is purely psychological rather than physical, and in the last analysis, it probably will be found so.

What has all of this got to do with SCIENCE FICTION? Just this:

Science fiction is based upon the progress of science; THAT IS ITS VERY FOUNDATION. Without it, there could be no science fiction.

On the other hand, science fiction is supposed to portray and mirror the future as reasonably as it is possible to do from our present perspective.

If you admit that Machines and Science are all wrong, and that they are destroying humanity, then there should be no such thing as science fiction; and it would be useless to preach the gospel of science.

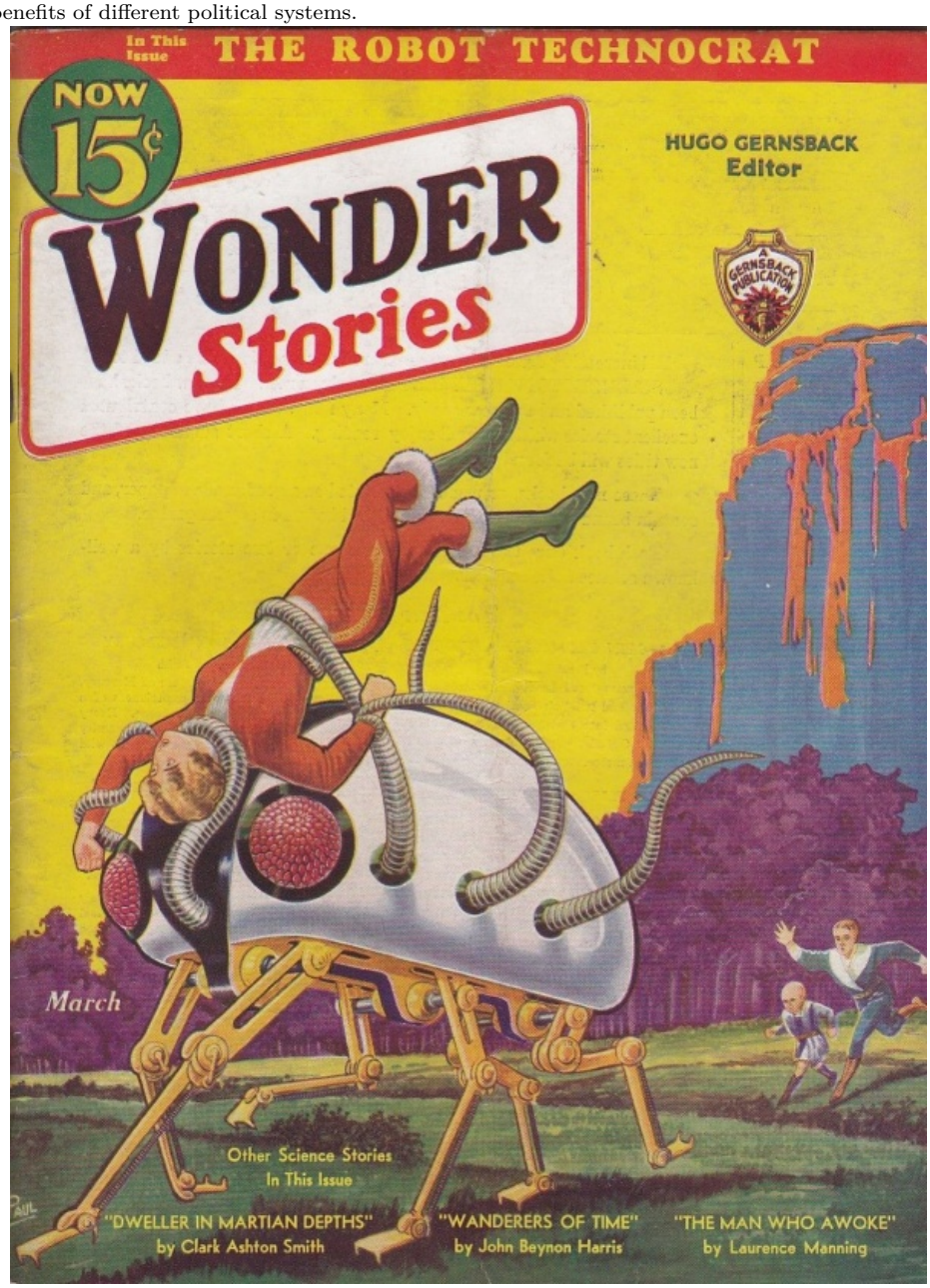
I feel most strongly on the subject because during recent months, we have received a number of science fiction stories, probably fostered by the unemployment atmosphere, which I have rejected because they distorted the facts and, in many cases, were pure out-and-out propaganda against the Machine Age.[7]

[6] This is a core tenet of Technocracy: that cycles of economic boom and bust are *human* in origin (whether due to greed, mismanagement, or the alienation of workers), and that if we allow the economy to be run more logically, objectively, and mechanically, the Depression could be ended overnight.

[7] One author who was able to incorporate a degree of skepticism into otherwise favorably technocratic fiction was Nathan Schachner. "The Robot Technocrat" was the cover feature for the March 1933 issue of *Wonder Stories,* which also included an editorial by Gernsback on "The Wonders of Technocracy." In a parable of collective decision making after disaster, American society lays in ruins after a Luddite revolt against the machinery of production in the year 1954. Onto this scene steps Hugh Corbin, leader of a movement known as the Reconstructionists who seek to rebuild the infrastructure and machinery that, in their eyes, once constituted the promise of the American experiment.

Some of the authors, who should know better, maintained in their stories that,

Meanwhile, a Russian scientist named Anton Kalmikoff creates a massive computer that can predict the future given a range of political, economic, and social variables, and runs simulations on all possible forms of government. It's a Depression-era story in which scientists battle politicians for control of the country, but one that nevertheless weighs the comparative benefits of different political systems.



little by little, the machines and science are becoming a Frankenstein monster, and finally humanity will rise in revolt and destroy all the machines, and go back to the Middle Ages. The usual underlying plot is that, because of capitalistic concentration of wealth, the machines will ultimately be controlled by a few powerful men, who will enslave the entire world to the detriment of humanity.[8]

I have gone to great length, in my opening paragraphs, to show that this situation has never arisen as yet; and, from past experience, we know that it cannot arise. And it is for this reason that WONDER STORIES will not, in the future, publish propaganda of this sort which tends to inflame an unreasoning public against scientific progress, against useful machines, and against inventions in general.

It is conceivable, and indeed is proved by history, that nations are born, grow to maturity, and die. This has happened through our entire recorded history. It probably will repeat itself indefinitely in the future. Which nations will survive, we have no means of foretelling. Of course, when it happens, the Machine Age will be blamed again, and the authors of the assertions will be blissfully ignorant of the fact that other nations, living alongside of them, prosper and grow while living in the self-same Machine Age.

It is, indeed, quite within the bounds of possibility that humanity will at some time find itself back in the Middle Ages—or worse. This also has happened in the past, and may conceivably happen again. If it does happen, the causes will probably be due to great cataclysms, such as floods and earthquakes or wars, but the Machine Age will have very little or nothing to do with it.

Humanity will have its ups and downs in the future as it had in the past.

I am, however, of the firm opinion that, as the past 150 years have shown, because of Science and the Machine Age, the ups and downs of humanity will be less severe than they were before the Machine Age; and that is the reason why I have no patience with those who tend to preach the evils of the Machine Age, which, in the long run, are non-existent.

[8] After the devastation of two world wars, Luddism became a much more viable position for works science fiction to take, argues Thomas Pynchon in an essay that refers to the genre not just as "a nearly ideal synthesis of the Two Cultures" but also "one of the principal refuges, in our time, for those of Luddite persuasion."

> Mdern Luddite imaginations have yet to come up with any countercritter Bad and Big enough, even in the most irresponsible of fictions, to begin to compare with what would happen in a nuclear war. So, in the science fiction of the Atomic Age and the cold war, we see the Luddite impulse to deny the machine taking a different direction. The hardware angle got de-emphasized in favor of more humanistic concerns—exotic cultural evolutions and social scenarios, paradoxes and games with space/time, wild philosophical questions—most of it sharing, as the critical literature has amply discussed, a definition of "human" as particularly distinguished from "machine." Like their earlier counterparts, 20th-century Luddites looked back yearningly to another age—curiously, the same Age of Reason which had forced the first Luddites into nostalgia for the Age of Miracles.
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> Thomas Pynchon, "Is It O.K. To Be A Luddite?" *The New York Times*, (October 1984)