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## Technology, utopia and dystopia : modern technological change in early literary depictions

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# Technology, Utopia and Dystopia. Modern Technological Change in Early Literary Depictions

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The development of technology is an indicator of progress. However, the term “progress” is ambiguous; it may refer to either the immanent development taking place in a specific domain, or to an improvement<sup>1</sup>. This distinction is very helpful in elucidating two main attitudes humans share toward technology. The first group believes that the development of technology is indeed an improvement, while the second one claims that although there is a progress in technology, there is no reason to claim that technology itself is also a progress. For example, technological development is very often perceived as a danger for individual human beings and humankind as a whole.

<sup>1</sup> Hildebrand von D. (1960), *Technology and its Dangers* [in:] Mohan R.P. (ed.), *Technology and Christian Culture*, Washington DC, p. 74.

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## Technology as a Progress

The progressive utopian direction of the ideas on technology begins with the Renaissance, the birth age of modern science and technology. It is the development of a new concept of science-technology that the utopian direction arises from. That concept consists in the idea that scientific knowledge constitutes and contains power; the power to change the world<sup>2</sup>. Probably the first utopian novel demonstrating the link between power and new quantitative science came from Francis Bacon already at the beginning of the 17<sup>th</sup> century. In his *The New Atlantis*<sup>3</sup> Bacon describes the state of Bensalem to show to what extent humans are able to rule over nature. Science and technology become the means to overcome human limitations. In this new world of flying machines, submarines, voice recording devices and general enlightenment life is much easier and decent. Bensalem, centred around the House of Salomon – a kind of modern research university, is a vision of a better reality, a world that can be attained with the help of the development of science and technology. The main goal of the novel is to convince the reader that the progress of technoscience is indeed an improvement of the human condition.

<sup>2</sup> In contrast, Greek classical science was contemplative; its aims were not to change a world, but to unite the knower with the order of things, the human logos with the divine Logos, and any changes were at most changes in the soul.

<sup>3</sup> Bacon F. (2000), *The New Atlantis* [in:] *The Works of Lord Bacon. With an Introductory Essay and a Portrait*, Holmes Beach, vol. 1, p. 202–215.

Bacon did well because that idea, in time, entered the minds of almost everybody on the planet. In his utopian vision the author of *The New Atlantis* dealt also with the possible peril such an advanced technology may bring forth. The father of the house of Salomon reveals: "And this we do also: we have consultations, which of the inventions and experiments which we have discovered shall be published, and which not: and take all an oath of secrecy, for the concealing of those which we think fit to keep secret: though some of those we do reveal sometimes to the state, and some not"<sup>4</sup>. Bacon clearly realises that new inventions may become dangerous but puts his trust in scientists that they are able to stop what now seems more and more unstoppable, namely the spread of efficient technology for the sake of ethics or public good. His novel remains utopian but we can easily imagine the situation when one of the inventions of a significant destructive power is stolen from the House of Salomon by a rebellious or simply mad scientist and thus the ideal world is turned into a horrific dystopian story.

What is also interesting is the fact that the utopian-dystopian thought is governed by the laws of combinatorics. It simply avails itself of all the possible arrangements as the combinations, which were created by different cultures. Indeed, the perfection achieved in the past vanished because it was fate, or because it was destroyed by man; this wonderful state will never return, or it will but in one thousand years (the holistic vision), or it shall return when the Messiah appears<sup>5</sup>. Most utopian permutations embrace the main belief that science

<sup>4</sup> Ibidem, p. 215.

<sup>5</sup> Lem S. (2003), *Fantastyka i futurologia*, Kraków, vol. 2, p. 353–354.

and technology are capable of delivering an ever more perfect environment for humankind. This powerful utopian scheme has a clear structure that may be represented by an ascending line. It shall be better and better. It constitutes the major tendency for last three centuries, despite the fact that technological growth has also brought about some qualitative new fears which have been reflected by the scientific dystopias.

The classic statement of technological dystopianism occurs in Mary Shelley's story of the Frankenstein's monster. Here the mad scientist – mad because he seeks a kind of arcane knowledge, which will allow him to give life to the dead and hence have power over life itself – sews together the parts of corpses. These are endowed with life through mysterious technological machines, creating the horrible monster whose initially benign actions turn out to be misdirected and overpowering with respect to his creator. The implicit moral of the story is that things are better left alone and that humans should live within the bounds that are theirs.

The contemporary field of the debate over the fate of technological civilization continues to be marked by both such utopian and dystopian directions. Though it seems possible to, at least in a larger picture, detect a certain shift. Whereas the nineteenth century was predominantly utopian – progress was inevitable – the twentieth century has become filled with doubts<sup>6</sup>. It has even become possible to say that there could be a scientific-technological disaster, a destruction of the world with a bang (nuclear war) or with a whimper (global pollution leading to the gre-

<sup>6</sup> Ihde D. (1986), *Consequences of Phenomenology*, New York, p. 100.

enhance effect). But, there is also another anxiety that differs in character. It is based on the presupposition that technologies affect us, form us and change us without our control and consciousness.

### The Moral Relevance of Technological Change

Historically speaking, one may distinguish roughly between two major philosophical approaches to assessing the moral relevance of technological change, namely a pre-modern and a modern approach. The former (prior to Renaissance), broadly sketched with room for many exceptions, mainly takes technological change to be socially destabilizing, and hence in need of careful delimitation. The modern approach, again broadly sketched with room for many exceptions, considers technological change as mostly socially beneficial, and hence in need of careful elaboration. The turning point between the two might be the gradual replacement in the late 16<sup>th</sup> and the first half of the 17<sup>th</sup> century of the Aristotelian understanding of the world with the mathematical and the experimental understanding of the world. The source of this turn is quite complex, although it can perhaps be better understood from the perspective of the growing role of efficiency. Let me illustrate this by the following example.

Knights wearing heavy suits of armour are usually associated with the Middle Ages. The reality was actually a bit different, namely, the medieval warriors fought their wars carrying wire-coat of mail. It was the development of small fire-arms that forced them to cover themselves with tighter iron sheets. This way of protection, successful in the beginning, had to be given up quite soon, however. Muskets became more and more efficient, and armour suits, as the need was arising, thicker, and consequently, heavier. And then the

moment came when the war economy forced the total stop of using them. However, one should indicate another, more essential meaning to this triumph of the fire-arm over knightly craft, namely the victory of technology over art. Knightly art of war required practice from the younger years, but when confronted with this new situation, i.e. in a case of encounter with a man armed with a harquebus or a musket, even the most practiced of knights did not stand even the slightest chance. Moreover, the usage of those weapons was easy, and required merely short training<sup>7</sup>.

This is one of an unlimited number of examples to which one may point in order to show how and why the technique and technology based on science became the main and the most powerful area of, very broadly understood, human civilization.<sup>8</sup>

According to one of the most influential philosophers of the twentieth century – Alfred Whitehead – the medieval era, especially its scholastic development was a necessary component of the rise of the Renaissance concept of science, and consequently, the industrial revolution that led human civilization to the stage it has reached today. Even the Renaissance was merely a preparation stage, however. For, it was really the sixteenth century that brought a certain shift in understanding science and its tasks. The Greek paradigm was broken; Francis Bacon's vision of knowledge as the power with which one can change or overcome nature was widely spread and taken for granted. Science is technologically embodied here, and cannot be solely contemplation of nature as such. This new understanding

<sup>7</sup> Orłowski B. (1999), *Technika*, Wrocław, p. 61–62.

<sup>8</sup> I understand term "civilisation" not as the opposite to "culture" but rather as a notion that designates all human activities including those of spiritual nature.

of science laid the utopian character of not only the technological development, but also of the general attitude towards human knowledge as potentially unlimited.<sup>9</sup>

### In the Shadow of Frankenstein

The novel *Frankenstein, or the Modern Prometheus*<sup>10</sup> written by Mary Shelley at the beginning of the 19<sup>th</sup> century has constituted the universal framework that describes our relation with technology for a long time already. Though Mary Shelly did not present even apparently possible vision of the future science, she expressed that element of anxiety which was such an essential factor of the social perception of new discoveries of science at the very beginning of the modern age.

It is certainly beyond the scope of this paper to fully report such complex phenomena as the social attitude toward technology; hence, I have chosen to refer mainly to the literary works of art starting with Goethe's *Faust* and end around the third decade of the 20<sup>th</sup> century with Huxley's *Brave New World*. This hermeneutic method seems to the most appropriate to examine what in the technological progress was seen as dangerous and why. I shall briefly summarize all the texts and discuss representations of specified fears of the eventual results of technological change; they constitute the humanistic reaction to the utopianism of scientists, for, roughly speaking of course, the latter approach toward science and technology has been strongly prevailed since Renaissance.

Johann Wolfgang Goethe began to work on *Faust* in 1770 but finished it sixty years later when

<sup>9</sup> Ihde D., op. cit., p. 98.

<sup>10</sup> Shelley M. (1994), *Frankenstein or the Modern Prometheus* [in:] *Four Gothic Novels*, Oxford, p. 445–606.

he reached the age of 82. It is rightly considered one of the biggest achievements of the world's literature. In the second part of the book Faust uses the power given him by Mephistopheles to change the world. He is not satisfied anymore with the goods he pursued in the first part. Money, sex, power, and glory are simply not good enough anymore. Faust intends to shape the world according



Richard Rothwell - portret Mary Shelley (1840)

to his own plan, and, in order to do so, he creates new technical and social structures. However, the final result of this activity brings nothing but grief and despair. The real tragedy here arises from the fact that Faust's intentions and purposes were good and honest. This difference or dualism between the intention and the effect adequately characterizes the anxiety of today also toward scientifically and technologically based attempts to intervene into nature. Nevertheless, whatever

*Faust's* accuracy of marking the dangers of human interposition to the world would be, it cannot be called a modern myth. It lacks a constitutive feature of being technologically based. *Faust*, undoubtedly, possesses a modern perspective in seeing the world, but he still uses the mysterious power given by supernatural being – the devil.

Mary Shelley, writing her novel approximately at the same time and touching the same concerns, makes her character – Doctor Victor Frankenstein – attain his ‘power’ with no supernatural help but merely on account of advanced scientific knowledge. In a symbolic way Victor abandons natural philosophy and mysterious alchemy and turns to science and future. He fully believes what professor Waldman told him at the university that “the ancient teachers [...] promised impossibilities, and performed nothing”<sup>11</sup>, and on the other hand, the modern scientists “penetrate into the recesses of nature, and show how she works in her hiding places. They ascend into the heavens: they have discovered how the blood circulates, and the nature of the air we breathe. They have acquired new and almost unlimited powers; they can command the thunders of heaven, mimic the earthquake, and even mock the invisible world with its own shadows”<sup>12</sup>. Doctor Frankenstein who firmly believes this idea finally discovers the way to revive life. The success, however, is merely momentary. The monster, although tender and sophisticated, causes the death of several people. Again, apart from intentions (Victor wants to rid the human body of all sickness) the results are catastrophic. But there is a certain novelty in Shelley’s story, namely, whereas *Faust* wants

to change the world in respect of its physical and social structure (and man would be changed in this new world only in consequence of exclusively those changes); *Frankenstein*, on the other hand, intends to change humans. Once he discovers the secret of life, he will be able to become the father of new species. In order to do so, he experiments directly with the human body. Shelley constructed such vision of science that examines the body in order to change it. *Frankenstein* has its source in the emotions associated with power that we both desire and fear the most – the power over our own body<sup>13</sup>.

At the end of the 19<sup>th</sup> century another novel was published that presented yet another mad scientist being “punished” for his integration into the nature. The science changed extremely during this century, and the response to this change led to strengthening of the already existing vision of science. *Frankenstein* simply received a new form in the stories of Dr. Jekyll and Dr. Moreau. Dr. Jekyll – the title character of Robert Stevenson’s novel *The Strange Case of Dr. Jekyll and Mr. Hyde*<sup>14</sup> (1886) – is one of the last scientists from the line of the 19<sup>th</sup> century investigators whose experiments were either perverted or destructive.

The persistence of such negative stereotypes may be explained by the lack of orientation in science and a certain distance to scientists; moreover, there was probably also an anxiety that these new discoveries in physics and biology would shake the basis of the orthodox religion or the traditional scheme of education. And on the other hand, all those theories and investigations

<sup>11</sup> Ibidem, p. 483.

<sup>12</sup> Ibidem, p. 483–484.

<sup>13</sup> Turney J. (2001), *Ślady Frenkensteina. Nauka, genetyka i kultura masowa*, Wiśniewska M. (trans.), Warszawa, p. 68–71.

<sup>14</sup> Stevenson R.L. (1959), *The Strange Case of Dr. Jekyll and Mr. Hyde*, New York, passim.

seemed to be far away from medicine and brought to the common consciousness nothing but fear. A layman clearly associated science with a danger for his or her own body through poison, narcosis, deformation (vivisection) and pain<sup>15</sup>. Henry Jekyll is yet another example of what destructive outcome can follow from “irresponsible” new scientific experiments. However, in Stevenson’s book science resolves itself into a rather magical activity of preparation of undefined drug that releases the dark side of Jekyll’s personality. In spite of that, this story is still relevant, for the main character treats bodies with extreme hatred, and although Jekyll knows he risks death in taking his drug, he does so quite deliberately. The story, naturally, ends in the tragic suicide of Dr. Jekyll. Thus, the moral of the story concerns how hazardous it is to play with, or to experiment on human nature.

Probably the same anxiety appears in the most famous novel on vivisection: *The Island of Doctor Moreau*<sup>16</sup> by H.G. Wells published in 1896. The plot here is focused on Moreau’s endeavours to create a man-like creature out of animals by applying radically improved vivisection methods. This book increased consolidation and enrichment of the vision of science at that time. Well’s main character depicts a contemporary scientist who lacks moral scruples and who is devoid of any feelings toward others. This dehumanization is a direct result of his experimentations. Just like in the case of Victor Frankenstein Moreau is led further and further by the imperatives of science: “You see, I went on with this research just the way it led me. That is the only way I ever heard of true research going. I asked a question, devised some

method of obtaining an answer, and got a fresh question. Was this possible or that possible? You cannot imagine what this means to an investigator, what an intellectual passion grows upon him! You cannot imagine the strange, colourless delight of these intellectual desires! The thing before you is no longer an animal, a fellow-creature, but a problem! [...] To this day I have never troubled about the ethics of the matter,” he continued. “The study of Nature makes a man at last as remorse-less as Nature”<sup>17</sup>. This passage, just like the whole book, has a large importance in shaping the complex myth of a biologist. Moreau, in opposition to Frankenstein, seems to not to follow any humanitarian motives which were, at least at the beginning, an excuse for the Frankenstein’s project; he simply wants to prove that he is able to change the form of a living creature according to his respective plan. Such an understanding of a biologist-scientist is a relevant ground for any dystopian approach toward modern science, especially from an ethical point of view. In the situation where knowledge stands as the highest in the hierarchy of values, science, as a means to knowledge, becomes at least morally objectionable.

Similar dystopian tendency is present in Karl Čapek’s play *Rossum’s Universal Robots*<sup>18</sup> produced for the first time in Prague in 1921. The cruelty of World War I affected many authors, including Čapek. They realized, on account of the war experiences, that it is very problematic to identify technological or civilizing progress with social development, and in consequence with general improvement. The moral of the play is clear and

<sup>15</sup> Turney J., op. cit., p. 87–88.

<sup>16</sup> Wells, H.G. (2008), *The Island of Dr. Moreau*, Rockville, passim.

<sup>17</sup> Ibidem, p. 76.

<sup>18</sup> Čapek K. (2009), *R.U.R. (Rossum’s Universal Robots)*, trans. David Wyllie, Gloucestershire, passim.

sounds familiar already – to interfere with Nature brings disaster not only to an individual but to the whole community. The story of *R.U.R.* begins with a character quite similar to Victor Frankenstein, namely with old scientist Rossum who discovered a living substance on account of which he intends to create a complex life. After ten years of experiments and attempts of creating artificial man, i.e. a robot, his nephew enters the stage and using new engineering techniques improves the process and paves the way to mass production. This is a very significant novelty. Here the artificial life is produced by conveyor-belt system just like Ford T – the first car manufactured in this manner at the beginning of the 20<sup>th</sup> century. This mass production of robots in *R.U.R.*, however, does not turn out to bring about the utopia that was promised by the owners of the factory. It is a world full of chaos and depression, in which robots deprive humans of their jobs or they are used to fight in wars among nations. At last the robots rise against their masters and destroy unproductive and demoralized humankind.

Eleven years later (1932), another influential book was published: Aldous Huxley's *Brave New World*<sup>19</sup> hit human minds with anxiety mixed with disbelief and affected the whole area of public discussion reactions and on opinions widely understood biomedical examinations<sup>20</sup>. For, Huxley, in his book, made ectogenesis and determination the basis of the functioning of the world. The core of this vision was a biological speculation that became a frame for scientific and social foresight of the future. And consequently the traditional biological fundamentals of social life are exchanged

in the novel by many new technologies, e.g., genetic selection, chemical and psychological methods, medicaments causing depression or euphoria, obligatory contraception, euthanasia, etc. All those techniques appeared at the beginning of the 20<sup>th</sup> century as possible and actually quite accessible within quite a short period of time<sup>21</sup>. *Brave New World* is a classic case of dystopia and the Shakespearean title and the whole set linked to it associations entered the language just as it was the case with *Frankenstein*. The dystopian character of the novel is drastic and the whole book is terrifying. The man of the future, or rather Alphas, Betas, Gammas, etc., are determined by artificial biology throughout their whole life, including death. The global state is governed by totalitarianism in which there is no place for either history or social change. Morality has vanished, and all of humankind is addicted to *soma* – a drug that provides a mindless, inauthentic happiness which makes people comfortable with their lack of freedom.

In a nutshell, Huxley's book constitutes a reaction to the rapid progress in biological sciences which came into being on account of scientists whose only goal very often was experimentation for the sake of experimentation, knowledge for itself. These types (mentioned before) of mean or inhuman biologists who lock themselves into their laboratories became what people feared the most. Huxley simply shows how important it is to constantly discuss and deliberate the biological projects and their outcomes, i.e. to be aware what they can bring and how they may affect us.

<sup>19</sup> Huxley A. (2007), *Brave New World*, London, passim.

<sup>20</sup> Turney J., op. cit., p. 185.

<sup>21</sup> Ibidem, p. 183.



## Envoi

The question to be asked today is whether technological dystopianism is inevitable in the 21<sup>st</sup> century. It is a risky game to anticipate the future. It is a speculative exercise that is seldom accurate, as Ray Kurzweil puts it, "The future is widely misunderstood"<sup>22</sup>. Very often the reason for that misapprehension is that our forebears expected the future to be pretty much like the present, which had been pretty much like the past. Also today everyone expects the continuous technological progress with all its advantages and disadvantages to take place in the near and far future. However, the future will be much more surprising than most observers realize because few have truly internalized the implications of the fact that the rate of change itself is accelerating. When they think of the future they intuitively assume that the current rate of progress will continue. However a serious assessment of history of technology shows that technological change is exponential and, what is more intuitive, linear<sup>23</sup>.

But what are we afraid the most of, today? Apart from the global destruction (nuclear, biological, chemical weapons of mass destruction, nanotechnology) that definitely is at the top of that list, there is another fear that slowly climbs up the rank – the artificial intelligence. Will we bring into being creatures potentially more powerful and intelligent than us? Will they take over our place as the rulers of the planet? Are we that close to becoming like doctor Frankenstein, whose doom was brought on him by his own creation? Or will we have to lose part of humanity to survive?

<sup>22</sup> Kurzweil R. (2003), *Promise and Peril* [in:] Lightman A. et al. [eds.] *Living with the Genie. Essays on Technology and the Quest for Human Mastery*, Washington, p. 41.

<sup>23</sup> Ibidem, p. 41–42.

Already fifteen years ago, for the first time in history, the human chess world champion was defeated by a computer. Gary Kasparov was beaten just in six games by the software program Deep Blue. A human chess grandmaster is an artist who creates patterns of movement on a chessboard as a painter creates patterns of colour on a canvas. The art of a great chess player is as mysterious as the one of the great painter. Again then, art was defeated by technology just like it was the case of fire-arm victory over knightly craft that took place a couple centuries ago and uncounted other examples of the unstoppable expounding of the technological superstructure. The triumph of the machine does not mean, however, that the time of chess as an art form is over. Freeman Dyson predicts that there will be three separate types of chess tournaments: some for humans only, some for machines only, and some for humans aided by machines. And all three types will give scope for artistry and for deeper understanding of the game<sup>24</sup>.

This anticipated change of how chess will be played in the future is a fine illustration also of the impact of technology on other spheres of human activity. It will be drastically changed but still on the essential level it will remain very similar.

And what if the three-dimensional molecular computing will succeed and we will make machines in our own image, or rather in the image of our brain? If ever the strong AI is constructed, it will alter not only man himself but also his perception of himself. Many, until then, philosophical questions like mind-body problem would be answered with the scientific accuracy. Many

<sup>24</sup> Dyson F. J. (1999), *The Sun, the Genome, and the Internet. Tools of Scientific Revolutions*, Oxford, p. 115–17.

essential pillars of philosophy would have to be revised or rewritten including ethics of course. The constitutive notions like “person” “other” or “moral agent” would have to be redefined. In this sense the entirely new framework for ethics, a new paradigm would have to be established. At this point however humankind seems to be at the very beginning of the transition from the old framework to the new one that is signaled by the greater and greater number of artefacts that escape the traditional categories.

For now much of humankind still follows the beautiful idea of Francis Bacon that with the tools of technology we are able to change our destiny, to make our lives better, to avoid famine and unnecessary suffering in the world, it is important to remember for whom we do it and take responsibility for it. In order to do so we must take a closer look at technology itself and its ethical implications. ■

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### **Technology, Utopia and Dystopia. Modern Technological Change in Early Literary Depictions**

#### **Abstract**

The article analyses the ambiguity of the technological change in the context of modern technology. The dual perception of technological change is framed in bipolar terms. Technological progress, being a subject of moral evaluations, is seen as either a tool of making the world a better place (utopian approach), or as a real danger for humankind, its social structures, its moral construction, even its very humanity (dystopian approach).

The dystopian perception of technological growth has arisen in the opposition to the well-established utopian paradigm. Its beginnings are to be found in the last decades of the 18th century. Some literary works being published since that period are great illustration of the more and more popular anxiety towards technological change. Adopting that perspective, the article critically discusses Goethe's Faust, Mary Shelley's Frankenstein, or the Modern Prometheus, Robert Stevenson's The Strange Case of Dr. Jekyll and Mr. Hyde, Wells' The Island of Doctor Moreau, Čapek's Rossum's Universal Robots, and Huxley's Brave New World. The article is concluded with a brief description of current anticipations of future technologies, as well as, the possible perils it may bring along.

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