The Science Fiction Phenomenon and the Faces of Time

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Abstract: In a very large perspective, temporal dimension represents one of the essential elements defining the science fiction genre and differentiating it from other literary forms in general. In this study we followed the way in which the science fiction genre, since the most significant works of its beginning, follows the evolution of the most advanced scientific theories, and, by the aid of imagination or fantasy, fictionally speculates the suggestions and hypotheses proposed by theoretical physics, mathematics, or the newest sciences such as nanotechnology for example. The way in which the view of time evolved from the classical, Newtonian period until the contemporary era by developing a new time perception will reflect the evolution of the science fiction genre from its beginnings until the formation of a new line in science fiction, namely cyberpunk.

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In one way or the other any literature, taking reality as a narrative pretext in order to elaborate, on the margin of its set of ontological or metaphysical determinations, fictional strategies which would annihilate these, reveals thus an inherent characteristic of human nature, the need for knowledge and the limitations resulting from it. On the other hand, being situated between the fairy tale and fantastic narration, science fiction literature differs from these exactly in the amount of explanation needed with regard to this transgression of human limitations. If the miraculous needs no explanations in fairy tales, miraculous deeds being taken for what they are, a part of a world which does not need rational understanding, the *sine qua non* condition of the fantastic is that it keeps the readers in "hesitation"[1] without giving them the occasion to choose an explanation of any kind. When this condition disappears, the fantastic also does so.

The task of science fiction literature is much more difficult. Even if this type of literature is created on the temporal coordinate of the future, this being one of the genre's basic characteristics, neither the authors, nor the consumers of this literature can disregard the fact that they belong to a physical, historical time and they are cognitively determined by the paradigm of knowledge characteristic to their age. This provocation of the imagination contributes both to the shortcomings and the greatness of the genre. Science fiction authors will never be able to discuss and explain all the particularities of the real world as different from those of the imaginary world they construct, but they must permanently refer to them. Nevertheless, beyond the fact that science fiction

[1] Tzvetan Todorov, *The Fantastic: A Structural Approach to a Literary Genre* (Ithaca, New York: Cornell University Press, 1975), 25.

creates a scientific metalanguage, one cannot disregard the fact that this genre also belongs to the fictional region, even if, for a time, it was kept at the borderline of its academic norms. Functioning in more or less flexible narrative instances, science fiction literature maintains a privileged point of view on mankind's future, also determining, in a certain measure, man's view on the universe by imposing some advanced scientific concepts processed afterwards in narrative codes. What would be the answer to the psychologizing question, considering the name of the genre, *science fiction*, as well, from what direction, from the direction of science or that of literature was the appearance of this genre necessary?

Thomas S. Khun, in an already classic epistemological writing, *The Structure of Scientific Revolutions*, stated that in its critical periods science constructs speculative theories which, if experience validates the later, become new paradigms replacing the old ones; otherwise they are abandoned.[1] Do science and science fiction discourse borrow because of the same reasons of crisis as they do with philosophical analysis, or can we develop the hypothesis of some successive critical periods in literature, which, in time, brought to life, precisely against the background of these crises, some marginal genres such as the miraculous, the fantastic, and in the 19th century science fiction?

Being the result of some repeated chainlike crises – the crisis of triumphant reason and also of literature which tried to go beyond the limits imposed on it by knowledge and the irrational at the beginning of the 19th century; then, during the age of modernity, the crisis of science which proposed a representation model for the world, a crisis encountered also on the level of literary creation; and, finally, in the postmodern period, the crisis of technology which tests scientific speculations experimentally, beyond computer simulations, a crisis prolonged in the domain of literature due to the dissolution of modern art concepts – the science fiction phenomenon is inserted exactly in the gap produced by these crises, originating from them.

In the general theory of relativity, physical elements – space, time, material, energy, gravitation – are no longer conceived separately or isolated as in Newtonian mechanics, but in a continuous interdependence mutually affecting one another. This view on the world outlined in the first decades of the 20th century by several subfields of physics (quantum mechanics, astronomy, cosmology) naturally influenced the way in which humanistic thinking reshaped, according to this new order of knowledge, its conception of the world.

At the level of psychology for example, starting with Lacan's investigations, the way in which the causes leading to psychical ruptures were perceived had changed, these no longer being attributed to some isolated implications, but confirmed by a complex and permanent dynamics of the ego. Similarly, in philosophy, the absolute notions which had been the object of classical physics lost their absolutist character being transformed into notions of representation forms and of discourse (Michel Foucault).

In literary practice and theory, due to the confrontation between a mimetic and a non-referential poetic vision of the world, such conceptual modifications took place much later than in the case of other disciplines. They happened only when the transition was made, as Ihab Hassan stated, from the modern to the postmodern paradigm. The

[1] Thomas S. Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1970), 88.

perception of the world was modified both with regard to the way in which the literary text, seen in the postmodern "age" as a product of a culture characterized by *undeterminedness* and *immanence*,[1] is conceived, and at the level of literary theory, which resulted in the literary text being interpreted not in the light of some fundamental truths but deconstructing it (see poststructuralist theories).

If for the practice of fiction, in general, the world conception, corresponding to a common scientific paradigm manifest in a certain period of time, is mainly reflected in the conceptual level of elaborating the narration without greatly influencing the mechanism of events, the case will be totally different with science fiction literature. Considering precisely the fictional answer given by this marginal genre, situated at the confluence between the scientific and the literary imaginary, to the introduction of new scientific theories and to experimentation with technical innovations, one can perceive in the course of time how boundless science fiction authors' wish has been to go beyond any barrier imposed by knowledge. The evolution of the genre can be critically evaluated along this attempt to transcend these limits.

Observing the way in which space and time has been perceived by science fiction literature as essential for elaborating possible universes, and, referred to certain practical applications resulting from here (time and space travel), three stages of evolution can be stated which synchronize with the paradigm of scientific theories which inspired them:

1. *mechanical stage*: space and time as absolute reference points, fixed dimensions, existence of an absolute observer;
2. *quantum stage*: space and time are relative, dynamic dimensions, each observer has his/her own measurement of time;
3. *bio-electronic stage*: space and time are virtual, extensible dimensions, cyborg.

The mechanical stage coincides for science fiction literature with the beginnings of the genre, the period when scientific speculations on the theme of space and time were outlined around the subject of time and space travel. This kind of travel always requires someone who, by certain contrivances of temporal or biological engineering, manages to leap over the barriers imposed on human nature by space and time limits. It must be mentioned that in these cases the sense of time always remains unchanged, the view of space and time is also that of Newtonian mechanics, that is, time is irreversible, flowing invariably from the past towards the future. Thus time travellers journey either into a more or less far future of mankind or into the past in order to revaluate some historical events. The best examples to this mechanistic world model in science fiction literature are H. G. Wells' works.

Published in 1895, H. G. Wells' novel, *The Time Machine* is not at all foreign, as Ion Hobana demonstrates with a set of solid arguments,[2] to the effervescence of scientific ideas from the field of physics which circulated in that era and which prefigured the revolution of the relativity theory. Ion Hobana considers that Wells anticipated[3] in this novel even the concept of relativity. Indeed, already at the beginning

[1] Ihab Hassan, *The Postmodern Turn. Essays in Postmodern Theory and Culture* (Columbus: Ohio State University Press, 1987), 55–63.
[2] Ion Hobana, *Un englez neliniştit. H.G. Wells şi universul SF* (A Restless Englishman. H. G. Wells and the SF Universe) (Bucureşti: Ed. Fahrenheit, 1996), 44–8.
[3] Ibid., 47.

of the novel the Time Traveller, trying to explain to his visitors the principle on the basis of which time travel is possible, introduces a fourth dimension to the three acknowledged dimensions of space, time: "...any real thing must extend – must stretch out – in four directions: it must have four measurements; it must have length, breadth, thinckness – and time. It must stretch out for a certain distance in three directions in space, and it must stretch out for a certain distance in time. Now, we can move backwards and forwards and sideway in space; but we move in one direction only in Time. For this reason we tend to think of the time measure of things as something different for the three space measures. [...] Yet there is really no difference between those three space measures and the time measure".[1]

Speculatively, it can be indeed stated that H. G. Wells envisioned relativity before it being scientifically theorized by Einstein before the Berlin Academy on February 8, 1917 in a lecture entitled *Kosmologische Betrachtungen zur allgemeine Relativitätstheorie*. This was not at all surprising considering the already existent tradition in romantic fantastic literature of travelling in time and space based on the principle that these were relative dimensions [Mihai Eminescu's vision on space and time in his novel *Sărmanul Dionis* (Wretched Dionis) presents an eloquent example].

Nevertheless, H. G. Wells tried to confirm experimentally this speculative revolutionary idea of relativity based, after all, also on the authority of celestial mechanics, fact which situates the British writer still within the boundaries of Newtonian thought. The time machine built by the Traveller functions by a simple mechanism and requires only a lever to give the direction of time, pushed forward the machine *goes* to the future, and backwards it would *slide* toward the past. Other technical details of its functioning are not given, only the particular that on the chosen time direction there is a scale on which the dials record days, thousands of days, millions of days, and thousands of millions of days: "One dial records days, another thousands of days, another millions of days, and another thousands of millions". "When I looked at the dials I found that the hand which showed thousands of days was sweeping round as fast as the seconds hand of a watch – into the future."[2] This is an additional proof of the fact that time has a unique, evolving direction; in this Wells novel the direction chosen by the Traveller is the Future. After a short stop in a far moment of mankind's future, in which the traits of the human race are greatly blurred, the journey will continue almost to the extinction of all trace of life on Earth, the sun having lost much of its energy and power. This moment described by Wells is exceedingly poetic; his eschatological vision on the end of the world observed during an eclipse is expressed in a series of images which seem to be borrowed from romantic poetics: "The darkness grew; a cold wind began to blow from the east, and the snow fell faster. From the edge of the sea came a quiet whisper. Beyond these lifeless sounds the world was silent. Silent? It would be hard to describe the stillness of it... I saw the black central shadow of the eclipse sweeping towards me. In another moment the pale stars alone were visible. The sky was absolutely black."[3]

Overcome by a deadly horror and sickness the Traveller gets off the machine to recover for the return journey, but, frightened for a moment by the thing he sees moving

[1] H. G. Wells, *The Time Machine* (London: Longman, 1952), 2.
[2] H. G. Wells, *The Time Machine,* 88.
[3] Ibid., 93.

in the sea he quickly comes to himself and pulls the lever backwards, towards the past. As in a film played backwards fast, the Traveller sees passing before him all the physical events which occurred on the planet, the succession of days and nights, the fluctuation of the flux and reflux, all happening backwards up to the null point, considered in absolute value the moment he started. The interval of the Traveller's absence from his world is measured by the clock in his study; during his entire journey the only time he relates to is his own time, the biological time, having as a framework of reference his own existence.

Spatial modifications are not spectacular, and they harmonize with Wells' view on the evolution of the living world; the Traveller and his machine do not leave the planet for a single moment. Therefore Wells' hero does not leave the limits of the known space, the features of the terrain and the characteristics of the Earth's surface are maintained even in the description of the Earth's eschatological image. At a certain moment the exuberant richness of nature is compared with the Thames Valley, familiar to the writer.

Beyond however its anticipatory view on the theory of relativity, a speculation which functions as a secondary argument in fiction and which makes possible to travel to the future and to return to the given time in order to give evidence on the fate of mankind, H. G. Wells' novel was seen by his contemporaries as well as by literary historians of the genre as a strongly polemical, critical, and dystopian work, expressing his own social conception on humankind. Travelling much in the future, the Traveller must face the image of the human race divided in two species, the *Eloi* and the *Morlocks*: the former, living aboveground, are seen as possessing weakened human traits, having the stature of some frail children and speaking a language with an extremely rudimentary syntax; the latter, underground creatures, adapted to darkness, emerge aboveground only in the night to hunt. Having none around him to explain the way in which the two societies of mankind's future descendants, the aboveground and the underground beings are organized, the Time Traveller draws hasty conclusions elaborating a social theory based on the capitalistic relations of production of his time, namely the social and economic difference between those who control the capital and those who work for the former: "It seemed clear to me that the gradual widening of the present social difference between the Capitalist and the labourer, was the key to the whole position."[1] Logically, in the Traveller's view, the *Eloi* were the privileged species, why the *Morlocks* were those who provided for their life by their underground work. This idea will however prove, ironically, false, demonstrating the creative maturity of a writer capable of deconstructing certain preconceived ideas of utopian writings.

The two species from the far future of mankind, the *Eloi* and the *Morlocks*, are not at all the result of the evolutionary cycle of capitalistic production, but, on the contrary, they show once again the way in which nature regulates its own evolution by a balanced biological relationship between the individuals grouped in different species. H. G. Wells too was quite familiar with this elementary principle of the evolution of life on Earth, thus, towards the end of his journey, in the year 802701, the Time Traveller understands the real significance of the relationship between the two semi-human species, the aboveground world being in fact the victim of the underground world, the *Eloi* being hunted by the *Morlocks* in numbers sufficient to provide them with food.

[1] Ibid., 59.

The success H. G. Wells' novel enjoyed in its time and also its lasting popularity make *The Time Machine* a piece of definite value in the panoply of the genre; it represents at the same time a reference point for any work of speculative fiction having as its main theme time travel. Though it prefigures the relativist view on the universe, Wells' novel main conception remains in practice mechanical, referring to an absolute space and time, depending on a unique observer and his system of reference.

If in *The Time Machine* Wells solves the problem of time travel with the aid of a machine the functioning of which is not explained, in *When the Sleeper Wakes* (1899) sleep, an older theme of time travel is used to accomplish the jump in time. By the temporary suspension of his concrete existence and the biological functions of his organism, Graham, Wells' hero awakes in London, the city he is living in, three hundred years later in the future. Having three forerunners with respect to the theme of time travel through cataleptic sleep – Washington Irving (*Rip van Winkle*, 1819), Edward Bellamy (*Looking Backward*, 1888), and William Morris (*News from Nowhere*, 1891), mentioned by Wells in his novel –[1] *When the Sleeper Wakes* breaks with their utopian view, prefiguring a hyper-industrialized, sombre future. Here the emphasis does not fall on the idea of time travel, but rather on finding solutions which could free the world from under the rule of a monopolistic dictatorship, and then, having overthrown this, from under the power of some fascist-like powers. Time travel here is only a pretext for Wells to elaborate, based on his social democratic and humanistic ideas, as well as on the information he has on his own time, a vision which anticipates the industrialized future of England, moreover of the western world. Regarded today from the perspective of the century that has passed since its publication, Wells' novel anticipated at least two phenomena of modern or even postmodern world: fascism, through Ostrog's dictatorship, and the financial power of corporations, through the Council which administrates the Earth with its huge capital.

Neither does Wells abandon the mechanical view on time and space in *When the Sleeper Wakes* where the trajectory of time has a well determined direction going from the past towards the future, the time traveller Graham's clock is biological and it functions independently from the passing of time. The jump in time does not affect his inner biological evolution. The nature of space also remains unaltered in its turn, what naturally changes is architecture due to the developing forms and structures of the buildings that will form, in Wells' vision, the urban conglomerate of future London.

Inspired from H. G. Wells' writings, Ray Cummings had the rare privilege to publish, due to its success, his novel, *The Girl in the Golden Atom* on time travel, which had been serialized in 1919, also in book form in 1922 in London and a year later in New York. Its success consecrated him as one of the most important science fiction authors of that age alongside Edgar Rice Burroughs. From the perspective of time travel, this writing is mainly interesting for the proposed end, namely the subatomic, ultramicroscopic universe. The narrative scheme and structure are somewhat identical with Wells' *The Time Machine*, Ray Cummings' writing starting also with a discussion between friends, the Chemist (the manner in which the British writer named his characters after their occupation is preserved too, Cummings' characters being named the Very Young Man, the Banker, the Big Businessman, and the Doctor) explaining to the others the possibility of travelling in time with the aid of a drug discovered by him,

[1] Hobana, *Un englez neliniştit...*, 124.

even inside an atom of his golden ring. In that microscopic universe, the Chemist had discovered a beautiful girl, Lylda whom he had managed to visit and intended to stay with her once again for the length of a terrestrial week. To his friends' disappointment, he did not return at the end of the appointed period of time.

Such an ending naturally demanded a sequel, which appeared in short while: at the beginning of 1920 Ray Cummings serialized the *People of the Golden Atom*. Here the adventures of the Chemist's three friends, apart from the Banker who remains behind to watch the ring, experienced during their journey to the microscopic world are presented. Once arrived, they were informed by the Chemist that this world, which had become his as well through his marriage to Lylda, was threatened by a foreign, barbaric power, the newcomers from the macroscopic world being demanded to defend it. The end can be naturally foreseen, the utopian world in which the Chemist settled would be saved with the aid of his friends.

What is interesting in these two novels by Ray Cummings, beyond the narrative framework similar to that encountered in H. G. Wells' *The Time Machine*, is mainly the jump to a new spatial dimension, supposed to exist beyond experience at the level of the atom. In the scientific world, at the beginning of the 1920s attention was directed towards the quantum universe, attempts being made to verify to what extent the hypotheses of Einstein's relativity theory were compatible with the results of quantum mechanics. Cummings' writing was however far from the scientific discoveries which were to be made six years later and which represented a real revolution in quantum mechanics, namely the uncertainty principle formulated by Werner Heisenberg. The uncertainty principle states that at quantum level the future position and speed of a particle can be specified only if its present position and speed is exactly measured. Heisenberg's discovery put thus an end to the career of the scientific determinism, a doctrine formulated by Laplace, and it had a profound influence on thinking and on the way the world is perceived. Ray Cummings' two writings were far from the advanced theories of the age, being indebted, apart from the relativistic view of space and time which he assumed in explaining the jump to the microscopic universe, to a mechanical world view. The world at a microscopic scale is, at the physical level, a copy of the big world, functioning according to the same space–time causality, only that, at the social level, it offered Ray Cummings the occasion to construct the utopian image of a better world.

Nevertheless, science fiction literature did not remain outside the scientific, intellectual climate of the age, and the conceptions which theoretically determined the view of the world constructed according to the theory of relativity had a major impact on science fiction writings. The author who illustrated maybe the most strikingly the hypotheses of relativity theory and who belonged to a generation of science fiction writers educated in the spirit of the new ideas on the world was A. E. Vogt. The most famous and the most controversial work in the history of science fiction,[1] *World of Ā*, was serialized in the magazine *Astounding Science-Fiction* beginning with the August 1945 issue. The trilogy *The World of Null-A* represents the most eloquent example for the manner in which the hypotheses of some scientific theories and even speculations yet unproved by experience can be applied at the narrative level. *The World of Null-A* is

[1] Jacques Sadoul, *Histoire de la science-fiction moderne (1911–1984)* (Paris: Ed. Robert Laffont, 1984), 153.

the non-Aristotelian world, where space and time are relative, and where a kind of *General Semantics* functions having for a model Alfred Korzybski's theory on the sense of significations, which educates its adherents in the spirit of the basic non-Aristotelian principle according to which *to be means to be relative*. In the universe constructed by van Vogt, in the *null-A world*, the configuration games of the cosmic power are made by the so-called *Games Machine*, which dominates the entire galactic system of the human race. The philosophy adopted by Gosseyn, the only adversary of the *Games Machine* to be feared, by the aid of which he will defeat this, is, in fact, a world conception opposed to the Aristotelian view and elaborated by means of some practices and techniques of mental education. The new non-Aristotelian theory also requires a non-Aristotelian logic and a *General Semantics* based on non-axioms, as well as a training which requires special techniques based on the subtlety of mental actions from under the verbal level. The main idea of *General Semantics*, inspired by Alfred Korzybski's theory starts from the hypothesis that the nervous system forced to function within certain given limits narrows the cognitive horizon of men, who can only perceive a part and not the totality of truth. Some of the principles of *General Semantics* are formulated in the first two chapters of the book. The training in non-Aristotelian thinking, for which the word is not the thing it represents, offers, as the hero explains, "a technique of automatic extensional thinking which had become the dynamic philosophy of the human race."[1] The principles of General Semantics functioning in the non-A world in van Vogt's trilogy account for travels in time to millions of light year distances, which surpassed the science fiction imagination of that age. Van Vogt abandoned the idea of travelling mechanically in space, an older obsession of the positivistic-technical age, being aware of the fact that no mechanism constructed by human hands could be adapted to the theoretical requirements of long-distance space travels, and directed his attention, probably influenced by ancient mythologies, towards certain hidden, super-sensorial human capacities. He thus "discovered" that by the *similarization* process, namely by decomposing the human body in elementary particles and recomposing it instantly in another time or space of the universe, one can travel without the aid of technology. Travelling in time and space by means of the *similarization* process has remained only a speculation of science fiction imagination, because of the principle of uncertainty present at the quantum level being impossible to control the disintegrated particles following such a process. On the contrary, recent experiments, such as those conducted by some researchers at the University of Geneva, have shown that at the quantum level not only the position and velocity of a particle related to a given moment is impossible to foresee, but time itself loses its measure unit and spatial-temporal causality disappears.

The science fiction literature of the second half of the 20th century took pride in the fact that it managed to keep up with the new scientific and technological discoveries and devised answers in the fictional domain to advanced scientific questions which had not yet received theoretical founding at an experimental level. One of these, a provocation both for the science and technique of the age, was the problem of the means of travel in the solar system and even further, to other galaxies. It was the golden age of science fiction literature, and, as the genre was becoming recognized, one can follow the editors' growing interest in publishing in volumes texts successful with the public. As

[1] A. E. Van Vogt, *The World of Null-A* (New York: An Orb Edition, 2002), 19.

the barriers of knowledge began to fall one by one before the science fiction authors' creative imagination, the themes and motifs they used became diversified and obtained, by means of the applied scientific substratum, legitimacy in the poetics of the genre.

Travelling in space and time thus no longer constituted a problem to bar the way to other galaxies. Isaac Asimov, in the *Foundation* cycle,[1] built the vision of a galactic empire within which travelling was possible by jumping off to *hyperspace*. The impossibility, demonstrated through the theory of relativity, to travel faster than light, hard to accept for the creators of the genre, was removed speculatively by the vision of "compressed" world, a folded universe, where seemingly far-off points of space could be situated close to each other. The result of this world model was *hyperspace*: "Hyperspace is often seen as a space of higher dimension through which our three-dimensional space can be folded or crumpled, so that two apparently distant points may almost come into contact."[2] The term *hyperspace*, invented probably by John W. Campbell Jr in *Islands of Space*, short story published in *Amazing Stories Quarterly*, has made in the course of time a real career in science fiction literature, being one of the most productive speculative ideas, which legitimizes travel to millions of light year distances. The idea of *hyperspace* was definitively acknowledged due to the science fiction television productions, first of all, due to the *Star Trek* series created by Gene Roddenberry, based on scenarios adapted from texts by authors such as Norman Spinard, Theodore Sturgeon, Greg Bear, Joe Haldeman, or Vonda N. McIntyre, and many others. The first series produced by Paramount Television/NBC was launched in 1966, and being a great success with the public, it became one of the longest television serials in the history of the genre, running for over 25 years. The idea of the jump to the *hyperspace* as a means of travel to great distances by the aid of spaceships, as well as the procedure of the human body's *similarization* or *teleportation* from one place to another, more or less distant, gradually replaced the old ways of travel, such as mechanical ships or the necessity of artificially prolonging the travellers' life (trough cryogenic sleep, for example).

An interesting means for intergalactic travel was used by Frank Herbert in his *Dune* cycle,[3] a cycle which can be compared in dimension and value in the science fiction universe to Isaac Asimov's *Foundation* cycle. Those entrusted with space travel, grouped in a congregation, the *Spacing Guild*, politically and economically independent from the imperial power, use in cosmic flight a unique drug named *spice melange*,

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[1] The first instalment of the *Foundation* trilogy was published in May 1942 in *Astounding Science Fiction*, its publication being continued until 1949. In book form it was first published by *Gnome Press* in three volumes: *Foundation* (1951), *Foundation and Empire* (1952) and *Second Foundation* (1953). Pressed by his fans, Isaac Asimov continued the *Foundation* series in the 1980's, publishing three more volumes: *Foundation's Edge* (1982), *Foundation and Earth* (1986) and *Forward Foundation* (1993). In Romanian language the series appeared in six volumes at Nemira Publishing House in 1993–1995 translated by Emilian Bazac.

[2] *The Encyclopedia of Science Fiction*, ed. John Clute and Peter Nicholls (London: Orbit, 1993), 607.

[3] *Dune World*, the first volume of the *Dune* series was serialized in *Astounding Science-Fiction* between 1963 and 1964. The second volume, *The Prophet of Dune*, or *Dune Messiah* was published in 1965. The third volume, *The Children of Dune* appeared in 1976. It was then followed by *God Emperor of Dune* (1981), *Heretics of Dune* (1984) and *Chapter House Dune*, the last volume of the series published in 1985. It was first published in Romanian in six volumes by Nemira Publishing House between 1992 and 1996 in Ion Doru Brana's translation.

which can be found in significant quantities only on the planet *Dune*, being also the most coveted currency between the power centres of the Empire. By the aid of the *spice* the *Guild Navigators*, who lose in time their human appearance, guide space-faring ships (spacefolders) through the mine-field of gravitational obstacles relying on a science known only to them, using subconscious structures inaccessible to normal people. Resorting to a kind of *pre-science*, a vision evoked by means of the *spice*, *Guild Navigators* seem to be rather the possessors of exceptional mental powers (*psi powers*: "a name given to the full spectrum of mental powers studied by the pseudo-science of parapsychology, and a common item of sf terminology"[1]), which they use for long distance travels, and by no means technicians or spaceship pilots familiar with computer technology. Otherwise, Frank Herbert laid a special emphasis on the mental-psychical factor in the entire *Dune* series, constructing the vision of a world ruled not by the brute force of arms or financial capital, but by a power more difficult to control, but more efficient, namely, the power of mental and psychic abilities. For the first time in the history of the genre, excursions to distant regions of the universe become secondary; what is primary in the *Dune* cycle is the exploration of the dimensions of human consciousness and psyche. Besides, in the *Guild Navigators*, who ensure the traffic in the galactic empire, travelling truly fulfils its mystical, initiatory role in the jump made by gifted individuals such as Paul Atreides (in *Dune* and *Dune Messiah*) and, later, his son, Leto, who has become a god (in *God Emperor of Dune* and *Heretics of Dune*), in the unlimited dimensions of consciousness. Acquiring, by the aid of the *melange* and due to his Mentat abilities, the faculty of transcending time and space, Paul Atreides or *Muad'Dib, the Messiah*, as the inhabitants of the desert planet *Dune* call him, makes the mental jump to the past of humanity in search for the answer to the question he is tormented by, "what does it mean to be human?", the knowledge of the past helping him to determine, from among the possibilities of the future, the less disastrous one for mankind.

Frank Herbert's hero accomplishes this journey in time both towards the past and towards the future without moving effectively and in space, the jump being made only at the level of the subconscious in a state of trance, therefore he will only play a passive role, of a spectator of time, his presence outside his own time affecting not the temporal flow of the events.

The theme of travel in time and space related to that of alternative worlds was further evolved by Poul Anderson in one of his writings, having as a narrative pretext the role of the *time patrol* in preserving the integrity of mankind's historical events. In *The Corridors of Time*, a book published in 1965, Poul Anderson constructed the image of a labyrinthine time, crossed by corridors, which make possible the travel between the regions of time and the ages of history. Two forces, come from the future, the *Rangers* and the *Wardens*, fight in the *corridors* of time trying to gain control over events, allying themselves in the course of history with the belligerent tendencies of mankind, which they support, using them to their own ends, and establishing headquarters and outposts in the ages controlled by their forces. A restricted area, situated in the territory of present day Denmark 18 centuries BC, when Northern Europe was still in the Neolithic, becomes the battle ground for the two powers coming from a future situated somewhere two thousand years after the 20th century, the confrontation taking place in the presence

[1] *Encyclopedia of Science Fiction*, 971.

of some locals still living in the horizon of magical beliefs. The gateways to the *corridors* of time are known only to those who use them, their control being also at stake in the antagonists' confrontation. The tunnel, we are warned, does not function according to the principles of physics; it must be imagined as a kind of energy tube, its length being rolled on the axis of time. From the point of view of the person inside, cosmic time or outer time is frozen. One can opt for any historical age by choosing the appropriate access way. The course of events preserved by historical memory in documents and annals, however, cannot be modified, the role of past confrontation being to promote the ascendant, evolutionary flux of mankind towards a utopian future, seen by the hero for a moment, which no longer has any of the evils gnawing at humankind.

In *Time Patrolman*, a volume published in 1983, the *agents* of time, specialized in certain historical periods, the unfolding of which they survey, practice this profession as any other, their role being to ensure that no unexpected event disturbs the well-known course of events. This duty of the *time patrol*, to watch over the course of history, is not an easy task, all the more as it is always possible a deviation from the given world towards an alternative world (*alternative world* – "an account of Earth as it might have become in consequence of some hypothetical alteration in history"[1]). One of the best known writings on alternate history is Philip K. Dick's *The Man in the High Castle* published in 1962, a novel in which the course of events during World War II is changed, the war ending with the Allies' defeat. Using the same motif of the Nazis' victory over the Allies, we may also mention the texts of such authors as James P. Hogan, *The Proteus Operation* (1985), Brad Linaweaver, *Moon of Ice* (1988), and David Dvorkin with *Budspy* (1987). This genre of writings in which major historical events are deviated from their real course and presented in another evolution is called *uchronie*. The term was used for the first time by Charles Renouvier in 1857 in a historical fiction,[2] *Uchronie (l'Utopie dans l'Histoire), Esquisse apocryphe du développement de la civilisation européene tel qu'il n'a pas été, tel qu'il aurait pu être*. The pretext any uchronie starts from is a political one, and it respects certain ideological conventions which it proposes to demonstrate, in the case of the above mentioned texts, the hypothesis that the real historical course of events is anyway preferable to that imagined following the Nazi victory.

When temporal engineering, however, passes beyond terrestrial horizons, making towards the cosmic universe without limits, the speculations of science fiction authors are no longer subject to the laws of physics and experimental data. Thus, Gérard Klein, one of the best known European authors in America, in *Les Tueurs de Temps* (The Mote in Time's Eye) (1965) created the image of cosmic chess players for whom time is the most important piece in the game. Cosmic ships that travel through space, belonging to future worlds, are projected into the past, even long before the appearance of human civilization, in a place where they all got accidentally from different spaces and different times. If they are technologically sufficiently advanced they will survive and will colonize those worlds where they unwillingly got to, and if they wished to return, as the ship *Vasco* from the Little Magellan system, they would got involved in a war waged over time itself. In order to cross these distances of millions of light years, impossible to imagine today according to the laws of physics, which limit the time of

[1] Ibid., 23.
[2] Florin Manolescu, *Literatura S.F.* (SF Literature) (Bucureşti: Univers, 1980), 76.

space travel to light speed, considered the maximum limit, Gérard Klein resorted to that which he called a *second continuum*, that is a kind of hyperspace, in which the speed of travelling exceeds that of light. Thus, during a year one passes on board of the ship *Vasco*, this could journey one million light years. The accidental translation suffered by the *Vasco*, jumping back in time 230 million light years, surpasses, however, the technology familiar to the civilization that built her. If the jump in the past was made instantaneously, a movement perceived by the instrument board due to the modifications that took place on the map of sky, the return to the original time is more complicated and requires special technology. The *stasis field*, according to conventional science fiction terminology, operates by keeping only certain biological functions, the others being stopped for the temporal passage.

If temporal engineering is essential in the science fiction literature discussing time travel, the space configuration does not have many versions which differ from the three-dimensional space matrix. Einstein's *general relativity theory* unites the three dimensions of space in the same equation with the fourth one, considered to be time. This fact encouraged a series of science fiction texts to devise a multi-dimensional universe which can be described by the mathematical equations of topology. One of the best known texts dealing with this theme is Robert A. Heilein's *And He Built a Crooked House* (1941), in which an architect manages to build a house in another dimension. The mathematical equations of topology which describe space with more than three dimensions, because of their high level of abstraction, do not hold the same interest for science fiction authors as temporal engineering. This reserve originates probably from a difficulty of human consciousness, which, because of its conditioning, cannot visualize and perceive a space with *n* dimensions, and the topological "jargon" does not offer sufficient indications for science fiction authors to conceive it. The idea of a secondary space proved, however, to be much more productive and suggestive. This refers to some kind of suspended space or *hyperspace* where light speed is abolished and where travelling no longer depends on it. In the same thematic sphere belongs the notion of *black holes*, which finally entered the scientific terminology through the research of some physicists such as Stephen W. Hawking or Roger Penrose, and which no longer corresponds to the description of three-dimensional space. Science fiction literature used this notion as a pretext for journeys from one end of the universe to the other, as *shortcuts* for travelling in time, its description being of secondary import to authors.

The topography of places and the description of new planets inhabited by the human race or the representation of the original planet in a far future constitute basic elements of the science fiction universe's edifice and would deserve special attention from the part of the genre's researchers. Be it either focused on the future of the Earth with the specific transformations of a natural evolution until the exhaustion of solar energy – *The Solarians*, for example, by Norman Spinard or *Oraşele scufundate* (Submerged Cities) (1937) by Felix Aderca, or with transformations caused by natural cataclysms, *The Wind from Nowhere* (1962), J. G. Ballard's first novel, or by nuclear wars, *This Immortal* (1966) by Roger Zelany –, or be it an attempt to describe other worlds in the cosmic space through landscape elements which rely on the pre-existent image of Earth's geography – for example the desert planet Dune in Frank Herbert's eponymous novel –, science fiction literature creates a complex physical geography, in which the elements of landscape are harmoniously combined with climatic factors.

The majority of these descriptions focus on the natural elements of the landscape, but science fiction literature is also familiar with artificial spaces, constructed by the aid of technology, which become, in the end, human habitats, namely, space stations. These stations, due to their complexity and extent, sometimes reach the dimension of cities or human conglomerates. Sometimes these space stations are constructed by men and function as free zones, playing the role of outposts or spatial resting places for future journeys, or they are simply situated in the neighbourhood of some planets, as in *Solaris* (1961) by Stanisław Lem, in other cases they are the habitats of some extraterrestrial beings man gets in contact with and tries to understand: Arthur C. Clarke, *Rendez-vous with Rama* (1973), or the *Helliconia* trilogy (1982–1985) by Brian W. Aldiss. This topos of spatial habitats occupies an important place in the thematic range of science fiction literature,[1] all the more so as scientific discoveries and the ever more advanced technology is much developing in this direction.

Science fiction literature has made the most of discoveries in physics, as well as in other sciences, but it mainly tried to exploit fictionally those scientific speculations which at the present stage of development cannot yet be experimentally proved. The philosophy of science has shown that in moments of crisis, when in search for answers to unsolvable problems, scientists often resort to speculative theories, which, if successful, become new paradigms, and if unsuccessful, are evidently abandoned. Science fiction literature has a true predilection for these speculative theories and "chases" them with particular interest, transforming them in real topoi of the genre. This happened in the case of *black holes*, a term invented in 1969 by the American scientist John Wheeler, which made at first a career in science fiction, becoming accepted only later in the world of science, as the research in this domain advanced. If the main orientation of modern science fiction followed the same direction as scientific and technological progress, shaping the structure of the worlds constructed by imagination according to the valid scientific paradigm, postmodern science fiction literature, the cyberpunk tries to free itself from some conceptual constraints.

The new generation of science fiction authors, who emerged in the 1980s, shift from the *science element* towards *fiction*, reinvigorating the genre, according to some opinions (Brian McHale, Scott Bukatman), by bringing it nearer to the literary elite or, according to the opposite standpoint (Darko Suvin), degrading it into a small form, destined to disappear. Evidently, the new movement within the genre, cyberpunk, could not definitively give up the element of science without getting outside the practices and strategies of the genre. Nevertheless, as compared to the great tradition of the genre, informed or even formed in the spirit of science (Isaac Asimov studied biochemistry, Poul Anderson graduated in physics, Arthur C. Clarke studied physics and mathematics, and, of course, the list could be continued), cyberpunk authors seem much more interested in the near future and man's immediate evolution in a world of information, than in a far future, which cannot be prefigured by the conceptual or experimental systems of present day science.

Therefore, the attention of cyberpunk fiction is directed towards the universe created by informational technologies under the control of which time and mainly space become virtual measures. In this model of the newly created universe, space becomes

[1] Gary Westfahl, "Small Worlds and Strange Tomorrows: The Icon of the Space Station in Science Fiction", *Foundation* 51, Spring (1991): 38–63.

the dominant element by means of which cyberpunk fiction balances two ways of perceiving reality, as *real* and as *virtual*, in a different manner than the one habitual in science fiction literature, which emphasizing the dominant element of time, alternates two different and non-synchronic expressions of the same reality, the *real* with the (scientific) *imaginary*. As compared to the modern view of science fiction in which one reality replaces another according to the time factor, the fictional emphasis in cyberpunk falls exactly on the way in which actual reality is perceived, altered by the informational technologies which shape it. From this originates, otherwise, the entire *metaphysics* (Michael Heim) constructed around the concept of *virtual reality*.

If the real and the virtual are part of the same reality, representing two ways of perception, according to the adopted manner, on the one hand existential-quotidian and, on the other hand, existential-technological, than cyberpunk fiction is much nearer to the essence of literature in general than science fiction has ever succeed to reach. Retaining this view of reality, cyberpunk fiction assumes the risk any theory of literary genres would automatically point out, namely the vulnerability of the lines dividing it from literature, on the one hand, and from science fiction, on the other hand. This risk being too great, with the exception of some writings by William Gibson, Bruce Sterling or John Shirley, which, from an aesthetic point of view, attain a remarkable level for a borderline genre, cyberpunk fiction prefers the proximity of science fiction literature to which it gave a new impulse in the 1980s.

Nevertheless, cyberpunk fiction, managing to penetrate the virtual world and to describe it, launches a new stage in the development of world views, the *bio-electronic* or *cybernetic* stage whose unit of measurement is information. In this cybernetic universe time really becomes an extensible measure, seen as the fourth dimension of space; it becomes spatial. What distances cyberpunk reality from the image of a possible, alternative, or future world, typical to science fiction literature, as well as from the complex global information networks is the manner in which the individual or the *cybernaut* (the traveller in cyberspace) existentially assumes the conventions of virtual reality, collaborating through his senses to its shaping. This world is permanently virtual, actualized only when the cybernaut gets connected to it. Marcos Novak considers cyberspace a *habitat* of the imagination, a *habitat* for the imagination, "[…] the place where conscious dreaming meets subconscious dreaming, a landscape of rational magic, of mystical reason, the locus and triumph of poetry over poverty, of 'it-can-be-so' over 'it-should-be-so'."[1] The person who enters this universe therefore is not a passive traveller, who only registers what s/he sees, but an active one, who participates in the harmonization of the environment as a designer. This is why sensual experiences are obtained by connecting to a technology aimed at the senses, which, through a series of directed mechanisms, stimulates the imagination towards a virtual medium in permanent transformation. Analyzing the *reality* concept of virtual space travellers, Sergio Sismondo considers the human body the central instrument and *object* of virtual reality: "VRs are ideally tactile environments, full of sensual experiences. More centrally, the technology makes use of body knowledge, our ability to respond physically to situations, to communicate using more than our vocal chords or tops of our fingers. VR treats us as fully embodied creatures and then stimulates and trains our

[1] Marcos Novak, "Liquid Architecture in Cyberspace", *Cyberspace: First Steps*, ed. Michael Benedikt (Cambridge, Massachusetts, London: MIT Press, 1991), 225–226.

bodies in ways that are appropriate to the virtual environment."[1] Military flight simulators served as a basic model for elaborating the fundamental characteristics of cyberspace. Cyberpunk fiction emphasizes exactly this collaboration between the senses and an electronic environment, the experiencing of the virtual as if it were real, launching an entire process of virtualizing reality. Thus, cyberpunk fiction gradually substituted the idea of travelling information in the information networks for the idea of a travelling information user: "Cyberspace solidified as a metaphorical space when the idea of travelling information was replaced with the idea of a travelling user: the experience is not one of receiving data through the telephone lines […] but one of being transported to a site functioning as host, heart, and mother lode of the data."[2]

Interactivity, as the basic principle of virtual reality, determines the *ritualistic* side of the user's relationship with cyberspace, seen rather as a ritual than as a representation.[3] And these metaphoric relations between virtual reality and the ritual it generates presuppose: "the idea of a separate world that is entered for sake of undergoing a mind-enhancing experience; an active involvement by the participant rather than passive spectatorship (interactivity is the essence of the VR experience); the participation of both mind and body in the experience (a slogan of VR claims that 'your body is your interface'); the presence of a regulative script (the ceremonial protocol or the computer software) that coordinates effects, assigns roles, and protects the separate reality from the apparent chaos of real reality; the denial of the difference between signs and that which they represent (a phenomenon known in ritual as transubstantiation and in VR as the disappearance of the computer); the experience of the immediate presence of spiritual forces or of virtual objects and the ability to manipulate these entities as if they were material bodies; and finally the extension of the power to control the environment beyond the physical confines of the body, an extension through which the body acquires a cosmic dimension (networking and telepresence)."[4] The whole range of relationships between the person who enters virtual reality and the image in which this is revealed to him/her are displayed here, this relationship being established both on a sensorial, kinaesthetic level, and an extra-sensorial level of a conscious perception. In cyberpunk fiction all these relationship forms between the individual and virtual reality can be found, this being mapped by taking into consideration, first of all, the way in which the action lines of the human environment connected with the virtual one will be traced.

Cyberpunk fiction does not lay special emphasis on the *time* constant, demonstrating convincingly that the three dimensions of time, past, present, and future lose any relevance in the virtual universe. Cyberpunk authors do not set the plot of their texts in mankind's far future, and they do not operate on the temporal axis meddling with the course of historical events; on the contrary, they focus on the present, a present in which both the past and the future happen.

Starting from Canetti's expression, "all mankind suddenly left reality", Jean Baudrillard explains how contemporary world develops in every direction ways to get free from the gravitational effect, to leave the orbit of the concepts which define culture

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[1] Sergio Sismundo, "Reality for Cybernauts", *Postmodern Culture*, 1, September (1997).
[2] Marie-Laure Ryan, "Introduction: From Possible Worlds to Virtual Reality", *Style*, 2 (1995): 178.
[3] Ibid., 177.
[4] Ibid, 177–8.

in its course from modernity towards postmodernity. Freed from this effect of gravitation, the significations lose their referential character, following a trajectory towards infinity, hard to specify: "This is precisely what we are seeing in our present-day societies, intent as they are on accelerating all bodies, messages and processes in all direction and which, with modern media, have created for every event, story and image a simulation of an infinite trajectory. Every political, historical and cultural fact possesses a kinetic energy which wrenches it from its own space and propels it into a hyperspace where, since it will never return, it loses all meaning."[1]

Related to the conception developed by Baudrillard in *The Precession of Simulacra* (1981), according to which the present world has become a regime of simulation, where mass media destroys the meaning and any contact with reality, the idea of an accelerating existence in the vicinity of information technology up to the limit point of evading the impulse of speed leads to fragmentation and dissemination. At this stage, Jean Baudrillard suggests, computer technology transforms the real world into something that in former periods would have been only a science fiction supposition: "No need for science fiction here: already, here and now – in the shape of our computers, circuits and networks – we have the particle accelerator which has smashed the referential orbit of things once and for all."[2]

Such a view is not simply reflected in cyberpunk fiction, it becomes, due to the lucid perception of the ability of virtual technology to impose the transgression of limits, a form of critical approach to cyber culture. From this point of view, cyberpunk fiction is an expression of a contemporary culture developed against the background of an evolving information technology, marking the transition from the age of *hardware* components to the *software* era: "We are moving, at dizzying speed, from a reassuringly solid age of hardware into a disconcertingly wraithlike age of software, in which circuitry too small to see and code too complex to fully comprehend controls more and more of the world around us."[3]

Time perception, in the virtual space imagined by cyberpunk fiction, overlaps, as a matter of fact, the postmodern view of time as an expression of ever accelerating speed and not as the extending proportions of physical movement in space. Interpreting the postmodern theoreticians preoccupied with the view of time and the new way of conceiving existence in relation to modernity (Fredric Jameson or David Harvey), Steven Connor concludes that the space–time relation is reversed in the case of the two cultural paradigms, thus modernity triggers the *spatialization* of time, and postmodernity, in turn, *retemporalizes* space.[4] This view is analyzed by Steven Connor related to the role of telecommunications and of informational society in eliminating the experience of actual travelling in space, an experience replaced by "intensive" travelling in time expressed through the "audiovisual speed" (of the computer, CD-player, film, cell phone), which "shortens" the crossing of great distances. The cybernetic generation of space, by means of the *cyberspace* concept, falls under the same postmodern

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[1] Jean Baudrillard, "The Illusion of the End", *The Postmodern History Reder*, ed. Keith Jenkins (London and New York: Routledge, 1997), 40.
[2] Ibid., 40.
[3] Mark Dery, *Escape Velocity: Cyberculture at the End of the Century* (London: Hodder and Stoughton, 1996), 4.
[4] Steven Connor, *Postmodernist Culture: an Introduction to Theories of the Contemporary*, 2nd ed. (Oxford: Blackwell, 1997).

constant, the *retemporalization of space*, thus the characteristics of time, such as duration, becoming, or irreversibility, losing all ontological guarantees in the structure of three-dimensional space, swerve towards absolute ubiquity.

If the science fiction phenomenon seemed rather interested in the aspects of a time dislodged from the time of the world, freed from causality and chronology, favouring the building of parallel universes on the dimension of the future, this aspect also contributing to the particularity of the genre, cyberpunk fiction is preoccupied with the present of contemporary world, in which both the past and the future can be found, determined by its impact with cybernetics. Nevertheless, the representation of this *pastpresent-future* does no describe faithfully present history, but a reality beyond the reality of the world, a numerical reality which can only be seen from inside electronic circuits, endowed, in speculative science fiction manner, with the functions of some neuronal systems. Therefore, the science fiction character of cyberpunk fiction is not conferred by its time conception, but by the manner in which it uses the strategies of the genre in order to represent, besides postmodern narration, the fictionalization degree of reality. Cyberpunk fiction, similar to postmodern fiction, expresses a conception in which the linearity and causality of time are profoundly affected by the fracturing of temporal order. If postmodern fiction cannot imitate or represent the real world, being, nevertheless, able to imitate or represent the discourses this consists of,[1] then cyberpunk fiction, in turn, represents one of the current discourses on the world, the cybernetic discourse. One of the principles of the cybernetic discourse on the world refers to the manner in which individual memory no longer constitutes an extensive sum of personal experiences, but, through the impact with the informational universe, it is transformed in a series of images, generated by the human mind through the assimilation of some media topoi produced at the level of mass culture. It is not accidental that the form in which time is most acutely present in cyberpunk fiction, the meeting place of several realities, is *memory*.

Dani Cavallaro, who has recently commented on the work of a master of the genre, William Gibson, considers, starting from the writer's statements, that in his work the computer represents "the metaphor of human memory", memory being rather a *prosthetic form*, something added to the human being and not inherent to this, namely, originating from his/her personal experience: "[…] memories tend to take an increasingly *prosthetic* form, as images that do not result from personal experience but actually implanted in our brains by the constant flow of mass information."[2] This attached memory confers the illusion of access to the infinity of the virtual world, as well as the illusion of a space in which time has lost its irreversibility.

Taking into consideration the ever changing character and the continuous transformation of the electronic environment, its management being closely related to the control of technological progress, it can be stated that space and time, as given dimensions of virtual reality, have a variable character and do not necessarily presuppose an *a priori* status. Through the *immersion* of the human body in this virtual continuum to which it is connected, cyberpunk fiction projects a new view on technology, according to which high-tech mechanisms are no longer constructed to the

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[1] Mihaela Constantinescu, *Forme în mişcare. Postmodernismul* (Forms in Motion. Postmodernism) (Bucureşti: Ed. Univers Enciclopedic, 1999), 127.

[2] Dani Cavallaro, *Cyberpunk and Cyberculture. Science Fiction and the Work of William Gibson* (London and New Brunswick NJ: The Athlone Press, 2000), 204.

image of the individual, but, on the contrary, human beings extend the action of their biological functions by means of technology.

One of the consequences of the biotechnological revolution, as Francis Fukuyama emphasizes, is set on a trajectory which leads fast towards a "posthuman future". The nature of this future does not seem, according to Fukuyama, to be benign. On the contrary, starting from the analysis of two famous 20th century dystopias, *Brave New World* by Huxley and *1984* by Orwell, Fukuyama argues that, when biotechnology will be powerful enough to "alter" human nature, the negative effects on democracy will be felt at a political level: "Human nature shapes and constrains the possible kinds of political regimes, so a technology powerful enough to reshape what we are will have possibly malign consequences for liberal democracy and the nature of politics itself."[1] The professed goal of his study is to demonstrate that Huxley's vision of a humanity "altered" by biotechnology was right: "[…] that the most significant threat posed by contemporary biotechnology is the possibility that it will alter human nature and thereby move us into a 'posthuman' stage of history".[2] The philosopher who declared the end of history and man, Francis Fukuyama, also foresees a new stage of development for human society, a new, *posthuman* age, determined by the development of biotechnology and medical engineering.

Translated by Ágnes Korondi

[1] Francis Fukuyama, *Our Posthuman Future: Consequences of the Biotechnology Revolution* (New York: Farrar Straus and Giroux, 2002), 7.
[2] Ibid.