

# New man in utopian and transhumanist perspective

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**Abstract** The title assumes that there is a difference between political Utopia and the transhumanist techno-vision. But if one follows recent publications that promise a renaissance of utopia, the transhumanist 21st century figures of the future are not a disconnected trend running parallel to the classic utopian discourse since Plato and More; in fact, they are its consumers. They have incorporated the original utopian potential and thus undergone a transformation beyond recognition. Yet can this hostile takeover be accepted? The author aims at answering this question by a comparison of both approaches focusing on three levels: How should the anthropological mechanisms, which form the basis of the utopian and transhumanist approach, be characterised? Which phenomenologically comprehensible structures of the world view result from those that they consider as the optimum for a successful life? Which differences in the structures of both imagination types can be deduced from the answers to these questions?

**Keywords** Utopia · Transhumanism · Traditions of thought · Anthropology · Phenomenology

## Introduction: will the classic utopia be replaced by the modern concept of transhumanism?

The title assumes that there is a difference between political Utopia and the transhumanist techno-vision. But if one follows recent publications that promise a renaissance of utopia, the transhumanist “Zukunftsfiguren des 21. Jahrhunderts (21st century figures of the future)” [1] are not a disconnected

trend running parallel to the classic utopian discourse since Plato [2] and More [3]; in fact, they are its consumers. They have, so to speak, incorporated the original utopian potential and thus undergone a transformation beyond recognition. The new bearers of modern utopia are no longer philosophers like Plato, humanists like More or even novelists like Aldous Huxley [4] and Ursula K. Le Guin [5]. Rather, they are transhumanist engineers and technical scientists like Eric Drexler [6], Hans Moravec [7], Ray Kurzweil [8], Marvin Minsky [9], etc. Their versions have been broken down with the concrete research policies by scientific journalists and managers like William S. Bainbridge and Mihail Roco [10].

One would have been able to consider this “hostile takeover” of the utopian terrain by transhumanism as a mere fashion trend, had there been no more and no less than a part of the European identity at stake. This is because transhumanist techno-visions draw on the popular American culture of *Science Fiction*, while the utopian thought has, since ancient times, profoundly shaped the European conception of man—especially his ability to think of alternatives. It is this competence that demonstrates his dynamism, which originates from his ability to learn and to correct the vision of the feasibility of the world as the focus of the *Homo faber* by the self-reflection of the *Homo sapiens*. Those who are not prepared to surrender themselves without resistance to a 2,000 year old tradition of thought to the dominance of *Science Fiction* would be well advised to take the challenge it poses seriously. How else can this be done in a meaningful manner than through systematic comparison between both traditions of thought?

However, the moment such comparative studies of “traditions of thought” take utopian and transhumanist intention as their starting point, their analytical thrust is already clear: it lies in the field of political theory and history of ideas. When reconstructing its objects of research, it must be noted that they generally have anthropological preconditions. They

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outline the framework within which political theorists establish institutions and standards, which control human actions, enable transgression in the sense of the New Man and constitute and legitimise supremacy. For our purposes, we need to consider two levels, which despite being different from the analytical point of view, are interrelated: the anthropological dimension and the phenomenological structure of the human “life-worlds”.

On this assumption, my lecture focuses on three questions: How should the anthropological mechanisms, which form the basis of the utopian and transhumanist approach, be characterised? Which phenomenologically comprehensible structures of the world view result from those that they consider as the optimum for a successful life? Which differences in the structures of both imagination types can be deduced from the answers to these questions?

### **The anthropological difference between the chiliastic, utopian and transhumanist approaches**

The theory that the utopian thought is one of the few monopolies that a human has, which differentiate him from the animal kingdom, may meet with general agreement. However, it is controversial how the connection between the basic constitution of anthropology and the ability to conceive notional alternatives to the given socio-political status quo can be conceptualised. What makes human nature constant is the fact that it is linked to the evolution of its own natural history. But it can free itself from the fetters that bind it to its animal existence to the extent that, in order to survive the struggle for existence, it can create artificial environments that support and adapt human beings in their openness to the world (*Weltoffenheit*). Helmuth Plessner paraphrased this ability of the human nature with his concept of “eccentric positionality” [11, pp 288, pp 291, pp 309]. To comprehend the basic anthropological constitution of man, this category plays a key role insofar as it constitutes a consequential mechanism. The evolutionary impulses of his animal nature do not control man’s tendency to design his existence directly or in a monocausal manner, but filtered through his secondary, i.e., socio-cultural nature. This premise could be an analytical key for explaining why human behaviour appears to be impressionable by such diverse fictions as chiliastic, utopian and transhumanist thoughts.

The chiliastic thought (compare [12, pp 157–167] in its original form in early Christianity, in the *middle ages* and in the early modern period presupposes the anthropological premise that the evolutionary impulse for self-preservation is “sublimated” by a socio-cultural context, which appears to be only marginally impregnated by scientific-technological structures. Analogously, the creation is directly related to a spiritual transcendence. The stabilisation of man is a result of

the conviction that man is redeemed from his sins and the doors of God’s kingdom are open to him. In this respect, the chiliastic practice rejects, in some of its variants, state laws as well as the institutions of private property and family. Presupposing a certain distance from the scientific-technological civilisation, chiasm exists not only in monotheist religions, but also in the nature deities of the Indians, like those of the Guarini in the primeval forests of Brazil. In the chiliastic thought, the evolutionary impulse is also modified by the artificial realities of the second nature of man. But this is hardly characterised by the dynamics of the scientific-technological development.

Likewise, the utopian thought is mediatized by the evolutionary impulse of self-preservation. But its sublimation occurs in a world of artefacts, a world where science and technology have already rooted themselves deeply. The appropriation of the world through technology was already well advanced in the early modern period till Thomas More wrote “Utopia” [3, pp 7–110] in 1516 and till “Neu-Atlantis” (“New Atlantis”) [13, pp 171–215] by Francis Bacon was published in 1638: the utopian thought seeks an alternative to suffering in this world since it recognises in it the causes for the yearning to have a better future. To find this alternative, there has to be a modernised reception of the ancient times. Simultaneously, the resulting Spirit of Doing is strengthened by the discovery of new worlds with cultures previously unknown to the European world. The utopian construct assumes rational forms. It creates spaces that are subject to the control of the ratio. In its original form therefore, the utopian thought is a western European idea, which did not exist in other contemporary cultures. The evolutionary impetus is significantly shaped by the Spirit of Constructive Doing, without, however, overstepping the natural-historical basis of man.

The way in which the transhumanist thought deals with the evolutionary impetus of self-preservation in the struggle for survival is different from that in the utopian approach. The utopian approach subscribes to the hypothesis that there exists both an animal as well as socio-cultural nature in man. One is socio-culturally arched, while the other has a biological basis. Contrary to this, the transhumanist approach extrapolates a state of command over the inner and outer nature of man, which seems to enable him to reach out to his natural-historical basis. The utopian approach did not question the very nature of the mechanisms of the natural evolution as defined by Darwin, as long as it concerned the first nature of man. The concept of the New Man as propagated by this approach does not aim at accelerating one’s own evolution by taking it in one’s own hands by adopting scientific-technological means. However, this is true of modern transhumanism. The evolutionary self-preservation potential of man attains apparent plausibility in a scientific-technological hyper-civilisation, as we believe that we are

capable of perceiving at least to some extent at the beginning of the 21st century.

### Natural things and artefacts in the utopian thought and in transhumanism

As the utopian thought does not question the original evolution of the first nature of man, a distinction has been made between natural things and artefacts since ancient times. The Italian Enlightenment philosopher Giambattista Vico (1688–1744) was the first to recognise their full significance [14]. His epistemological principle of “*verum ipsum factum*”, which he directed against Descartes, gives rise to the division of the term “fact” into two categories: facts that are organic and inorganic in nature, which are predefined for man. Facts of animate nature are the animals and plants while those of inanimate nature are celestial bodies, stones, geological formations, volcanic activities, weather patterns, etc. Artefacts are different from these natural facts. They are created by man and comprise cultural, historical, social, technological and scientific phenomena. In relation to man, this means that, being a biological emergence of the evolution, he is a natural fact but as creator of his own artificial world where he actually leads his life, he is also an artefact. Even though both dimensions are non-dually integrated with each other, they follow their own laws especially when it comes to the sharing of information. As emphasised by Heinz Penzlin, organic natural facts share information in a biogenetic manner while socio-cultural artefacts do so in a tradigenetic manner (compare [15, pp 3–33]).

It can be concluded that the utopian thought supports the understanding that the DNA, which multiplies by identical replication, which is changed by mutation and passed on from generation to generation, is the carrier of information in biogenetic evolution. In the socio-cultural nature of man on the other hand, the process of learning takes place separately for individuals. As Heinz Penzlin rightly pointed out, this process of learning is based on acquired and preserved information, which also changes with experience, and “which can be passed on from one to the other in a non-genetic manner through observation and imitation, through teaching and learning. This is called “the building of a tradition” [15, p 22]. Transhumanism does not subscribe to this compatibility of the dual modes of information sharing of both intertwining dimensions of human nature, which the utopian thought propagates. It aims at “changing the ‘first nature’ of man with the most advanced methods from genetic and computer engineering and robotics. The resulting impact on the social and cultural world is rarely subjected to detailed reflection—the expectation of meliorism is what one needs for good health and intelligence. It is not important whether the physical and psychological changes occur in line with the

laws of Darwinism or through technological intervention—everything constitutes evolution” [16, p 182].

By doing away with the distinction between the biological and socio-cultural nature of man, transhumanism does not provide a basis for the distinction between natural things and artefacts [17]. However, it has always played a vital role in the utopian approach: As the archist, i.e., authority-driven, utopian tradition shows, its architectural perceptions primarily concerned the imposition of an artificial framework by taking recourse to the basic geometric figures of the external nature that was considered as an “enemy”. This framework is such that its design of the ideal city is controlled by humans. Conversely when boundaries between nature and technology dissolve in transhumanism because both are supposedly controlled by the same elementary parts and mechanical forces, the boundaries between man and machine also become fluid. It is here that the hiatus between both variants of the *conditio humana* becomes visible. Owing to its anthropological premises, the utopian thought is forced to draw on the cultural resources of its tradigenetic past. This is the only way to imagine a world where leading a good life is possible. The transhumanist approach on the other hand thrives on the eradication of the distinction between natural things and artefacts: To the extent that transhumanism allows the merging of the concepts of man and machine, it surrenders itself to a single resource: modern technology and its imagination potential in the form of *Science Fiction*.

Only those who, like the transhumanists, ignore the distinction between the tradigenetic and biogenetic evolution can arrive at this consequence. Opinions regarding the acceptance of this distinction tend to differ. This is why its explanation or justification is of crucial significance. Sharing of information in a tradigenetic manner occurs at a higher pace than its biogenetic variant. The sharing of information is not limited to the birth but takes place throughout the life of a person. Moreover, the individual steps of tradigenetic evolution are generally larger than the small changes brought about by mutation. In contrast to mutation, the tradigenetic learning processes occur independent of the selection conditions because they can reflect on these. In this respect, “tradigenetic evolution, unlike the biogenetic evolution, is also reversible” [15, p 22].

The fact that the utopian and transhumanist approaches, owing to varying anthropological premises, draw on varying potentials when producing their variants raises a question about the impact this distinction has on the phenomenology of their imagination of the New Man. The quality of the utopian construction has been set out by Plato in his “*Politeia*” [2, pp 67–310] and then in a modernised form by Thomas More in his “*Utopia*” [3, pp 7–110]. The core of the classic utopian tradition is formed by notional social models, which respond to the critical, undesirable developments in their society of origin as institutional, socio-

economical, scientific-technological and moral alternatives [18]. Science and technology play a central role in these models; but they are subordinate to the concept of a “good life” because they contribute to making it possible. Summarised as a dictum: in the positive, utopian scenarios, technology serves man and not the other way round.

The thrust of the original model of *Science Fiction*, which is the actual source of inspiration for transhumanist visions, is completely different. Since the times of Jules Verne, it is not concerned with the models of “good life” in a social order that guarantees this goal; its main purpose is the extrapolation of scientific-technological developments. It does not aim at moral and material improvement in man, but at its perfection as long as they can be reconstructed as machines. The “society” plays only a marginal role in providing the material for the framework of the innovative engineer, who expedites technological progress in a certain social situation against possible constraints. On the one hand the utopian construct owes its significant momentum to the critical development of the society of origin of the respective author. On the other hand, *Science Fiction* subsists on the aura of technical potentialities, which have not been achieved yet but which don the hypothetical appearance of being achieved in the not too distant future.

### The thematic differences between classic utopia and transhumanism at the phenomenological level

If I am not mistaken, this varying initial situation [19, pp 144–155] of the construction of imaginary worlds in connection with the divergent anthropological premises shown gives rise to a series of structural differences between the utopian and the transhumanist approaches at the phenomenological level, which can only be hinted at here (compare [20, pp 179–194].

One: The classic tradition of utopia thrives on the revaluation of human work, which was granted a subordinate position in the hierarchy of values by its forerunners, namely Plato’s “Politeia”. It is only when the mobilisation of this resource is complete that it considers a central prerequisite of utopia as fulfilled: namely, the material reproduction of the society, which evolves from “labora!” (labour) and not from “ora!” (pray) and which therefore sees itself as a pure human artefact. Then again, the transhumanist New Man has long since been emancipated from the constraints of the conflicts with nature arising out of instrumental action. Eric Drexler’s approach [6] has become a precedent for this since it, inspired by Science Fiction, develops a new technology—nanotechnology. According to

Drexler, self-replicating, nanoscaled machines and robots, so-called “Assemblers”, are creating a golden era on the earth. By specifically manipulating atoms at the nano level, they generate unimaginable wealth; they render human work redundant and mark the beginning of the end of all diseases and provide solutions for environmental problems. One could also say that: Advanced nanotechnology makes possible what many people dream of or have always dreamt of: the recurrence of a paradise beyond the conflict with nature, which arise out of instrumental action and are thus regarded as a curse.

Two: The classic Utopians saw themselves as avant-gardes of the first and second industrial revolution. But they attained their specific profile because they also rejected the material poverty that is the by-product of the process of industrialisation. They believed that they could eliminate the darker sides of industrial development by disentangling it from its capitalistic utilitarian context and at the same time integrating it in a socio-economical context, whose structure promoted collective and not individual gain. Transhumanist visionaries also see themselves as resolute propagandists and promoters of leading technologies at the start of the 21st century. However, they do not change the socio-political set-up in which they originated. On the contrary: the “new” society is interpreted as the product of transhumanist innovation, for e.g., in the categories of the “information society” on the unchanged basis of its capitalistic and national society of origin, whose market-conforming interest is what it explicitly aims at.

Three: In the positive scenarios presented by the classic utopian discourse, technological innovations go hand in hand with the moral improvement of man and the enhancement of his ability to assume responsibility. The fact that this connection between man’s ability to assume responsibility and scientific-technological progress became brittle after the First World War is an important condition for the classic dystopias such as shown by Samjatin’s “We” [21], Huxley’s “Brave New World” [4], or Orwell’s “1984” [22], (compare [23, pp 97–159]). On the other hand, the expectation of moral improvement is of little significance in the transhumanist discourse. The reason for this is the belief that the inherent necessities emerging from new technologies in any case enforce the norms that they need for their social acceptance. Since there are no critical corrective measures, the ethics regress to being nothing more than a medium to achieve acceptance. What remains is technologised determinism: Those

who oppose it would be on the losing side. Not only that, they would also be instrumental in slowing down the progress of convergent technology, from which the supposed evil forces profit: a danger, which Eric Drexler deemed necessary to emphatically warn about.

Four: The value of freedom in the classic utopian discourse is ambivalent. Its anarchist, i.e., authority-free trend raised it to a crucial imperative. The archist, i.e., authority-driven approach on the other hand replaces it by the target value of social security. Both variants however, advocated the material equality of all individuals, as long as it did not turn into egalitarianism. This option included, particularly for the classic utopia, a functional elite, which was modelled on Plato's philosopher caste. Eugenic measures were expected to place, for instance, not only individual communities but the utopian community as a whole on a higher level. This horizon of expectation does not exist in the transhumanist discourse. Since the new, leading technologies have always been applied for commercial purposes, it is foreseeable that only the rich profit from them owing to the high costs involved, because enormous monetary resources would be used to finance the colossal development costs of synthetic biology instead of being used for the general health system. The consequences are inevitable. "For instance, if we split ourselves into several, dissimilar types using genetic engineering, the idea of equality, which is the basis for the entire democratic system, would be jeopardised" [24, p 47].

Five: Before it took a historical-political turn in the middle of the 18th century, and again after the Second World War, the classic utopian thought thrived on the expectation that the future is open and that the social processes can be controlled. It is only then that the utopian credo of letting oneself be guided by a regulative, which at least tries to aim at creating a world in which we would like to live, makes sense. As opposed to that, the transhumanist approach assumes a post-darwinist evolution model. "According to this, even nanotechnological development proceeds autonomously towards a predetermined goal, without it being lead in a different direction, changed or even stopped by the external social and political influences" [17, p 92]. Protagonists of the third industrial revolution explicitly or implicitly attribute the development dynamics of the transhumanist approach to this teleology. For them, the evolution that is influenced by new technologies is a "part of an extensive process", which we have to submit to whether we "like

it or not" [25, p 111]. However, they modify the social-darwinist approach in a crucial aspect: according to them, the consequences of the natural process of evolution, which, for instance, do not exclude the possibility of hereditary diseases, can be improved. Thus, the constructive achievement is not, like in utopian thought, the creation of alternative societies to achieve social justice by introducing the concepts of common property and central economic governance, but the artificial improvement of the evolutionary results that is possible because of the synergy effects of convergence technologies that are applied on humans, and in fact, within the framework of a teleology that is related to a visionary final outcome.

Six: The claim to validity of the classic utopian project was that of a platonic ideal that had to sustain without a teleological realisation guarantee. After temporary convergence with historical philosophy after the middle of the 18th century, this non-teleological claim to validity was revived after the Second World War: utopias do not consider themselves as the destination of history; rather, they are notional alternatives to the undesirable development of their societies of origin and are aware of the fact that they can fail, as they are achieving the opposite of the positive things they intend to achieve. The claim to validity of the transhumanist project is completely different. It assumes that there is a fixed end time of a condition of the human race without work, without poverty and without environmental problems, without diseases and the virtual immortality of every individual. The driving force of the transformation strategy for achieving this goal is the automatic dynamics, which results from the interdisciplinary association of nano, bio, neuro and information technologies, and which subjects technologically well-equipped human beings to a second evolution, which is controlled by them.

Seven: It is true that the idea of human breeding is not unknown to the classic utopian discourse. It plays a substantial role in Plato's "Politeia" as well as in Campanella's "City of the Sun" [26, pp 111–168]. Would it not be possible that the idea of human breeding would build a bridge between the utopian and the transhumanist thought? Quite apart from the fact that all utopias of the classic tradition distanced themselves from such an eugenic approach of "Human Enhancement" after the Second World War, the transhumanist intention supports another perspective. Its aim is to improve man by modifying the human body through technical means: be it

genetic manipulation that is made possible by technology or the man–machine interaction. On the other hand, however, artificial selective breeding, on which Plato and Campanella fall back, is controlled by humans with the aim of genetically cultivating certain characteristics through the pairing of selected individuals. The Human-Enhancement technology does not play any role in the classic form of breeding that is manipulated by man. This is because an external intervention in the human body does not take place using technical means. While the selection is manipulated, the inner biological transmission of the gene is not.

**Eight:** In recent publications one of the main representatives of classic political utopia, Francis Bacon, has been pronounced as the mentor of modern transhumanism. In his “New Atlantis”, he describes “not only a political and social order that was governed by wise men and scientists and supported by exceedingly congenial, ethical and dignified citizens, but also practices for the reinvention of man” [27, p 115]. But on careful reading of the text, it is evident that Bacon speaks of animal experiments Bacon [28, p 368]. The application of their results on humans prevents illness and not encourages the technological improvement of man beyond therapy. Bacon explicitly points out that these experiments serve the purpose of protecting the human body (we may take light what may be wrought upon the body of men)” (p 368). Moreover, instead of technical enhanced men in transhuman perspective Bacon speaks rather of the imitations of living creatures “by images of men, beasts, birds, fishes, and serpents” (p 375). Evidently, these bionic experiments serve the development of machines (p 375), which, characterised by uniformity and refinement, are used for dominating nature (p 364f). Moreover, Bacon explicitly points out that scientific innovations can be published only when their responsible application is ensured (p 377): an ethical condition, which does not exist in the transhumanist discourse.

### An insight into the future of the classic, political utopia

If the classic, political utopia intends to have a future, it must find ways and means to successfully resist the takeover attempts by transhumanist improvements in man. The prospects of achieving this goal are not slim. I would like to state two reasons for this. If we offset the above-mentioned

phenomenological and anthropological differences against the congruities of both approaches in their acceptance of scientific laws, the scientific-technological avant-garde claim and of the volition to dominate nature (compare [20, pp 182], everything speaks in favour of a paradigmatic distinction between the utopian and transhumanist approaches. This distinction is also supported by the fact that utopian thought demands an *optimisation* of man while transhumanism advocates his *conquest*. Despite this, those who decide to subsume both approaches under one term “utopia”, blur its boundaries and abandon it to such arbitrariness in its application in concrete phenomena that is comparable with a capitulation of the transhumanist challenge.

The second reason is of no less significance. The turn of the millennium has seen a series of utopian novels being written, which have caused a sensation and have found considerable resonance in the literary circles and in the feature articles of popular newspapers. I would like to cite a few examples: Bettina Obrecht’s “Designer-Baby” [29], Michel Houellebecq’s “La possibilité d’une île” [30], Kazuo Ishiguro’s “Never Let Me Go” [31], Juli Zeh’s “Corpus Delicti” [32] and Richard Powers’ “Generosity” [33]. These novels follow the tradition of the classic dystopias, as moulded by Samjatin’s “We”, Huxley’s “Brave New World” and Orwell’s “1984”. They build for the reader a transhumanist world in the same way and with the same intention as Samjatin, Huxley and Orwell intended to warn their public about the dangers of totalitarianism. In both cases, the authors’ works presented didactic plays about the world that we may not want to have when we cling to our human nature.

In this sense, the utopia researcher Wilhelm Voßkamp warns about the transhumanist transformation of the human resource into a digital programme. He considers the departure from the traditional humanist image of man in order to adopt a scientific programme as a departure from the traditional utopian thought. His final speech therefore “speaks, in principle, of broadening the critical faculties and perceptual abilities of man in light of such developments. How can one conceive a new, advanced image of man if it does not presuppose the fact that death should be understood as merely an unpleasant affair that needs to be eliminated? Immortality should not become a utopian project; the arts should not be replaced by technological sciences. And with that we are on the path that necessitates an urgent renaissance of ideas related to the individual” [34, p 84].

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## References

1. Maresch R, Rötzer F (eds) (2004) *Renaissance der Utopie. Zukunftsfiguren des 21. Jahrhunderts*. Suhrkamp, Frankfurt am Main
2. Platon (1990) *Politeia*. In: Otto EF, Grassi E, Plamböck G (eds) *Platon: Sämtliche Werke, vol 3*. Rowohlt, Hamburg, pp 67–310
3. Morus T (1970) *Utopia*. In: Hanisch KJ (ed) *Der utopische Staat*. Rowohlt, Reinbek bei Hamburg, pp 7–110
4. Huxley A (1985) *Schöne neue Welt. Ein Roman der Zukunft*. Fischer, Frankfurt am Main, Translated by H. E. Herlitschka
5. Le Guin UK (1988) *The dispossessed*. Grafton Books, London
6. Drexler KE (1994) *Experiment der Zukunft. Die nanotechnologische Revolution*. Addison-Wesley, Bonn
7. Moravec H (1990) *Mind Children. Der Wettlauf zwischen menschlicher und künstlicher Intelligenz*. From English by Hainer Kober. Hoffmann and Campe, Hamburg
8. Kurzweil R (2000) *Homo sapiens. Leben im 21. Jahrhundert. Was bleibt vom Menschen*. Econ, Düsseldorf
9. Minsky ML (1990) *Mentopolis*. Klett-Cotta, Stuttgart, Translated by Malte Heim
10. Roco M, Bainbridge WS (eds) (2002) *Converging technologies for improving human performance. Nanotechnology, Biotechnology, Information Technology and Cognitive Science*. NSF/DOC-sponsored report. Arlington, Virginia
11. Plessner H (1965) *Die Stufen des Organischen und der Mensch. Einleitung in die philosophische Anthropologie*. Walter de Gruyter, Berlin
12. Saage R (2011) *Zur Rolle der Religion im utopischen Paradigma*. In: Binder O, Kanitschneider S, Tremel AK (eds) *Religion. Natürliches Phänomen oder kulturelles Relikt? Österreichische Akademie der Wissenschaften (Austrian Academy of Sciences)*, Innsbruck, pp 157–168
13. Bacon F (1970) *New Atlantis*. In: Hanisch KJ (ed) *Der utopische Staat*. Rowohlt, Reinbek bei Hamburg, pp 171–215
14. Vico G (1966) *Die neue Wissenschaft über die gemeinschaftliche Natur der Völker*. Rowohlt, Reinbek bei Hamburg
15. Penzlin H (1996) *Gehirn-Bewußtsein-Geist. Zur Stellung des Menschen in der Welt*. In: Haase G, Eichler E (eds) *Wege und Fortschritte der Wissenschaft: Beiträge von Mitgliedern der Sächsischen Akademie der Wissenschaften zu Leipzig zum 150. Jahrestag ihrer Gründung*. Akademie Verlag, Berlin
16. Euchner W (2008) *Der künstlich verbesserte Mensch und die ‚künstliche Intelligenz‘. Vorgeschichte und aktuelle Diskussion*. In: Euchner W (ed) *Die Funktion der Verwirklichung in Politik und Wissenschaft. Politik und politisches Denken in den Imaginationen von Wissenschaft und Kunst*. Lit, Münster, pp 173–204
17. Schummer J (2009) *Nanotechnologie. Spiele mit Grenzen*. Suhrkamp, Frankfurt am Main
18. Saage R (2009) *Utopische Profile, Vol. I: Renaissance und Reformation*, 2nd edn. Lit, Münster
19. Saage R (1999) *Utopie und Science-fiction*. In: Saage R (ed) *Innenansichten Utopias. Wirkungen, Entwürfe und Chancen des utopischen Denkens*. Duncker & Humblot, Berlin, pp 159–170
20. Saage R (2006) *Konvergenztechnologischer Zukunftsvisionen und der klassische Utopiediskurs*. In: Neumann A, Schummer J, Schwarzer A (eds) *Nanotechnologien im Kontext. Philosophische, ethische und gesellschaftliche Perspektiven*. Akademische Verlagsgesellschaft, Berlin, pp 179–194
21. Samjatin J (1984) *Traslated by G. Drohla. Kiepenheuer & Witsch, Köln*
22. Orwell G (1984) *Penguin Books, Harmondsworth et al.*
23. Saage R (2006) *Utopische Profile, Vol. 4: Widersprüche und Synthesen des 20. Jahrhunderts*, 2nd edn. Lit, Berlin
24. Joy B (2001) *Warum die Zukunft uns nicht braucht*. In: Schirmacher F (ed) *Die Darwin A.G. Wie Nanotechnologie, Biotechnologie und Computer den neuen Menschen träumen*. Kiepenheuer & Witsch, Köln, pp 31–71
25. Paoli G (2004) *Die Hinterbliebenen*. In: Maresch R, Rötzer F (eds) *Renaissance der Utopie*. Suhrkamp, Frankfurt am Main, pp 237–252
26. Campanella T (1970) *Sonnenstaat*. In: Hanisch KJ (ed) *Der utopische Staat*. Rowohlt, Reinbek bei Hamburg, pp 111–117
27. Özmen E (2011) *Anthropologische Utopien und das Argument von der Natur des Menschen*. In: Nida-Rümelin J, Kufeld K (eds) *Die Gegenwart der Utopie. Zeitwende und Denkwende*. Verlag Karl Alber, Munich/Freiburg, pp 101–124
28. Bacon F (1825) *New Atlantis*. In: Montagu B (ed) *The works of Francis Bacon. Lord Chancellor of England. A New Edition*, London, pp 319–379
29. Obrecht B (2003) *Designer-Baby*. Oetinger, Hamburg
30. Houellebecq M (2005) *La possibilité d'une île*. Fayard, Paris
31. Ishiguro K (2005) *Never let me go*. Faber and Faber, London
32. Zeh J (2009) *Corpus Delicti. Ein Prozess*. Schöffling, Frankfurt am Main
33. Powers R (2009) *Generosity. An enhancement*. Farrar/Straus/Giroux, New York
34. Voßkamp W (2011) *Discussion*. In: Nida-Rümelin J, Kufeld K (eds) *Die Gegenwart der Utopie. Zeitwende und Denkwende*. Verlag Karl Alber, Munich/Freiburg, p 83f