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Technological 'Extensions' of the Body and the Value of the Human Body

Introduction

The human body constitutes an essential element of a human being, through which they express themselves, participate in the life of the world and society. The body is the distinguishing sign of humanity and the subject of a deep analysis, both in religious and philosophical traditions.¹ Many scientific studies which also deal with artificial intelligence or robots confirm the thesis that the body, its corporeality is the primary feature which influences who we enter into relations not only with a human being but also an artificial one (a humanoid robot) which on the outside resembles a human.²

The aim of this article is to present the influence of changes within the body-machine system that result from the application of innovative technologies and the strategy of cyborgization on the perception of and assignment of value to the human body in contemporary (postbiological) society. I apply two research perspectives. On the one hand, the non-invasive functioning of the body – machine system as an expression of transgression; on the other one: the functioning of a machine connected to a body (exo-extension), func-

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¹ I. Mroczkowski, *Ciało ludzkie*, in: *Wielka Encyklopedia Nauczania Jana Pawła II*, Radom 2014. Available on the Internet: https://www.centrumjp2.pl/wikijp2/index.php?title=Cia%C5%82o_ludzkie [access: 25.05.2019].

² S. Gallagher, *Interpretations of Embodied Cognition*, in: *The Implications of Embodiment: Cognition and Communication*, ed. W. Tschacher, C. Bergomi, United Kingdom 2010, pp. 59–70.

tioning of a machine inside a body (endo-extension) and the functioning of a body inside a machine (*mind uploading*), as an expression of transhumanism. The understanding of the term 'machine' in this article is limited to the cybernetic machine. According to Iwan Artobolewski it is 'an artificial device designed to partially or fully replace the energetic, physiological and intellectual functions of man,'³ not necessarily permanently combined with the human body. Whereas value is 'everything that is valuable and desirable, which is the aim of human aspirations.'⁴ It should be noted that philosophers, especially ethicists, argue whether value is something that is attributable to entities objectively or subjectively. The objectivists see value as a feature belonging to an entity regardless of its subjective evaluation by a given entity from a particular point of view. This view is often connected with a certain form of axiological absolutism and Platonic type of objective idealism. Whereas subjectivists perceive value as a feature attributed to an entity by a subject which only reveals certain emotional and volitional attitudes towards evaluation. This view is connected with some form of axiological relativism and of refusing to assign cognitive status to valuating sentences (evaluations). I intentionally quote the above-given perspectives to show their relevance to the human body in contemporary society. 'The view that value means a certain attitude of an active human being to a given object, connected with the conviction that the object can satisfy – indirectly or directly – their needs is the most widespread one in contemporary philosophy.'⁵

It should be noted that changes in the functioning of the body-machine system can be triggered both by the phenomenon of transgression and by the assumptions of transhumanism. Therefore, the application of innovative technologies or techniques of cyborgization can, on the one hand, be expression of transgression, that is crossing the boundaries of abilities, achievements and limitations of one's own body, and on the other one, expression of transhumanism, that is crossing the boundaries of the body resulting from human nature. Both transgression and transhumanism assume a certain individual and social change connected with crossing boundaries. Both concepts – to various degrees – aim at cyborgization (machinization of man). Both transgression and transhumanism assume the functioning of a machine close to the body or on the body. They differ in the connection of the body with the machine. Moreover, the latter recommends transferring a machine into a human body and aims at the reverse process – placing a body inside a machine. In both

³ J. Knapczyk, *Zarys robotyki*, Nowy Sącz 2015, p. 10.

⁴ Entry: *wartość*, in: *Socjologia. Przewodnik encyklopedyczny*, edited by A. Mikusińska, Warszawa 2008, p. 234.

⁵ *Ibid.*

cases the boundary of the human body is crossed (although their consequences are different and incomparable). It is no longer just man as an individual that can cross the boundaries of self (assumption of transgression) but the human race as the whole holds a hidden development potential which can lead to the attainment of a better condition (assumption of transhumanism). Considering the above-given considerations, the following research question arises:

- whether and how the functioning of a body connected with a machine in a non-invasive way (the machine on/or next to the body) and the other way round – falling within the assumptions of transgression – influences the assignment of value to the human body?
- how a machine works and influences a body (a machine in a body), how a body functions and influences a machine (a body in a machine), and finally – how these relationships influence changes in the perception of the value of human life?

Questioning the traditional boundaries of the human body, recognised by personalist ethics and classical philosophy as indisputable gives rise to anxiety. Addressing the question posed in the title of this article, I assume the hypothesis that undermining the natural status of the human body in postbiological society, which is favoured by cyborgization and the application of innovative technologies, as the consequence of a controlled social discourse and knowledge, changing the body-machine relations, alters the perception and assignment of value towards an instrumental treatment. The article is analytical-descriptive. The research problem is analysed from the sociological perspective. Although I apply various research perspectives, it should be stressed that they are equally likely to appear. Nowadays society must cope with the functioning of a machine on the body, next to the body or inside the human body. The functioning of a body inside a machine, although at an advanced stage, is still futurological in character.

Terminological assumptions

The research problem of this article is analysed from the sociological perspective. The concept framework of the article is outlined by the phenomenological perspective of looking at the body as a real entity, physical, structured and objectified, which can experience itself (a body as a body). Maurice Merleau-Ponty, whose phenomenological philosophy was of key importance for the sociological boosting of the material character of human physicality claims that '[...] my body for me is not an assemblage of organs juxtaposed in space. I am in undivided possession of it and I know where each of my limbs is through

a body image in which all are.⁶ Thus, questions arise: how is a technicalized body perceived (strengthened and extended)? How is it experienced and valued?

Because the body is a whole that man can dispose of, we should also look at its spatiality, and more precisely, at the potential spaces of its functioning within the body-machine system. 'Our body – says M. Merleau-Ponty - is the origin of the rest of spaces, expressive movement itself, that which causes them to begin to exist as things, under our hands and eyes.'⁷ The body is dynamic, turned towards the world, it is 'the vehicle of being in the world, and having a body is, for a living creature, to be involved in a definite environment, to identify oneself with certain projects and be continually committed to them.'⁸ These paradigms refer also to enhanced, complemented, extended or changed bodies. A body understood in this way is not an object, which is explained by M. Merleau-Ponty by describing the way in which the body relates to itself and which he calls the phenomenon of 'double sensations.'⁹ The author of *Phenomenology of Perception* argues that the body as an 'affective object,' as the body of a 'living subject' is distinguished by a 'extraordinary character of movements' from all the other 'external bodies.' A feature of the body which is the availability of sensations results in it not being perceived by phenomenologists as a mere 'organism' (*der Körper*), but also as a 'living body' (*der Leib*).¹⁰ Therefore, a new question arises: can we question the argument of the availability of sensations? Is a machine as an element of the human body capable of feeling?

The view that the body cannot be perceived solely with respect to its material status is also maintained by theoreticians from various trends of social constructivism: Michel Foucaultsennn as a poststructuralist and also Erving Goffman, a representative of symbolic interactionism. While M. Foucault is interested in a body controlled by discourses, E. Goffman concentrates on a body as the component of action.¹¹ Stressing their achievements for the formation of constructivist concepts of the body, Chris Shilling pays attention to the views of the body common to both of the theoreticians. 'Both authors agree [...] that the body occupies the central position in the life

⁶ M. Merleau-Ponty, *Fenomenologia percepcji*, transl. M. Kowalska, J. Migasiński, Warszawa 2001, p. 117.

⁷ Ibid, p. 166; quoted after: K. Kowal, *Doświadczenie ciała zrekonstruowanego protezą kończyny górnej – socjosomatyczne studium ciała biotechnologicznego*, „Przegląd Socjologii Jakościowej” 2018, v. 14, no. 3, p. 184. Available on the Internet: www.przegladsocjologiijakosciowej.org, DOI: <http://dx.doi.org/10.18778/1733-8069.14.3.10> [access: 25.05.2019].

⁸ Ibid, p. 100.

⁹ Ibid, p. 112.

¹⁰ E. Husserl, *Medytacje kartezjańskie z dodaniem uwag krytycznych Romana Ingardena*, translated by A. Wajs, Warszawa 1982, p. 141.

¹¹ K. Kowal, *Doświadczenie ciała...*, p. 184.

of bodied subjects while claiming at the same time that the importance of the body is ultimately maintained by social <structures> existing outside the reach of individuals.¹² Therefore, I do not limit myself to an analysis of a body subjected to a technological reconstruction solely as a material being - E. Goffman's assumption - but I also treat it as an object in which social discourse has its place and, as an object, is controlled by the said discourse within biopolitics - M. Foucault.¹³

The two authors' weak emphasis on the causative force of the body, which is a key dimension for sensations of an enhanced body, or an extended one, justifies the necessity to refer here to Arthur's Frank theory of the body used in action. Although A. Frank admits that constructivists are right and he sees the importance of discourses and institutions for the development of the body, his central category of his theory of the body is *the corporeality of bodies*, which he sees as 'the third dimension of their structure.' 'Bodies, of course, do not come from discourses and institutions but from other bodies, and specifically from women's bodies.'¹⁴ The concept of 'problems of action'¹⁵ and its specific way of talking about the body, being a bridge between phenomenology and social constructivism, it becomes a theoretical framework of presented own research because of the following parameters: 1) breach from the nature-culture dualism; 2) treating the body as a phenomenon which is both social and corporeal; 3) interest in man experiencing the body; 4) focusing on principal issues of embodiment from the point of view of an individual; 5) forming a context for action as the most important for the body.¹⁶ All these dimensions are connected with assigning value to the human body in contemporary society.

Nowadays, postbiological society, as defined by Roya Ascott,¹⁷ by questioning the perception of the human body in personalistic ethics and classical philosophy transfers it to the sphere of the profane, enabling and also allowing it to be de-naturalised, secularised and machinised. In line with

¹² Ch. Shilling, *Socjologia ciała*, przeł. M. Skowrońska, Warszawa 2010, p. 84.

¹³ Biopolitics is kind of politics which deals also with life in its biological sense, health and its protection. Michel Foucault - who coined the term in the 1970s of the 20th c. - applies the term biopolitics to a form of control over the body and life. He distinguished then two important forms of activity in which this control is manifested. The first one dealt with an individual body - it disciplined it to make it socially useful. The other one was control over life at the population level, so the said body is compared to others using tools such as: statistics (e.g. births, deaths, diseases) and forecasts.

¹⁴ A. W. Frank, *For a Sociology of the Body: an Analytical Review*, in: M. Featherstone, M. Hepworth, B. S. Turner, eds., *The Body. Social Process and Cultural Theory*, London 1991, p. 49.

¹⁵ *Ibid.*, pp. 47-54.

¹⁶ K. Kowal, *Doświadczenie ciała...*, p. 185.

¹⁷ R. Ascott, *Behaviours and Futuribles*, in: *Theories and Documents of Contemporary Art: A Sourcebook of Artists' Writings*, K. Stiles, P. H. Selz (ed.), Berkely and Los Angeles 1996, pp.489-491.

the assumptions of social constructivism, he perceives the body as 'material' to be produced, complemented, supplemented, strengthened and even thoroughly changed. The above-given potential activity can be done in various ways. Besides non-invasive methods of complementing the human body within transgression activity (e.g. by wearing wearable technologies) more and more often innovative technologies are applied (nanotechnology, genetic engineering, regenerative medicine, nanomedicine) and invasive techniques of cyborgization are recommended by the proponents of transhumanism.

Cyborgization defined as a process in which the human body or another organism forms an immersive symbiosis with technologies/machines – in accordance with the current philosophical stand – can take place on two planes: on the one hand, through the functioning of a machine in a body, and on the other one, through the functioning of a body inside a machine. Transhumanists forecast another, third plane of the body-machine system: the functioning of a brain united with a machine/computer.

The principles of cyborgization understood as the inclusion of technology into the human body to complement it and/or expand it¹⁸ form the basis for techno-complementation (that is prostheses) and techno-extension (implants) of man.¹⁹ The former is connected with the functioning of a machine connected with the human body, or more precisely prostheses worn on the body, while the latter with the process of implanting the body with various chips, connected to the nervous system and giving the possibility to experience various techno-novelties (e.g. direct communications with a computer np. or techno-stimulation of the nervous system.)²⁰ The above-cited extensions are performed in two ways: from the outside (exo-extensions) and from the inside (endo-extensions).²¹ The effect of the said activities falling within the process of cyborgization is a cyborg. In the article *Cyborgs and Space*²² in the 60s of the 20th century, Manfred Clynes and Nathan S. Kline used the term cyborg – cybernetic organism – to describe a hybrid of a living organism and an artificial system regulating the physiology of the organism in real time depending on the changing conditions of the external environment. Its nervous system is connected to electronic elements and to mechanical devices by an invasive method, and life processes are carried out or supported by technical devices, which implies new, additional functions. Cognitive

¹⁸ H. Yokoi, *Cyborg (Brain-Machine/Computer Interface)*, „Advanced Robotics” 2009, Vol. 23, No. 11, pp. 1452-1453.

¹⁹ R. Ilnicki, *Bóg cyborgów. Technika i transcendencja*, Poznań 2011, p. 166-170.

²⁰ M. Klichowski, *Narodziny cyborgizacji. Nowa eugenika, transhumanizm i zmierzch edukacji*, Poznań 2014, p. 155.

²¹ *Ibid.*, p. 150.

²² M. E. Clynes, N. S. Kline, *Cyborgs and Space*, „Astronautics” 1960, No. 8, pp. 29–33, <https://pl.scribd.com/doc/2962194/Cyborgs-and-Space-Clynes-Kline?autodown=pdf> [access: 23.03.2019].

aspects (relations of man with technology) are also important, that is how such a link with technology influences sensations, perception, the shaping and modelling of the human mind. The Cyborg Foundation suggests a very general definition, according to which this is a different type of relations, previously unknown, between technology and organisms, and at the same time it stresses the dynamic character of this definition, conditioned by changing new technologies.²³ Andie Clark's *Natural-Born Cyborgs*²⁴ falls within the trend of cognitive discussion, in which the author presents such aspects of the relations between man and technology that influence the human mind, change perception, way of thinking and thus the way of its functioning. Apart from physical fusions of the living organism with technology that allow to capture the moment of the adaptation to the technology, it also mentions the brain's ability to absorb new models of functioning through such technologies. A. Clark speculates that in the future technologies and cyborgs will not be created based on physical fusions but they will be new cognitive capabilities formed with the help of technology, not necessarily crossing the boundaries of the human body,²⁵ which can now be exemplified by some wearable technologies.

1) Non-invasive functioning of the body-machine system as an expression of transgression

Transgression – according to Józef Koziński – is ‘an activity – creative, innovative and expansive – both individually and collectively, which crosses the previous boundaries of humanity’s material, symbolic, social and cultural achievements. By performing them, man *goes beyond* his limited possibilities, beyond his imperfection, beyond his finiteness and thanks to this creates *new values* and realizes new interests.’²⁶ The functioning of the body-machine system falls within transgression activity. It should be noted that transgression, unlike transhumanism, does not provide for any invasive technologies and means; it includes the functioning of machines next to or on the human body, without the need for a permanent link with the nervous system of a human being. One of its essential manifestations is *wearables technology*. Worn on or close to the body, being an axis of the man-machine relationship, they process information from the environment and from the user’s body in real time. They usually serve several functions in the everyday functioning of man. Keeping fit, perfecting sports skills, health protection or improving

²³ Vladimir, *Cyborgi*, <https://biznesmysli.pl/cyborgi/> [access: 31.05.2019].

²⁴ A. Clark, *Natural-Born Cyborgs: Minds, Technologies, and the Future of Human Intelligence*, Oxford, New York 2003.

²⁵ Vladimir, *Cyborgi...*, p. 2.

²⁶ J. Koziński, *Spółczesność transgresyjna. Szansa i ryzyko*, Warszawa 2004, p. 45.

everyday activities are all examples of the application of the wearable technology by humans. Their range is outlined by man's expectations, limitations and needs, both the perceived ones as more and more often the suggested ones, imposed by the consumption society. An analysis and supervision of the functioning of the body becomes not just a medical necessity but a new fashion, element of a lifestyle, or a tool aimed to increase the efficiency and experience of the body. A new social-technological trend known as *quantified self* makes it possible to learn your own body through numbers and sensors. Its essence is the collection of data about the everyday functioning of the organism and their analysis as a tool for self-perfection.²⁷ This trend, connected with the technologically determined new approach to the body in the awareness of contemporary people is self-knowledge through numbers, quantification, control and optimisation of everyday functioning and experiencing the body. This is a suggestion of the incorporation of technology for the realization of such goals as time and productivity management, analysis of physical activity, support for exercise, sports training, losing weight and medical treatment, keeping fit and maintaining good self-being.²⁸

Although the above-given examples of transgression do not refer directly to the physical crossing of boundaries of the body, they do show how the way of perceiving and assigning value to the human body changes in contemporary society and also the level of interest of the degree of man's experiencing the body or focusing on the essential issues of embodiment from the point of view of an individual. This is a body (an object) in which social discourse takes place and is reflected through fashion trends and it is an object which is controlled by this discourse (mechanisms of consumer society.) Basic functions of the human body change under their influence. Quantitative indicators, seen on various planes, decide about its value. It is perceived not only because of the new utilitarian functions it serves, but it becomes a 'tool' which enables quantitative and qualitative management and control of one's body. The issue of control and management of one's own body, present in the behaviour of users of wearable technology cannot be discussed outside the context of E. Goffman's interactive order. It stresses the physical nature of the body as an essential component of the subjectivity of an individual significantly influencing the shaping and manifestation of personal identity and social identity, as confirmed by numerous studies.²⁹ Even more, E. Goffman's approach means concentrating

²⁷ E. Walewska, *Miejsce i rola ciała oraz zmysłów w zdeterminowanej technologicznie i usiecionej rzeczywistości początku dwudziestego pierwszego wieku*. *Wybrane zagadnienia*, „Ethos” 2015, vol. 28, no. 3(111), pp. 130–142.

²⁸ *Ibid.*, pp. 130–142.

²⁹ A. Free, *Przyszłość wearable technology*, <http://www.spidersweb.pl/2014/06/przyszlosc-wearable-technology.html> [access: 21.05.2019]; M. Mikowska, *Polska jest mobi 2015*, http://www.tnsglobal.pl/coslychac/files/2015/05/POLSKA_JEST_MOBI_2015.pdf, p. 36 [access: 06.05.2019].

on an individual body.³⁰ One of the people who express themselves in this way is Chris Dancy, known as 'the most connected man in the world.' He uses wearable technology to observe, analyse and optimise key aspects of his life. In total, he uses about 700 devices and applications which monitor his health, productivity and quality of work. He systematically searches for new, more optimal solutions, which would be less conspicuous while performing the same functions because – as Chris Dancy notices – a conversation with another person in, for example, Google glasses can raise some suspicions and fears connected with a breach of privacy (e.g. 'Is he recording me?')³¹ Hence, another stage in the evolution of the body-machine system alongside prostheses – are subdermal implants, invisible to the eye.

2) Invasive link of the body-machine system as an expression of transhumanism.

The body as a corporeal phenomenon which according to Arthur Frank remains an 'inexorable fact,' through the supply of adequate resources and also through the existing limitations influences how we experience it. Invasive methods of linking the body with the machine as recommended by transhumanists determine the spatial dimension of experiencing the body, which includes questioning the need for it through transferring the human body into the machine (e.g. mind uploading technology). The spatial dimensions of experiencing the body is made up by: the functioning of a machine connected with a body (exo-extension), functioning of a machine inside a body (endo-extension) and functioning of a body in a machine (mind uploading). Transhumanists perceive the human nature and body as an open process, 'work in progress' that can be learnt and modified in a desired way. They hope that thanks to the advancements in science, technology and other means, people will become post-humans, immortal beings with remarkable capabilities.³²

Functioning of a machine connected to the human body (exo-extension)

The first possible plane of activity for the body-machine system is the functioning of the machine on the human body or next to the body, permanently connected. This is made possible by the idea of the exo-extension of man, that is the construction of tools shaped like advanced prostheses bases on applying them to the human body of an able-bodied person in order to extend

³⁰ E. Goffman, *Piętno. Rozważania o zranionej tożsamości*, przeł. A. Dzierżyńska, J. Tokarska-Bakir, Gdańsk 2005.

³¹ A. Free, *Przyszłość wearable technology...*, p. 3.

³² N. Bostrom, *Transhumanist values*, „Journal of philosophical research” 2005, No. 30 (Supplement), pp. 3–14.

their biologically limited functions of the body.³³ It is based on prosthetic experience of disabled people with bionic prostheses³⁴ connected directly to the central nervous system through the so-called bionic links. At present prosthetics is becoming not only a technology which restores abilities but also extends them. Hence, strategies of fighting disability have become strategies of cyborgization of healthy people and super-able-bodiedness becomes a stage of the transhumanistic techno-progression of the human body,³⁵ implying the following question: where is the boundary between a therapy and a supplementation of the body?

The human body which underwent technological reconstruction is not only a material being but a body which acquired new causative quantity, which is an essential dimension of experiencing a body reconstructed with a prosthesis. It is an object in which social discourse can be found and which is controlled by the discourse. In many ways: from judging the purposes of prosthetics of the body (medical, rehabilitation purposes or connected with an enhancement of the body and attempt to build a post-human) to axio-normative valuation. It is explained by the reference to the theory of the body used in action by Arthur Frank. Because 'our' machine: bionic prosthesis connected to the body, due to a simulation of movement and availability of sensations as an 'affective object' and the body of a 'living subject' is distinguished by an 'exceptional character of motions' from all other 'external objects.' The availability of sensations causes it to be perceived by phenomenologists as a 'living body' (*der Leib*),³⁶ enhancing, confirming in this way the argument of the availability of feelings to the machine/prosthesis. This argument refers, however, only to bionic prosthesis, it does not include cosmetic prosthesis. At the same time the presence of a prosthesis as the product of technology interferes in the experiencing of one's own body as a living body and with experiencing it subjectively in an unlimited way. A body reconstructed by a prosthetic supplement is closed in the affective sense because it is not able to

³³ M. Klichowski, *Narodziny cyborgizacji...*, p. 151.

³⁴ K. Kowal, *Doświadczenie ciała...*, p. 181. The basis for the construction of a bionic prosthesis (the most common form of exo-extension) was the development of an implanted neural interface, that is a system making it possible for a prosthesis to communicate with the brain. Its job is to register stimuli and to stimulate the brain, which allows the user to have a vast range of motor control over the prosthesis itself and also to receive touch sensations in contact with the held objects. A bionic prosthesis is powered by electrodes which are implanted into the peripheral nervous system. The signal transferred from the brain to muscles that the user of the prosthesis wants to make a move is registered by electrodes placed on the surface of the skin, which in turn triggers motors of the prosthesis to make the movement. In short, it means that a person controls the movement of the prosthetics by thoughts.

³⁵ M. Klichowski, *Narodziny cyborgizacji...*, p. 153.

³⁶ E. Husserl, *Medytacje kartezjańskie...* p. 141.

show or perceive touch sensations.³⁷ Serving an aesthetic function, it is aimed at the social environment, satisfies its expectations and aesthetic functions.

A body reconstructed with prostheses is constituted by external forces, by scientific, ideological, cultural and technological thought. It is a place where knowledge-power is located. Knowledge which is exhibited by the familiarity with and the possibility of using innovative technologies and techniques. As Michel Foucault notes 'this power is not exercised simply as an obligation or a prohibition on those who 'do not have it'; it invests them, is transmitted by them and through them; it exerts pressure upon them, just as they themselves, in their struggle against it, resist the grip it has on them.'³⁸ And although M. Foucault is accused of having his analyses 'somewhat disembodied' and the body itself 'dissolves in the determining power of discourse,' his works do contain interest in the body as a real being in the context of disciplining influence of technological development and biopolitics, as evidenced on the subsequent planes of the function of the system which I take interest in.

Functioning of a machine in a body (endo-extensions)

The idea of a transformation of the disabled human body to a super-able-bodied one is not restricted only to the process of prosthetics (exo-extension) but also refers to implanting and thus endo-extension of the human body.³⁹ It constitutes another, more advanced stage of the body-machine system. Namely, the functioning of a machine (implant, chip, heart pacemaker) in the human body is a bridge between phenomenology and social constructivism. It breaks away with the dualism of nature-culture, real-artificial, external-internal. It shows the treatment of the body both as a social phenomenon (influenced by the ideas of transhumanism) and a corporeal one (a humanoid robot will always be only an artificial being). It shows interest in living and experiencing the body by contemporary man and also focuses on the principal issues of embodiment from the perspective of an individual and the possible ways of improving, 'fixing' one's enhanced body, including the change of its nature. Moreover, it defines new contexts for activity for the human body.⁴⁰ They are: functioning of a machine in the body and the idea of the brain/machine interface).

Just like in the case of exo-extension, the procedures of endo-extension fascinate transhumanists, simultaneously arousing anxiety and social disco-

³⁷ K. Kowal, *Doświadczenie ciała...*, p. 196.

³⁸ M. Foucault, *Nadzorować i karać. Narodziny więzienia*, translated by T. Komendant, Warszawa 1993, p. 33.

³⁹ M. Klichowski, *Narodziny cyborgizacji...*, Poznań 2014, p. 153.

⁴⁰ K. Kowal, *Doświadczenie ciała...*, p. 185.

urse in the area of assigning value to the human body and ethical, theological and legal problems. By interfering in the body to a greater and greater extent, they implicate new spaces of its activity which determine the need to overcome human limitations, in accordance with the principles of transhumanism (human enhancement), questioning its transcendental dimension.

The implanting of the human body is accompanied by various aims (from medical through artistic to the so-called extension of the body). The practice of implanting cochlear implants has been widespread in Poland since the 1990s and nowadays there are auditory brain stem implants. People with implants are examples in which we can see how the human body reacts to a completely new type of stimuli resulting from placing a machine inside their body.

The Australian artist-performer Stelarc (or Stelios Arcadiou) is the author of many pioneering and innovative solutions dealing with the issue of assigning value to the human body in the context of the body/machine/technology system. For years he has been experimenting with technological extensions of his body and also with improving and controlling it. Stelarc claims that 'the body is obsolete,' it cannot keep pace with the demands of the technological age and is an archaic form. By questioning its limitations, he tries to test potential improvement possibilities, changing the body into sort of laboratory. Stelarc rebels against 'ergonomic correctness,' that is the assumption that technology is to serve the human body. According to him, it is the body that should adapt to technology, whose structures it has not matched for a long time. 'Technology is a component of humanity,' the artists notes, experimenting among others with extensions of the hand to virtual reality or a third prosthetic arm reacting to impulses sent from the body.⁴¹ Another artist of the new media and a proponent of transhumanism, Natasha Vita-More developed the concept of *Primo Posthuman* – the human body designed to achieve the maximum of its abilities, in which it will be easy to replace worn out 'spare parts.'⁴² In the said examples, the human body is perceived as a type of mechanism undergoing reconstructions, improvements and control. The transgression taking place in the field of matter is a sort of interface controlled by awareness and also by social structures. There is social consent to the treatment of the body as 'material' used in more and more spectacular experiments, violating its sacred nature and dignity. Christian thinkers ask: why should man be dehumanised if he has been created in the

⁴¹ O. Drenda, *Maszyna i operator. Transhumanistyczna wizja ciała*, „Znak” 2011, no. 674–675, <http://www.miesiecznik.znak.com.pl/674-6752011olga-drendamaszyna-i-operator-transhumanistyczna-wizja-ciala/> [access: 20.05.2019].

⁴² *Ibid.*, p. 3.

image and likeness of God?⁴³ Is interference in the definition of the word 'human' – techno-alterations rapidly transforming the dynamics of human life – an offence against humanity and against man? Where is the boundary between therapy and enhancement?

According to the subject literature⁴⁴ the boundary is very difficult to draw, the more so if we reject the principles of personalistic ethics. These issues have been addressed in public debate since at least 2004 by Francis Fukuyama: philosopher, sociologist, chairman of the Council on Bioethics during Bush's presidency. He then drew attention to many technological projects bordering medical and experimental activities.

According to the principles of biopolitics, these boundaries are set by institutions in a way dictated by the principles, norms and activities set up by them. An example from many years ago is Oscar Pistorius, who won medals at Paralympics. At some time, because of his good results, he was allowed to compete in an Olympics with able-bodied persons. Many doubts appeared whether it was a good idea indeed. Are the prostheses of his lower extremities only a therapy and not an enhancement as they provide him with extraordinary abilities?

As Rafał Ilnicki rightly notes 'voluntary technological liberation from the limitations of biology is nothing more than subjecting the human body to techno-determination.'⁴⁵ Transhumanism is seen as the ultimate form of technological determinism definitely opposing both the Christian vision of the dignity of a human being and its traditional depiction in ethics, which assumes the liberty and rationality of a person. Further questions arise: what will happen when a cyborgized man is damaged or worn out (among others, his prostheses and implants)? Will a used up, destroyed cyborg become a human again? Can the transhumanistic process 'switch to the reverse gear'? The decision of transhumanisation is irreversible.⁴⁶ The functioning of a machine in a body (that is cyborgization) is gradual dehumanization, removal of 'purely human qualities' remarks M. Klichowski.⁴⁷

One of the most important ideas of endo-extensions (and also of the process of transhumanism) is the idea of the brain/machine interface. It alludes to the cybernetic assumption of building a combined machine – man

⁴³ F. Baumann, *Humanism and Transhumanism*, „Journal of Technology & Society”, 2010, Vol. 29, s. 84, quoted after: M. Klichowski, *Narodziny cyborgizacji...*, p. 153.

⁴⁴ C. S. Campbell, J.F. Keenan, D.R. Loy, K. Matthews, K., T. Winograd, L. Zoloth, *The Machine in the Body: Ethical and Religious Issues in the Bodily Incorporation of Mechanical Devices*, in B.A. Lustig, B. Brody, G.P. McKenny (Ed.), *Altering Nature*, Volume Two: *Religion, Biotechnology, and Public Policy*, Berlin-Heidelberg 2008, pp. 199–258, <https://link.springer.com/content/pdf/10.1007%2F978-1-4020-6923-9.pdf> [access: 13.04.2019].

⁴⁵ R. Ilnicki, *Bóg cyborgów...*, p. 162.

⁴⁶ M. Klichowski, *Narodziny cyborgizacji...*, p. 143.

⁴⁷ *Ibid*, p. 143.

system and the 'communication bridge' between the biological (analogue) world and the electronic (digital) one.⁴⁸ It is to be accomplished – according to transhumanists – through implanting into the brain of a techno-implant, which will enable communication between neurons and a computer, better understanding of nervous processes and a faster development of artificial intelligence.⁴⁹ It should be noted that although the brain/computer interface is not new, because already in 1924 human brain activity was recorded using an electroencephalograph (EEG), it was not until recently that highly developed technologies were created in this area. Elon Musk explains the work in this area with medical reasons; brain implants are to restore functionality to sick people. This is also an area for possible development of artificial intelligence. Techno-implants which are implanted in the brain, based on Augmented Reality are supposed to simultaneously and interactively (via thought control) enhance mental representations of the physical world with images from the virtual world. The aim of AR is not to remake reality un-real but to enhance it – complement the real image with an unreal one but not making it unreal. The world of augmented reality (the world of cyborgs) is – as stressed by Gloria E. Jaramillo, Juan E. Quiroz, Cesar A. Cartagena, Carlos A. Vivares and John W. Branch – a mixture of real and virtual realities, it is a *mixed reality*.⁵⁰ Created and controlled reality – on multiple planes - by knowledge and social discourse and its structures. High costs of techno-implants connected with the need to have specialist knowledge can be a barrier for many people.

Functioning of a body in a machine (mind uploading)

Innovative technologies more and more invasively interfere in the human body. These activities are supported by transhumanism, directing humanity towards posthuman condition, propagating radical changes in human nature, including transferring the human body into a machine (the so-called mind uploading). This is a constitutive strategy for proponents of transhumanism because only by uploading the mind into a non-biological system is the life of posthumans and their immortality possible. However, it should be stressed, after Michał Klichowski, that the above-said mind uploading is not based on any scientific premises.⁵¹ It is based on a functionalist view on the nature

⁴⁸ Cf. R.D. Hof, *Deep Learning*, „Technology Review” 2013, Vol. 116, No. 3, pp. 32-36.

⁴⁹ M. Klichowski, *Narodziny cyborgizacji...*, pp. 155–156.

⁵⁰ G.E. Jaramillo, J.E. Quiroz, C.A. Cartagena, C.A. Vivares, J.W. Branch, *Mobile Augmented Reality. Applications in Daily Environments*, „Revista EIA” 2010, Vol. 14, p. 127, quoted after: M. Klichowski, *Narodziny cyborgizacji...*, pp. 156–157.

⁵¹ Cf. C. S. Campbell, J.F. Keenan, D.R. Loy, K. Matthews, K., T. Winograd, L. Zoloth, *The Machine in the Body...*, pp. 199–258.

of human mind, assuming that having a brain of the human kind is a sufficient prerequisite for having a mind at all, although it is not an obligatory one. The mind is, therefore, organisationally invariant, which means that every system which has a functional structure like the human brain would be capable of creating the same mental states as the brain. And so, according to functionalism, neurophysiology is not the only way of realizing the brain; it can also be realised in non-biological systems. Thus, the connection of the mind to a living organism is here only 'accidental.' The problem is, however, as Michał Klichowski stresses, that there is no evidence that extra-biological existence of the mind possible. The idea of mind uploading lacks not only a constructive-applied vision but also a constitutive theory.⁵²

Placing the body, and to more specifically the brain, in a machine would provide it with immortality of the human body (immortality), defined by transhumanists as the science-as-saviour idea (science/technology as saviour.) As it rejects spiritual immortality (recognised by Christianity) transhumanistic immortality (achieved through technology) will be only immortality of the mind devoid of the spirit. According to D. Gareth Jones 'an immortal cyborg is only a system of feelings, consciousness, data processing but not a transcendental system. Thus, *science-as-saviour* proposes only a poor caricature of immortality – shallow everlasting existence.⁵³ Thus it is closed to transcendence and replaces it with a vision of 'artificial infinity' – an eternal but non-metaphysical space⁵⁴. The human body is reduced only to its material being.

Summary

The aim of the article was to present the influence of changes in the body-machine system, the result of the application of innovative technologies and the strategy of cyborgization on the perception and value of the human body in contemporary (postbiological) society. I applied two research approaches. On the one hand, the non-invasive functioning of the body-machine system as an expression of transhumanism; on the other one: the functioning of a machine connected to a body (exo-extension) and the functioning of a body in a machine (mind uploading), as an expression of transhumanism. The analysis of subject literature in the article allowed me to formulate conclusions which confirm the hypothesis given at the beginning that crossing the boundaries of the human

⁵² M. Klichowski, *Narodziny cyborgizacji...*, pp. 146–147.

⁵³ D. G. Jones, *A Christian Perspective on Human Enhancement*, „Science & Christian Belief” 2010, Vol. 22, No. 2, p. 114, quoted after: M. Klichowski, *Narodziny cyborgizacji...*, p. 144.

⁵⁴ *Ibid*, p. 153.

body in postbiological society, favoured by cyborgization and the application of innovative technologies as the result of a controlled social discourse and knowledge, changes the perception and the assignment of value to the human body towards an object-like treatment.

While wearing technology on the body/next to the body connected to it in a non-invasive way is more and more frequent, experiments on one's own body and inside it are still an occasional thing. It is mostly the disabled who decide to undergo it. Healthy people rarely subject their bodies to prosthetics or implementation which could radically change the appearance or perception of the human body. This type of activities can be found in the Japanese environment and culture, as can be seen in anime, which shows completely different models of the functioning of the body-machine system. In the European culture, they are still occasional. Single individuals decide to have their bodies enhanced but this is not a general trend, although it is favoured by the principles of transhumanism which, having the ambition to outline particular ways of thinking about man and his body, also translates onto the outlooks that shape on life, culture and axiology. As a certain normative vision of the world, they offer man a new perception of the body and a new hierarchy of values.

Both transgressive activities and transhumanism can aim at subjectivisation through the machinization of man, determining a new body-machine system. Transferring a machine into a human body – to various degrees – is postulated both by transgression and by transhumanism. Additionally, the latter aims at a reverse process – placing a body in a machine. In both cases the boundary of the human body is crossed, although the consequences are different and incomparable. It is difficult to compare implants or prostheses on the body with the mind uploading technology.

Experimenting with the human body within transgressive activities, including non-invasive technologies, makes it possible to overcome individual limitations of the human body without interfering in its biological nature. The human body is perceived as an objective value, independent of the subjective evaluation of individual persons or of a particular point of view. The overcoming of the limitations of the body is supported by its new perception – it is a tool for a more efficient discovering oneself through numbers and sensors. It changes from an object to be discovered to a tool of discovery, though technologies worn on the body, close to the body or even inside the human body. Transhumanism perceives the human body in a different way. It is a subjective value. It is valuable, desirable; it is the aim of human ambitions, but it is an individual who decides what is best for his or her own body. Used in more and more spectacular experiments, it is perceived as 'material,' 'commodity,' a material product, a laboratory, an interface devoid of inviolability and dignity. The human body becomes a cyborg, a machine-man and, later, maybe a posthuman. The dreadful

vision of people-machines can come true in a reality devoid of values forming the foundations of European civilization. To prevent this, social discourse and scientific reflexion should start again over the following issues:

- Ethical and biological limits of interference in the human body. Technology can interfere in the human body making it better, more efficient if its application is medically justified and is in accordance with the ethics of personalistic universalism. It should be stressed, however, that it cannot be driven by a subjective desire to change man into a machine or other ways of becoming a machine and also the wish to perfect the process of evolution;⁵⁵
 - Ethical consequences of technological improvement of man;
 - Dilemmas (ethical, axiological, moral, theological, legal) connected with applying technologies and machines inside the human body;
 - Redefinition of many legal norms and regulations considering the functioning alongside one another of 'enhanced' and 'extended' people – cyborgs and the development of new regulations determining their axiological and anthropological status.

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⁵⁵ A. Żok, *Etyka posthumanizmu. Posthuman ethics*, „Poznańskie Zeszyty Humanistyczne” [b.r.], vol. 22, p. 41, http://www.pomost.net.pl/tom_22/zok.PDF [access: 15.05.2019].

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Abstract

The aim of the article was to present the influence of changes to the body-machine system, resulting from the application of innovative technologies and the strategy of cyborgization on the perception of and assignment of value to the human body in contemporary society. I apply two research approaches. On the one hand, the non-invasive functioning of the body-machine system as an expression of transgression; on the other one: the functioning of a machine connected with a body (exo-extension), the functioning of a machine in a body (endo-extension) and the functioning of a body in a machine (mind uploading), as an expression of transhumanism.

Addressing the problem formulated in the title of this article, I postulated the hypothesis that undermining the natural status of the human body in postbiological society, favoured by cyborgization and the application of innovative technologies, resulting from a controlled social discourse and knowledge, changing the body-machine relations, changes the perception of and assignment of value to the human body. The hypothesis was confirmed. The article is analytical and descriptive. The research problem is analysed from the sociological perspective.

Key words: human body, cyborgization, exo-extensions, endo-extensions, machine, mind uploading, transgression, transhumanism, value

Techniczne rozszerzenia ciała i wartość ludzkiego ciała

Streszczenie

Celem artykułu było ukazanie wpływu zmian w systemie: ciało–maszyna, będących skutkiem zastosowania innowacyjnych technologii i strategii cyborgizacji na postrzeganie i wartościowanie ciała ludzkiego we współczesnym społeczeństwie. Zastosowałam dwie perspektywy badawcze. Z jednej strony nieinwazyjne działanie systemu ciało–maszyna jako przejaw transgresji; z drugiej: funkcjonowanie maszyny połączonej z ciałem (egzorozszerzenia), funkcjonowanie maszyny w ciele (endorozszerzenia) oraz funkcjonowanie ciała w maszynie (*mind uploading*), jako przejaw transhumanizmu.

Podjmując problem sformułowany w tytule artykułu, przyjąłam hipotezę, iż podważanie naturalnego statusu ciała ludzkiego w społeczeństwie postbiologicznym, któremu sprzyja cyborgizacja i zastosowanie innowacyjnych technologii, będące wynikiem kontrolowanego dyskursu społecznego i wiedzy, zmieniając relacje ciało–maszyna, zmienia postrzeganie i wartościowanie ciała ludzkiego, w kierunku przedmiotowego traktowania. Hipoteza została potwierdzona. Artykuł ma charakter analityczno-opisowy. Problem badawczy analizowany jest z perspektywy socjologicznej.

Słowa kluczowe: ciało ludzkie, cyborgizacja, egzoroszerzenia, endoroszerzenia, maszyna, mind uploading, transgresja, transhumanizm, wartość
