

Living Mirror:

Perception and Representation of the Human

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Abstract

The paper will seek to examine the bio-art project of Howard Boland and Laura Cinti of C-Lab *Living Mirror* (2012), which uses electronically charged magnetotactic bacteria, combined with photo manipulation, in order to create a synchronised real-time moving image, giving the sense of a mirror. The text will attempt to explore in what ways this artwork changes human representation and therefore perception of human beings. Common cultural meanings and assumptions of the mirror will be discussed, referring to the myth of Narcissus, which evokes the idea of the mirror as mediation, a tool for self-knowledge, and its ability to provide visual access to what cannot be seen, implying existential oppositions such as visibility and invisibility, reality and illusion. Drowning in the water, Narcissus embodies the idea of contemporary human beings immersing into the virtual. The reflexive image of oneself in *Living Mirror* is produced, however, not only by technological means but also by living bacterial cells in a technological environment. Bacteria are considered in relation to the recent scientific discovery, which reveals that most of the human body consists of non-human, “other”, i.e., bacterial cells. An exploration of the relationship between human being and its bacterial counterpart will be looked at in a postanthropocentric context, following the theoretical concepts of Karen Barad, who proposes that a distinction between subject and object does not exist ontologically and a separation emerges only in the process of “intra-action”, conditioning different representational approach. *Living Mirror* suggests not only a human / non-human relationship, but also a self-reflexive correlation, which defines new manners of relating the human self to its multiple identities. The mirror showing ourselves via bacterial organisms, reveals our alter ego—bacterial cells in our body, the physical matter of oneself, and the physicality of human identity.

Key words: Bio-art, Mirror, Human Identity, Representation, Bacteria

Living Mirror: Perception and Representation of the Human

The following text examines the bio-art project *Living Mirror* by the UK-based artists Laura Cinti and Howard Boland of C-Lab, in cooperation with FOM Institute AMOLF—the research laboratory of the Foundation for Fundamental Research on Matter (FOM), part of the Netherlands Organisation for Scientific Research (NOW). The *Living Mirror* project aims to create an interactive installation, which combines electronically charged magnetotactic bacteria with photo manipulation, in order to create a “living” liquid portrait image. The project raises significant questions, such as what is the role of bio-art practices in current society, considering the use of living matter, and the cultural representation and therefore perceptions of human beings. In order to propose consideration of these questions, this paper tries to explore in what ways the artwork *Living mirror* changes the perception of humans via bacteria.

Firstly, the text will focus on the exploration of the common cultural meanings and assumptions of the mirror and representations of human beings. In this regard, the mirrors as cultural articulation of the human will be examined, centring around one of the most influential ancient Greek narratives—the myth of Narcissus, and the meanings of mirror throughout different historical periods. In order to understand how the *Living Mirror* bio-art project functions as a mirror, the text will consider the ideas proposed in *The mirror: A history* by Sabine Melchior-Bonnet (2001)¹, and articles by Robert Zwijnenberg (2008)², Helena Goscilo (2010)³, and Genevieve Warwick (2016)⁴, reflecting on different aspects and cultural meanings of the mirror.

Touching upon some of the culturally acquired features of the mirror and the complexities it suggests and expresses in regards to human representation and perception, this text seeks to explore how the artwork *Living Mirror* operates with

¹ S. Melchior-Bonnet, *The Mirror. A History*. New York: Routledge, 2001

² R. Zwijnenberg, 'Mirroring the Renaissance: Reflections on a New Historical Approach to Leonardo', in: J. Elkins, R. Williams (eds.), *Renaissance Theory (The Art Seminar)*. New York: Routledge, 2008, pp. 394-410

³ H. Goscilo, 'The Mirror in Art: Vanitas, Veritas, and Vision', *Studies in 20th & 21st Century Literature*, 34:2 (2010), 282-319

⁴ G. Warwick, 'Looking in the Mirror of Renaissance Art', *Art History*, 39:2 (2016), 254-281

regard to the function of a mirror. Therefore, some ideas, proposed in the doctoral thesis of the artist Howard Boland⁵ will be considered, suggesting insights of the concept underpinning the art project and the role of technology and biological matter in artistic practices. The perspective of unity between technology and living bacteria evokes the idea of virtual reality and the participation of contemporary human beings in it. The question of mediation in current screen-based technology is examined by Zylinska and Kember in their book,⁶ which is mentioned in the following text. However, the principal issue examined in the *Living Mirror* art project becomes more complex than solely one of mediation by technology, considering the presence of living bacterial cells.

As the presence of bacteria in *Living Mirror* plays a central role in the project, the question of what the level of meaning of bacteria is, will be discussed. As a theoretical framework of the examination of the relationship between bacteria and human beings the theoretical concepts discussed are ideas, affirmed by the philosopher and feminist theoretician Karen Barad,⁷ who proposes new manner of communication and existing in postanthropocentric context, introducing the term *agential realism*, which aims to create a connection between different entities only in the causal process of *intra-action*, enabling the impossibility of a distinction between subject and object as ontologically existing entities. Similarly, the artwork *Living Mirror* proposes the idea of interaction between bacteria and humans that elicits the opposition between subjectivity and objectivity but also the process of becoming together, the unity between the “object”—bacteria and the “subject”—the physical body of the human being, representing humans’ *alter ego*. Thus, the *Living Mirror* will embody the idea that divisions such as mind-matter, subject-object, transformed into a mode of representation, i.e., mirror, will fail as object (bacteria) becomes subject, existing in ninety per cent of the human body, and subject (individual) becomes

⁵ Howard Boland, *Art from synthetic biology*, University of Westminster, 2013, at: <http://www.westminster.ac.uk/research/westminsterresearch>, accessed: 30. 04. 2016

⁶ J. Zylinska, S. Kember, *Mediation as a Vital Process. Life after New Media*. Massachusetts: MIT Press, 2012

⁷ Karen Barad, 'Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter', *Signs: Journal of Women in Culture and Society*, 28:3 (2003), 801-831

object, as one sees oneself in the parameters of matter—of bacteria, as bacteria are an *alter ego* of our body and of our human identity.

The *Living Mirror* project (fig. 1)⁸ forms an interactive installation, which combines electronically charged bacteria with the manipulation of pictures of individuals, creating liquid moving portrait images. In order to create a real-time image, Howard Boland and Laura Cinti use magnetotactic bacteria—a group of bacteria able to orient themselves along the lines of the Earth’s magnetic field. The artists apply electromagnetic coils, which change the orientation of the bacteria, directing their movement according to the distribution of the light. As an individual standing in front of the *Living Mirror* changes their gestures, new images are created and cells reposition to form a moving image, giving the sense of a mirror. As the title suggests, the artists aimed to create a living bio-mirror, created as a result of the activity of living organism. In order to understand how this interactive bio-installation acts in regard to the mirror’s function, it is important to examine the features of mirrors and the cultural meanings attributed to the mirror in art history.

Humans have been interested in their own images throughout their existence. Along the centuries, the mirror functions as a representation of an individual, which provides a cultural interpretation of the mirrored object.⁹ The reflected image considered as a mental “introjection”¹⁰ of the depicted object, reveals the relationship between the real object and a reflected, projected or depicted image of that object; between a material image and a mental one, which leads to the idea that the image one sees in a reflected surface is mentally perceived, therefore additionally attributed with a cultural significance.

Different cultural connotations of the mirror change in the process of time. In antiquity, the image was perceived as originating from a physical contact, from the trace created by the process of seeing and looking at the object, “from an imprint made from the eye to the object, through rays of forms—thus the mythical basilisk

⁸ The official website of the project: <http://lm.c-lab.co.uk/>, accessed: 04. 2016

⁹ Understanding of the mirror as a site for cultural articulation of the subject, and the split between individual (subject) and one’s reflection (object) is reflected upon in: R. Zwijnenberg, op. cit., p. 409

¹⁰ W. J. T. Mitchell, *Iconology. Image, Text, Ideology*. Chicago and London: University of Chicago Press, 1986, p. 16

could be killed by its own poisonous stare.”¹¹ The idea of an encounter of one’s gaze with its reflection and the disastrous consequences of such a confrontation evokes the narrative of the ancient myth of Narcissus, examined in different treatises, one of which is Ovid’s *Metamorphosis* (8 AD).¹² In this version, Narcissus was born extremely beautiful and became known for his perfection. When his mother consulted Tiresias about her son’s future, she was informed that her child would live as long as he would never know himself. The second story underpinned in the myth includes the rejected love of the nymph Echo on the part of Narcissus. The goddess Nemesis, touched by the tragedy of the nymph, decided to punish the boy by making him fall in love with his own reflection in the pool. Unable either to reach it or to leave the beautiful image he saw, Narcissus was drawn in the water, immersing with his own image. This myth is interpreted also as an emanation of the archaic belief in the existence of a double, or of a soul, an idea that can be found in other ancient cultures. Being unconscious of the image as his own reflection, he believes that this is someone else, who lives at the bottom of the pool. The ignorance of the youth finds its origins in the belief of ancient Greek people that “looking at one’s reflection could invite death because the reflection captured the soul.”¹³

The myth of Narcissus proposes some considerations of the mirror acquired throughout history, when different meanings were built upon its significance. The mythological narrative and the function of a mirror suggest the idea of mediation (a role in the contemporary world that will be mentioned later in the text). Originating in a mediated image of the reality poses the question of illusion, as the image does not reflect, does not express the entire reality due to its diffraction. Despite the deviation from truth, it encapsulates an image, an expression of the interior self through the external image, which conditions its use for pursuing self-knowledge.

In comparison with the secular reality in which the *Living Mirror* operates, the functions of the mirror were, in the past, interrelated with the presence of the divine and the perception of the human being according to the role of the divine in people’s

¹¹S. Melchior-Bonnet, op. cit., p. 103

¹² Here the myth is considered in the version of Ovid’s *Metamorphosis*, presented in translation by Nikolay Kun, in: N. Kun, *Greek Myths and Legends*. Sofia: Vedrina, 1994 (Н. Кун, Старогръцки митове и легенди. София, Ведрина, 1994)

¹³ S. Melchior-Bonnet, op. cit., p. 102

lives. In antiquity, the mirror image manifested its beauty and likeness to God. The philosophical tradition of Neoplatonism considered light and reflection in which the visible world is the image of the invisible, and the soul is the reflection of the divine, a revelation of secret, hidden entity, proposing a meaning of human's reflexive image as an expression of the invisible. The idea of the mirror as a revelation of the invisible dimension of human being can also be traced in the bio-art project under consideration. In the Middle Ages, the only possible identification of an individual before one's reflected image was one's spiritual identity. Christian teachings inherited the philosophical ideas of antiquity, embracing the concepts elaborated by Plotinus, following Plato's philosophical ideas in *Timaeus*.¹⁴ The mirror has been seen as a religious symbol of Christianity considered an attribute of the Virgin Mary, and assuming the mediated function of the icon in Orthodox Christianity.¹⁵

The perception of human being and therefore the function of the mirror changed in the period of the Renaissance, when "with a reflective consciousness, man made use of the 'sciences of light' to take a step back and size up the world."¹⁶ The new understanding of the role of the human, the developments in science, optical technology and exploration, became fundamental and removed the mysterious aura of the mirror.¹⁷ The mirror was transformed into a symbol of painting itself, considering its mimetic features and the ability to transform three-dimensional image into two-dimensional canvas, and was utilised as a tool in artistic practice in order for artists to draw an exact reflection of the real world.¹⁸

¹⁴ *Ibidem*, p. 109

¹⁵ The tradition of icons was adopted in artistic practices during the spiritual revival at the end of the nineteenth and the beginning of the twentieth century. The art of the Russian avant-garde turns to the idea of the mirror as an icon that does not relate to a material object but to a pure form. It also relates to esoteric beliefs – in: H. Gosילו, op. cit., p.296

¹⁶ S. Melchior-Bonnet, op. cit., p. 118

¹⁷ As Sabine Melchior-Bonnet clarifies: "Resemblance is no longer found in the link between two objects, but rather lies in the man who decodes a relationship and articulates it...The reflection suddenly loses its magic. It hardly reveals any kind of iconic reality, distorting the real with which it identifies itself. It no longer hides a secret – the secret is henceforth in the mind that perceives and recognises the resemblance." – in: S. Melchior-Bonnet, op. cit., p. 131

¹⁸ The Italian architect Leon Battista Alberti perceived the painting as a mirror, and associated the invention of painting to the myth of Narcissus, considering Narcissus the inventor of painting. The myth of Narcissus is interpreted also by the Renaissance painter Caravaggio, accommodating an idea of realism that the artist promoted. In terms of both representation and of process, Caravaggio's Narcissus was related to the analogy of painting as a mirror. Caravaggio's Narcissus has been conceived through the use of mirrors as the technology of its artistic production. However, the focus In

Considering the Renaissance perception of the mirror as a symbol of painting, *Living Mirror* the bio-art project could be interpreted in the sense of an installation continuing the traditional understanding of mirror in art history. However, the installation incorporates technological and living medium in order to recreate a reflexive representation of human beings. The meanings of reality and illusion, visibility and invisibility, subject-object are transmitted through the use of technology and living matter. The mediation of an individual is produced by electromagnetically charged bacteria, which produces real-time images in a liquid culture. As the main element of the liquid culture, in which the bacterial cells express their behaviour, the biological mirror relies on water in order to communicate the response towards an individual standing before it. The artists intend the presence of water as an embodiment of mediation, which leads to the idea of the role of contemporary screen-based technologies. As Narcissus in the Greek myth immerses himself in the water, unable to leave his own reflected image, which he perceives as other being, current humans engage themselves in the virtual world, extending their human identity. The question of virtual agency is examined in the book by Joanna Zylińska and Sarah Kember,¹⁹ emphasising the vivid role of our technological “reflections”. The authors propose the presence of mediation as a focal point of human coexistence with technology, and the participation of current media in human life as a “living” entity defined as “liveness” of the media. Developing the theory of “originary technicity” Zylińska and Kember suggest that human beings have always been technical, therefore always mediated. While Narcissus was mediated through his reflection in the pool experiencing his mirrored image, the contemporary individuals in *Living Mirror* are mediated differently—by bacteria in a technologically conditioned habitat. Technological agency, however, is not only shaping human experiences and expressing powerful abilities to modulate human life, but also mutually co-existing. Following the theoretical proposal of the feminist theoretician Karen Barad, Zylińska proposes acknowledgement of a “mutual co-constitution of ‘media’ and ‘us’ along both

Caravaggio’s painting considered the psychological aspects of the myth related to the human perception in reflected reality – in, G. Warwick, op. cit., p. 261 - 263

¹⁹ J. Zylińska, S. Kember, *Mediation as a Vital Process. Life after New Media*. Massachusetts: MIT Press, 2012

cultural and neural lines, that is, the intertwined process of media coproduction.”²⁰ The idea of perceiving the co-existence and mutual intercommunication between human beings and technological media environment as a process in which human and non-human entities are not distinguished anteriorly and are not becoming together only for an online interaction but are considered in a mutual *intra-action*, could be examined in relation not only to technology’s agency but also in relation to the role of living bacteria in the *Living Mirror* bio-art project.

As Howard Boland points out in his doctoral thesis, bio-art practices are investigating biotechnological activities, and technology plays an important role in these practices as it is integrated in biotechnology, which finds an elaboration of the demarcation between the biological and digital, reconstituting a biological materiality.²¹ This interrelation between biological living organisms and technologically conditioned scientific activities in the artwork does not lead to a hybridisation, which extends the biological technologically, but rather to a process of communication of living matter in the bio-art processes, and technological mediation.

However, technological agency is not the only producer of a *living mirror*, as what is of interest is the usage of the living organism and its active presence. As the artist argues “Whilst virtual representations are of metaphorical, conceptual and symbolic nature, bio art on the other hand presents the audience with the living, a presence that shifts both the artist and the audience positions in that the living matter is expressing an extended capacity (of a different order) staged by the artist.”²² According to Howard Boland, the technological agency is a metaphorical perception of human beings looked at from the perspective, proposed by *Living Mirror*, where the conceptual line follows the idea of a reality mediated through reality—the real presence of bacteria, where human beings and their reflection—biological matter—occupy the same space. In this sense, *Living Mirror* is a space where boundaries between humans and living “others” are transgressed. The symbolic representation that the different significations of mirror in time encloses alters drastically with the presence of not only mediated reality but an actual “living mediation” through living

²⁰ *Ibidem*, p. 164

²¹ Howard Boland, op. cit., p. 60

²² Howard Boland, op. cit., p. 60

matter, and "...the produced presence would be an actual experience of the living as media rather than a representation."²³

The living presence of matter and its role in human experience in bio-art practices, and *Living Mirror* in particular, raises the question of intercommunication between the technological environment and human beings, as well as the action of living organisms and a human audience, and the role of living matter as human representation.

The meaning of matter in relation to its cultural representation and its co-existence with humans is articulated in the theoretical concept of Karen Barad, who engages with the process of the division between subject and object in a reflected image. The bacterial cells in *Living Mirror* represent the self and the other at the same time, as bacterial cells are part of our body and at the same time are not human cells. The idea is embodied by the scientific discovery that the human body consists of only ten per cent human cells and ninety per cent non-human, bacterial cells. Seeing oneself as other, as *alter ego*, leads to the question of the interrelation between the individual and its other self. The engagement of the dichotomy of subject-object, human identity and its physical dimension, cultural representation and biological materiality present in *Living Mirror* could be related to Barad's theory of *intra-action* and *agential realism*. The problem of the living presence of matter, investigated in bio-art practices is explained with the notion of *intra-activity*, ontologically existing entities and agency of materiality.

Articulating the meaning of cultural representation which may be observed in the reflected image created by the mirror, Karen Barad introduces the notion of distraction, which creates different ground for interaction between "subject" and "object"—notions also reconsidered, leading to a new level of consciousness of this relationship. She argues that while in the mirror a distinction between oneself and one's mirrored image occurs, and objectivity is created only through mirror images of the world, diffraction allows new way of mediation; it is a matter of entanglement, which instead of separation between subject and object proposes an enactment between them: "Unlike reflections, diffractions do not displace the

²³ *Ibidem*, p. 62

same elsewhere, in more or less distorted form, thereby giving rise to industries of (story-making about origins and truths). Rather, diffraction can be a metaphor for another kind of critical consciousness."²⁴ Taking into consideration this theoretical proposal, *Living Mirror* could be interpreted as a site for a new interaction between oneself and one's *alter ego*, between an individual and one's reflected image.

Subjectivity and objectivity are the central point of the discourse proposed by Barad, offering postanthropocentric perspective, and initiating reconsidering a reality, which is not involved with the idea of subjective humanist view and cognition, therefore cannot convey anthropocentric knowledge and cannot be defined culturally, linguistically, and historically. In this manner, Barad affirms that agency is not possessed by humans, or non-humans, but it is an enactment. Denying the presence of any ontological distinction between subject and object, what is represented and representations, as two distinct and independent entities, she proposes a turn towards discursive practices, performativity instead of pre-existing divergent configurations.²⁵ According to Barad, in understanding the meaning of matter, one should be able to understand the relationship between discursive practices and material phenomena, human and non-human agency in this causal interrelation. Suggesting a new ontological explanation of *intra-activity*, Barad negates the process of *thingification*²⁶, founding the concept of *agential realism*, which aims at revealing materiality in a manner different from mirroring interiority through exteriority, the invisible through the visible, representation through represented.

Elaborating the scientific concept of the Danish physicist Niels Bohr in relation to the development of quantum theory, who questions the ontological distinction between subject and object, Barad introduces the *agential realist* ontology, in order to

²⁴ An interview with Karen Barad – 'Matter feels, converses, suffers, desires, yearns and remembers' - in: Rick Dolphijn, Iris van der Tuin (eds.), *New Materialism: Interviews & Cartographies*. Michigan: University of Michigan Press, 2012, <http://quod.lib.umich.edu/o/ohp/11515701.0001.001/1:4.3/--new-materialism-interviews-cartographies?rgn=div2;view=toc>, accessed: 10. 04. 2016

²⁵ Karen Barad, 'Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter', *Signs: Journal of Women in Culture and Society*, 28:3 (2003), p. 807

²⁶ *Ibidem*, p. 812

position the materialisation and representation in posthumanist context, which disavows fixity of entities and their relationship, but rather evokes a causal relationship between material configurations and material phenomena, producing the process of *agential intra-action*. According to it there is no separability between observer and observed but there are components in the process of *intra-action*: “The notion of intra-action (in contrast to the usual 'interaction', which presumes the prior existence of independent entities/relata) represents a profound conceptual shift. It is through specific agential intra-actions that the boundaries and properties of the 'components' of phenomena become determinate and that particular embodied concepts become meaningful”²⁷ The proposed determination between different entities is not only a move from interaction, where different entities are separated and interact with each other, to *intra-action* where through these interactions subject and object emerge but it is a proposal for new understanding of causal relationship itself. Outside the *intra-action*, outside this enactment entities are not determinate and they become defined only in this process. In posthumanist understanding human bodies do not exist as previously distinctive entity, subject, or represented. This transformation happens only in the process, and are not loaded with agency in contradiction with physical existing matter, which remains mute and passive, on the contrary, matter is not fixed object but a practice, a process, a doing: “The dynamics of intra-activity entails matter as an active 'agent' in its ongoing materialisation.”²⁸ Human bodies come to matter through intra-activity, and they are not different from nonhuman ones. Matter plays an active role in this process and, as matter and agency are not attributed to either object or subject, as they do not pre-exist. They do not emerge in one entity but rather exist as different entities in an ongoing dynamics in space and time, and agency is the doing in this *intra-activity*, it is the enactment of changes through the dynamics of *intra-activity*.²⁹

Proposing that materiality is an active factor in the process of materialisation, one may recognise the mutual *intra-action* in the process of “mirroring” in *Living Mirror*. The magnetotactic bacteria play a significant role in

²⁷ Karen Barad, op. cit., p. 815

²⁸ *Ibidem*, p. 823

²⁹ *Ibidem*, p. 828

creating the enclosed image, as their liveliness and changing features produce an image, presenting the human being, or re-presenting a reality, with which one could self-identify. As a result of recognition of this resemblance, the image transforms itself into a cultural attributed object. However, as object it exists only in the process of communication due to the features of a mirror. In other respects, the two sides of the mirror, the two entities, subject-object, exist in a human body as two components of its content—the human body being composed of ninety per cent bacterial cells and ten per cent human cells. They are revealed as different and separated throughout the movement of bacteria and humans, mediated by the mirror. Through a reflexive interrelation between an individual and the bacterial cells resulting in a common surface of motion, *Living Mirror* reveals an *alter ego* that can and cannot be separated from the human being—being part of one's body. In this manner, one can also see bacterial elements of one's own physicality. Seeing one's inner body's bacteria, despite creating a distinction between two of them, is also an experience, providing the possibility of discovery, of self-contemplation of a self-representation.

The representation is a mediated image, which allows an individual to “discover” their own visible expression, in order to become better acquainted with oneself, as physical contemplation would enable the process of philosophical reflection on one's essence. Perceiving one's reflected image by means of the visible reveals the invisible, enabling the possibility of pursuing a better understanding of oneself through looking beyond what the surface displays. In the process of physical self-reflection, existential self-contemplation is acknowledging human identification. Similarly, in the bio-art project *Living Mirror* humans are able to identify with their image, created by bacterial cells. In this sense the artwork proposes a different, non-traditional site for contemplation and perspective for self-knowledge. The magnetotactic bacteria in the installation embodies the idea, as a result of the discovery that the human body consists of ninety per cent – non-human, bacterial cells, that our body is constructed of “other”, which associate the reflected image in *Living Mirror* with Narcissus's idea of the “other” who lives in the water. The concept of “other” conditions the relationship between an individual and one's mirrored image as “other”. At the same time, the “other” is self, as living in the human body and

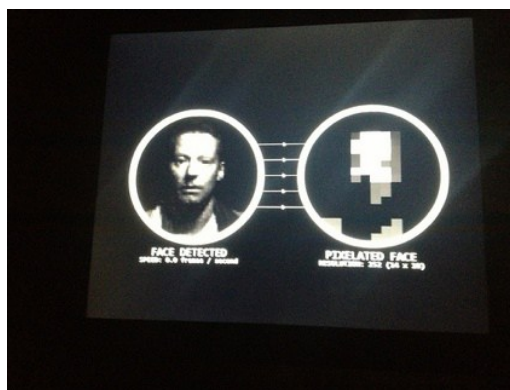
seizing most of its content, leading to the idea in the myth of Narcissus as *alter ego*. Seeing oneself via bacteria, i.e., via the internal content of the human body, suggests a transgression of the boundaries between outside and inside.³⁰ This transgression between boundaries is suggested by *Living Mirror*, as what we see is our inner “other”—a sign of the bacterial cells in our body. It is a relationship established between the self and the other—the other, which is our self. On the other hand, bacteria are a part of our inner body and the installation allows us to reflect on what it means to see our inner self. Experiencing the image of ourselves in matter, our inner self, opens the possibilities of defining it culturally and eventually questioning the meaning of human identity. Therefore, one could interpret the *Living Mirror* bio-art project in its function as an artwork, as artistic practice opening up new perspectives of the self, questioning human experience of oneself, engendering a reflection on the cultural meaning of the experience of seeing oneself through bacteria.

Seeing what is outside leads to another question—an idea proposed by this art project. The concept of *Living Mirror* reproduces the concept of the mirror, its psychological effect of being inside and outside at the same time. What is “being inside” of it (the mirror) in the artwork is in fact, what is inside ourselves, inside our body—the bacterial cells, constituting the human body, and what is “outside” is what we look like from the outside. In this sense, the *Living Mirror* is an artwork emphasising the continuum in the traditional representation of mirror. As Melchior-Bonnet asks in the introduction of her book devoted to the meaning of the mirror in the Western art history: “How was the mirror’s upsetting of equilibrium, its emptiness and fullness, and its sense of being outside and inside for the first time?”³¹ Seeing ourselves for the first time is an experience also suggested by the installation. *Living Mirror* confronts us with an image that makes us feel as if we see ourselves for the first time, and it is indeed as if we see ourselves for the first time as it enables the possibility of seeing our physicality, our materiality, our inner body, which is an experience of the mirror, that we have for the first time, different from the usual one, where we see our outer appearance.

³⁰ The experience of inner body and the transgression of the inside/outside boundary – in: R. Zwijnenberg, op. cit. p. 287

³¹ Melchior-Bonnet, op. cit., p. 2

In this sense, *Living Mirror* as an artistic reflection on the complex microbial environment found within the human body raises complex questions about human identity and our relation to our multiple selves, revealing the physicality of our identity. Therefore the installation *Living Mirror* suggests a new visual experience of our physical self, inviting the public to reflect on one's identification. Looking back at the past, one's identification before a mirror was the only possible recognition of a spiritual identity, while current-time revelations of mirror differ, it is still important to ask what a mirror reveals to us now. In the particular case of *Living Mirror*, it is our physicality, recently discovered, leading to the question of what is the invisible dimension of the visual experience of *Living Mirror*—yet to be discovered. Representation of the bacterial side of our inner physical body is just one step towards rediscovering the human being, and therefore reconsidering one's human nature. In this sense, the bio-installation *Living Mirror* is opening up new perspectives for contemplation and discovery of a new meaning of human identity.



Bibliography:

1. G. Warwick, 'Looking in the Mirror of Renaissance Art', *Art History*, 39:2 (2016), 254-281
2. H. Goscilo, 'The Mirror in Art: Vanitas, Veritas, and Vision', *Studies in 20th & 21st Century Literature*, 34:2 (2010), 282-319
3. Howard Boland, *Art from synthetic biology*, University of Westminster, 2013, at: <http://www.westminster.ac.uk/research/westminsterresearch>, accessed: 30. 04. 2016
4. J. Zylinska, S. Kember, *Mediation as a Vital Process. Life after New Media*. Massachusetts: MIT Press, 2012
5. Karen Barad, 'Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter', *Signs: Journal of Women in Culture and Society*, 28:3 (2003), 801-831
6. N. Kun, *Greek Myths and Legends*. Sofia: Vedrina, 1994
7. R. Dolphijn, I. van der Tuin (eds.), *New Materialism: Interviews & Cartographies*. Michigan: University of Michigan Press, 2012, <http://quod.lib.umich.edu/o/ohp/11515701.0001.001/1:4.3/--new-materialism-interviews-cartographies?rgn=div2;view=toc>, accessed: 10. 04. 2016
8. R. Zwijnenberg, 'Mirroring the Renaissance: Reflections on a New Historical Approach to Leonardo', in: J. Elkins, R. Williams (eds.), *Renaissance Theory (The Art Seminar)*. New York: Routledge, 2008, pp. 394-410
9. S. Melchior-Bonnet, *The Mirror. A History*. New York: Routledge, 2001
10. W. J. T. Mitchell, *Iconology. Image, Text, Ideology*. Chicago and London: University of Chicago Press, 1986

Internet: <http://lm.c-lab.co.uk/>, (10. 04. 2016)