

Biohumanities

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One of David Eagleman's speculative "tales" *Sum: Tales of the Afterlives*, begins like this:

There is no afterlife of us. Our bodies decompose upon death, and then the teeming floods of microbes living inside us move on to better places... Our death is unnoteworthy and unobserved by the microbes, who merely redistribute onto different surfaces. So although we supposed ourselves to be the apex of evolution, we are merely the nutritional substrate" (Eagleman, 2009: 54-55).

What the neuroscientist Eagleman thus describes, not without a certain irony, coincides with a shift towards "new microbiology" (Cossart, 2018; see also endnote 2). As a result of this shift towards new (micro)biology, the true "hero" of evolution is no longer the human but microbial life – a "biocentric" shift that might also be called the "the microbial turn" in biomedicine (cf. Herbrechter, 2018). Its postanthropocentric take on life "itself" also coincides with a more general "nonhuman turn" (Grusin, 2015) in the (posthumanist, or post-) humanities. It follows that, as Catherine Belling explains, "When *bios* – life – is liberated from [traditional] *biology* – the already-enculturated science of living things – bioethics becomes an endeavour that, while still unquestionably human, is imbricated in the concerns and claims of a biosphere that both enables and is threatened by human activity" (Belling, 2016: 3). In this (imbricated bioethical) sense it is true to say that "the humanities not only comment on the significance or implications of biological knowledge but add to our understanding of biology itself" (Stotz & Griffiths, 2008: 37).

Traditionally, bioethics is narrowly defined as "the discipline dealing with ethical issues relating to the practice of medicine and biology or arising from advances in these subjects" (*OED*). It is based on moral discernment relating to medical policy and practice and arising from the connections between the life sciences, biotechnology, medicine, politics, law and philosophy. Joanna Zylińska's critique of precisely this "traditional bioethics" shows that, from a posthumanist point of view, bioethics needs to be extended both as far as the "bios" and the "ethical" is concerned. The three accusations that Zylińska levels at traditional or humanist bioethics are that it relies on "predefined normativity, human subjectivity and universal applicability" (Zylińska, 2009: 6). By way of illustration of how to begin to address these limitations, I will be referring to two images, both title pages taken from popular science magazines. The idea behind this selection is one that I first outlined about ten years ago in my critical analysis of posthumanism as an emerging discourse in the humanities (Herbrechter, 2013) – a discourse that developed out of theoretical positions taken up during the second half of the twentieth century that were already challenging certain core humanist values, namely poststructuralism, deconstruction and postmodernism as well as feminism and postcolonialism. After a succession of fundamental controversies ("wars" and "turns") about the role of theory, language, culture and science, a number of questions returned, in the course of the 1990s, which signalled a shift towards posthumanism, at least in some parts of the humanities. These questions were: what is technology? What is the human? And what is life? None of these questions, which inform the mentioned "nonhuman turn" (or what might also be seen as the current "life wars"), are particularly new but what makes them worth returning to is the new context and historical situation in which they have regained their urgency. All are strictly speaking metaphysical questions – asking about the essence or truth of something at a time when (Western) metaphysics is experiencing a radical crisis of legitimation, especially, as far as its underlying liberal humanism, anthropocentrism, human exceptionalism and Eurocentrism are concerned.

Asking, once again and with more urgency, the question concerning technology in a time when technological change is accelerating and when technology is increasingly seen as “autonomous”, but also as more and more “invasive” and “originary” (cf. Stiegler, 1998), coincides with a time when some people (i.e. transhumanists) think that “we” (i.e. humanity) have reached a turning point at which certain technologies are either threatening or promising to “take over”. Needless to say that this remains highly controversial, utterly contestable and resistible, but it would be dangerous to simply dismiss the desire that is behind transhumanist dreams of technological enhancement, life extension and strong artificial intelligence, or their related projects of re-engineering life and geo-constructivism (cf. Neyrat, 2019).

The question of what is or what makes us human is also being asked again at a time when anthropogenic climate change is threatening the survival not just of our own species but of “life” on this planet in general. Climate catastrophism, too, is usually framed by a kind of bioethical question, namely: what is a “good life” or what is “sustainable living”? Or, indeed, in what way humans may have to change in order to become a life-affirming and a life-preserving species? This produces a curious dilemma, namely that a strong sense of human agency and subjectivity are needed precisely at a time when the challenging of anthropocentrism and of human exceptionalism are put forward as remedies for environmental degradation and adverse human “geological” impact.

Last but by no means least, the question of life and the living – arguably the central question for any “bioethics” worthy of that name – has been “rediscovered” precisely at a time when life “itself” has become an indispensable commodity (i.e. biocapital, biocapitalism and bioeconomics) used by biotechnology and capitalist biopolitics to release its enormous market potential thanks to a combination of genetics and informatics (cf. Rajan, 2006; Rose, 2007; Cooper, 2008; Braidotti, 2008; Clough & Willse, 2011; and Braidotti, 2013).

This sketch of our current “situation”, between “the Fourth Industrial Revolution and the Sixth Extinction”, as Rosi Braidotti recently put it (Braidotti, 2019: 2), with its combined threats of posthumanizing technologies, anthropogenic climate change and aggressive biocapitalism, calls for a complex argumentative stance that is able to articulate both, an ethics that is not human-centred, and a politics in which human agency and responsibility is affirmed. This is what *critical posthumanism* as a programme, in my view, stands for.

To demonstrate this double imperative we can refer to the two contrasting visual illustrations mentioned above. “Better than human – why settle for what you were born with?”¹ The cover of the 6 May 2006 edition of the *New Scientist* interpellates or addresses its (human) readers in the form of a visual face-to-face anchored by an implied imperative. It positions a subject as a human who is to be persuaded to see her body (gendering the body-to-be-transformed as “female” is certainly important in this context) not as a given but as something to be enhanced, extended, perfected. The technological framing of the constructed human face – cf. the circuit board-like pattern fusing the background with the face, the DNA-shaped earrings, the chipped necklace – sets the bio-digital cybernetic scene of interfacing bodies and technology and calls on the human subject to buy into the plasticity of digital ontologies. All kinds of bioethical (but also biopolitical) questions around feasibility, distribution and denaturalisation arise for a traditional bioethics that is either called upon to legitimate or to caution against the transhumanist desire to overcome one’s biological human “condition” through “dematerialisation” by gradually getting rid of the “wetware”, until one either becomes, or is superseded by, virtual AI. The associated story in the magazine, “The Incredibles”, frames this “constructed future scenario” with what I previously called “science faction”, the deliberate fusion of science fiction and science fact (Herbrechter, 2013: 114ff.): it specifically links the enhancement scenario to the Pixar animation movie *The Incredibles* – a perfectly “normal” and “everyday” family of super heroes (Lawton, 2006). The underlying ideology, however, remains a

totally unreconstructed liberal humanist one that tries to make people believe that through technology they can be what they want to be. Humans “naturally” desire perfection, they are the privileged species that cannot stand still and are godlike in their ability to self-transform, etc.

There is a significant shift in perspective between the *New Scientist* cover and the June 2012 cover of *Scientific American*.² This, I would argue, also reflects a shift within posthumanist discourse itself (even though overlaps continue to exist, of course). The first phase, before the shift, was very much dominated by the “cybernetic” and “digital” imaginary that was basically neo-futurist and saw technology as an evolutionary driving force to be harnessed by superintelligent and “denatured” posthumans or maybe “exo-humans” – like those who go on missions looking for new resources and life on exoplanets, or who are desperately looking for a new lease of life for something that might just about still be called “human” but nevertheless somewhere “outside” existing humanity.³ But then comes the realisation: what about humans and nonhumans and the mess they are in here and now? This second cover image with its title – “Your inner ecosystem: In your body, bacteria outnumber your own cells by 10 to 1. Who is in control?” – arguably is much more “ecological” in the sense that it opens up the prospect of an entirely other “bioethics” (and biopolitics), one that is much more (bio)literally based on *postanthropocentric* premises.

You could describe this “bacterialized” human shape by invoking the title of one of the chapters in Dorion Sagan’s book *Cosmic Apprentice* (2013): “The Human is More Than Human: Interspecies Communities and the New Facts of Life”. That the human is more than human is here precisely *not* seen as a techno-enhancement, or as the prospective transcendence of our animal bodies, but, instead, it argues that already from an evolutionary and biological point of view, we have never been human (at least not in any humanist sense). This could thus be seen as an example of a weird kind of “bioenhancement”, without any of the usual triumphalism however.

If, “on a cell-by-cell basis... you are only 10 per cent human... for the rest, you are microbial” (Judson, 2009), what might be the bioethical and biopolitical implications of this insight? Human entanglement with the microbial is seen by many posthumanists as another blow to humanist narcissism, hubris and exceptionalism. “New feminist materialists” like Rosi Braidotti, Moira Gatens, Claire Colebrook, Stacy Alaimo, Karen Barad, Donna Haraway, Myra Hird, Vicki Kirby, Jane Bennett and Elisabeth Wilson, who have been arguing for a new understanding of the relationship between humans and their bodies and their nonhuman environment insist on stressing the “messiness” of complex matter-realities and corpo-realities. The ethico-political aim that critical posthumanism shares with these new materialisms which often emerge from a strong (feminist) affinity to the materiality of difference, is to find more ecologically and socially just forms of inter- and “intra-action” (cf. Barad, 2003). They do so by breaking down the idea of a strong autonomy between (human) self and (nonhuman) other and by highlighting the co-constitution of the world through “biological, climatic, economic, and political forces” (Alaimo, 2010: 2; for the (bio)ethical implications of such posthumanist “corpo-realities” see MacCormack, 2012). At the same time, they also critically investigate the contemporary extension of global biopolitics into the realm of the microbial, because the microbial level of life that inhabits every human and nonhuman as well as their environments forms at once a connection with an “ancestral” past and with a “posthuman future” of life on this planet.

As opposed to *transhumanist* escapism and technoutopian geo-constructivism, an acknowledgement of the interconnectedness between humans, animals, microbes and “matter” in general can be understood as a new form of “worlding”: “thinking in terms of microbes keeps us thinking in terms of being in this world and accountable to it, rather than envisioning an escape from it” (Buell, 2014: 82). An evolutionary view that focuses on the microbial and its role in creating and sustaining all life thus

leads to the notion of the “inextricable connectedness of all creatures on the planet, the beings now alive and all the numberless ones that came before” (Margulis & Sagan, 1986: 9).

The eco-bio-philosophical and ethical conclusion that Lynn Margulis and Dorion Sagan draw from this alternative narrative is one that acknowledges and favours entanglement, cooperation and networking:

We are part of an intricate network that comes from the original bacterial takeover of the earth. Our powers of intelligence and technology do not belong specifically to us but to all life. Since useful attributes are rarely discarded in evolution it is likely that our powers, derived from the microcosm, will endure in the microcosm. Intelligence and technology, incubated by humankind, are really the property of the microcosm. They may well survive our species in forms of the future that lie beyond our limited imaginations. (Margulis & Sagan, 1986: 22)

This does not only impose humility on humans as a species – in fact, it problematizes the very categories of species, individuality and identity.⁴ The “new (micro)biology” that is now gaining influence is based on symbiogenesis. It inevitably also leads to a new medicine and to the emergence of new fields of knowledge that integrate developments within the life sciences and the medical or (bio)humanities.⁵ The ethical and medical implications of being-multiple for the biohumanities are spelt out by Dorion Sagan: “If the body-brain is not single but the mixed result of multiple bacterial lineages, then health is less a matter of defending a unity than maintaining an ecology” (Sagan, 2013: 173).

For microbiome studies, as part of this new biology of entanglement, being human can be (bio)literally described as “gut feeling”:

With respect to most biological research projects, human beings are so well integrated with their microbiomes that the individuality of human beings is better conceived as a symbiotic entity. Insofar as biological research is concerned, to be human is to be multispecies. (Hutter et al., 2015: 1)

The (medical, ethical, ecological, political etc.) conclusions that may be drawn from this symbiotic state is that of a “common fate”. Rather than being individuals, humans form “a community of *Homo sapiens* and microbial symbionts” (Hutter et al., 2015: 2-3). The fallout of this biological problematization of (human) identity, which more or less coincides with decades of similar tenets in cultural theory and philosophy (notably in poststructuralism and postmodernism, and now posthumanism and animal studies), points towards an increasing convergence between certain sectors within the life science and the (bio)humanities.

Under these circumstances, ecology is not only relevant to an environment that is somehow “outside” the (human) body, but it also applies to every body as such, to every “interior”, i.e. to “your inner ecosystem” (as the second image and its associated article by Jennifer Ackerman illustrate; cf. Ackerman, 2012). So, how can a posthumanist ethics mindful of “our” microbial symbiotic eco-ontology turn that which could still be reclaimed as a very humanist *memento mori* moment into something politically more progressive and affirmative? If, for a “biophilosophy of the 21st century”, as Eugene Thacker contends, “life = multiplicity” (Thacker, 2008), in which individual human and nonhuman animal bodies, as well as plants or also “things” more generally, are not (or at least not only) singular subjects but are indeed irreducibly entangled in their past, present and future environments, a biohumanities approach would necessarily have to work with a notion of bioethics and biopolitics that reflects the flatness (as well as the difference) and the entanglement of the multiplicity of life, which can then open up possibilities for “care” in “more than human worlds” (cf. Puig de la Bellacasa, 2017).

To recapitulate: a *transhumanist* bioethics threatens to make our current ecological predicaments a lot worse by consolidating human exceptionalism and biophobia. A *critical posthumanist* version of bioethics instead would need to balance both the technological and the biological claims towards “life” by reconciling the “deep ecological” aspect of symbiogenesis with an acknowledgment of the originary “technicity” inscribed in life-processes, even while the development of modern biotechnology is making a distinction between organic and nonorganic life, biological and technological evolution increasingly problematic. Acknowledging this double imperative and its current context is the only adequate way to both come to terms with and to affirm the material “messiness” of “our” time.

Endnotes:

¹ See *The New Scientist's* website, at <https://www.newscientist.com/issue/2551/>.

² The cover can be viewed at <https://www.scientificamerican.com/magazine/sa/2012/06-01/>. It is based on a design entitled “Microbiome”, by Brian Christie, see <https://bryanchristiedesign.com/microbiome>.

³ The SF movie *Interstellar* (dir. Christopher Nolan, 2014) starts from a scenario in which “our” planet is suffering from ecocide, which leaves humanity with only two choices: look for survival on exoplanets and thus reinvest in NASA and space travel, or try and reverse climate degradation and commit to planet Earth. The binary choice the movie seems to put forward is: do we need new astronauts or new farmers? It’s the astronauts who turn out to be the heroes in the end, of course. Timothy Morton discusses *Interstellar* extensively in his *Humankind: Solidarity with Nonhuman People* (London: Verso, 2017: 145ff.) in these terms.

⁴ The major challenge that the “new (micro)biology” referred to here poses to traditional post-Darwinian models of evolution – a challenge that, in turn, problematizes the very notion of species – lies in the “extent and promiscuity of lateral gene transfer and the difficulties this raises for defining a ‘tree’ of life, the importance of symbiosis and cooperation, and the reinstatement of the group [or species; SH] as an important – perhaps the most important – unit of selection...” (O’Malley & Dupré, 2007: 777-778). See also the full quotation by Thiago Hutter, which concludes with the statement: “Insofar as biological research is concerned, to be human is to be multispecies” Hutter et al., 2015: 1).

⁵ The realization of the biological and evolutionary “entanglement” promoted by the notion of symbiogenesis also implies an increasing erosion of the boundaries between human and nonhuman (i.e. veterinary) medicine (cf. Viney et al., 2015) and an increasing awareness of the connection between health and ecology in times of climate change (cf. movements like One Health, GeoHealth, EcoHealth etc.; cf. Wolf, 2014; Horton & Lo, 2015; Almada et al., 2017; Zywert, 2017). Posthumanist, or postanthropocentric, perspectives are also increasingly seen to be of value in moving towards a more inclusive and holistic notion of “public health” (cf. Rock et al., 2014; Rock, 2017; Cohn & Lynch, 2017; Friese & Nuyts, 2017; Andrews & Duff, 2019).

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