

BEING CYBORGS

ON CREATING HUMANITY IN A CREATED WORLD OF TECHNOLOGY

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Abstract: The modernist paradigm sees a dualism between mind and world, and, hence, between humans and the objective world. However, recent philosophical and neuroscientific developments are challenging the modernist assumptions. These developments suggest the image that humans are principally cyborgs. This paper gives a small outline of those developments and some philosophical and theological reflections as to their consequences.

Keywords: Clark, Andy; cyborg; Heidegger, Martin; idealism; *imago Dei*; neurophilosophy; neuroscience; Merleau-Ponty, Maurice; philosophy of mind; Polanyi, Michael; realism.

1. INTRODUCTION

The word ‘cyborg’ is a contraction of ‘cybernetic organism.’ Usually cyborgs are considered beings that are partly human and partly machine, but it is not always clear how these two parts are exactly related. Often some connotations from science fiction are attached to the concept of ‘cyborg.’ In this paper I distance myself slightly from these connotations. I use ‘cyborg’ to denote *the whole that is formed by the human person and the technological extension of that person in whatever form*. This implies, thus, a broader notion of ‘cyborg.’ It is my point in this paper to argue that cyborgs are not creatures that inhabit the imaginary space of science fiction, but that we are in a sense all cyborgs. Being cyborgs is what makes us human. This has, of course, philosophical and theological implications.

The structure of the paper is as follows. First I will give a short historico-philosophical description of how the modernist paradigm came to be and what it entails for thinking about the relation between mind and nature. I argue that the modernist paradigm gave rise to a severe ‘digitalization’ of our worldview, and especially of the relation between humans and (the rest of) nature. Thereafter I indicate how ‘post-modern’ philosophy and neuroscience are challenging the modernist paradigm. Finally, there are some philosophical and theological reflections on the consequences of the emerging new paradigm. One small note: I do not have the intention to develop a full-blown theory, but I merely give some pointers for further reflection. I do not believe such a full-fledged theory is possible yet, because of the character of the novel approaches in philosophy and neuroscience.

2. DIGITALIZATION OF THE HUMAN PERSON: THE MODERNIST PARADIGM

Roughly speaking, until the late Middle Ages Aristotelian thinking constituted the predominant worldview. In this worldview, there was a radical difference between the sub-lunar or terrestrial region, where things are subordinate to incessant change, and the super-lunar or celestial region, the realm of the incorruptible and changeless (cf. Grant 1996, 54-69; 86-126). Besides this difference, the Aristotelian worldview can be characterized as an ‘ontotheological synthesis’ in which the cosmos was considered intrinsically meaningful. Humanity participated in this meaningfulness (cf. Dupré 1993). As one can read from Dante’s *Divine Comedy*, the cosmos also was seen as having a

hierarchical structure: it was a continuum ranging from the sub-lunar realm of change to the super-lunar realm of the divine and changeless, where the border-stones were placed at the lunar sphere. God was absolutely changeless and impassible. God transcended the world, and as such God was not part of the physical universe, and yet he was nonetheless part of the cosmos. The word 'cosmos' thus had a different meaning from ours: it denoted more than merely the physical universe, for God transcended the physical universe but was included in the cosmos (Dupré 1993, 17f.). How was the human person considered in this worldview, particularly in relation to the cosmos? The difference between humans and the world was considered one of degree, not of quality. Humans were only one step or level in the continuous hierarchical cosmos, though, under the influence of Christian doctrine of creation, became increasingly important. Both the continuity between humans and cosmos as well as the particular status of humanity amidst the rest of creation are expressed in the image of humans as a 'microcosmos' (Dupré 1993, 53, 96f.).

The radical differentiation of humanity from the rest of the cosmos and a connected 'digitalization' of our worldview can be seen to have at least roots in nominalist thinking such as that of Ockham: under the influence of nominalism some dichotomies in thinking about nature arose, which led, in due time, to a rift between scientific modes of thinking and religious modes. Also, until the rise of nominalism human existence had been seen as an integral and inseparable part of nature, but now humans were seen as distinct subjects, able to scrutinize nature in a detached, neutral, or objective way, as 'from the outside' through the faculties of reason. The relation between humanity and nature thus became one of polarization: there was the pole of nature and the pole of humans considered as 'rational animals,' and this situation gave rise to questions considering the relation between the two.

The digitalization of nominalism culminated first of all in Descartes' thinking, as he presented the first representational theory of mind: the ideas in our minds are representations of things in the world given through the senses. With Descartes the digitalization of the Western worldview continued with a dualism between mind and body, but also of mind and world. This latter dualism was adopted by Immanuel Kant, though he altered its contents. For Kant we do not have clear ideas or representations of what the world is like, but the world conforms itself to our perceptions of it, instead of showing how it is in itself. Hence, due to Kant's 'Copernican revolution' another digital dualism was introduced between the Thing-in-itself and the Thing-as-appearance. We humans can only perceive the things as they appear to us, filtered through the cognitive apparatus in our heads. How things are in themselves remains unknowable to us. The upshot of this digitalizing development from Descartes through Kant until present-day philosophy of mind is that it led to the notion that humans may be physically part of the world, in terms of e.g. their physiology and biology, but they are also apart from or different(iated) from the world with regard to their cognitive faculties.

At the beginning of the 21st century, our worldview is changing again. The static, hierarchical structure of the cosmos, present in Aristotelian thinking, is now transformed into a dynamic, inherently creative and self-organizing universe. Was value and meaning in the universe in Aristotelian thinking measured in terms of change and changelessness, nowadays we speak about systems in the universe in terms of 'levels of complexity' (cf. Peacocke 1993). This changing worldview also has repercussions for religious reflection. God is no longer seen as changeless and impassible, but God is seen as able to suffer (cf. Sarot 1992), as changeable (Process thinking), and as self-limiting his powers out of love for creation (cf. Polkinghorne (ed.) 2001). Finally, the changing worldview has repercussions for anthropological reflection, and for reflection on the relationship of human beings and the surrounding world. Under the influence of Darwin's evolutionary theory, it is now generally acknowledged that the evolution of the human species is part of and embedded in the

context of the evolution of the universe. And even those branches of science which has perhaps been haunted the most by the Cartesian dualism of the mental and the bodily – the cognitive sciences – are now slowly altering our image of what it is to be human. Somehow we are coming full circle, abandoning the image of the detached, objective observer, and adopting a holistic view of humanity and world.

3. NEW POSSIBILITIES FOR A ‘LEAKY’ MIND

Consider a blind person using a long stick to find her way around in the world. How are the person and the stick related? This example¹ can be found in the works of two different though related thinkers. Michael Polanyi uses the example to elucidate the difference between focal awareness and subsidiary awareness. The blind person is only subsidiarily aware of the stick, as her focal awareness is on what the stick touches upon: the stick is used as a tool or a probe (Polanyi 1952, 55f., 58f.). And this “subsidiary awareness of tools and probes can be regarded now as the act of making them form a part of our own body. ... While we rely on a tool or a probe, these are not handled as external objects. ... We pour ourselves out into them and assimilate them as parts of our own existence. We accept them existentially by dwelling in them” (ibid., 59). Similarly, Maurice Merleau-Ponty writes: “The blind man’s stick has ceased to be an object for him, and is no longer perceived for itself; its point has become an area of sensitivity, extending the scope and active radius of touch, and providing a parallel to sight. In the exploration of things, the length of the stick does not enter expressly as a middle term: the blind man is rather aware of it through the position of objects than of the position of objects through it” (Merleau-Ponty 1962, 143). He concludes then by saying that “[t]o get used to a hat, a car or a stick is to be transplanted into them, or conversely, to incorporate them into the bulk of our own body” (ibid.). Both Polanyi and Merleau-Ponty illustrate what Heidegger called the ‘readiness-to-hand’ of equipment, which is a characteristic of our everyday life (Heidegger 1962, 102ff.). The point is that even though physically there may still be a demarcation between body and the tool, in using the tool that demarcation does no longer exist: the tool at hand becomes an extension and hence part of the body. This already points us to the possibility that the boundaries between our bodies and the world are fluid, that we are cyborgs-in-principle.

The philosopher Andy Clark has recently pointed to the fascinating though perhaps more speculative possibility of viewing our cognitive apparatus as extended into the world. He writes that “[p]ortions of the external world ... often function as a kind of extraneural memory store” (Clark 2001a, 141). Examples are cameras to take pictures or record something on film, or the hard disk of a computer to store written articles or pictures. All these devices serve to enhance our own memory which, as we all know by experience, is fallible and highly limited. If we are willing to broaden this perspective, we could say that many technological devices have the task of extending our sensory capabilities, as becomes especially clear when looking at scientific instruments. Take for instance the telescope and the microscope: both are able to extend our visual senses. Looking through a telescope or a microscope is using them as an extension of our eye to see what, without them, could not be seen by the naked eye. Often, we are even unconscious of this process, as can be illustrated most explicitly

¹ Other examples illustrating similar points are easily multiplied: typing, playing an instrument, hammering a nail into a piece of wood, wearing a hat, driving a car, painting, sculpting, etcetera.

by someone looking for his or her glasses while wearing them. Technological devices thus are considered to be “the extensions of man” (McLuhan 1964).²

Clarke emphasizes that it is not the case that these technologies replace the human cognitive apparatus. It is perhaps more appropriate “to understand the cognitive role of many of our self-created cognitive technologies ... as affording *complementary* operations to those that come naturally to biological brains” (Clarke 2001a, 142; italics in original). In the process of extending our bodies and minds into the world by using physical objects, the role of language may prove crucial.

For as soon as we formulate a thought in words (or on paper), it becomes an object for both ourselves and for others. As an object, it is the kind of thing we can have thoughts about. In creating the object, we need have no thoughts about thoughts – but once it is there, the opportunity immediately exist to attend to it as an object in its own right. The process of linguistic formulation thus creates the stable structure to which subsequent thinkings attach. ... The emergence of such second-order cognitive dynamics is plausibly seen as one root of the veritable explosion of varieties of external technologies scaffolding in human cultural evolution. It is because we can think about our own thinking that we can actively structure our world in ways designed to promote, support, and extend our own cognitive achievements. (Ibid., 147.)

Thus, by using language we are able to think about our thinking and acting, and hence, to refine the instruments and tools used to cope with our world. As such, by constructing, using, and refining instruments which enhance our own bodily abilities, our cognitive apparatus or our mind “is a leaky organ, forever escaping its ‘natural’ confines and mingling shamelessly with body and with world” (Clark 1997, 53; cf. also Clark 2001b).

It is at this point that the interesting questions start. Where does our body stop and the world begin? One could say it all depends on which aspect one focuses upon. Looking at the brain as a physical organ, it is confined to our skull. However, looking at our cognitive apparatus, it is not so easy anymore to draw clear lines. Our cognitive apparatus is capable of transcending the boundaries of the skull and even our bodies by creating technology that extends the capabilities of our bodies. The boundaries between mind, body, and world are fluid. Because we as humans are part of the world, in a sense here we have a case of the universe discovering itself (Barrow 2000). It is clear that this perspective differs significantly from that of the nominalists, Descartes, and Kant. Here the digitalization of our worldview vaporizes. And as our technological abilities increase, new vistas of possibility open up. The cyberspace of the Internet might become an increasingly important memory bank. E-mail already enhances our communicative capabilities. And Artificial Intelligence and robotics might enhance our bodily abilities, especially in their medical applications. As such, it is no longer science fiction but science fact to speak about humans as cyborgs: “For us humans there is nothing quite so natural as to be bio-technical hybrids: cyborgs of an unassumed stripe. For we benefit from extended cognitive architectures comprising biological and non-biological elements, delicately intertwined” (Clark 2001b, 142).

² It is quite curious to see how McLuhan’s work at the moment regains interest. At the time of writing this paper a ‘critical edition’ of McLuhan’s *Understanding Media* is announced, to appear early in 2003. A Dutch translation of this edition already appeared in 2002.

4. PHILOSOPHICAL AND THEOLOGICAL REFLECTIONS

4.1. Philosophical reflections

What are the philosophical consequences of this view of human persons as cyborgs for our worldview? *First of all*, this view suggests some kind of holistic worldview, as mind, body, and world are intermingled and cannot easily be detached. *Secondly*, this view also suggests the irreducibility of mind (cf. Brown, Murphy, and Malony (eds.) 1998). The relationship of the mind to the brain might be seen, as many neuroscientists confirm, as the mind being an emergent property of the brain, whilst the mind can also influence the brain in a top-down manner. This relationship of mind and brain already testifies to the interconnectedness of mind, body, and world.

Thirdly, such a holism may have serious consequences for the way we assess our actions. Chaos theory and the sciences of self-organizing systems have taught us that small causes may have big, unpredictable consequences. If it is true that the links between mind, body, and world are interconnected, then what happens to one element may have critical repercussions for the other elements. Here we may also touch on some of the ethical consequences of such a worldview, for our actions towards the world and other persons within that world may have unforeseen effects. This holds not only for the human species as a whole, but also for individuals. For chaos and complexity support the encouraging as well as threatening view that the actions of individuals might have more effect than is often believed (cf. Zeyer 1997). Thus we need to take the sciences of chaos and self-organizing complex systems very seriously, as they study the interplay between individual elements and the whole of which the elements are a part.

Fourthly, this view of the interconnectedness of mind, body, and world has repercussions for epistemological issues such as realism, perspectivism, and the like. Traditionally, realism has always been strongly influenced by some kind of representationalism, which as we saw supports the digital dualism between mind and world. In realism the objectivity of the world is strongly emphasized. The other extreme, idealism, denies this objectivism, at least in the Berkeleyan sense. Both realism and idealism in a sense presuppose the digital paradigm of modernism and are themselves products of it. For without the digital paradigm both realism and idealism cannot emerge. But if this dualism no longer is valid, this has repercussions for epistemology. And indeed, both realism and idealism are, I believe, incompatible with the new paradigm of the interconnectedness of mind, body, and world, as outlined above. More promising are Wittgenstein's notions of 'seeing as,' aspect seeing, and perspectivism, though I am not able to explore these areas further at this point.³

4.2. Theological reflections

A question that resides on the verge between philosophy and theology concerns matters of self and identity: if mind, body, and world are not closed compartments, where does our notion of self and personal identity reside? Normally, we consider the self and our identity as closely connected to our bodily boundaries, but if the boundaries between body and world are fluid, where does the self end and the world begin? Theologically, this is closely connected to the idea of the image of God, the *imago Dei*. In the history of Western Christian theology, the notion of *imago Dei* has often been used to emphasize humanity's special place in and apart from the rest of creation. And too often this special place was connected to humanity's cognitive abilities. But if it is true that we are in a sense cyborgs, linking mind, body, and world tightly together, then it is no longer possible to see humanity as being apart from the rest of creation. Indeed, as Polanyi stated, we pour ourselves out into the world, we dwell in it. On the other hand, it may be that our cognitive abilities to use and refine objects as tools is

³ See Mulhall 1990, and Lynch 1998.

something that sets us apart from other closely related animals (cf. Tattersall 2000 [1998], 30-77).⁴ But note that this stretches the meaning of ‘cognitive.’ ‘Cognitive’ no longer deals solely with our abilities to reason, but becomes a more broader notion connected to all our actions. This is a long way from the anthropocentric or even logocentric meanings of the *imago Dei* – though it may yield valuable resources for reinterpretation.

It also works the other way around. Not only does this new view of what it means to be human have repercussions for the doctrine of the *imago Dei*, but it also reflects back on our image of God (Herzfeld 2002). Even though we concede that we talk metaphorically, we talk about God as being personal (at least in the Christian tradition). God’s personhood is then closely connected to our view of what for us humans it means to be a person. The classical theistic and logocentric notion of a transcendent God is compatible to the older paradigm that humans are somehow set apart from the rest of creation due to their rational abilities. The new paradigm of humanity’s extendedness into the world might call for a reinterpretation of the image of God, and prove more compatible with e.g. a pantheistic or trinitarian image of God. And it might be that reinterpreting our image of God might have big ramifications for the rest of theology. As such, it might be a renewing stimulus for doing theology in an interdisciplinary manner.

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⁴ I do believe the distinction is only relative, for it is known that there are animals that use elements of the natural world as tools. The active improvement of tools, however, may be something that is particularly human, and given with the presence of self-consciousness.

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