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Introduction

Jan Kyrre Berg Olsen, Evan Selinger and Søren Riis

Preliminaries

New Waves in Philosophy of Technology focuses on the immense challenges that technical artefacts, methods and systems pose to both philosophy and society. In so doing, it clarifies how technological complexity and ubiquity have transformed the very nature of philosophical inquiry. The guiding assumption that runs throughout the volume is that the long-standing divide between analytic and continental philosophy needs to be overcome. The wisdom found within the different traditions of philosophy itself needs to be integrated by principals who can clarify and assess multifaceted dimensions of technology in a thought-provoking and rigorous manner. Because we intend for the volume to advance research in the philosophy of technology, the contributions that follow are all composed by thinkers who have an acute sense of the epistemic, ontological and normative presuppositions that currently limit the field. Because we want the text to facilitate critical thought rather than advance a partisan agenda, emphasis is given to conflicting perspectives on a range of issues. Some contributors call for traditional conceptual resources to be replaced by new methods and concepts. Others advocate for long-standing ideas to be defended in order to make sense of and assess innovation.

Since all 'new waves' in philosophy draw from historical sources, the text has been organized around four easily recognizable designations: (1) history of philosophy, (2) epistemic and metaphysical concerns, (3) ethical and political issues, and (4) comparative philosophizing. The opening section of the book focuses on the challenge of linking the history of philosophy with present and future challenges to the field. The second section focuses on problems concerning technology and knowledge and technology and reality. The third section addresses issues related to technological enhancement, the future of humanity and the extent to which artefacts deserve normative consideration. The final section deals with comparative issues – issues

concerning non-Western uses of technology, as well as challenges to philosophy expressed in science and technology studies.

What follows is a brief overview of the chapters. It provides a snapshot of the volume as a whole, and it offers a glimpse into some of the debates that divide the contributors as well as the broader field.

Part I History of philosophy and technology

The book opens with Keekok Lee's '*Homo faber*: the Unity of the History and Philosophy of Technology'. Lee argues for the unity of the history and the philosophy of technology. At first sight, there appears to be no underlying unity to these two domains, only divisive breaks and unbridgeable gaps – one may give a meaningful account of the one or of the other, but not of both within the same broad framework. Furthermore, certain philosophers deny that the philosophy of technology exists, much less a philosophy of technology which claims to make sense, on the one hand, of primitive technology in the dim and distant past such as bows and arrows, and of up-to-the-minute state-of-the-art technology based on contemporary science such as nanotechnology or biotechnology, on the other. One must also bear in mind that the history of Western philosophy itself has undergone so many revolutionary changes since ancient Greek philosophy, that it may be too far-fetched to argue that technology itself, primitive and contemporary, could be rendered intelligible within a common philosophical framework.

In spite of these unpromising claims, Lee attempts to give a coherent account of the history and the philosophy of technology to be generated by calling on certain well-known and undisputed philosophical insights in the 2500-year story of Western philosophy itself. She relies on the notion of *Homo faber* to provide the unifying skeletal framework within which such a coherent account of technology and its philosophy could be constructed.

In the second chapter, 'Becoming through Technology', Jan Kyrre Berg Olsen focuses on the challenge of linking the history of philosophy with present and future challenges to the theory of science by examining metaphysical aspects of the conceptual basis of classical physics (e.g. ancient Greek conceptions of time and reality – notably the conception of 'Platonic Parmenidian Reason' that arises as a consequence of Plato developing his notion of Forms based upon Parmenides' determinism, eternism and denial of becoming – and Galileo inventing the modern conception of universal law) and explaining how these metaphysical ideas not only survived, but were also strengthened by Albert Einstein's epistemological transformations of classical physics. Berg Olsen continues his essay by examining a representative array of modern thinkers within physics and related philosophies (e.g. Milic Capek, L. Sklar, M. Pauri and P.V. Christiansen) who do not endorse these classical and conventional scientific perspectives about physical reality and time. The inquiry thus proceeds from a critique of determinism to an analysis of temporality and

entropy, and concludes by considering how local viewpoints can be extended globally through simple artefacts (e.g. water clocks, sandglasses, thermometers) and biological machines (e.g. processes that regulate pulse rate and heartbeat). On the basis of these considerations, Berg Olsen endorses the phenomenological claim that the embodied limits of perception and cognition constrain human debates about the nature of time.

Part II Technology: epistemic and metaphysical issues

Within the philosophy of technology, a perspective called 'postphenomenology' is emerging that include such principals as Don Ihde, Evan Selinger and Peter-Paul Verbeek, among others. In the third chapter, 'Quick-Freezing Philosophy: an Analysis of Imaging Technologies in Neurobiology', Robert Rosenberger claims that this budding viewpoint, which amalgamates phenomenology and pragmatism for the purposes of analysing the variety of ways that technologies mediate human experience of the world, enables fresh explorations of the roles that laboratory technologies play in scientific debates. Rosenberger advances this perspective by offering a general programmatic for the application of postphenomenological insights to a specific target of analysis: scientific debates which concern technologically produced images.

To concretize his analysis, Rosenberger turns to the field of neurobiology where a contemporary debate over the nature of synaptic vesicles – tiny, spherical organelles which play a central role in neurotransmission – is occurring. Central to this debate are concerns about the interpretation of images generated by a variety of techniques which freeze neurons. What Rosenberger contends is that an analysis of the technologies underlying this research will both develop the articulation of the postphenomenological perspective, and offer contributions to this neurobiological debate.

In the fourth chapter, 'How to Read Technology Critically', David M. Kaplan uses narrative theory to develop a model for interpreting technical artefacts. The premise of narrative theory is that everything has a story: everything comes from somewhere, has a history, and has relations to other things. So long as the genesis and evolution of something can be recounted, it can be explained in terms of a narrative and read like a text. According to Kaplan, stories of technology are no different. They too can be made the subject of a narrative. The only difference between the story of a technology and the story of a human affair is a shift in focus: artefacts are now placed in the foreground rather than the background and treated as protagonists rather than props. Kaplan thus examines what happens to our philosophical understanding of technology when we model the interpretation of technical things upon telling and reading stories. He contends that the result depends upon *how* we tell and read things, and argues that there is a meaningful difference between a critical reading and a conventional reading of

technology. From Kaplan's perspective, the key to the distinction hinges on the relationship between the universal and the particular and the acontextual and the contextual in narrative theory and critical theory. Whereas a narrative theory without a strong theory of truth and moral right produces only conventional, contextualist readings, a narrative theory supplemented with a theory of argumentation can produce critical readings of things. According to Kaplan, technology should, therefore, not only be narrated but also read in relation to universalist concepts, such as truth, impartiality and equality. The *critical–narrative theory* of technology Kaplan proposes evaluates technical things and systems in terms of their role in achieving social justice and happiness.

In the fifth chapter, 'The McLuhans and Metaphysics', Graham Harman presents Marshall and Eric McLuhan's little-known concept of the 'tetrad', developed in their co-authored work *Laws of Media*. According this view, all human products display a fourfold structure of enhancement, obsolescence, retrieval and reversal. Harman's analysis clarifies each of these terms and emphasizes their importance for contemporary philosophy. He contends that while the McLuhans are usually celebrated as 'media theorists', the term 'media' points far beyond television and cyberspace. Instead of remaining confined to a narrow electrified province, what the McLuhans give us is a new vision of reality as a whole – that is, a new ontology.

While *Laws of Media* claims to speak of nothing but human products, Harman uses his ontological interpretation to demonstrate that the tetrads have a wider scope than is acknowledged. As he sees it, the term 'media' not only pertains to human artefacts, but its scope extends equally to animal products and inanimate objects. Objects per se are media and thereby display a tetrad structure. In so far as a medium is the site of a resonant interval between figure and ground in which the surface of an object always alludes to a concealed inner depth, no object escapes this resonance.

What the McLuhans give us, according to Harman, is thus a full-blown metaphysics of objects that rivals Martin Heidegger's ontology as the most advanced of our era. Since Harman is a highly regarded reader of Heidegger, this claim cannot be taken lightly. In order to more directly address lingering questions about Heidegger, the next two chapters examine his status as a foundational figure in the philosophy of technology. To inspire readers to think carefully about the complexity of Heidegger's legacy, differing outlooks are offered. In Part III, Heidegger's thought will be revisited again. The focus there, however, will be issues related to posthuman ethics.

In the sixth chapter, 'The Question Concerning Thinking', Søren Riis presents a new interpretation of Heidegger's groundbreaking essay, 'The Question Concerning Technology'. Riis offers a way to criticize this essay, drawing upon Heidegger's own insights on 'thinking' and the dual meaning of *Technik* in German where it designates both technology and technique.

Riis's critique posits a framework for assessing Heidegger's account of modern technology by connecting it to his analysis of *the end of philosophy*. Drawing from this link, Riis develops the argument that Heidegger's ideal of a non-philosophical kind of thinking leads thought into a dead end, one that negates anything that can meaningfully be called thought. In the last part of his chapter, Riis illustrates the discrepancy between Heidegger's technique of philosophizing and his ideal of proper thinking. By appealing to Heidegger's conception of great works of art, Riis shows how Heidegger argues in favour of a different view on thinking, one that insists on understanding thinking as a *craft* and makes it possible to appreciate philosophy and *great works of thought*.

In the seventh chapter, 'Understanding Technology Ontotheologically, or: the Danger and the Promise of Heidegger, an American Perspective', Iain Thomson offers a different take on Heidegger's ontological understanding of technology than the one Riis provides. What Thomson tries to show is that Heidegger's widely celebrated critique of technology follows from some of the most mysterious views at the core of his later thinking. He thus suggests that philosophers of technology will need to understand these difficult later views in order to appreciate Heidegger's continuing relevance to the philosophical field he helped inaugurate.

To help with this project, Thomson shows that Heidegger's critique of global 'technologization' – that is, our increasing reduction of all entities to the status of intrinsically meaningless resources standing by to be efficiently optimized – follows directly from his original understanding of metaphysics as 'ontotheology'. According to Heidegger's mature view, our reductive technological 'enframing' of reality is grounded in Nietzsche's ontotheological understanding of being as 'eternally recurring will-to-power', mere forces locked in an expanding cycle of 'self-overcoming'. For this reason, Heidegger came to believe that getting beyond our reductive technological understanding of being requires us to uncover, contest and transcend some of the deepest and most destructive metaphysical presuppositions; we need to supersede an ontotheology that continues to guide our historical age. But how exactly did Heidegger think we could transcend such technologization without abandoning our technological advances? And what are the prospects and limitations of Heidegger's views today? These are just two of the questions that Thomson helps us to think through.

Part III Technology: ethical and political issues

In transhumanist analysis, changes in personal identity resulting from human enhancement can only be for the good. Human enhancement makes for better people who have more self-esteem and are held in higher esteem by others, and these benefits for individuals add up to a benefit for

society as a whole. In the eighth chapter, 'Human Enhancement and Personal Identity', Philip Brey argues that this analysis is an oversimplification, and that ensuing changes in personal identity can engender significant harms that will often outweigh such benefits, both at an individual and societal level.

Brey first analyses how human enhancement may negatively impact self-conceptions of agency and achievement, and therefore self-esteem. He then goes on to study how the large-scale use of certain human enhancements will change existing conceptions of normality and how this may negatively impact the social status and self-esteem of the unenhanced. Brey proceeds to analyse how the introduction of superhuman traits and traits that cross species boundaries produces new social identities and leads to new class systems. Human enhancement, Brey concludes, will likely introduce new, morally undesirable inequalities between individuals and groups, and will often undermine rather than enhance the self-esteem of persons and diminish rather than improve their quality of life.

As a contrast to Brey's scepticism about transhumanism, the next chapter contains reflections on the future of humanity from Nick Bostrom, a leading transhumanist advocate and spokesman. As Bostrom notes, our beliefs and assumptions about the future of humanity shape decisions in both our personal lives and public policy – decisions that have very real and sometimes unfortunate consequences. In the ninth chapter, 'The Future of Humanity', Bostrom sketches an overview of some recent attempts to develop a realistic mode of futuristic thought about big picture questions for humanity, and offers a brief discussion of four families of scenarios for humanity's future: extinction, recurrent collapse, plateau and posthumanity.

Bostrom posits that technology emerges as a central parameter that defines the human condition. The nature of technological development, therefore, becomes a key issue when thinking about the future of humanity. According to what Bostrom calls the Technological Completion Conjecture, all important basic capabilities that could be obtained through some possible technology will in fact be obtained, provided that scientific and technological development efforts do not effectively cease. This conjecture, if true, would significantly constrain the range of tenable views about the long-term prospects for humanity. Even so, it leaves room for a range of scenarios. Nevertheless, Bostrom contends that the longer the timescale considered, the greater the probability that humanity will either become extinct or reach some kind of 'posthuman' condition.

In the tenth chapter, 'Technology, the Environment and the Moral Considerability of Artefacts', Benjamin Hale argues that of the entities in the world that can be called 'morally considerable', technological artefacts are among the few that are not considerable. He reasons that technological artefacts are the product of a comprehensive process of justification, and for this reason maintain only an anthropogenic value. Hale's argument builds

upon a deontological reinterpretation of the concept of moral status. He proposes first that moral language places undue weight on the *status* of entities and not on the *duties* that agents have to behave rightly. Consequently, Hale suggests inverting the problem of moral status, such that moral questions are framed not in terms of which entities are valuable, but in terms of what an agent has a duty to do. He then suggests that one has a duty to justify one's actions, to act with good reasons, to consider, in effect, others and the implications of one's actions. Thus, Hale believes, almost all entities in the world are morally considerable – worthy of consideration – with the exception of technological artefacts. He arrives at this counter-intuitive conclusion by reasoning that insofar as technological artefacts are the product of broad-reaching consideration, the moral work has already been done. By examining several cases – the supposed 'death' of the electric car, the use of Mondrian's painting as performance art, and the use of a stranger as a human canvas – Hale forges a case that appears to run contrary to the claims of Peter-Paul Verbeek.

In the eleventh chapter, 'Cultivating Humanity: toward a Non-Humanist Ethics of Technology', Verbeek examines how ethical theory can take into account the moral character of technology. He contends that ever since the Enlightenment, ethics has had a humanist character, taking the individual human being as the fountainhead of moral decisions and practices. From this orientation, it is highly problematic to attribute any form of morality to technological artefacts. Yet, virtually all human actions and decisions are technologically mediated. And since ethics is all about the questions 'how to act' and 'how to live', this central role of technologies in human actions and decisions justifies the claim that they are at least morally *relevant*.

Verbeek's contribution thus examines the ethical implications of this moral relevance of technologies by seeking a way to develop a non-humanist ethical framework. First, he examines the humanist character of ethics, by discussing and linking Heidegger's and Bruno Latour's modernity critiques. For both, modernity consists in the radical separation of subjects and objects. By making human 'subjects' and the 'objects' in reality absolute, Verbeek claims that modern thinking about humanity congealed into humanism and modern thinking about reality into realism. The intricate connections between both, which, according to Verbeek, actually cannot be had separately, disappear out of sight. This metaphysical orientation resulted in a 'humanist bias' in ethics, in which only human beings have moral relevance.

In a critical discussion with Peter Sloterdijk's 'posthumanist' position, Verbeek investigates how technologies can also get a central place in moral reflection. Sloterdijk holds that the humanist tradition has always tried to 'cultivate' the human being; to 'tame' it with the help of texts. But technological developments have now made it possible to cultivate human beings in quite a different way: by literally 'breeding' or 'growing' them. And rather

than shying away 'humanistically' from the technological possibility to alter the biological constitution of the human being, Sloterdijk urges that we should take responsibility for these posthumanist 'anthropotechnologies'.

Verbeek reverses Sloterdijk's argument. Rather than associating the 'taming' of human beings with the texts of the humanities, and the 'breeding' of humans with technology, he elaborates that the most important cultural role of technology consists precisely in what Sloterdijk calls the taming of humans – helping to shape what it means to be human. Not only do interventions in the physical constitution of *Homo sapiens* change the human being, but so too do technological mediations of our actions and perceptions, which help to constitute humans and reality in their mutual relations. To explore the ethical implications of this moral relevance of technologies, Verbeek elaborates how the ethics of design can be expanded to also include anticipations of technological mediations of human existence. Moreover, in discussion with the ethical work of Michel Foucault, he investigates how ethical theory can incorporate the constitution of subjectivity involved in using technologies.

Part IV Comparative philosophy of technology

In the twelfth chapter, 'Technology Transfer and Globalization: a New Wave for Philosophy of Technology?', Evan Selinger agues that philosophers are paying insufficient attention to globalization, and that the analyses which do address them have occluded crucial issues related to technology and development, particularly dilemmas concerning technology transfer. After meta-philosophically identifying the bases for this occlusion, Selinger turns to recent debates about the Grameen Bank's microlending practices – debates which depict participating female borrowers as having fundamentally empowering or disempowering experiences. Concretizing his analysis through consideration of the Village Phone Programme, an initiative that enables Bangladeshi women to become 'entrepreneurs' who rent out mobile phone calling time, he argues that the existing discursive frameworks which have been used to appraise it may be too reductive. By appealing to postphenomenological considerations, Selinger demonstrates that such frameworks can conceal how technique and technology simultaneously facilitate relations of dependence and independence, and diminish our capacity to understand and assess innovative development initiatives.

In the thirteenth and final chapter, 'Philosophy of Technology as Empirical Philosophy: Comparing Technological Scales in Practice', Casper Bruun Jensen and Christopher Gad engage with philosophy in an interdisciplinary manner. They appeal to insights expressed in science and technology studies and attempt to further the theoretical trajectory of exploring the world as 'multiple'. Emphasizing issues related to 'multinaturalism', they develop the notion of 'empirical philosophy' and characterize it as the capacity to

take seriously the multiple ways that actors deal with such philosophical concerns as what is good or right in practice. Through this intervention, Jensen and Gad try to demonstrate that empirical philosophy can function as an interface between philosophical and anthropological inquiry into technological scales, including the pervasive contrasts of 'good' vs 'bad' technologies and 'high tech' vs 'low tech'.

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