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RETHINKING THEORIES AND PRACTICES OF IMAGING
New Waves in Philosophy of Technology

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Contents

List of Figures vii
Foreword by Don Ihde viii
Series Preface xiv
Acknowledgements xv
Notes on the Contributors xvi

Introduction 1
Jan Kyrre Berg Olsen, Evan Selinger and Søren Riis

Part I History of Philosophy and Technology

1 Homo faber: the Unity of the History and Philosophy of Technology 13
Keekok Lee

2 Becoming through Technology 40
Jan Kyrre Berg Olsen

Part II Technology: Epistemic and Metaphysical Issues

3 Quick-Freezing Philosophy: an Analysis of Imaging Technologies in Neurobiology 65
Robert Rosenberger

4 How to Read Technology Critically 83
David M. Kaplan

5 The McLuhans and Metaphysics 100
Graham Harman

6 The Question Concerning Thinking 123
Søren Riis

7 Understanding Technology Ontotheologically, or: the Danger and the Promise of Heidegger, an American Perspective 146
Iain Thomson
Contents

Part III  Technology: Ethical and Political Issues

8  Human Enhancement and Personal Identity 169
   Philip Brey

9  The Future of Humanity 186
   Nick Bostrom

10 Technology, the Environment and the Moral Considerability of Artefacts 216
    Benjamin Hale

11 Cultivating Humanity: towards a Non-Humanist Ethics of Technology 241
    Peter-Paul Verbeek

Part IV  Comparative Philosophy of Technology

12 Technology Transfer and Globalization: a New Wave for Philosophy of Technology? 267
    Evan Selinger

13 Philosophy of Technology as Empirical Philosophy: Comparing Technological Scales in Practice 292
    Casper Bruun Jensen and Christopher Gad

Index 315
## List of Figures

3.1 A diagram of the cryopress 72
3.2 A freeze-fractured image of a portion of the outside surface of the terminal membrane 73
7.1 Wittgenstein’s rendition of Jastrow’s duck-rabbit 147
9.1 Schematic of two types of scenario for the future of humanity 199
9.2 Two trajectories: increase followed by plateau; or stasis at close to the current level 200
9.3 A singularity scenario, and a more incremental ascent into a posthuman condition 205
9.4 The scenarios presented in previous figures are here represented with a time axis that is slightly closer to linear and a $y$-axis that slightly better reveals how narrow a band the ‘human condition’ is among all the possible levels of organismic and technological development 209
Philosophy of technology is a relative newcomer to the ‘philosophies of...’. Its origins, with a few glimmers in the late nineteenth century, are largely associated with the twentieth and now twenty-first centuries. Here, as the title suggests with ‘New Waves’, a new generation of philosophers of technology are beginning to produce a new wave of thinking through, about and with technologies. If we pose the issue in terms of human generations, the first waves or generations of thinkers are almost all deceased. The most eminent of the historians of the philosophy of technology are in remarkable agreement about certain general characteristics of the ‘first’ waves or generations of philosophy of technology. They tended to treat technology as an overall phenomenon, often ‘metaphysically’; most, particularly in Europe, tended towards dystopian assessments; and most usually saw technology as a threat to the older, traditional forms of culture. The exception was an American, John Dewey, who was much more optimistic and saw technologies as tools for the improvement of democracy and education.

As I have pointed out elsewhere, early ‘philosophies of...’, were largely inspired by Hegel who often wrote of philosophies of – history, religion, science and the like – and whose late nineteenth-century followers included both Ernst Kapp, whose Grundlinien einer Philosophie der Technik (1877) was the first book to use ‘philosophy of technology’ in its title, and Karl Marx, who advanced theories of production as determining factors in the form of society. Both were forerunners to the twentieth-century, wider spread first wave, and both Kapp and Marx were reacting to the powerful technologies just unleashed in the nineteenth century, which powered the Industrial Revolution. Interestingly, while Marx tended towards technological determinism and thus granted formative power to technology, and while Kapp saw technologies as extensions of human organs and bodily functions, neither could be called negative or dystopian concerning technology as such. Even ‘alienation’, so much a Marxian concept, was viewed as arising from a particular historical form of production. It was not essential to technology as such, and it was seen as eventually changeable under the right communist social formation. It was, rather, from the arts that early alarms began to be sounded. Mary Shelley, whose Frankenstein (1817) preceded both Kapp and Marx, was to become the icon of early ‘autonomous technology’ fears. But we should not ignore that others touted hopes of technological utopian dreams as well. Some poets even praised the sunsets produced by early industrial smog! All this took place before technology as a term became itself common. Historians of technology, such as Thomas Hughes and David
Nye, have pointed out that the very terms ‘technology’ and ‘technologies’ did not become prominent until the twentieth century, and indeed, mostly after the First World War. ‘Industrial arts’, ‘machines’ and ‘technical apparatus’ were more likely to characterize ‘technologies’, prior to the early twentieth century.

Yet, the early twentieth century did produce factories, assembly lines, Taylorism and the beginnings of Big Science (particularly in chemistry). Using the then equally new media technologies, the critical art community began to once again raise alarms. But if some artists were fearful of the new age of mega-machines, others found fascination in them. Filippo Tommaso, a writer helping give birth to Italian Futurism, was involved in the futurist manifesto of 1909 which also presaged fascism. Ernst Junger – read by and an influence upon Heidegger – glorified war as a spiritual experience. His *Storm of Steel* (1925) preceded the soon to follow openings to the twentieth-century philosophies of technology. On the dystopian side, Fritz Lang’s masterpiece, *Metropolis*, was filmed in 1927, the very year that Friedrich Dessauer, again using the term ‘philosophy of technology’, published *Philosophie der Technik*, and Martin Heidegger in *Being and Time* began to take account of technology with his famous inversion in which science arises out of technology. But neither were dystopian in tone at this stage.

But one must not forget that the Great War introduced the horrors of an early military–industrial alliance which thrived on the new weaponry of mass destruction with chemical gas, machine gun and tank, submarine and air warfare. Industrial and military technologies had become too powerful to ignore and in response many of Europe’s and some of America’s leading philosophers rose to the challenge. Thus, in addition to Dessauer and Heidegger, in the interwar period, one could now add the names of Ortega y Gasset, Karl Jaspers and Nicolas Berdyaev in Europe, and John Dewey and Lewis Mumford in America. The output of this wave gained momentum between the wars, and continued into the Cold War to the eventual deaths of the principals.

Slightly younger, perhaps a ‘second wave’, but alongside the grand philosophers in publication times in the mid-to later twentieth century, were another related group of technology critical philosophers who tended to view technology as a political and cultural threat. The most prominent of these were associated with the Frankfurt School of critical theory: Theodor Adorno, Herbert Marcuse, Max Horkheimer and their younger colleague, Jürgen Habermas, many of whom were students of the previously mentioned philosophers. In my reading, the two dominant critical thrusts appeared to be against technocratic capitalism and its version of industrial technology, but equally against the rise of ‘mass culture’ and the threat to the older versions of European high culture. Theirs was a parallel philosophical version of Charlie Chaplin’s *Modern Times* (1936), with both Chaplin and the critical theorists sceptical of machine technology and its association with capitalism.
One should add here as well, Jacques Ellul, Ivan Illich and Hans Jonas, whose concerns for the march of ‘autonomous technology’ were sometimes taken to threaten humanity or the human essence itself. If this rather diverse grouping could be considered the first waves, then, with the exception of Habermas, these waves have become historical in the sense that its members are no longer alive, although some lived into the late twentieth century. The picture I am painting includes, in addition to the characteristics mentioned above, an era in which extremes of utopian and dystopian views of technology often prevailed. The utopian trajectory itself was often embedded in the more radical political positions, communist socialism on one side, fascism and reactionary politics on the other.

Now we come to, possibly, the ‘third wave’, which is my own generation of philosophers of technology. As to whom should be included for mention here, there are a number of lists by contemporary historians of the philosophy of technology. Paul Durbin has published, electronically in Techne, a detailed history of the one North American organization of the philosophy of technology, the Society for Philosophy and Technology. He shows how, in the early days of the society, the influences of Heidegger, Ellul, Jonas and Dewey were dominant. Carl Mitcham, author of by far the most detailed and comprehensive history, published Thinking through Technology (Chicago, 1994). Mitcham there followed a distinction between ‘humanities’ and ‘engineering’ approaches to philosophy of technology with a sub-theme dividing the ‘critical’ philosophies as humanities, and the more positive philosophies as engineering approaches. These are, to my mind, echoes of the older utopian/dystopian tendencies of the early twentieth century. But my own favourite interpretation originates in the Netherlands, translated into English as American Philosophy of Technology: the Empirical Turn (Indiana, 2001). The editor, Hans Achterhuis, himself a major Dutch philosopher of technology, includes in my generation: Albert Borgmann, Hubert Dreyfus, Andrew Feenberg, Donna Haraway, Don Ihde and Langdon Winner. I asked the authors of this collection why these particular thinkers were chosen, and the answer was that these six were the most read in Holland. Perhaps had they been more situated in a North American context, others like Larry Hickman, Kristen Schrader-Frechette or Joseph Pitt might also have been included. This generation, some of whom are now approaching retirement, remain both highly productive and active. What is most interesting to me, however, is the way in which Achterhuis characterizes the difference between this now third generation and the earlier generations of philosophers of technology. This wave, he claimed, was less dystopian, more pragmatic, pro-democratic, and above all each had taken an ‘empirical turn’ or a turn to the analyses of concrete technologies. The technologies must ‘speak for themselves’. With respect to periodicity, the publications of this wave fall primarily in the late twentieth century, from the 1980s on, and thus are also post-wars – world and cold. This also means that the technologies – often already those of the
information and knowledge society age – are different from the early part of the century.

So, my historical frame now reaches the new wave, that is the younger and more recently publishing generation of philosophers of technology represented in this book. The editors, themselves represented here, have included summaries of this diverse group of philosophers; thus I shall not add my own specific reactions to theirs. Instead, I shall respond to patterns I see which distinguish the new wave: first, there is what appears to be a foreshortening of the past of philosophy of technology. With one exception, the now ghostly godfathers from the first two waves seem to have disappeared. Almost all the names listed in the first two waves do not occur here although Habermas, the still active voice of critical theory, does make stage appearances. The first wave exception is, of course, Martin Heidegger, whose ghost still looms – but in a very different sense than in the earlier generations. The more extreme, alarmist and fantasist tones of the past have been modulated. There is a sense here of balanced and critical thinking. The opening essays establish this balance by long views, with Lee calling into question the most ancestral of all, the Aristotelian *episteme/techne* division which flaws Greek philosophy. And then Olsen proceeds to address the grand philosophical questions of becoming. The third wave, my generation, still retains presence with a number of the ‘empirical turn’ philosophers doing walk-ons in chapters here.

And, I would claim in an even stronger sense that the first ‘empirical turn’ in my generation, takes an even more pronounced role here with detailed and careful science-studies-like cases examined here. Imaging technologies (Rosenberger, Verbeek), technology transfers (Selinger), human enhancement technologies (Brey) – and, an old favourite of mine, navigational technologies (Jensen and Gad) – all make themselves present. There is a high sense of careful analysis and thus more concrete than the often abstract and high-altitude metaphysics of the past. New issues and new argumentative conversations have also shown up here. The ‘posts’ of postphenomenology, posthumanism and postmodernism all are on stage. And these pose deep questions for philosophy of technology. Yes, there are echoes here from older variants: does human history get surpassed by the newer technologies? Bostrom thinks so; others, Hale and Brey, worry. From the range of fashionable enhancement to virtual species manipulation, where do our nano-, bio- and medical technologies lead?

I detect here several other sensibilities less well developed in earlier philosophy of technology. One of these is an emphasis upon *materiality*, or upon a sensitivity to materiality. The latest surfers do not seem to take materiality to be simply plastic, rather there are unique aspects, resistances and capacities which, in the interaction with humans, must be taken into account. There is flirtation with those from science or technoscience studies who are called ‘symmetrist’ who are added to the conversation. Donna
Haraway already has been named in my generation, but here Bruno Latour and Andrew Pickering join the scene as well. Kaplan provides a novel notion that there ought to be a narrative history of things, drawing from Paul Ricoeur who is virtually never related to philosophy of technology. Jensen and Gad add yet another empirical dimension – they suggest that philosophers learn from the more empirical practices of anthropology and field studies, and I would say that since philosophy of technology is necessarily interdisciplinary, this, too, is a positive move. And, in one interesting twist, another new emphasis lies along normative lines, with arguments taking place concerning the possibility of an ethics of things, of extending agency to non-human actants. Verbeek takes morality to things; Hale stops short of that. All this is fresh. All this displays a very different tone than that of the earlier waves.

Of course, the background and the technological texture of this contemporary world are very different than those of the opening of the twentieth century. The rust belt, smokestack industrial technologies, then concentrated into the military and world engulfing wars with the Holocaust and following ethnic cleansings were times of horror on a global scale. And while industrial and military technologies have not disappeared and while they are still wreaking global havoc, particularly in environmental domains, an entire gestalt of new technologies lend a different texture to the contemporary. I have often joked that even the most romantic and nostalgic Heideggerian graduate students would be loath to give up notebooks, the Internet, cellphones and iPods! Both science and technology, now perhaps better termed ‘technoscience’, are radically differently shaped than a century ago. New waves must respond to new shorelines.

These shifts in sensibility, in problems, in phenomena analysed can even be seen in this volume with the remaining spectre, Heidegger. The still strong presence of Heidegger is here a highly revisionist Heidegger – none of the interpreters take him at his old face value. One, Harman, in an interesting parallel with the late Heidegger’s fourfold, resurrects Marshall McLuhan as a better tetralogist, while also admitting that Heidegger’s notion of technology is monochromatic and boring! Another, Riis, turns him on his head and sees the deepest type of thinking as itself craftlike and a tool – I would have added, this turns Heidegger into Dewey! Thomson, while closest to Heidegger, wants to make the saving power emerge. But now I have already said too much in that I cannot take this opportunity to comment upon each of the thinkers, even if I am proud of the several of my own students and others who were in the technoscience group in this mix. And, also, I must resist the temptation to launch into some few disagreements I have with several of the entrants.

Rather, I want to close by congratulating the editors and the contributors who show such promise for what hopefully will be a growing and maturing field of interest in technologies.
References


Don Ihde
Series Preface

New Waves in Philosophy Series. The aim of this series is to gather the young and up-and-coming scholars in philosophy to give their view of the subject now and in the years to come, and to serve a documentary purpose, i.e. ‘this is what they said then, and this is what happened’. It will also provide a snapshot of cutting-edge research that will be of vital interest to researchers and students working in all subject areas of philosophy.

The goal of the series is to have a New Waves volume in every one of the main areas of philosophy. We would like to thank Palgrave Macmillan for taking on this project in particular, and the entire New Waves in Philosophy series in general.

Vincent F. Hendricks
Duncan Pritchard
Acknowledgements

The three editors are especially grateful that Vincent Hendricks and Duncan Pritchard had the vision to start this important series, and that they were willing to conceive of the philosophy of technology as having a crucial role within its structure. We also benefited from help provided by Peggy Noll at RIT, as well as Daniel Bunyard, formerly at Palgrave Macmillan, and Priyanka Pathak, currently their Commissioning Editor for Philosophy and Linguistics. Finally, we would like to convey our profound appreciation for the insights that Don Ihde conveyed. Without his Foreword, it would not be possible to articulate the significance of the ‘new wave’ that the present volume aspires to capture.
Notes on the Contributors


Nick Bostrom is director of the Future of Humanity Institute at Oxford University. He previously taught at Yale University in the Department of Philosophy and in the Yale Institute for Social and Policy Studies. He is the author of more than 120 publications including in leading academic journals, and his writings have been translated into more than 16 different languages. He has published one monograph, *Anthropic Bias*, which developed the first mathematically explicit theory of observation selection effects, and he is the editor of two forthcoming books, one on global catastrophic risk and the other on the ethics of human enhancement.

Philip Brey is full Professor of Philosophy of Technology and chair of the Department of Philosophy, University of Twente, the Netherlands. He is also director of the Centre for Philosophy of Technology and Engineering Science (CEPTES) of the University of Twente and a member of the executive board of the Society for Philosophy of Technology and of the International Society for Ethics and Information Technology. Brey’s research focuses on philosophy of technology, with special attention to the philosophy and ethics of information and communication technology (ICT) and the philosophy and ethics of converging technologies.

Casper Bruun Jensen is currently Assistant Professor at the Department of Organization at Copenhagen Business School. He has published in *Configurations, Qualitative Research, Science, Technology and Human Values* and *Social Studies of Science*. A volume co-edited with Kjetil Rødje and entitled *Deleuzian Intersections in Science, Technology and Anthropology* is forthcoming. Casper’s current research focuses on organization and culture in development.

Christopher Gad is at the Centre for Science, Technology and Society Studies at the Department of Information and Media Studies, Aarhus University, Denmark. His theoretical and empirical interests include history
of ideas, social anthropology, actor–network theory, feminist and cultural studies of science and technology, new reproductive technologies, ubiquitous/pervasive computing, and fishery inspection. He has published on feminist STS studies and post-actor–network theory.

**Graham Harman** is Associate Professor of Philosophy at the American University in Cairo. He is currently serving as Visiting Associate Professor of Metaphysics and the Philosophy of Science at the University of Amsterdam. He is the author of *Tool-Being: Heidegger and the Metaphysics of Objects* (2002), *Guerrilla Metaphysics: Phenomenology and the Carpentry of Things* (2005), *Heidegger Explained: From Phenomenon to Thing* (2007) and *Prince of Networks: Bruno Latour and Metaphysics* (forthcoming).

**Benjamin Hale** is Assistant Professor in the Environmental Studies Program and in the Philosophy Department at the University of Colorado, Boulder. For two years he was the director of the Center for Values and Social Policy, which is situated in the Philosophy Department, as well as a faculty affiliate of the Center for Science and Technology Policy Research, which is associated with CIRES, the Cooperative Institute for Research in Environmental Sciences. His primary area of research interest is environmental ethics, though he maintains active interests in a wide range of ethical topics. Currently he is working on an project on the ethical dimensions of remediation and restoration technologies.

**Don Ihde** is Distinguished Professor of Philosophy and the director of the Technoscience Research Group at Stony Brook University. He was one of the pioneers of North American philosophy of technology with *Technics and Praxis: a Philosophy of Technology* (1979) and has continued to publish a series of books in the field since. In more recent years, he has focused more on the relationships between technologies and the sciences with a special interest in instrumentation. These studies have included: *Instrumental Realism* (1991); *Expanding Hermeneutics: Visualism in Science* (1998) and *Bodies in Technology* (2002). His approach is today often termed ‘postphenomenological’ as evidenced in *Postphenomenology* (1993) and the Evan Selinger edited, *Postphenomenology: a Critical Companion to Ihde* (2006).

**David M. Kaplan** is Assistant Professor, Department of Philosophy and Religion Studies, University of North Texas. He is the editor of *Readings in the Philosophy of Technology*, 2nd edn (2009) and author of several articles on the moral and political dimensions of technology. He is also the author of *Ricoeur’s Critical Theory* (2003) and *Reading Ricoeur* (2008). In addition, he publishes on the philosophy of food and is currently the director of ‘The Philosophy of Food Project’ at the University of North Texas.
Keekok Lee is currently Honorary Research Fellow in the School of Social Sciences, University of Manchester. Her interests over the years have covered a fairly wide range including social and legal philosophy, environmental philosophy, philosophy of biology and in particular of genetics, as well as philosophy of technology. Three of her more recent publications are: *The Natural and the Artefactual: the Implications of Deep Science and Deep Technology for Environmental Philosophy* (1999); *Philosophy and Revolutions in Genetics: Deep Science and Deep Technology* (2005, 2nd edn); *Zoos: a Philosophical Tour* (2006). Her current research project is in philosophy of medicine.

Søren Riis is Assistant Professor of Philosophy at University of Roskilde, Denmark. His research focus is on phenomenology and STS. His latest work includes a new interpretation of Bruno Latour, *The Symmetry between Bruno Latour and Martin Heidegger: the Technique of Turning a Police Officer into a Speed Bump* (2008), and a forthcoming monograph, *Towards a New Conception of Technology: a Critique of Martin Heidegger* (original title in German). Currently he holds a two-year research grant from the Carlsberg Foundation which he will use to do a series of phenomenological studies on contemporary architecture.

Robert Rosenberger, a visiting scholar at McGill University, works on the phenomenology of technology and also the philosophy of scientific debate. His publications include a series of articles on the roles of imaging technologies in scientific practice. He and his colleagues in the Group for Logic and Formal Semantics study prejudice reduction through game-theoretic modelling, and also the philosophy of computer simulation (see www.computationalphilosophy.org). He is currently editing *Five Questions in Philosophy of Science* (forthcoming).

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Iain Thomson is an Associate Professor of Philosophy at the University of New Mexico, where he received the Gunter Starkey Award for Teaching Excellence. He is the author of *Heidegger on Ontotheology: Technology and the Politics of Education* (2005), as well as numerous articles on Heidegger and other contemporary thinkers. He is currently working on a philosophical
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**Peter-Paul Verbeek** is Associate Professor of Philosophy at the Department of Philosophy, University of Twente, the Netherlands, and director of the international master’s programme Philosophy of Science, Technology and Society. His research focuses on human–technology relations and the social and cultural roles of technology, with applications to technology design and human enhancement technologies. He recently published *What Things Do: Philosophical Reflections on Technology, Agency, and Design* (2005). Currently, he is completing a monograph on the moral significance of technologies and its implications for ethical theory and the ethics of design.