Heidegger on Technology

This collection offers the first comprehensive and definitive account of Martin Heidegger's philosophy of technology. It does so through a detailed analysis of canonical texts and recently published primary sources on two crucial concepts in Heidegger's later thought: *Gelassenheit* and *Gestell*. *Gelassenheit*, translated as 'releasement,' and *Gestell*, often translated as 'enframing,' stand as opposing ideas in Heidegger's work whereby the meditative thinking of *Gelassenheit* counters the dangers of our technological framing of the world in *Gestell*. After opening with a scholarly overview of Heidegger's philosophy of technology as a whole, this volume focuses on important Heideggerian critiques of science, technology, and modern industrialized society as well as Heidegger's belief that transformations in our thought processes enable us to resist the restrictive domain of modern techno-scientific practice. Key themes discussed in this collection include: the history, development, and defining features of modern technology; the relationship between scientific theories and their technological instantiations; the nature of human agency and the essence of education in the age of technology; and the ethical, political, and environmental impact of our current techno-scientific customs. This volume also addresses the connection between Heidegger's critique of technology and his involvement with the Nazis. Finally, and with contributions from a number of renowned Heidegger scholars, the original essays in this collection will be of great interest to students of Philosophy, Technology Studies, the History of Science, Critical Theory, Environmental Studies, Education, Sociology, and Political Theory.

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Edited by Aaron James Wendland, Christopher Merwin, and Christos Hadjioannou

Routledge
Taylor & Francis Group
NEW YORK AND LONDON

First published 2019
by Routledge
711 Third Avenue, New York, NY 10017

and by Routledge
2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

Routledge is an imprint of the Taylor & Francis Group, an informa business

Library of Congress Cataloging-in-Publication Data
Names: Wendland, Aaron James, 1979– editor.
Title: Heidegger on technology / edited by Aaron James Wendland, Christopher Merwin, and Christos Hadjioannou.
Description: 1 [edition]. | New York : Taylor & Francis, 2018. | Series: Routledge studies in twentieth-century philosophy ; 44 | Includes bibliographical references and index.
Identifiers: LCCN 2018031819 | ISBN 9781138674615 (hardback)
Subjects: LCSH: Heidegger, Martin, 1889–1976. | Technology—Philosophy.
Classification: LCC B3279.H49 H35228 2018 | DDC 601—dc23
LC record available at https://lccn.loc.gov/2018031819

ISBN: 978-1-138-67461-5 (hbk)
ISBN: 978-1-315-56122-6 (ebk)

Typeset in Sabon
by Apex CoVantage, LLC

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Introduction

Heidegger's Thinking Through Technology

Christopher Merwin, Aaron James Wendland, and Christos Hadjioannou

> Then the name "technology," strictly speaking, refers to a kind of representing, that is, a kind of cognition, and hence to a kind of theoretical comportment. The essence and the dominance of technology consist in the fact that, through it, nature has become an object. Nature is set up by the human, halted by him, so that it may be accountable to him and to his plans for it. Technology is the objectification of nature.
>
> —Martin Heidegger, *Country Path Conversations* (1944)[1]

We live in a world where technology reaches into every aspect of our lives. Technological devices are with us from the minute we wake up until the moment we fall asleep. We trade digital information with a host of individuals at a rate that was inconceivable just a generation ago. Contemporary health researchers and technology experts have begun to identify the symptoms of technology fatigue: a form of anxiety that results from always being available and from the need to constantly engage with our technology. Yet despite the impact technology has on our daily life, relatively little philosophical reflection has gone into explaining what draws us into technology's embrace.

Beginning in the mid-1930s, Martin Heidegger (1889–1976) turned his attention to the framework in which technological devices are understood. Heidegger was one of the most important thinkers of the 20th century, and his philosophy of technology is based on the relation between two key concepts: *Gestell* and *Gelassenheit*. *Gestell* is often translated as "enframing" or "positionality," and it indicates the way we frame, position, and ultimately reduce the world to resources for production and consumption. Specifically, *Gestell* refers to our tendency to make everything, including ourselves, a resource ready to be called on in the service of a technological system. According to Heidegger, reducing the world to readily available resources is dangerous because it undermines our creative engagement with reality, alienates us from ourselves and each other, and leads to the destruction of our habitat. The antidote to this condition is: *Gelassenheit*. *Gelassenheit* is translated as "releasement" or "equanimity," and it refers to a disposition that blocks us from imposing

our will on things and thus opens us up to alternative ways of relating to reality. In short, *Gestell* and *Gelassenheit* stand as opposing ideas in Heidegger's analysis of technology whereby the releasement characteristic of *Gelassenheit* counters the dangers of our technological framing of the world via *Gestell*.

Although there are several important books that address *Gestell* and *Gelassenheit* when discussing other themes in Heidegger's work, this volume offers the first comprehensive and definitive account of Martin Heidegger's philosophy of technology.[2] It does so by collecting essays from leading Heidegger scholars on key aspects of Heidegger's thought on techno-science. Some of the central themes addressed in this collection include: the history, development, and defining features of modern technology; the relationship between scientific theories and their technological instantiations; the nature of human agency and the essence of education in the age of technology; and the ethical, political, and environmental impact of our current techno-scientific customs. Of course, presenting a complete account of a book's content is beyond the scope of any introduction. However, in Section 1 we explain our scholarly aims and practical ambitions in putting together this volume. In Section 2, we describe the development of Heidegger's philosophy of technology from his early phenomenological work to his later essays on the essence of technology. In Section 3, we offer a slightly more detailed account of *Gestell* and *Gelassenheit*. Finally, in Section 4 we provide a short summary of the seventeen essays collected here.

1. Scholarly Aims and Practical Ambitions

Heidegger's writing is not easily understood, but the implications of his thought could not be more apparent and necessary in today's world. Heidegger's canonical works on technology, *Discourse on Thinking* and *The Question Concerning Technology*, appeared in 1966 and 1977, respectively. These texts have influenced a generation of thinkers, and they are the basis for almost all scholarship on Heidegger's philosophy of technology to date. Heidegger's extended analyses of technology has, however, recently become available with the publication and translation of two key volumes of Heidegger's complete works: *Country Path Converstations (CPC)* and the *Bremen and Freiburg Lectures (BFL)*. These books offer new and important insights into Heidegger's account of *Gestell* and *Gelassenheit*, and they have given our contributors unprecedented access to Heidegger's writings and to Heidegger's philosophy of technology as a whole.

With the release of the *Bremen and Freiburg Lectures*, we can now read the essays collected in *The Question Concerning Technology* in their original form. We also have access to an entirely new essay: "The Danger." In this essay, Heidegger calls attention to the most disturbing ontic menace of modern technology: i.e., its ability to bring death to

millions in an instant. Heidegger also explains the insidious ontological threat of modern technology: namely, the totalizing tendency implicit in the essence of technology (*Gestell*). Particularly, Heidegger indicates that our techno-scientific interpretation of reality is spreading to every aspect of life, and he notes that it will continue to do so until everything on the planet is positioned within a technological framework and open to being controlled. Briefly, the *Bremen and Freiburg Lectures* present us with the dangers of modern technology and then explain what those dangers amount to in detail.

Discourse on Thinking contains a third of a trialogue that has now been published in its entirety in *Country Path Conversations*. In the complete triadic conversation between a scientist, a scholar, and a guide (*Weise*), we see Heidegger wrestling with the way technology drives science and not the other way around. We are also given additional insight into Heidegger's characterization of scientists, and, somewhat surprisingly, it is the character of the scientist who first recognizes how *Gelassenheit* frees us from imposing our technological will on things. This extended characterization of science, the relation between science and technology, and the role the scientist plays in resisting the dangers of modern technology is absent from the canonical *Discourse on Thinking*. And so, by combining Heidegger's canonical texts with the *Bremen and Freiburg Lectures* and *Country Path Conversations*, this collection stands as the first inclusive and authoritative account of Heidegger's philosophy of technology.

Scholarly considerations aside, this volume looks at some of the broader intellectual and cultural applications that follow from Heidegger's thought. It does so by setting Heidegger in dialogue with other important 20th century thinkers, including: Edmund Husserl, Emmanuel Levinas, Max Horkheimer, Theodore Adorno, Werner Heisenberg, Jürgen Habermas, Thomas Kuhn, and André Leroi-Gourhan. This collection also teases out some of the positive ethical and political implications of Heidegger's critique of modern technology. Specifically, it examines the threat techno-science poses to human dignity and our natural habitat, and it explores the various ways a releasement from techno-scientific thinking results in respect for humanity and a sustainable relationship with our surrounding environment. In short, this volume provides an original, comprehensive, and critical analysis of the intellectual foundations of modern industrialized society, and it examines alternative ways human beings might relate to the world in a post-technological age.

2. The Development of Heidegger's Thoughts on Technology

Heidegger's reflections on natural science date back to his 1912 graduate school essay "The Problem of Reality in Modern Philosophy" and he wrote and lectured on science and technology through to the end of his

academic career in the late 1960s. To be sure, Heidegger was no philosopher of science, or at least not in the way that we might understand that phrase today. Heidegger did, however, have advanced academic training in mathematics and the sciences (including several graduate courses in mathematics, experimental physics, and experimental chemistry) and he kept up on the progress of the natural sciences of his day. As a doctoral candidate, Heidegger was an assistant to Heinrich Rickert, a leading philosopher of the time on the distinction between scientific and historical facts.[3] And in the Winter Semester of 1913–1914, Heidegger wrote a paper on the limits of concept formation in the natural sciences. This theme preoccupied him till the end of his life in 1976. Roughly speaking, Heidegger's reflections on science and technology can be divided into three phases that correspond to his phenomenological writings of the 1910s and 1920s, his work on the history of metaphysics in 1930s and early 1940s, and his lectures and essays on technology in the 1940s, 1950s, and 1960s.

As noted above, Heidegger was interested in concept formation in the sciences in the 1910s, and Heidegger's phenomenological work of the 1920s paved the way for his later account of the alienation we experience in the face of techno-science. In *Being and Time*, Heidegger describes our alienated or inauthentic existence as one in which we are *both* fascinated with publicly available commodities *and* unquestionably committed to our current way of life. This form of existence resembles the way Heidegger speaks of our reduction of the world to resources and our inability to question the assumptions that guide our use of technology. Likewise, Heidegger's interpretation of authenticity as our ability to take responsibility for our existence by critically reflecting upon and changing our current way of life is a lot like the releasement and openness to new possibilities Heidegger calls for to counter the dangers of technology. Briefly, Heidegger's early depiction of our inauthentic and authentic existence serves as a precursor to his later account of the oppositional relation between *Gestell* and *Gelassenheit*.

In a series of lectures and private writings in the 1930s and early 1940s, Heidegger began explicitly writing about the essence of modern technology as part of a broader account of the history of western metaphysics.[4] According to Heidegger, western metaphysics begins with Plato's attempt to come up with a timeless interpretation of the essence of entities, and it culminates in Nietzsche's account of the will to power through which we manipulate and control entities. Nietzsche's work on the will to power is, as Heidegger sees it, an expression of the metaphysical assumptions that undergird modern technology: i.e., the reduction of reality to resources for the purpose of production and consumption. Heidegger's detailed commentary on Nietzsche's will to power also indicates that Heidegger is less interested in technological devices and more interested in the metaphysical framework through which technological devices are developed and used. And Heidegger clearly makes a distinction between technological devices and the framework through which they are understood when he tells us that "the essence of technology is by no means anything technological" (*QT* 4).

This brings us to Heidegger's most famous work on techno-science: the Bremen and Freiburg lectures of the late 1940s and their subsequent publication as essays in the early 1950s.[5] These lectures and essays mark Heidegger's mature reflections on the essence of technology: i.e., the metaphysical framework (*Gestell*) through which we reduce everything to resources waiting to be called on in service of a technological system. In these writings, Heidegger also highlights the threat modern technology poses to our natural habitat and the extent to which it drives out other ways of relating to reality. Finally, Heidegger here calls for our releasement (*Gelassenheit*) from willful technology and our openness to alternative ways of living in response to the dangers he sees in modern industrialized societies.

3. *Gestell* and *Gelassenheit*

With a developmental account of Heidegger's philosophy of technology in place, we would now like to offer a slightly more detailed interpretation of the key terms in Heidegger's work on techno-science: *Gestell* and *Gelassenheit*. Heidegger uses these words in a rather idiosyncratic way and explaining that use gives us a chance to introduce some related terminology. Given that *Gelassenheit* stands opposed to *Gestell*, we also follow Heidegger's train of thought in this section by (A) examining the essence of modern technology as positionality (*Gestell*) and then (B) discussing the way in which releasement (*Gelassenheit*) is a response to that essence.

A. The Essence of Modern Technology as Positionality (Gestell)

In his analysis of the essence of modern technology, Heidegger employs a number of crucial technical terms. Positionality (*Gestell*) is the most important. But placing Heidegger's use of "positionality" (*Gestell*) in relation to other keywords, such as "object" (*Gegenstand*) and "standing reserve" or "resource" (*Bestand*) leads to a richer understanding of Heidegger's account of modern techno-science.

Heidegger's use of *Gestell* places heavy emphasis on its German root, the verb *stellen*, "to put" or "to place," along with the German prefix *Ge-*, which can broadly be understood as a form of "gathering" or "collection." *Gestell* effectively gathers together all kinds of entities and orders them in a certain way. Rather than allowing entities to appear to us on their own terms, *Gestell* pre-positions them by deciding in advance

what they are and what position they should occupy within a specific technological framework (*BFL* 30, *QT* 121). Within this framework, the entities we encounter are reduced to objects for our manipulation and use.

The German term that Heidegger uses for object is *Gegenstand*, and it literally means "standing over and against." Understood in this way, objects are entities which have been placed before us, in opposition to us, and over and against our field of understanding. Whereas entities exist in their uniqueness and singularity, objects (*Gegenstände*) are placed (*gestellt*), represented (*vor-gestellt*), or produced (*her-gestellt*). They are interchangeable and replaceable, and waiting to be requisitioned (*bestellen*) for use in a technological system (*QT* 17, 168, *BFL* 25, 37). One of the most insidious aspects of the essence of modern technology is that the system forces all entities, including humans, into a position that allows them to be called on when needed (*BFL* 50–51). In this way, all things stand in a level relation to each other as a "resource" or "standing reserve" (*Bestand*) (*QT* 17, *BFL* 30–31). The *Bremen and Freiburg Lectures* and *The Question Concerning Technology* provide a poignant example of this phenomenon by analyzing someone listening to the radio, but we can just as easily imagine a television viewer or internet user (*BFL* 36–37, 72; *QT* 48).

Radios, televisions, computers, and smartphones are not simply devices within a broader stockpile of technology. Standing behind each of these items is an entire system or network of connections that speaks to the dangerous leveling tendencies of modern technology. As a device, my smartphone does not stand in a unique relation to me, nor I to it, but instead acts as a replaceable object, one among many, brought into the public sphere for anyone and everyone to use. Further, this device is made available to me by similarly replaceable employees who are requisitioned, called forth, and made available for the buying, selling, maintenance, and functioning of this phone, just as I am not a unique user of this device, but a customer, client, and user who must be addressed with a scripted set of instructions which are applicable to everyone and no one. Customer service for my phone is provided equally to each replaceable customer by a replaceable customer service representative. This representative does not represent themselves in any way, nor is the customer present to this representative as a unique entity, instead each exists in relation to the other as objects used within a specific technological system.

A vast network of radio towers are maintained so that my smartphone may function, dams in rivers are built to provide electricity to operate the towers, recharge my phone, and run the cooling units of the massive data vaults which hold the content which my phone downloads from satellites, content written for general and public consumption by an army of writers waiting and actively offering unlimited impositions calling me forth to another site, a site which, because it is intended for

public consumption, does not call to me personally but challenges me to place myself within the system. Whole firms of researchers, analysts, and social media engineers are hired to analyze billions of people into discrete organized sets of categories, positioning each individual for mass targeted behavioral influence. I am someone who does or does not like 'x,' where 'x' is an entirely replaceable item within a system or a standing reserve of resources. Again, every item within this standing reserve is reduced to a position, actively waiting to be called on. Heidegger insists this is no judgment on the radio, the internet, or the smartphone user. It is just the way in which the essence of modern technology interacts with humanity (*B* 37). In this way, Heidegger claims that he is not offering a philosophy of technology. Instead, he is providing a diagnosis of our modern age and the way in which we humans have placed ourselves under the sway of modern technology, as a resource standing within a network which seeks, ultimately, to place, represent, and think of every entity as an object within an all-encompassing system.

In the age of modern technology, we no longer approach entities as unique or singular. Rather, we do the work of technology by rendering each singularity into an object and by reducing ourselves to resources waiting to be used. There is, however, another way that humans can relate to entities and each other. It is a mode of being that Heidegger sees as a form of resistance to the danger and domination of modern technology, and his word for this disposition is: *Gelassenheit*.

B. Releasement Towards Entities (Gelassenheit)

Heidegger first uses the term releasement (*Gelassenheit*) shortly after the publication of *Being and Time* (*GA* 27: 214, 404; *KPM* 167; *FCM* 91). However, the term is only distinctly formed and decisively used in Heidegger's thought beginning in the mid-1940s and amidst the devastation of the Second World War. The term *Gelassenheit* is a relatively standard German word that means something like tranquility or equanimity, and it is most strongly associated with the 13th century theologian Meister Eckhart. Heidegger, for his part, offers a detailed account of *Gelassenheit* in *Country Path Conversations*, and in that text *Gelassenheit* is conceived as a releasement from and a response to the dangers of modern technology.

Releasement (*Gelassenheit*) is one of the essential modes of existing for humans. When cultivating the fundamental comportment (*Grundstimmung*) of releasement, we attune ourselves to the essential features of other entities and the meaning of being itself. Heidegger describes this disposition as a form of willing non-willing (*CPC* 33, 37–42). In the double movement of both willing and non-willing, *Gelassenheit* both releases us *from* our will to dominance and our will to represent (*vorstellen*) and releases us *to* the possibility of encountering entities on their own terms.

And just as the meaning of *Gestell* was related to its root verb *stellen*, so too does the meaning *Gelassenheit* relate to a series of words with the root verb *lassen*, to let or allow.

The first movement of *Gelassenheit* involves the abandonment or renunciation (*Ablassen*) of our self-will towards the will to power or the will to will. If what is essential in the essence of technology is the willful subjugation of entities for their use within a technological system, then *Gelassenheit* must renounce that drive. It is important to recognize that *Gelassenheit* is not a passive activity, nor is it entirely active. It is an active disposition of self-restraint or withholding in order to allow other entities to present themselves on their own terms. It is this second aspect of allowing entities to present themselves *to* us instead of *for* us (as they do in modern technology) which comprises the mode of *Gelassenheit* as releasement to others (*Überlassen*). This releasement to other entities can be thought of as deferring to them. And although the term is theological in origin, Heidegger does not see releasement as a case of giving oneself to God or somehow surrendering one's sense of self (*CPC* 70). Our releasement from our will to will coupled with our releasement towards other entities transforms our understanding whereby we no longer think of the entities we encounter as objects (*Gegenstände*) to be used, but instead encounter them in their own self-belonging (*CPC* 74–75).

Heidegger's account of releasement as neither a wholly active nor a wholly passive disposition demonstrates an important aspect of our relation to technology. Heidegger is not a Neo-Luddite and he does not think we can or should entirely abandon technology. *Gelassenheit* is not meant to overcome technology, but to place in check the tendency of technology to render everything into an object for use and production. The not willing aspect of *Gelassenheit* is precisely a resistance to the domination of technology. Understood in this way, *Gelassenheit* releases us from the danger of technology and opens us to alternative ways of relating to reality. In short, Heidegger believes that by reigning in technology's dominance and by controlling our own human tendency to represent things as objects in a pre-given system, we can open ourselves up to other ways of existing and gain an intimate relation with the various things we encounter in our everyday life.

4. Contributions

The organization of the volume and our choice of contributors follows our desire as editors to provide a clear, comprehensive, and detailed analysis of Heidegger's philosophy of technology. We also encouraged our contributors to apply Heidegger's analysis of technology to some of the most pressing ethical and political problems we confront today.

Mark A. Wrathall's "The Task of Thinking in a Technological Age" opens our collection by looking at the way in higher education in the western world is complicit in reducing humans to resources in the technological age. His paper examines the current disciplinary model of education and offers an alternative, an existential model, or what Heidegger might call an education in thinking. In this way, Wrathall's essay sets the tone for the rest of the volume by urging us to think through the essence of modern technology.

Wrathall's essay is followed by **Daniel O. Dahlstrom's** "Im-position: Heidegger's Analysis of the Essence of Modern Technology." Dahlstrom marks the distinction between technological devices and the essence of technology, and then he offers a three-step analysis of the essence of modern technology. Specifically, Dahlstrom examines modern technology's ground, its im-position (*Ge-stell*), and its "saving element."

In "Heidegger's Critique of Techno-science as a Critique of Husserl's Reductive Method," **Christos Hadjioannou** shows how Heidegger's critique of the natural sciences can be traced back to Heidegger's early critique of Husserl's method of phenomenological reduction. Hadjioannou indicates how this early critical encounter with Husserl's phenomenology prepared the way for Heidegger's conception of *Gestell* and also how the later notion of *Gelassenheit*, as a disposition that offers us a free relation to nature, is originally conceived as an *alternative* to Husserl's *epoché*.

Steven Crowell's essay "The Challenge of Heidegger's Approach to Technology: A Phenomenological Reading" looks at the phenomenological and historical strands in Heidegger's philosophy of technology. Crowell argues that the phenomenological approach offers us insight into the nature of thinking itself, whereas the historical strand, which views modern technology as an expression of philosophy itself, is ultimately a distraction.

In "Letting Things Be for Themselves: *Gelassenheit* as Enabling Thinking," **Tobias Keiling** reads *Gelassenheit* as a form of life marked by the intellectual independence from technology achieved via a specific form of thinking. Keiling develops this account through an analysis of the German verb *lassen* (to let or allow) and he interprets *Gelassenheit* as a kind of "enabling." In developing this reading, Keiling draws on and engages with the work of several prominent Heidegger scholars, including: Hubert Dreyfus, John Haugeland, Richard Rojcewicz, Dana Belu, and Andrew Feenberg.

Andrew J. Mitchell's contribution, "The Question Concerning the Machine: Heidegger's Technology Notebooks in the 1940s–1950s," offers us a peek into Heidegger's technology notebooks and Heidegger's analysis of machines. Mitchell shows how Heidegger's writing on the machine emerged from his reading of Nietzsche and thus paved the way for an understanding of the machine in terms of positionality (*Gestell*). Mitchell concludes with some thoughts on our relation to technology and the machine's place in enabling this relation.

In "Heidegger's Releasement From the Technological Will," **Bret W. Davis** shows how Heidegger's critique of technology must be thought alongside his critique of human will and the technological will to will. Davis's chapter not only provides a synopsis of Heidegger's concept of the will and the willful nature of technology, but also illustrates how Heidegger's notion of releasement (*Gelassenheit*) is Heidegger's attempt to facilitate a turn (*Kehre*) to a more proper relation to entities and to being itself.

Aaron James Wendland's essay, "Heidegger's New Beginning: History, Technology, and National Socialism," demonstrates how Heidegger's involvement and disillusionment with the Nazis is directly connected to Heidegger's critique of modern technology. Like Crowell, Wendland objects to Heidegger's account of western history. Specifically, Wendland argues that Heidegger's obsession with the general trends of history means that he fails to adequately respond to the concrete suffering of individual human beings. Finally, Wendland shows how Heidegger's student, Emmanuel Levinas, addresses some of the failings in Heidegger's interpretations of history and technology.

Iain Thomson brings us back to the theme of education in his essay "Technology, Ontotheology, Education." If we understand how Heidegger's critique of technology emerges from his deeper critique of ontotheology, then Thomson argues that we are in a better position to understand Heidegger's philosophical views on education. Specifically, if we see how ontotheology propels nihilistic technologization, then Thomson claims we can see both the critical target and the positive goal of Heidegger's thinking on education.

Julian Young puts Heidegger's critique of modern technology into conversation with the work of Jürgen Habermas in his essay "Heidegger, Habermas, Freedom, and Technology." Both Heidegger's and Habermas's critiques of modernity, on Young's reading, show how modern technology represents a profound threat to human freedom. Against this threat, Habermas calls for political action to resist and ultimately overcome industrial capitalism, whereas Heidegger calls us to attain our freedom by transcending technological thought completely. Young sees some merit in both proposals, but he argues that it is only by opening ourselves up to the "mystery of being" that we can once again render the world a "holy" place to live.

Continuing with the theme of our relation to the world we live in, **Michael E. Zimmerman's** essay, "How Pertinent Is Heidegger's Thinking for Deep Ecology?," compares Heidegger's critique of modern technology with the work of deep ecologists. Zimmerman explains how environmentalists can make use of Heidegger's account of the dangers of modern technology and he shows how Heidegger's concept of *Gelassenheit* might serve as a valuable response to environmental degradation.

Susanne Claxton sees *Gelassenheit* as a means for overcoming the alienation that follows from *Gestell* in her "Poetry and the Gods: From *Gestell* to *Gelassenheit*." Through an analysis of Heidegger's concept of meditative thinking and how it relates to the ancient Greek understanding of *alêtheia* and *poiêsis*, Claxton shows how new ways of relating to reality are made available in the age of technology. In doing so, she explains the role that poetry, the poet, and the gods play in responding to the dangers of technology.

In her "Letting Beings Be: An Ecofeminist Reading of *Gestell*, *Gelassenheit*, and Sustainability," **Trish Glazebrook** brings us back to the theme of the environment through an eco-feminist interpretation of Heidegger's critique of modern technology. She argues that we can see contemporary sustainability movements as a candidate for what Heidegger calls the "saving power." Her contribution examines the notions of weak sustainability, ecosystem services, and strong sustainability within the context of Heidegger's thought and argues that we can understand strong sustainability as analogous to Heidegger's *Gelassenheit*.

Denis McManus considers some political implications of Heidegger's reflections on technology in his essay "*Machenschaft* and the Audit Society: The Philosophy and Politics of 'the Accessibility of Everything to Everyone'." McManus draws an analogy between Heidegger's critique of technology and Michael Power's account of the "Audit Society," and then he argues that the increasing demand for auditing, documentation processing, and national student surveys at UK universities are all examples of Heidegger's analysis of the domination of modern technology.

In "Heidegger vs. Kuhn: Does Science Think?," **Aaron James Wendland** cultivates a dialogue between Heidegger and Kuhn. Wendland claims that Kuhn's conception of puzzle-solving in normal science is analogous to Heidegger's account of enframing (*Gestell*) insofar as normal science fails to think of about what it means for scientific entities *to be*. Wendland then argues that Kuhn's notion of paradigm-testing in revolutionary science is similar to Heidegger's account of releasement (*Gelassenheit*) insofar as paradigm-testing frees scientists to think about the being of scientific entities.

Taylor Carman looks at Heidegger's critical exchange with Werner Heisenberg. Carman's essay, "Quantum Theory as Technology," uses Heidegger's critique of technology to argue that, despite the objective correctness and mathematical rigor of physics, physics cannot fathom the inexhaustible and intractable complexity of nature. Carman also claims that to suppose quantum theory represents our most fundamental knowledge of nature is to forget our mysterious relation to nature, particularly when nature is understood as *physis*.

Our volume concludes with **Rafael Winkler's** "Naturalizing *Gestell*?." Winkler stages a confrontation between Heidegger's phenomenological

and the naturalistic thought of French archeologist and anthropologist André Leroi-Gourhan. Specifically, Winkler's argues that Leroi-Gourhan's naturalistic account of the emergence and evolution of technology calls into question the phenomenological interpretation of technology offered by Heidegger. Winkler does, however, consider various ways Heidegger might respond to Leroi-Gourhan's challenge.

Notes

1. CPC 7.
2. Other significant contributions to the literature include Davis (2007), Ihde (2010), Glazebrook (2012), and Young (2002).
3. See Rickert (1987).
4. See *IM*, *N1–4*, *CP*, *BN*.
5. See *BFL*, QT.

References

Davis, Bret. 2007. *Heidegger and the Will: On the Way to Gelassenheit*. Evanston, IL: Northwestern University Press.

Glazebrook, Patricia, ed. 2012. *Heidegger on Science*. New York: Fordham University Press.

Ihde, Don. 2010. *Heidegger's Technologies*. Evanston, IL: Northwestern University Press.

Rickert, Heinrich. 1987. *The Limits of Concept Formation in Natural Science: A Logical Introduction to the Historical Sciences*. Cambridge: Cambridge University Press.

Young, Julian. 2002. *Heidegger's Later Philosophy*. Cambridge: Cambridge University Press.

1 The Task of Thinking in a Technological Age[1]

Mark A. Wrathall

1. Ambivalence About Technology

There is no question that modern technology has brought tremendous benefits to humankind. By improving our capacity to supply the basic commodities of life (such as housing, food, clothing, and medical care), it has contributed to dramatic increases in health and wealth. Developments in technologies of transportation, building, and communication enrich our lives by opening up a multitude of new options for housing, work, and entertainment. Information technologies bypass old restrictions on the dissemination of knowledge, and are in the process of putting the whole sum of human science and learning at anyone's fingertips. Technology has changed virtually every aspect of our lives. These changes are by and large experienced as improvements, because technology liberates us from unpleasant, time-consuming tasks, and liberates us for activities and opportunities unimaginable to previous generations or even to us ourselves in the not-so-distant past.

And yet, at a personal, anecdotal level, many people with whom I talk feel disquieted or even oppressed by technology. They find the rapid pace of technological change to be challenging and occasionally overwhelming. They report being paradoxically both more constantly in contact and simultaneously more isolated and alone as a result of the use of communication technologies. And many people worry that technology, in a myriad of small and subtle ways has invaded domains in which it not only doesn't really belong. Think, for instance, of the way intimate relations are strained by "phubbing." Besides such low-grade forms of frustration with technology's tendency to invade domains from which it positively detracts, of course, there is also an intense anxiety provoked by the more spectacularly terrifying aspects of technological development—like the immense destructive forces wielded by a variety of state and non-state actors, or the growing power and ease with which biotechnology can be used to engineer the genome, social media can be used to mold public opinion, and governments and businesses can surveil and profile and manipulate their citizens and customers. But despite both the low-grade