Introduction

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The time has come to assemble a collection of critical works by American phenomenologist Don Ihde. As Distinguished Professor of Philosophy Emeritus at Stony Brook University, Ihde continues to be a leading figure in thought on the place of technology in our lives. His work has inspired countless scholars. His ideas have been applied by others to an extensive range of topics, empirical studies, design projects, artworks, and philosophical problems. And his own extended case studies have provided a model for in-depth philosophical engagement with the specific details of our contemporary technological situation. For anyone working on issues of technology, Ihde's ideas have the potential to provide useful tools for articulating the ways that the concrete materiality of our devices gives shape to human experience.

Ihde's body of work has had an expansively interdisciplinary impact. His writings are well known within the discipline of philosophy in both Continental philosophical circles and in the philosophy of science, and he has influenced multiple other fields, including media studies, human-computer interaction, sound studies, design, and many others. Without exaggeration, he is the "go-to" phenomenologist in both the fields of philosophy of technology and science and technology studies (STS).

The quantity of academic output over the course of Ihde's career has been immense. This has included the production of 32 books, including 25 monographs of various types (Ihde 1971, 1973, 1976, 1977, 1979, 1983, 1986a, 1986b, 1990, 1991, 1993a, 1993b, 1998, 2002, 2007, 2008b, 2008c, 2009, 2010a, 2010b, 2012, 2015, 2016, 2019, 2021) and 7 edited and coedited volumes (Zaner and Ihde 1973; Ihde 1974; Ihde and Zaner

1975, 1977; Silverman and Ihde 1985; Ihde and Silverman 1985; Ihde and Selinger 2003). His work has been the subject of two festschrifts (Selinger 2006; Miller and Shew 2020), as well as numerous special issues of academic journals, including ones that contrast his work with other figures such as Andrew Feenberg, Lambros Malafouris, and Bernard Steigler. In addition, Ihde can claim a number of "firsts": the first to write a dissertation in English on the work of Paul Ricoeur, the first book on auditory phenomenology (*Listening and Voice*, 1976), and the first English work in the philosophy of technology (*Technics and Praxis*, 1979). And he has been the recipient of multiple awards, including a Lifetime Achievement Award by the Society for Philosophy and Technology, a Walter J. Ong Lifetime Scholar Award from the Media Ecology Association, a Golden Euridici Award from the International Biophilosophy Forum, and induction as an American Association for the Advancement of Science (AAAS) Fellow.

In light of all of this, it seems that a collection of many of Ihde's most representative and influential works would be a handy thing to have. When approached by SUNY Press for this project, I was happy to take on the task. As someone who has utilized Ihde's ideas in my own studies for many years, and as someone who has operated in the middle of the burgeoning collective of scholars that has sprouted up around his work, I have a good sense of at least some of the parts of Ihde's thinking that have proven useful for many people. In what follows here in The Critical Ihde, we have collected an assortment of Ihde's writings that cover many of his varied contributions. We have here several of his classic and most influential pieces. We have some works from his corpus that contain examples of his most useful and original ideas, cases, and arguments. And we have several pieces that I consider to be underrecognized gems. Surely some Ihde aficionados will disagree with what I have included here in this collection, or, more, what I failed to include. In any case, I do believe this collection to be a strong introduction to Ihde's thinking, and a valuable resource for those that make use of his ideas.

One of Ihde's central contributions is the development of the "postphenomenological" philosophical perspective. This term has come to mean many things. It is a moniker for Ihde's own philosophy generally, the totality of ideas he has developed and the things he has written. But it also refers to a particular framework of philosophical concepts and commitments that have come out of his work, and the movement of scholars building on these ideas.

"Postphenomenology," as Ihde has developed it, brings together insights from the phenomenological tradition with the philosophical commitments of American pragmatism and other postmodern perspectives. These ideas are crafted into a practical framework of concepts for describing human relationships with technology. And this is one reason for Ihde's wide interdisciplinary appeal: his ideas are useful. They provide a practical toolbox of concepts that can be applied to the study of human-technology relations. They can be taken up by others for all kinds of analyses of technology. And they can be integrated into others' empirical methodologies. This perspective offers an enlightening way to approach a number of the central themes in work on technology, from the implications of technology's concrete materiality, to the specifics of our bodily-perceptual and human-interpretive relations to our devices, as well as to the situated and coconstituted nature of these relations. Ihde himself uses these ideas as part of decades-long case studies into laboratory instrumentation, ancient human technological practices, medical imaging, archery, hearing aids, writing technologies, nautical navigation techniques, musical instruments, and many other things.

A central aspect of Ihde's perspective is the suggestion that technologies should be conceived as "mediators" of human experience. Technologies are not just another category of things out in the world that we might perceive or act upon. They are a transformative means by which our perceptions and actions happen. They enable us to perceive and act differently. In this way, neither do technologies entirely determine what we perceive or how we act, nor do they function as innocent instruments that merely facilitate those perceptions or actions. As Ihde puts it, "There are no neutral technologies, or positively put, all technologies are non-neutral" (1993b, 34). Much of Ihde's career is thus occupied with following out the implications of the transformative and nonneutral nature of human-technology relations, exploring the concrete tradeoffs of design, the micro- and macroperceptual levels of mediation, and the material trajectories that guide scientific and technological development.

The concepts coming out of postphenomenology excel at the deep description of human experiences with technology. But they also specialize in capturing the variability of these experiences. Ihde is adamant that human-technology relations are never merely one type of thing. They never fit into only one category, even broadly speaking. Different possible relationships can always be identified. And the same technology can always be used in multiple ways, develop along different lines, and fit differently into different cultures. As Ihde writes, "Technological culture, I have been arguing, is not simply one thing. Neither is it uniform nor has its progression across the globe attained either what its detractors fear or what its proponents hope"

(1990, 150–51). This dual specialization of postphenomenology—at both the deep description of technological experience and also the recognition of its variability—is present within many of the main ideas of this perspective.

For example, this can be seen in what might be Ihde's most influential set of concepts: his quartet of human-technology relationships, that is, what he calls "embodiment relations," "hermeneutic relations," "alterity relations," and "background relations" (e.g., 1990, 72–112; 1999, 42–44). These ideas (which we'll see articulated and used over and over through this book, esp. ch. 6) and their associated concepts help to describe the ways a user engages the world through technology. At the same time, as itself a list (and an open-ended one at that, and one that has been expanded on by others; see esp. Verbeek 2011), the identification of these different possibilities for engagement itself serves to emphasize one aspect of the variability of our relationships with technology.

A second central idea Ihde has developed for capturing both the specificity and the variability possible for human-technology relations is the notion of "multistability." Originally crafted as a way to describe the multiplicity possible for human visual perception (see ch. 2), this idea helps to capture the ways that technologies never reduce to only one meaning or usage. At the same time, this idea also recognizes that a given device cannot simply mean anything, nor can it be used for just any purpose; human-technology relations are limited to particular "stabilities" (or "variations"). Ihde often uses this idea as a tool for criticizing other theoretical accounts that he judges to be essentializing or overgeneralizing, that is, accounts that allegedly fail to recognize technology's multistability. (This idea shows up over and over throughout this book, e.g., chs. 2, 3, 4, 9, and 10.)

One crucial consequence of this account of technological mediation is that we cannot think of ourselves or the world as separate and pregiven entities. We become who we are, and the world is revealed for what it is, through the mediation of technology. This commits postphenomenology to what is sometimes called a "relational" (or sometimes "interrelational") ontology, an understanding of the basic nature of things as fundamentally constituted through their relations to other things. As Ihde writes, "As can be seen, in each set of human-technology relations, the model is that of an interrelational ontology. This style of ontology carries with it a number of implications, including the one that there is a coconstitution of humans and their technologies" (2009, 44). This conception of ontology operates in tune with postphenomenology's philosophical commitments to the American pragmatist perspective, and it puts Ihde in the company of other contempo-

rary postmodern thinkers on technology (e.g., Donna Haraway and Bruno Latour). It also has set up postphenomenologists to explore the ways that technological mediation coconstitutes our moral and political situation (e.g., Verbeek 2011; Rosenberger 2017).

In recent years the term "postphenomenology" has come to refer not only to Ihde's own corpus of books, ideas, and positions on various topics, but also to the work of a growing international and interdisciplinary collective of scholars who are advancing and applying these ideas. (And it can sometimes be difficult to disentangle these two meanings.) These scholars include Dutch phenomenologist of technology Peter-Paul Verbeek and Danish anthropologist of education Cathrine Hasse, among many others (e.g., Verbeek 2011; Friis and Crease, 2015; Rosenberger and Verbeek 2015; Wellner 2015; Irwin 2017; Rosenberger 2017; Hasse 2020; de Boer 2021). This work includes as well the book series "Postphenomenology and the Philosophy of Technology" with Lexington Books, which now comprises a stack of volumes on a variety of topics (including an assortment of perspectives from within the fields of philosophy of technology and STS), and which contains an ongoing line of books with a title structure of "Postphenomenology and X" on topics such as media, architecture, methodology, and imaging (e.g., Van Den Eede, Irwin, and Wellner 2017; Aagaard et al. 2018; Botin and Hyams 2021; Fried and Rosenberger 2021). Panels on postphenomenological research have become a reliable fixture of a number of international conferences, often with Ihde himself as the anchor presenter. The bustling postphenomenological research movement stands as another testament to the impact of Ihde's work.

Ihde's distinctive style is another feature of his writing reflected in the selections included in this book. In addition to the expected textual analysis of the writings of canonical figures from the history of philosophy, we see an excited inquisitiveness regarding the details of technology in the various contexts of everyday life, from the home to the laboratory. Ihde's playful philosophical engagement with the world can be liberating, especially for those of us with empirical and interdisciplinary leanings. In addition to the expected philosophical texts, Ihde pulls from world history, biological and cultural anthropology, the daily news, and the latest scientific journal articles across a number of fields. Phenomenology, as practiced by Ihde, is thus not merely some corner of philosophical study concerned mainly with textual exegeses of canonical figures or the fiddling with abstract and esoteric philosophical quandaries; it is something that one *does*. "Let's do some phenomenology," he often says.

In addition, as readers of Ihde know well, he often pulls from his own life. Much of his work has an autobiographical flavor. Across his texts we learn about his life growing up on a farm in Kansas where he was educated in a one-room schoolhouse, life in places like New York City and his retreat in Vermont, his experiences sailing and painting, his worldwide travels exploring ancient ruins or high-tech virtual reality and robotics laboratories, and the details of his open-heart surgery, among many other anecdotes, observations, and personal notes. Thus, in addition to the philosophical contributions of his work, there is also a lively spirit to it, an animated curiosity, an ironic playfulness, and an enthusiastic fascination with the details of human lives, contemporary technologies, cutting-edge science, animal studies, and anthropological history. This style and spirit continues to inspire contemporary scholars.

The selections in this volume are arranged into three parts.

Part 1: From Phenomenology to Postphenomenology

The essays in part 1 provide key examples of Ihde's contributions to phenomenology proper, and to his development of his own pragmatism-infused "postphenomenological" perspective.

Chapter 1 represents one of Ihde's most influential and original phenomenological investigations: his phenomenology of sound. This work culminated in his 1976 book *Listening and Voice*, which explores the nature of auditory experience. Ihde explores the spatial and temporal dimensions of sound, and the ways auditory experience is a central part of our encounter with the world. He also considers how the experience of the special presence of other people can occur through auditory perception. Chapter 1, here entitled "Auditory Phenomenology," is comprised of selections from *Listening and Voice*.

Chapter 2, entitled "The Multistability of Perception," is a phenomenology of visual experience. Ihde's work on this topic has a special focus on the variability possible for human perception and the embodied hermeneutic dimensions of what we see. This work includes his exploration of the gestalt experience of visual illusions. And through these investigations he develops the notion of "multistability," an idea later applied as well to the philosophy of technology. This chapter is comprised of selections from his 1977 book *Experimental Phenomenology*.

The next three chapters concern Ihde's development of the "postphenomenological" perspective, and in particular his specific amalgamation of phenomenological insights with the philosophical commitments of contemporary American pragmatism. Chapter 3, here entitled "What Pragmatism Adds to Phenomenology," is comprised of an underappreciated gem from Ihde's corpus: his 1986 work On Non-foundational Phenomenology, reproduced in its entirety. The piece is a transcription of a lecture on the implications of Rortian and Foucaultian postmodern philosophy for phenomenology, including Ihde's responses to audience questions. Chapter 4, entitled "What Phenomenology Adds to Pragmatism," continues the development of these ideas, clarifying how phenomenology—properly understood, according to Ihde—not only survives the kinds of attacks that Richard Rorty has leveled against other philosophies, it actually provides distinctive ways forward. This chapter comes from "Response to Rorty, or, Is Phenomenology Edifying?," from his 1986 book Consequences of Phenomenology. In chapter 5, here entitled "What Is Postphenomenology?," Inde pulls all of this together into an introduction to the postphenomenological perspective. It comes from the opening chapter of the same title from his 2009 book Postphenomenology and Technoscience: The Peking University Lectures. This includes a number what have become hallmark strategies in Ihde's project of defining and clarifying what postphenomenology is all about: the critique of Husserl, the integration of ideas from Dewey, and the utilization of visual illusions to help articulate the multistability of our relationships with technology.

Part 2: The Phenomenology of Technology

Part 2 of this book is on what is surely Ihde's most influential and useful set of ideas: his account of the human bodily-perceptual experience of technology. Postphenomenology is often understood as a perspective in the philosophy of technology, and these chapters explore the various concepts, ideas, and examples of Ihde's account.

Chapter 6, here entitled "Human-Technology Relations," includes what is probably Ihde's most influential individual set of ideas: his fourfold list of "existential" relations to technology. First introduced in his 1979 book, *Technics and Praxis*, and developed throughout the 1970s and 1980s, these ideas achieved what is often regarded as their definitive version in the selection included here from his 1990 book *Technology and the Lifeworld*.

It is possibly the most widely taken-up piece of writing in Ihde's entire corpus. This chapter includes detailed and technical articulations of the four different bodily engagements with technology that he identifies, that is, "embodiment relations," "hermeneutic relations," "alterity relations," and "background relations." It also includes, among other things, an account of "technological transparency," Ihde's practical description of Heideggerian withdraw, in both its embodied and hermeneutic dimensions.

Ihde's contributions to the phenomenology of sound continue into his philosophy of technology. He brings these insights to everything from electronic instrumentation to sonar tomography, and such explorations are featured across his work, but most centrally in his 2007 expanded second edition of *Listening and Voice* and his 2015 book *Acoustic Technics*. In chapter 7, here entitled "Auditory Technologies," we see an example of this work in the articulation of the experience of hearing aid technologies. Ihde is himself a longtime wearer of these devices, so he builds his account on years of personal experience.

Another central feature of Ihde's philosophy of technology has been his critique of the work of Martin Heidegger. Heidegger serves as both inspiration and foil for so much of Ihde's writing throughout his career, and these analyses culminate in his 2010 book Heidegger's Technologies. On the one hand, the fingerprints of Heidegger's thought can be lifted from virtually every surface around the scene of Ihde's philosophy; quite a bit of Ihde's work can be understood as appropriations and modifications of Heidegger's insights, extracting them from their particular Heideggerian metaphysical context, and developing them into tools for the practical description of human-technology relations. On the other hand, Heidegger serves as a constant point of critique for his allegedly totalizing and dystopian account of technology. Chapter 8, entitled here "The Critique of Heidegger" and selected from his 1993 book Postphenomenology: Essays in the Postmodern Context, is one of Ihde's most influential pieces in this line of criticism and includes his parody of Heidegger's classic account of the ancient Greek temple, as Ihde recounts his own experience of viewing nuclear reactor buildings while sailing the Long Island Sound.

As mentioned, another centerpiece notion within the postphenomenological framework of concepts that Ihde has developed is the idea of "multistability." We've seen this above as it had emerged within his account of the variability of human vision and then developed into his conception of our relationships with technology. In chapter 9, entitled "Multistability and Cultural Context" and selected from *Consequences of Phenomenology*, Ihde further explores these kinds of variabilities as technologies develop differently on different parts of the globe. As Ihde reflects on his own preconceptions, we are prompted to think not only on the relativity of technology, but also on Eurocentrism in the philosophy of technology. This chapter also includes his "whole earth measurements" framing perspective, a rhetorical device he has often revisited.

Chapter 10, "The Designer Fallacy," continues these reflections on technological multistability and expands the rhetorical and practical potential of this notion. This chapter, from his 1999 article "Technology and Prognostic Predicaments," is another that I believe to be an underrecognized gem of his corpus, and one that I have come to regularly teach to undergraduate engineering students. This piece contains versions of a number of influential ideas that appear throughout his work, including his warnings against overconfident predictions about technological development, some practical advice for those in design and in the philosophy of technology, and his urging for philosophers to play a stronger role in the development stage of technology (rather than merely engage in after-the-fact technology assessment). It also contains his notion of the "designer fallacy." Making a connection to the intentional fallacy in literary studies, this is his term for the fallacious assumption that a technology will be taken up by users (and will continue to be developed into the future) all along the lines of its designer's expectations.

Part 3: The Phenomenology of Science

Ihde's philosophical reflections on technology continue into an account of the roles of instrumental materiality within scientific practice and epistemology. Through an analysis of the phenomenology of the experience of laboratory instrument usage, he shows the distinct contributions that can be made to both on-the-ground science and the philosophy of science.

Of the canonical phenomenologists, Edmund Husserl was most deeply concerned about issues of epistemology and science. As with his relationship to Heidegger, throughout his career Ihde both builds on Husserl's ideas and uses the figure of Husserl as a constant point of contrast. This fraught relationship culminates in his 2016 book *Husserl's Missing Technologies*. Here in Chapter 11, "The Critique of Husserl," we see another example of Ihde's reevaluation of canonical phenomenology in terms of issues of technology, this time with regard to scientific history and practice. This chapter comes

from a 2011 article entitled "Husserl's Galileo Needed a Telescope!," in which Husserl's phenomenological epistemology is taken to task for its alleged lack of engagement with the materiality of scientific practice.

Chapter 12, "Technology Leads Science," selected from his 1983 book Existential Technics, continues this line of thinking on the materiality of instrumentation. Where a common understanding may regard technology to merely be a form of applied science, Ihde follows Heidegger in reversing the order. According to Ihde, lines of technological development (such as the continued refinement of, say, microscopes to see smaller and smaller things) provides a major direction of scientific advancement. This idea undermines any account of science as something that moves forward only through theory development and testing. This chapter includes an early version of Ihde's case study of the contrast between seagoing navigation techniques developed within different cultures, one that he would continue to draw on in later works.

Another way that Ihde has followed out this line of thinking is through the development of the notion of "epistemology engines," that is, technological metaphors that guide scientific, philosophical, and design thinking. While the computer may play such a role today (serving as a guiding metaphor for everything from human thought to the genetic code), Ihde conducts a case study of the history of what he argues is one of the most central epistemology engines in Western history: the camera obscura. Ihde shows in detail how this device guided thought about human perception, the mind, scientific methodology, and the specifics of scientific experimentation. Chapter 13, "Epistemology Engines and the Camera Obscura," comes from one example of Ihde's continuing studies of this device, a 2008 book chapter entitled "Art Precedes Science: Or Did the *Camera Obscura* Invent Modern Science?"

Chapter 14, "The Phenomenology of Scientific Imaging," presents some of Ihde's most detailed and influential ideas regarding the phenomenology of scientific instrumentation: his analysis of laboratory imaging. In ideas taken up by a generation of philosophers and anthropologists studying scientific practice, Ihde has made the topic of imaging one of his career's central points of fascination.³ This chapter comes out of two from his 1998 book *Expanding Hermeneutics: Visualism in Science*, the final third of which he has referred to as a "minimonograph" on this theme. This work involves a detailed phenomenology of the hermeneutic and gestalt experience of scientists' perception of meaning within images. And Ihde follows out the implications for both practical issues of scientific praxis and philosophical issues of scientific realism.

The project of putting together this volume has been something of a labor of love. More than just the expected tasks of selecting pieces, reformatting, and chasing down permissions, this has been a job of wrestling with word processing. The original computer files for these pieces are simply unavailable. So the task of getting these texts into this volume often involved physically scanning them from the printed books, and then translating the digital text from those scans, a process that inevitably introduced all manner of errors and gobbledygook in need of fixing—slowly, line by line—original texts in-hand. (Surely a more tech savvy person could have developed a better process. But this is what I had available.) I am happy to do it. Ihde's works, as well as his mentorship and our close friendship, have meant so much to me and my life as a scholar. I hope this volume can help others to find joy and excitement in their own work.

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