An Introductory Essay: A Framework for Understanding Philosophical Controversies

When I wrote my *Dictionary of Concepts in the Philosophy of Science* (1988), for a Greenwood Press series edited by Raymond McInnis, I did my best to keep the tone evenhanded and encyclopedic. So when I volunteered—over a decade ago—to do a follow-up on philosophy of technology, I thought I could do the same. But my reason for volunteering in the first place was my long involvement with the Society for Philosophy and Technology as editor of most of its publications up to that time. Now that very reason seems to me to be an obstacle to keeping myself out of the controversies I talk about. I have an opinion on the work of every philosopher of technology I discuss here, and it now seems to me highly artificial to try to keep my opinions out of the story. So I won't. I will still try to be fair to the defenders of the viewpoints I talk about, but I won't hide my opinions, including my disagreements with particular philosophers where I have disagreements. In at least some of my accounts of controversies, I will join right in.

That is also why I have chosen an essay format for the book, rather than the encyclopedic style I felt constrained to use in the earlier book. This book looks at discourse within the community of philosophers who have taken technology and particular technologies as the focus of their analyses (or syntheses)—preeminently in the Society for Philosophy and Technology, and mostly in the United States, beginning around 1975. It is primarily to them that I address the book—though in the end I will argue that our disagreements have broader implications than we may have thought about, consciously, as we were engaging one another in our intramural disagreements within SPT.

My perspective throughout the book—in studied contrast to the proposal of Raymond McInnis (see his *Discourse Synthesis: Studies in Historical and Contemporary Social Epistemology,* 2001), that disciplines coalesce around what McInnis calls "discourse syntheses"—is to focus on the *disagreements* with other authors that show up in each philosopher's body of work.

To make this fly, I mention briefly McInnis's key idea, that knowledge communities—preeminently science communities but others as well—work toward a *consensus* on what constitutes genuine knowledge in (and the goals of) a given field. This includes not only key concepts but methods and values, respect for the community, and so on. And knowledge communities, according

to McInnis, have since the seventeenth century assumed that valid knowledge, especially scientific knowledge, is *cumulative*. There has also been a persistent claim, since Francis Bacon, that knowledge is power, and that power to control nature leads to social improvement. *How* knowledge becomes cumulative or progressive (at least internally, within the disciplines) is what synthesizing amounts to.

My Project

Many philosophers of technology within the SPT community have worried more about impacts outside academia than they have about cumulativeness (or not) within the academic community. By the end of the book I think the reader will see that at least for a significant part of philosophy of technology some philosophers at least *claim* to be able to help solve sociotechnical problems of our technological culture—although, as we will see, individual philosophers follow different paths toward this common goal. Some even think it can best be achieved through improvements in the status of the discipline within academia. This issue, of the social utility (or lack thereof) of philosophy, has been around almost since the beginning of philosophy in the Western tradition. In my view, it has been one core issue within the SPT community throughout its short 30-year history. There are, moreover, a number of other key issues that will show up in these pages again and again. It is my hope that this book will show that—in opposition to many critics of the philosophy of technology (and as we will see there are many)—the discipline (and I do not, at least not yet, call it an academic field) has much to offer that will be of interest not only to the broader community of philosophers but also to our culture.

Returning to the question of a consensus or not within the field, since Thomas Kuhn's *Structure of Scientific Revolutions* (1962), the supposed cumulativeness even of science has come under attack. Parallel with this development there arose another concern, about whether the scientific disciplines and their supposed offshoots in technological development were in fact making the world better. Critics, indeed, pointed to how they were making the world, including the environment, worse. All of this has culminated in so-called postmodernist or social-constructionist attacks on the hegemony of science in modern culture.

Obviously I am more sympathetic toward this viewpoint, or set of viewpoints, than I think McInnis is—though he did include in the 2001 volume a contribution by Steve Fuller, who is one of the leading social constructionists. What I offer in

this booklength essay may not be exactly constructionism, but it is definitely a pluralism. I wouldn't even dream of saying at this point what the consensus is among philosophers of technology—I leave the question open for the moment whether there is a consensus—within the field in general or within any particular group of philosophers of technology. But I must admit from the outset that among the earliest intellectuals calling themselves philosophers of technology there were many critics who were convinced that technology is, on balance, bad rather than good for our technological society. This is the grain of truth that lends weight to criticisms of the field as a whole. But I hope to show convincingly that it is by no means the whole story.

Some key texts with which to situate ourselves within what I have called a "philosophy of technology/philosophy and technology" discourse seem to me to be Randall Collins's *The Sociology of Philosophies: A Global Theory of Intellectual Change* (1998). There, as I do here, Collins focuses on controversies, covering an amazing range from the Greeks through various controversies within and among philosophical schools in both Western and non-Western societies up to the early twentieth century in the USA. Collins's focus is distinctly on *intellectual* change rather than on social change.

Nicholas Mullins's *Theories and Theory Groups in Contemporary American Sociology* (1973) is closer to McInnis; at the same time Mullins emphasizes that in the sociology of the middle part of the twentieth century there was not one dominant discourse synthesis but several. So his book is decidedly *pluralist*.

And of course we should not forget McInnis himself (2001). In his book, McInnis not only lays out his basic idea but introduces a series of other people's takes on the discourse synthesis idea in different fields—including a contribution I wrote on the place of encyclopedias in the history of discourse syntheses. However, McInnis is also pluralist, in the sense that he emphasizes *local* syntheses rather than any grand synthesis even in a single field such as philosophy or sociology—though, like Collins, his interests are primarily *intellectual*.

Against this background I place three books addressed to the issue of a community of philosophers "of" or "and" technology: Carl Mitcham's *Thinking through Technology* (1994) I view here as a premature attempt at synthesis. We will see that what he seeks is a metaphysical synthesis, which, if at all, could lead to social reform only in the long run.

My edited volume in the Philosophy and Technology (Kluwer) series, *Philosophy and Technology*, volume 7*: Broad and Narrow Interpretations of Philosophy of Technology* (1990), summarizes some of the problems of the would-be field in the middle period. And one of the chief problems I talk about is based on the claim of some philosophers in the field who wanted at all costs to *keep it from* becoming an academic subspecialty.

Finally in this connection, editors Higgs, Light, and Strong in *Technology and the Good Life?* (2000) make a strong case that there is a good candidate to become the beginning of a *new academic field*, specifically in the writings of Albert Borgmann and reactions to them. Their concern is obviously academic, but many things they say in defending the new venture suggest that they want it to spread its concerns to other areas of public interest, possibly including social reform, as the title might suggest.

Returning to my book, this book—which was supposed to focus on concepts in the philosophy of/and technology—in my mind it was always *conceptual issues* that I wanted to focus on, and in our field one key issue has had to do with arguments over whether or not, and to what extent, it ought to be academic.

I have also now come to depend heavily on sketches—sketches of *intellectual disagreements* rather than personal sketches—which is why I came to feel more confident, after a slow start, about completing the long-delayed project. Another reason for optimism is that I have limited my scope, both in terms of the time period and in terms of the persons and controversies discussed. The main method will be reviews, not just of one major book but of the body of work of *the central figures in the first 30 years* of the Society for Philosophy and Technology.

Since I claim that discourse synthesis has not—at least not as yet—been achieved among the philosophers studying technology or particular technologies, I need some other organizing principle. Why? Why does one need an organizing principle for a venture of this sort? Well, my initial orientation in philosophy was Aristotelian (though I now consider myself a pragmatist following in the footsteps of the major figures in American Pragmatism, especially John Dewey and G.H. Mead). In an Aristotelian approach, especially an Aristotelian encyclopedic approach, it is thought to be important to lay out a framework within which to view intellectual controversies in any field of philosophy, from metaphysics to the philosophy of art. This is partly for teaching purposes, to help

people who are new to a field to orient themselves when they are just beginning. But it also has an intellectual purpose: in order to understand where people are coming from (in that hackneyed phrase) when they attack one another, it is helpful to have a list of *places*, a road map so to speak, to identify various "wheres," and sometimes even to predict where attacks are likely to come from or against whom they are likely to be addressed. The best-known spokesman and utilizer of this Aristotelian approach was Mortimer Adler, not only in *The Great Books of the Western World*, including volumes 2 and 3, *The Great Ideas of the Western World*, but also in the *Propaedia* included within *The Encyclopedia Britannica* in recent decades. Adler and a group of co-workers also produced a series of concept volumes, including for example *The Idea of Freedom*, in which they also arranged controversies against a background or framework.

My framework is in this Adlerian tradition, though less grandiose. I simply let philosophers who study technology identify their own positions within a broad framework, spelled out by the philosophers themselves as they engage in controversies with other philosophers. Details of this broad framework I save for a concluding essay at the end of my book. But I can say for now that defenders of one or another approach identify themselves by their opposition to (at least one of) the other approaches. (Collins also says philosophers identify themselves in terms of their opponents, though he apparently felt no need for a framework.)

Some early hints of my approach can be found in a Society for Philosophy and Technology publication (see Cuello and Durbin in *Techné 1:1* http://spt.org/journal). Cesar Cuello and I included a note on methodology. We said that making explicit the methodology used in discovering the underlying assumptions of parties to sustainability debates in environmental philosophy can move us toward links with the philosophy of technology. Knowing the risks, we nonetheless utilized the scheme of Walter Watson in *The Architectonics of Meaning: Foundations of the New Pluralism* (1985). We certainly did not endorse the exaggerated claim (on that book's cover) that Watson has devised "the first truly useful taxonomy of all ideas," but, stripped of such bloated claims, Watson's book offers an interesting hermeneutic, and one should note his keyword is "pluralism."

I am going to deal with these ideas at slightly greater length in the essay at the end of the book, but here I summarize Watson's view, that every author or public speaker, in *any* discipline or field, betrays his or her philosophical assumptions by differentially utilizing the four necessary components of any piece of

literature:

> author's *perspective* (which may be entirely personal or that of a tradition and may be hidden even from the author);
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> *objects* discussed;
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> the text itself, and especially the *methods* that link items to one another; and
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> the goals or *principles* (ideals, values, etc.) that drive or motivate the text, which almost always reflect sets of background assumptions, such as the cultural values influencing both individual authors and intellectual traditions.

According to Watson, authors or speakers who stress objectivity above the other three components employ a *scientific* writing style (though that is not Watson's term for it). They tend also to use logical methods, invoke *reductionistic* aims, and try to avoid values as much as possible. Authors, on the other hand, who consciously stress values and see the objects of their discourse as this-worldly shadows of otherworldly realities—typically linking the two by a method explicitly referred to as *dialectical*—Watson links to Plato. These *idealist* philosophers (using the term in a loose sense) tend to emphasize comprehensiveness, and often disparage narrow technical scientific knowledge. Authors who stress method and discipline (in the school subject matter or *professional discipline* sense), and who emphasize the pigeonholing of objects within large *encyclopedic* schemes, Watson links to Aristotle.

The fourth perspective requires elaboration. A significant feature of Watson's scheme, (which represents a break with his mentors, especially Richard McKeon), is his recognition of this fourth basic group. Authors in the group emphasize their own subjective *perspective*, their own *creativity*, as an end in itself. In terms of method, they often tend to be anti-methodical, to utilize any means that will move the narrative (story, drama, etc.) along. Watson links this group to the Greek Sophist Protagoras (for whom humans are "the measure of all things"), and defends this as a philosophical perspective fully parallel with the other three.

Finally, it should be noted that Watson acknowledges that the four basic groups

do not exhaust the stylistic field; many authors combine modalities. For example, as Watson recognizes, almost all the great philosophers of the modern period, after Descartes, have tended to use hybrid styles. Even so, a hybrid style is recognizable—Watson thinks—as a joint use of two or more of the four basic styles. (For sample hybrid styles, see Watson's index, beginning with Descartes.)

This is a hasty account—maybe even more idiosyncratic than Watson's own—of an enormously complicated scheme. But it may be enough to suggest that a hermeneutic approach, roughly along Watsonian lines, can help discover philosophical presuppositions implicit in the language used in *philosophical debates*. However, where Watson's aim seems to be Aristotelian, (to pigeonhole authors), Cuello and I called our aim (in Watson's terms) *creative*. We wanted to *let the authors have their own say* about what it is they want to emphasize in the sustainability debate.

Cuello and I went on to attempt to figure out the mostly implicit philosophies of technology latent in recent controversies over the meaning of the slogan "sustainable development." I am recommending the same approach here for all the controversies among philosophers of technology that I take up in this book.

Whatever the merits of this scheme, here is some concrete background for my analysis in this book:

a. Collins, agreeing with Mead, says that people *define themselves* through interactions with others; here that means that philosophers define themselves by their disagreements with other philosophers. No one should ever put people—especially not philosophers—in boxes. If one insists, they can be viewed as doing that themselves, at least implicitly, when they take on particular opponents.

b. In a controversy-based framework like Watson's, there would be hundreds of philosophers in each quadrant, indeed hundreds of very independent thinkers with idiosyncratic opinions. If you count all the philosophers in all the universities and philosophical societies just in the USA, not to mention philosophers who work in non-university settings in education, government, and industry, as well as totally independent thinkers such as professional writers, then the total comes to more than 100,000. In round numbers, that *could* mean upwards of 25,000 very

independent thinkers in each quadrant, each ferociously resisting pigeonholing, and opposing other approaches. (Obviously in a small field such as philosophy of technology there are far fewer in each quadrant, but the point is to avoid pigeonholing even small numbers of cantankerous philosophers.)

c. Just like anyone else in a dynamic real-world environment, philosophers change their views, especially as they take on new opponents. Any grid should be used in a fluid and dynamic way.

Even with all these qualifications, we must still be careful. If we are, it seems to me not only helpful but possibly even necessary to have some sort of framework for analysis, if only to preserve one's sanity or to get a useable book before the public.

Now for a preliminary outline of the book—based on a list of presidents of SPT and other philosophers associated with the group, including more or less regular attendees at society meetings—here is my outline by parts:

Part 1. Philosophers of Technology Move Away from Philosophy of Science.

This focuses on the first four presidents of SPT (Carl Mitcham, Alex Michalos, Kristin Shrader-Frechette, and Marx Wartofsky, along with early board member Edmund Byrne), and outsiders (though they too attended SPT meetings) such as Joseph Agassi and Joseph Margolis. Mario Bunge did not attend any meetings, but was a supporter from a distance.

Part 2. The Field Refuses to Jell.

This covers presidents Joe Pitt to myself, and includes many board members and meeting attendees, from Andrew Feenberg to Frederick Ferre; the exception is Steven Goldman, but even he has been a frequent contributor to SPT publications. Full list: Joe Pitt, Don Ihde, Langdon Winner, Andrew Feenberg, Jose Sanmartin, Larry Hickman, Goldman, Ferre, Donald Verene, Alois Huning representing international contacts, and myself.

Part 3. Attempts to Establish an Academic Discipline.

I start this with Higgs, Light, and Strong in the Borgmann festschrift volume,

because it claims to start a new discipline. I then include a chapter on our colleagues in the Netherlands, who also tend to think in disciplinary terms. I then loop back to Deborah Johnson, with her focus on ethics in engineering and computer science. This is followed by a chapter featuring the next SPT president, Andrew Light (of the new-discipline claim, above) and the important work of some philosophers of technology in environmental philosophy. Next I look at someone who has never been connected with SPT, Sheldon Krimsky, because of the importance today of controversies over biotechnologies of all kinds. Paul Thompson, who specializes in biotechnology in agriculture, comes next. Someone might argue that each of these sets of controversies amounts to (or could or should in the future amount to) one of a set of subspecialties in the philosophy of technology. Then I take up a less well-known topic that I feel is both important and neglected: what Larry Hickman and Andrew Light call "quotidian" technologies, especially films or the movies, but including as well other topics often missing in the "elevated" SPT discourse. Finally, I end with challenges to disciplines of all kinds, in "social constructionism" and/or postmodernism, where longtime SPT member Raphael Sassower has been the society's most vociferous spokesperson, and where I will also include fellow-traveler Steve Cutcliffe, a historian of technology, who has ably summarized the Science, Technology, and Society part of this attack on academicism.

Note on quotation styles: in putting together this book: I have shamelessly used three kinds of sources, in addition to normal quoting. I believe that is almost essential in an account of this type.

As for "normal" quoting:

1. I violate a number of rules (e.g., in *The Chicago Manual of Style*) about the length of quotations that are permissible. In general, I will use quotation marks, rather than blocked quotes, for such material. Where I thought it necessary, I have sought permission from the publishers of the material.

2. The really difficult problem, however, comes with my use of material I have published elsewhere. For material I have published previously I follow the normal conventions in number 1, above—including seeking permission where necessary—except that I do not put the material in quotes. Even though not written expressly for this volume, the words are all my own.

3. For material quoted at length from SPT publications, whether or not I was the editor of a particular volume, I have received special permission from those who hold SPT copyrights.

Permissions and Acknowledgements

Because I have used so much material here that was not written specifically for this volume, I need to address acknowledgment and permissions issues. I can do so chapter by chapter. In Chapter 1, the only extensive quoting is from a review I did of Carl Mitcham's *Thinking through Technology: The Path between Engineering and Philosophy* (1994); the review appeared in a Canadian journal, *Philosophy in Review*, June 1997. I acknowledge that source but do not need permission for my own work. In Chapter 2, I had some difficulty getting permission from the publisher, Free Press, for the long Alex Michalos quote from my edited volume, *A Guide to the Culture of Science, Technology, and Medicine* (1980, 1984), so Michalos redid that material especially for this volume. I thank him and acknowledge Free Press as the original source. In Chapter 3, I used a translation of my own review essay, in Spanish, in *Isegoria*, October 1995, of three books by Kristen Shrader-Frechette. In Chapter 4, I use a long quote, on the persistence of Marxism after the collapse of the Soviet Union, from my book, *Social Responsibility in Science, Technology, and Medicine* (1992). In Chapter 5, I use a relatively short quote from Mario Bunge's *Treatise on Basic Philosophy*, volume 7 (Reidel, 1985). In Chapter 6, I use a long and complicated quote from Joseph Margolis that appeared originally in volume 5 of the Philosophy and Technology series, entitled *Technological Transformation: Contextual and Conceptual Implications* (Kluwer [now Springer], 1989) edited by Edmund Byrne and Joseph Pitt. I was the general editor for that volume, and Joseph Pitt has added his permission to use the material in his capacity as co-editor; I acknowledge Kluwer as the original publisher. In Chapter 7, I use a similar long and complicated quote from Joseph Agassi that appeared in volume 1 of *Research in Philosophy and Technology* (JAI Press [now Elsevier], 1978), which I edited; I acknowledge JAI Press as the original source. For Chapter 8, I used a long quotation, reviewing Edmund Byrne's *Work, Inc.* (1990), from my *Social Responsibility in Science, Technology, and Medicine.* In Chapter 9, the only quote needing acknowledgment is a short one, from Joseph Pitt's *Thinking about Technology: Foundations of the Philosophy of Technology* (Seven Bridges, 2000). In Chapter 10, I acknowledge Paragon House for permission to use several quotes from Don Ihde's *Philosophy of Technology: An Introduction*

(1993). In Chapter 11, I used material from my *Social Responsibility in Science, Technology, and Medicine* to review the work of Langdon Winner. In Chapter 12, I acknowledge permission from Sage Publications to use a long and complicated quote from a review in *Science, Technology, & Human Values* by Andrew Feenberg in a book by Sandra Harding. In Chapter 13, I have permission from Carl Mitcham, editor of the volume and author of the material quoted, to use a quote from the introduction to his *Philosophy and Technology in Spanish Speaking Countries* (Kluwer [Elsevier], 1993); I acknowledge Kluwer as the original publisher. In Chapter 14, a couple of longish quotes of material on Larry Hickman come from *Techné* (7:1, Spring 2003), a number that I edited. In Chapters 15, 16, and 17, there are no quotations long enough to require permission. In Chapter 18, I used material reviewing the work of Albert Borgmann from two of my publications, *Social Responsibility in Science, Technology, and Medicine*, and a contribution I made to *Technology and the Good Life?* edited by Higgs, Light, and Strong (University of Chicago, 2000). In Chapter 19, I use Pieter Tijmes's "Preface: Dutch Chandeliers of Philosophy of Technology," from *Techné* (3:1, Fall 1997), and a review I did of Hans Achterhuis's *American Philosophy of Technology* (2001), which appeared in *Metaphilosophy* (35:4, July 2004). In Chapter 20, I use a long quote from an article I wrote for the *Bulletin of Science, Technology, and Society.* In Chapter 21, there are no quotes requiring permission or acknowledgment. In Chapter 22, Praeger kindly gave permission for a long quote from Sheldon Krimsky's *Bioethics and Society* (1991). For the long quotations from Paul Thompson's *Agricultural Ethics* (Iowa State University Press, now Blackwell, 1998) in Chapter 23, I had to pay Blackwell. There are no quotes requiring permission in Chapter 24. Finally, for Chapter 25, I received permission from Rowman & Littlefield to use material from Stephen Cutcliffe's *Ideas, Machines, and Values: An Introduction to Science, Technology, and Society Studies* (2000).

Specific page references and acknowledgments are made in the text, not only for quotes requiring permission but also for quotes falling within the guidelines of the *Chicago Manual of Style* for scholarly quotation.