Christopher B. Barnett

KIERKEGAARD
and the Question Concerning
TECHNOLOGY

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And at the touch of Love everyone becomes a poet.

Plato, *Symposium*

FOR LUKE, CALEB, PAUL, AND MONICA GRACE

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Preface

Overview of the philosophy of technology

The philosophy of technology has grown steadily since its inception, although its development has hardly proceeded in linear fashion. Carl Mitcham traces the field's origin at least as far back as Robert Boyle (1627–91) and Isaac Newton (1642–1727), who sought to understand the world in terms of the principles of mechanics.[1] Yet, it was not until the latter half of the nineteenth century that the philosophy of technology as such began to emerge. A key thinker in this regard was Ernst Kapp (1808–96), who, like Karl Marx, sought to understand technology in terms of Left-Hegelian materialism. In fact, Kapp coined the phrase *Philosophie der Technik*,[2] which became popular in Germanophone scholarship, particularly among those interested in what Mitcham calls "engineering-philosophy discussions."[3] Still, it would be another century before the term became commonplace outside of Germany.[4]

That is not to say, however, that the philosophy of technology lay dormant until the 1980s. On the contrary, the discipline had already pressed into the academic mainstream in the mid-twentieth century, albeit under the guise of phenomenology and existentialism—a point to which this study will return. Moreover, by the 1970s, "there began to be a proliferation of publications"[5] on the subject, and this shift was followed by the formation of the Society for Philosophy and Technology in the United States. Monographs were soon to follow, including Langdon Winner's *Autonomous Technology: Technics-out-of-Control as a Theme in Political Thought* (1977), Don Ihde's *Technics and Praxis: A Philosophy of Technology* (1979), and Albert Borgmann's *Technology and the Character of Contemporary Life* (1984).

At this stage, the philosophy of technology largely received its orientation from "six forefathers": Martin Heidegger, Lewis Mumford, Jacques Ellul, Hans Jonas, Günther Anders, and Arnold Gehlen.[6] In this group, Heidegger loomed largest, not only due to his reputation as one of the seminal philosophers of the twentieth century but also due to his influence on subsequent thinkers concerned with technology, such as Borgmann, Hubert Dreyfus, and Andrew Feenberg. Though not exactly forming a "school," these forefathers nevertheless held two basic traits in common: (i) a preoccupation with the "historical and *transcendental* conditions that made modern technology possible" and (ii) an ostensible, if not necessarily explicit, desire to "return to some prior, seemingly more harmonious and idyllic [relationship] . . . between nature and culture."[7] In other words, the philosophy of technology emerged as a discipline "interested in technology writ large,"[8] placing particular emphasis on how technology has come to shape modern society, often in detrimental fashion.

Over time, however, the forefathers of the philosophy of technology have exercised diminishing influence on their field. Ihde argues that the trend is now toward "a more

pragmatic, more empirical, and more concrete approach to technologies."[9] Such an approach, he adds, improves upon the work of Heidegger and his peers, precisely to the extent that it eschews metaphysical concerns about the "essence" of technology and, instead, attends to "the differing contexts and multidimensionalities of technologies."[10] Doubtless this change reflects, at least to some extent, the so-called "end of metaphysics," which, in the postmodern, postindustrial West, underlies discourse in economics, education, and politics. But Ihde sees a shift in technology itself, which is increasingly moving away from "mega-machine industrial technologies" and toward "micro-processes that include *nano*-, *info*-, *bio*-, and *genetic* technologies."[11] The upshot, he suggests, is something new—namely, technological innovation that seems to resist the dystopian analyses characteristic of much early philosophy of technology. As Ihde puts it, "Philosophies of technology need to renew themselves constantly, just as the technologies themselves change."[12]

Still, Ihde's distinction between "older" and "newer" technologies not only points forward to the evolution of the philosophy of technology but also points backward to a fissure in the very foundation of the discipline. For the phrase "philosophy of technology" itself bears different meanings. On the one hand, when the words "of technology" are taken to indicate "the subject or agent," the philosophy of technology might be seen as "an attempt by technologists or engineers to elaborate a technological philosophy."[13] On the other hand, when "of technology" is taken to indicate "a theme being dealt with," the philosophy of technology is better understood as "an effort by scholars from the humanities . . . to take technology seriously as a theme for disciplined reflection."[14] For Mitcham, the former approach is "more pro-technology and analytic,"[15] promoting a "general philosophical elaboration and social application of the engineering attitude toward the world."[16] In contrast, the latter approach is "more critical and interpretive,"[17] often finding expression in "attempts to defend the fundamental idea of the primacy of the nontechnical."[18]

With these distinctions in mind, Ihde's claim that the philosophy of technology is leaving behind older metaphysical concerns seems shortsighted, if not downright erroneous. That is to say, Ihde is doubtless right that, at present, the engineering philosophy of technology is undergoing a resurgence, not least due to the cultural-cum-technological reasons adduced above. Nevertheless, whether or not this resurgence will last, or whether or not it is the best way to approach technology, remains an open question. After all, the so-called "humanities philosophy of technology" is grounded in the very rudiments of human experience—namely, the attempt to understand the nature and purpose of things "in sacred myth, in poetry, and in philosophic discourse."[19] It is hardly necessary, then, that technology be evaluated solely (or even primarily) in terms of its technical features, and it would seem self-evident that "non- or transtechnological perspectives"[20] offer valuable ways of considering technology's place in human society. Moreover, it may even be the case that non-technological thinking stands as a "balance to an over-rationalized, over-managed form of life that becomes distorted and oppressive precisely to the extent that it is unable to allow any other 'take' on reality than its own."[21] Indeed, might not Ihde's call to move on from the ostensibly antiquated views of Heidegger (and others) be seen as an effort, however

nascent, to foreclose on the kind of thinking that resists the totalizing grasp of efficient reason and yet longs for a "horizon of promise"[22] beyond what human beings can build or know? Would it not be valuable, then, to keep such a horizon open, to persevere in asking questions that refrain from treating the world in reductive fashion? Such, at any rate, are the kinds of questions that this book hopes to ask, chiefly in and through the thought of Søren Kierkegaard.

Kierkegaard's relation to the philosophy of technology

At the outset, it should be said that the basic purpose of this text—namely, to explore the relationship between Kierkegaard's thinking and the question concerning technology—falls squarely within the camp of the "humanities philosophy of technology." So, for those who have renounced such an approach, it may not be of much interest, except perhaps as a chronicle of a now-outmoded way of confronting the subject matter. Nor will it likely appeal to those who believe that *theology* has no place in the philosophy of technology, whether because, on the one hand, theology entails the kinds of non-technological concerns that the field is trying to abandon, or because, on the other hand, theology seems to proffer existential "answers" to human problems in a manner that paradoxically corresponds to technical efficiency. And yet, not only does Kierkegaard write about theological topics himself, but his thinking in general and his ideas about technology in particular came to exercise influence on later theologians. Consequently, a project such as this one cannot eschew theological considerations, despite the fact that it is also seeking to engage the philosophy of technology.

This balancing act is, I hope, reflected in the book's title—namely, *Kierkegaard and the Question Concerning Technology*. Of course, this name echoes Heidegger's famous treatise, *Die Frage nach der Technik* (1953), but I have chosen it for thematic purposes too. As will become clear, it is doubtful that Kierkegaard can be considered a "philosopher of technology" in the strict sense of the term. While *technologies* (buses, print media, and so on) turn up a number of times throughout his writings, he rarely employs the abstract term "technology." In other words, Kierkegaard neither directly nor systematically addresses technology but, rather, does so in ad hoc fashion, making an observation here or offering a discursive reflection there. For those who already know Kierkegaard's work, this approach should not come as a surprise. Kierkegaard was a great critic of *das System*, and this opposition to supposedly objective or presuppositionless thinking is manifested in his own literary style, which is alternately pious, painstaking, playful, and polemical—or sometimes all at once. Thus, his thinking about technology cannot be excised from the idiosyncratic nature of his authorship. To the extent that he has something worthwhile to say about technology, he does so precisely as one resistant to addressing the issue in a systematic manner.

It is clear, then, how this book *cannot* proceed. But is there a way forward, given the lack of direct, sustained engagement with technology in Kierkegaard's writings? Here is where the book's title becomes pertinent. For if it is true that Kierkegaard

offers nothing in the way of a methodical response to technology, it is also true that he was aware that the rise of the modern, secular world—a problem with which he was famously concerned—cannot be understood without also attending to the rise of technology. Of course, writing at the midpoint of the nineteenth century, his vantage point on modern technology was far more limited than that of a Heidegger or a Herbert Marcuse: Kierkegaard could not decry the deleterious effects of hydroelectric plants and tourism on natural landscapes,[23] nor could he criticize the military-industrial complex and its promotion of nuclear armament.[24] In other words, there is a real sense in which Kierkegaard encountered modern technology just as it was becoming a "problem" or a subject for philosophical reflection. After all, Kapp's *Baselines of a Philosophy of Technology* (*Grundlinien einer Philosophie der Technik*, 1877)—one of the founding texts of the philosophy of technology—was published over twenty years after Kierkegaard's death. Hence, in the vein of thinkers such as Jean-Jacques Rousseau and Karl Marx, Kierkegaard views technology not as an independent theme but as a component of wider intellectual and social issues. In that regard, Kierkegaard might be said to belong to the *background* of the philosophy of technology, rather than to the discipline as such. Thus, to call this project *Kierkegaard as Philosopher of Technology* (or something along those lines) would be inappropriate on both a historical and a methodological level. The open-ended theme of "questioning" is more suitable to Kierkegaard's actual capacity as an interlocutor with technological issues.

But there are also constructive reasons to think of Kierkegaard's relation to technology in terms of "questioning." In other words, this approach does not just reflect Kierkegaard's abjuration of systematic thinking or the limitations of his sociohistorical *Weltanschauung*; on the contrary, it suggests that questioning itself is of positive value in thinking about technology. Here is where the allusion to Heidegger is especially apt. In his treatise, *Gelassenheit* (1959),[25] published in English as *Discourse on Thinking*, Heidegger argues that the poverty of modern thinking is that it has been reduced to a merely calculative function. That is to say, rather than consider "the meaning which reigns in everything that is,"[26] contemporary thought begins with a set of given conditions and then calculates how they might be put to this or that use. Such calculative thinking is "justified and needed in its own way."[27] However, its supremacy in modernity has entailed a distorted and furious approach to the world. As Heidegger explains, "Calculative thinking computes. It computes ever new, ever more promising and at the same time more economical possibilities. Calculative thinking races from one prospect to the next. Calculative thinking never stops, never collects itself."[28] Thus constituted, calculative thinking abstracts the thinker from existence, effectively bracketing "local" considerations of culture and tradition. Through "modern techniques of communication" and through the "great industrial corporations of the leading countries," this phenomenon has come to affect the whole of Western society, uprooting people from hearth and home (even if, physically, they remain there) and thereby revealing "a different world":

> The world now appears as an object open to the attacks of calculative thought, attacks that nothing is believed able any longer to resist. Nature becomes a gigantic

> gasoline station, an energy source for modern technology and industry. This relation of man to the world as such, [is] in principle a technical one.[29]

With this in mind, Heidegger quotes the American chemist and Nobel laureate, Wendell Meredith Stanley (1904–71), who predicted that soon "life will be placed in the hands of the chemist who will be able to synthesize, split and change living substance at will."[30] This is an unnerving statement, Heidegger adds, but even more unnerving is "our being unprepared for this transformation."[31]

What response, then, does Heidegger recommend? His answer is famously elliptical—and more will be said about Heidegger as this book unfolds—but it is perhaps best summed up by the phrase "meditative thinking."[32] This is precisely the sort of thinking that has lost purchase in the technologized West, for it is seen as "floating unaware above reality," profiting "nothing in carrying out practical affairs."[33] And yet, says Heidegger, such assumptions refuse to acknowledge the essence of human nature, namely, that "man is a *thinking* . . . a *meditating* being."[34] Moreover, calculative thinking often mischaracterizes meditation, which does not position one above reality but, rather, directs one to "that which concerns us, each one of us, here and now; here, on this patch of home ground; now, in the present hour of history."[35] To attend to "what lies close" is to root oneself in reality, and it is from this "rootedness" that a free relation to technology is made possible.[36] In other words, when one thinks meditatively, one is able to attend to "that which shows itself and at the same time withdraws," to focus on "the mystery" that permeates all of life, including technology.[37] Borrowing from German mystics such as Meister Eckhart (c.1260–c.1328), Heidegger refers to this approach as "*releasement toward things*" (*Gelassenheit zu den Dingen*), because it does not cling to a single way of viewing the world.[38] The one who practices *Gelassenheit*, then, is able to use technology without forgetting that it "remain[s] dependent on something higher."[39] Only in this disposition, which is both a "yes" and a "no" to technology, will a "new ground and foundation" be uncovered, so that human creativity might be revitalized.[40]

As has been noted, Heidegger's approach to technology is not without its detractors. Still, he remains a principal figure in the philosophy of technology, and his insight into the decline of meditative thinking seems almost prescient in the twenty-first century—a point underlined by Nicholas Carr's *The Shallows: What the Internet Is Doing to Our Brains*, nominated for a Pulitzer Prize in 2011, which traces the exacerbation of this problem by the rise of net-based information technologies. Thus, it is not surprising that, according to Richard Rojcewicz, Heidegger's work on technology "remains unsurpassed—indeed, unequalled—in its radicality."[41] If, then, Heidegger's call to ponder or to question technology remains valuable (if not flawless), it makes sense to turn to someone like Kierkegaard, who himself encourages this very mode of thinking. After all, not only does Kierkegaard's authorship delve into topics such as the origin and end of the created world, the essence of human nature, and the question of the good life, but it does so against the backdrop of a modern, technologically determined society. Moreover, as a literary and rhetorical stylist, Kierkegaard writes precisely as one who aims to elicit "reflection," "contemplation," or "meditation." As he explains

in an 1848 journal entry, his task is to foster a "God-fearing reflection" (*Reflexion*), a "simplicity armed with reflection," which, in opposition to the modern subjugation of thought to calculation, seeks to "comprehend that one cannot comprehend."[42] In this undertaking, Kierkegaard's anticipation of Heidegger is unmistakable.[43] Moreover, in his attention to theological concerns in general and to spiritual upbuilding in particular, it might even be said that Kierkegaard offers a richer and more suasive response to modernity's culture of calculation.

The volume's structure

The basic claim of this study is that Kierkegaard's oeuvre is capable of stimulating reflection on the question concerning technology—a thesis that will be developed over six chapters. Chapter 1 will survey technology's development in Western culture, while Chapter 2 will examine the same issue in nineteenth-century Denmark, paying particular attention to those technologies that Kierkegaard would have encountered. Far from being exercises in historical curiosity, these chapters will demonstrate that Kierkegaard lived in a time of immense and varied technological change. Thus, they will properly contextualize many of his sociopolitical concerns, which, as will be argued, cannot be separated from the rise of technology as a dominant force in Danish (and, by extension, Western) society.

Chapters 3 and 4 will explore Kierkegaard's evaluation of technology in the modern world. The former will investigate direct references to technology in Kierkegaard's authorship, whether in his published or unpublished writings, and it will look for issues and/or themes that have a bearing on the philosophy of technology. Here, urbanization and mechanization will prove significant, along with Kierkegaard's recognition that modernity is generally moving toward an objective way of framing the world. Chapter 4, in turn, will focus on what is inarguably Kierkegaard's greatest contribution to thinking about technology—namely, his early critique of information technology. It will be argued that his 1846 text, *A Literary Review*, which is well known for its censure of "the present age," cannot be fully understood without taking into consideration the rise of print media and, with it, the ever-increasing role of information technology. But these considerations will raise an ostensible conflict. After all, Kierkegaard himself was a *user* of print technology—a practice that would appear uncontroversial vis-à-vis his publication of *books* but quickly verges on contradiction as regards his so-called "attack on Christendom," in which Kierkegaard adopts the methods (and message?) of the popular press.

After demonstrating that Kierkegaard wrestled with the question concerning technology, Chapter 5 will seek to apply Kierkegaard's insights to a concrete technological problem—to wit, the rise of Google and its systematic ordering of net-based information. As is well known, Kierkegaard was a great critic of what he saw as the Hegelian project of systematic, objectified knowledge. What this chapter will argue is that Kierkegaard's criticism of Hegelianism is applicable to Google, one of today's most dominant cultural influences. Google is a multinational corporation,

whose eponymous search engine has revolutionized the way in which internet users seek and process information. The company claims to serve the common good, insofar as it renders information more accessible and thus more "useful." But is the systematic collection and distribution of knowledge necessarily beneficial? Drawing on the thought of Kierkegaard, this chapter will argue to the contrary. Specifically, it will show how Google's mission recalls Kierkegaard's concerns about Hegelianism and "the system's" abstraction of knowledge from existence. Moreover, it will demonstrate that, particularly in his upbuilding discourses, Kierkegaard both promotes and fosters an alternative way of seeing or thinking—namely, *Betragtning* ("meditation" or "contemplation"), which centers the existing person and so is propaedeutic to an earnest engagement with reality. In the age of Google, it will be determined, reading Kierkegaard is akin to therapy.

Chapter 6 will conclude this study by pondering the nature of a Kierkegaardian response to modern technology. With this in mind, it will begin by highlighting Kierkegaard's influence on the humanities philosophy of technology in the twentieth century. It is not within the purview of this study to examine this influence in toto, though a few key points will be developed. First, it will be shown that a number of Kierkegaard's insights regarding modern technology influenced the thought of later philosophers—namely, Walter Benjamin, Martin Heidegger, and his onetime student Herbert Marcuse (1898–1971), along with a pair of French philosophers, Gabriel Marcel (1889–1973) and Jacques Ellul (1912–94). While the philosophical consequence of Kierkegaard's writings can hardly be limited to these five authors, it is hoped that this chapter will flesh out some important points of convergence and divergence, thereby stimulating further interest in the Dane's impact on the philosophy of technology.

And yet, it will also be reasoned that Kierkegaard's greatest influence on this question may lie in *theology*.[44] To be sure, the list of twentieth-century theologians who draw on Kierkegaard's authorship and its intellectual-cum-spiritual repercussions is a veritable "Who's Who," including Karl Barth (1886–1968), Henri de Lubac (1896–1991), and Jürgen Moltmann (1926–). However, this chapter will concentrate on three theologians in particular—namely, Romano Guardini (1885–1968), Paul Tillich (1886–1965), and Thomas Merton (1915–68). Not only do Guardini, Tillich, and Merton utilize Kierkegaard in order to formulate a Christian response to technological dominance, but their respective ways of appropriating his legacy represent a classic fissure in Christian thought and practice: is the Christian called to *elevate* fallen society or to *detach* from it? While Guardini and Tillich tend to side with the former perspective, Merton has an unmistakable sympathy for the latter. But Kierkegaard, with his eschatological approach to the subject, was more radical than each of these critics of technology—a point that situates him as a liminal thinker for theologies of technology, though, perhaps, it is just this liminality that makes him valuable.

At this point, it will be clear that Kierkegaard's position over against technological society was largely negative. And yet, as Chapter 5 argued, it may be that Kierkegaard's negativity can be put in service to the good, offering a crucial counterbalance to the blithe endorsements of technology that preponderate today. In short, there is scope for nuance in Kierkegaard's thinking on technology—a fact that should come as

no surprise to anyone familiar with his sophisticated literary style and skill, not to mention his meticulous studies of human existence, the relationship between faith and reason, and so on.

Indeed, if anything, it may be that Kierkegaard's thought is *too* nuanced to link him to any particular "school" in the philosophy of technology. At different points, his oeuvre seems to resemble Christian mysticism, critical theory, expressionist poetry, phenomenology, and Sartrean existentialism—sometimes all in a single volume! Hence, in the end, this treatise will conclude as it started: Kierkegaard's ultimate value as a thinker on technology does not lie in any one "answer" but, rather, in his ability to compel persons to interrogate who they are and how they should relate to others, including those skills and techniques that facilitate their interaction with the world around them—in nuce, to ask the question concerning technology.

Christopher B. Barnett
Cooperstown, New York
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Acknowledgments

Taken as a whole, this book is a new and original work. However, it should be noted that Chapter 5 was previously published in *Kierkegaard's God and the Good Life*, edited by Stephen Minister, J. Aaron Simmons, and Michael Strawser (Bloomington, Indiana: Indiana University Press, 2016), pp. 130–51. I am grateful for permission to reproduce it in this setting.

Finally, before moving on to the book itself, a few words of acknowledgment are in order. I would like to thank my colleagues and students at Villanova University, who provide a stimulating yet hospitable academic environment. I would also like to thank Villanova's College of Liberal Arts and Sciences and Dean Adele Lindenmeyr for granting me a "Research Semester" in fall 2018 to wrap up this years-long project. Special thanks are due to a number of scholars working in the academy and in Kierkegaardiana who have had a hand in the development of this study: Michael Burdett, Andy Burgess, Jack Caputo, Lenny DeLorenzo (and others at the University of Notre Dame's McGrath Institute for Church Life, where I spoke on Kierkegaard in March 2018), Josh Furnal, Jacob Given, David Gouwens, Vincent McCarthy, Stephen Minister, George Pattison, Marcia Robinson, Aaron Simmons, Jon Stewart, and Michael Strawser. Alas, such a list cannot itemize countless scholars who have helped in subtle yet significant ways—whether with a word of encouragement, a provocative question, or simply by listening—but my gratitude remains all the same. Lastly, I am grateful for the interest and support of Haaris Naqvi and everyone at Bloomsbury.

As with all such endeavors, the origins of this project are manifold, ranging from scholarly presentations to pedagogical instruction (I've been regularly teaching a course called "God, Spirituality, and Technology") to film and literature and even to casual conversations with friends at the little-league field. However, there has been no greater impetus than my family—my wife Stacy, who is ever supportive, but especially my children Luke, Caleb, Paul, and Grace. Talking with my kids about technology, about its benefits as well as its dangers, has spurred me to think more deeply about this issue, so that my advice, however unwelcome, will at least be informed! I hope that my own desire to ask the question concerning technology—a desire kindled by Kierkegaard more than any other thinker—will encourage them to do the same. To them, then, I dedicate this book.

Abbreviations for Kierkegaard's Works

Danish[1]

SKS	*Søren Kierkegaards Skrifter* (1997–2013)
Pap.	*Søren Kierkegaards Papirer* (1909–48)

English[2]

CUP1	*Concluding Unscientific Postscript to "Philosophical Fragments,"* Vol. 1 (1992)
EO1	*Either/Or*, Vol. 1 (1987)
EO2	*Either/Or*, Vol. 2 (1987)
EUD	*Eighteen Upbuilding Discourses* (1990)
FT	*Fear and Trembling* (1983)
JP	*Søren Kierkegaard's Journals and Papers*, Vols. 1–7 (1967–78)
KJN	*Kierkegaard's Journals and Notebooks* (2007–)
LD	*Letters and Documents* (1978)
M	*"The Moment" and Late Writings* (1998)
PC	*Practice in Christianity* (1991)
PV	*The Point of View* (1998)
SLW	*Stages on Life's Way* (1988)
SUD	*The Sickness unto Death* (1980)
TD	*Three Discourses on Imagined Occasions* (1993)
UDVS	*Upbuilding Discourses in Various Spirits* (1993)
WA	*Without Authority* (1997)
WL	*Works of Love* (1995)

References to Kierkegaard's Works

Given its subject matter, I hope this book will find a broad audience—scholars and students, to be sure, but also non-specialist readers. Thus, I have made its critical apparatus as straightforward as possible and have tried not to overburden it with footnotes. Quotations from Kierkegaard's published work generally have been taken from the current standard English translations of his work, *Kierkegaard's Writings*, issued by Princeton University Press under the direction of Howard and Edna Hong. On occasion, however, I have elected to provide my own translations of Kierkegaard's writings, and, when appropriate, I have made a note of that decision. Accordingly, the standard Danish edition of Kierkegaard's works, *Søren Kierkegaards Skrifter* (SKS) is also indicated.[1]

Quotations from Kierkegaard's *Nachlaß* have been taken from two places: either *Søren Kierkegaard's Journals and Papers* (JP), the seven-volume set arranged by the Hongs, or the new *Kierkegaard's Journals and Notebooks* (KJN), which is under the general editorship of Bruce H. Kirmmse. As with the published writings, I have cross-referenced the journals and papers to SKS as well,[2] though, in rare instances, I have needed to use the older *Papirer*.[3] In addition, a register of abbreviations has been included, and complete documentary information can be accessed in the Works Cited section.

1

A General History of Technology

In the year 1811—just two years before the birth of Søren Kierkegaard—the population of Denmark was one million.[1] In contrast, the population of England and Wales in 1801 was over nine million[2] and that of France nearing thirty million.[3] Each of those nations would experience remarkable population growth over the course of the nineteenth century, but the Denmark into which Søren Kierkegaard was born was still very much an agricultural nation: "75–85 per cent of this population was rural, with roughly 70 per cent directly engaged in agriculture."[4] The country's lone metropolis was also its capital, Copenhagen, whose 100,000 residents[5] represented but a tenth of London's populace.[6]

On the surface, then, it might seem as if the rise of technology in nineteenth-century Denmark is an inconsequential topic. One might suppose that, to whatever extent there was technological development during that time period, it was a mere byproduct of progress elsewhere in Europe and, furthermore, a negligible force in a country of farmers and fishermen. At the same time, however, one might start with similar premises and reach a different conclusion—namely, that the arrival of modern technology in Denmark was momentous, precisely because it largely came from the outside and therefore unsettled a nation whose social order had changed little since the Middle Ages. Indeed, as will be argued, the latter is much closer to the case. During the first half of the nineteenth century, Denmark was rocked by a series of economic, military, political, and technological changes, so much so that, by the time Kierkegaard died in 1855, it was a far different country than the one he knew as a child. The task of this chapter is to outline these developments, paying special attention to technology. Not only will this topic cast light on the broader context of Kierkegaard's authorship, but it will indicate that Kierkegaard's engagement with the key social questions of his day was inseparable from the question concerning technology.

The task of this chapter is to sketch a general history of technology and, in turn, to clarify a point that many already intuit—that the evolution of world history is bound up with the evolution of technology. "The hand-mill gives you society with the feudal lord; the steam-mill, society with the industrial capitalist,"[7] as Karl Marx famously put it. One need not subscribe to such a reductive view to see that it contains merit. Of particular concern here will be the rise of what is now often referred to as "information technology," which, following Johannes Gutenberg's implementation of movable type printing in 1439, played a decisive factor in Europe's slow but inexorable turn to a "knowledge economy," that is to say, a society centered on "the systematic supply of

knowledge and systematic training in applying it," so that information, rather than material goods, becomes "the central 'factor of production' in an advanced, developed economy."[8] It is critical to survey this development, since, as will be seen, Kierkegaard was principally concerned with information technology or, as he preferred, "the press" (*Pressen*).

Modernity and the ascent of technology

To confront the origins and development of technology is to confront a story of daunting proportions. After all, as John Dyer has commented, the first "technology upgrade"[9] goes back to the very beginning of human civilization—in his example, to God's clothing of Adam and Eve in the Garden of Eden (Gen. 3:21). This suggestion draws on the Bible, but archaeologists agree that the evolution of the genus *Homo* goes hand in hand with that of technology: roughly one million years ago, *Homo erectus* began to develop "sophisticated stone tool technology"[10] in advance of the arrival of *Homo sapiens*, the only extant human species. The archaeological record is based as much on the development of instruments for industry and cooking as it is on biological markers such as cranial capacity.

And yet, even if one moves beyond the abysses of prehistory, there is a surfeit of complications. Questions about the cultural development and expression of various technologies abound. For example, printing, gunpowder, and the compass all have Chinese origins but, at least initially, failed to transform China as they did Western culture.[11] Likewise, a "wave of technology emanating from China and India rolled across the Islamic world of the eighth and ninth centuries AD,"[12] but these innovations were often put in service to Muslim piety. For example, "Indian astronomical tables" were used for *'ilm al-miqat*—a manner of time-keeping by which a muezzin was able "to determine the five daily canonical hours of prayer."[13] Such nuances underscore the fact that there is no simple "history of technology" and, likewise, no universal or culturally neutral way of speaking about "technological progress." What is seen as an advance in one culture may be received as a retrogression in another—a point borne out by ongoing tensions between the Orient and the Occident on the nature and significance of technological development.

Consequently, this survey of the rise of technology will restrict itself to Western culture, with particular attention on the centuries postdating Gutenberg's printing press. This is not to imply that Western technology can be neatly detached from extra-Occidental contexts. And yet, at the same time, a number of characteristics have come to distinguish technology in the West. Keld Nielson summarizes them as follows:

> The ability to extract mechanical energy from fossil fuel through inventions like the steam engine and the internal combustion engine: mass production through the integration of the extraction of raw materials with transport systems, production

> facilities and sophisticated systems of distribution of wares to masses of consumers; the widespread use of technological standards and unified measuring systems; a permanent increase in mechanical precision in tool-making and manufacture; an intimate and active relation to capital and investments; the use of scientific knowledge in the development of products and production methods; and the high priority given to renewal through investments in research and development.[14]

Such features have become so ubiquitous in the West as to seem banal. Right now, as I write this, I am looking out of my office window. Bare maple and birch trees extend over rooftops bearing the last remnants of a recent snowfall; beyond them lies the low, pallid cloud cover of a February morning, which, here and there, reveals patches of pale azure. There are a few animals around as well: a black squirrel (a common species in the northeastern United States) perches on a branch nearby, and a skein of geese fly north and quickly leave my field of vision. This could be an almost timeless scene, but, at second glance, the world described by Nielson above is unmistakable. The squirrel exchanges his branch for a series of wires, which run on a grid throughout the neighborhood. These wires, of course, provide a variety of telecommunication services (electricity, telephone, cable, internet, etc.), and they have been put there by multibillion-dollar corporations such as PECO and Verizon. Moreover, every house that I can see accommodates one or two motorized vehicles—themselves constructed and sold by multibillion-dollar companies—in an adjacent driveway. Farther in the distance, just out of view, runs a two-lane thoroughfare that facilitates a steady flow of traffic, the vast majority of which is powered by large, fuel-burning machines, including commercial trucks carrying sundry goods and even bigger vehicles (buses, in particular) moving people from destination to destination. And, finally, an airplane passes overhead and vanishes into the western horizon. It is an enormous piece of equipment, holding perhaps 200 persons and their belongings, and yet its internal combustion engine is capable of bringing it to a speed of almost 600 miles per hour. Hence, if the flight I'm watching is bound for Chicago, it will make the nearly 700 mile trip from Philadelphia in around 90 minutes—an almost impossibly efficient journey, for which the airplane's owner (another multibillion-dollar corporation) charges hundreds of dollars per ticket—indeed, through an advanced telecommunications system such as a computer website!

A scene such as this one can be observed from most windows in the Western world, and it serves as a précis of the current state of technology in the West. As late as the fourteenth century, Europe was still a predominantly agricultural civilization, whose technological innovation either came from the outside or differed from other cultures "in quantity rather than in essence."[15] Since that time, however, Europe and its Western progeny (North America and Australia, above all) have been transformed into highly mechanized, essentially urban societies, whose fundamental preoccupation lies with the systematic gathering and distribution of goods and services for the sake of monetary profit. The factors leading to this change are profuse, but, broadly speaking, two developments demand particular emphasis: (i) the proliferation of cities oriented toward exchange and (ii) technological innovations stemming therefrom.

The growth of Western urbanization

The great Belgian historian Henri Pirenne famously argued that Europe's development as a distinct continent, led by a number of autonomous (or relatively autonomous) northern cities, can be traced back to the ninth century.[16] The rise of Islam in the East and the threat of Muslim invasion not only legitimized the prevailing Frankish Empire but encouraged it to turn away from the Mediterranean Basin—long the cradle of European civilization—to the "forces of the north."[17] Later in the century, this shift in the balance of power would be reinforced, when the Carolingian Empire was "parcelled out" to "local dynasties"—a move that stabilized Europe and "was, on the whole, beneficial for society."[18] It was at this time that, according to the so-called "Pirenne Thesis," a class of persons dedicated to facilitating commerce between northern Europe's various administrative outposts arose. Eventually these "merchants"—a term derived from the Latin *mercari* ("to trade")—would grow in stature, transcend the limitations of feudal culture, and orient Europe toward an economic system based on the flow of goods, information, and services.

Whether or not one adopts Pirenne's theory in toto, it is nevertheless clear that urbanization—and, with it, an economy "catering to trade and handicraft production"[19]—played a key role in technological development. For example, the clustering of tradespersons in Europe's cities meant that various groups, from guilds of master craftsmen to less cohesive bands of apprentices and laborers, were able to focus on the manufacture and exchange of commercial goods. In turn, "new modes of production involving many steps and division of labor were perfected,"[20] and with increased productivity came increased profits. Thus, "banking systems emerged, making it easier to direct the flow of money toward trade, building and production, and the rising trading companies started to use double-entry bookkeeping."[21]

The success of Europe's burgeoning urban culture, as well as the upsurge of its attendant trading conglomerates, resulted in the establishment of cities abroad. Starting with the Portuguese and the Spanish, European merchants sought to expand their opportunities for trade and, with it, for wealth. Explorers were commissioned not only to espy new territories but also to extricate "commodities and raw materials from around the world."[22] This was the beginning of colonialism, and it resulted in a cycle of technological development: urbanization entailed trade and the technological means by which to trade (goods, transport, etc.); the more these conduits were acquired, the more productivity grew and, along with it, the inevitability of exploration and colonization; yet, in order to facilitate this expansion, more technology was needed, thereby spurring further innovation and urbanization. It is for this reason that Sam Bass Warner, Jr., could argue, albeit with a degree of humor, that "urban history might serve as the focus of an entire liberal arts curriculum,"[23] since the disciplines that are so often identified with Western civilization—namely, the arts and the sciences—should be understood "with explicit reference to the urban dimension where they each intersected."[24] Richard Rodger takes this notion a step further, insisting that cities were

not just *sites* where Western culture was cultivated but, indeed, *participants* in that very cultivation: "The town was not simply the theatre; it was an actor, too."[25]

This notion was vividly displayed during the eighteenth and nineteenth centuries—a period in which Western cities, having grown steadily for centuries, now "skyrocketed."[26] In the words of the contemporaneous English scholar Robert Vaughan, it was "the age of great cities," during which "the world has never been so covered with cities as at the present time, and society generally has never been so leavened with the spirit natural to cities."[27] That rapid technological change also occurred during this epoch was hardly an accident. Industrialization—or the process by which a given society evolves from a predominantly agricultural model to one centered on the production and distribution of goods and services through large-scale technical operations—was one of modernity's "dual revolutions," and it cannot "be understood apart from the story of urban growth."[28] After all, the concurrence of urbanization and industrialization is due to the structure of cities themselves, which function "simultaneously [as] markets, service centers, and sites of production," thereby requiring "strong economic bases."[29] Unlike rural settlements, cities cannot sustain themselves from the land and, therefore, "have to produce something to sell in return for food."[30] It is here that technology becomes almost indistinguishable from the urban project, since technology is a means both to produce and to convey commercial goods, not to mention a commercial good in and of itself.

An example of these interrelationships can be seen in Great Britain. James Watt's steam engine, developed in the latter half of the eighteenth century, made it possible to deliver mechanical power wherever "fuel could be found or imported."[31] This convenience led to the explosion of mining in places such as the West Midlands and Yorkshire, and "with the expanding mines came ramshackle housing, new streets, and shops."[32] Eventually, these settlements "turned into towns, and towns . . . became cities, as industrial development continued."[33] A similar course would transform Glasgow into one of the largest cities in the UK: once a modest town, the steam engine extended Glasgow's textile productivity, and soon the River Clyde was dredged to make room for barges and larger ships. These changes sparked economic growth, and various factories "sprouted up on vacant land in central districts, as workers poured into the city hoping to find jobs."[34] Nor was this pattern unknown in Europe's oldest and most established towns. The number of factory workers in Berlin soared by nearly 300 percent in the first half of the nineteenth century, and ancient cities such as Lyon and Barcelona experienced similar growth.[35] Indeed, it appears that cities already "famous for their artisanal manufacturing made a gradual transition to factory production, using their resources of skilled labor, capital, and marketing savvy."[36]

Overall, then, the influence of urbanization on technological advancement is hard to overestimate. While it is true that entrepreneurs and inventors were largely responsible for the development of various technologies, their ventures were both encouraged by and dependent on the proliferation of urban centers, especially in Europe, for cities made available the basic ingredients of technological growth—transportation, information, and an abundance of skilled labor.

Technological innovation in the "Age of Great Cities"

If technology began to flourish with the rise of European city life, it is also true that specific technical devices tended to emerge from the principles and needs of Christian monasticism, especially in its Benedictine form. Indeed, whereas the earliest Christian monks were located in places such as Syria and Egypt and often led lives of solitary asceticism,[37] Benedict of Nursia's "Rule" reoriented Western monasticism in the sixth century. It was not, admittedly, the very first monastic guidebook. But unlike the preceding "Rules" of Basil the Great and Augustine of Hippo—both of which tended to emphasize the importance of communal living and "love more than obedience"[38]—*The Rule of Saint Benedict* made duty, order, and manual labor central to its mission.[39] As its opening prologue states: "Through the toil of obedience you may return to him from whom you have separated by the sloth of disobedience."[40]

This emphasis on active labor as a component of religious life was "integral to massive technological development," insofar as the Benedictines, in their attention to external matters, "carried with them not merely a new religion but also new practical arts."[41] Already in the twelfth century, Arnold of Bonneval noted that monks were using "waterpowered machines for milling, fulling, tanning, blacksmithing, and other industries," and such developments were independently attested in *De diversis artibus*—a contemporaneous text by a German Benedictine known as Theophilus, who details the "religiously motivated codification of all the skills available for the embellishment of a church."[42] Nor was this solely a Benedictine movement. At the Abbey of St. Victor in Paris, a number of Canons Regular articulated philosophically what had been implied in Benedictine practice. For example, Hugh of St. Victor's *Didascalicon* (c. 1130) presents "a secular schematization of all human knowledge, which, for the first time, includes the mechanic arts."[43] In particular, Hugh argues that "there are four branches of knowledge only": "the theoretical, which strives for the contemplation of truth; the practical, which considers the regulation of morals; the mechanical, which supervises the occupations of this life; and the logical, which provides the knowledge necessary for correct speaking and clear argumentation."[44] Hugh divides mechanical knowledge into several subdisciplines, including commerce and medicine,[45] yet adds that each branch "pursues merely human works."[46] That is to say, whereas God "works" in his creation and sustenance of the cosmos, and nature "works" by actualizing the potentialities latent in creation, human beings work by virtue of their "own reasoning," which seeks to supply by artistry what they otherwise lack. As Hugh writes, "Want it is which has devised all that you see most excellent in the occupations of men."[47]

This philosophical appreciation of human work was "unprecedented" at the time, though, by the high medieval period, "all the arts, including the mechanic arts, were [considered] a part of the good life."[48] Indeed, the technological advances that have come to characterize the modern West were primarily inaugurated during the Renaissance—a period that Nielson approximates with the "fifteenth to seventeenth centuries,"[49] during which "European intellectuals began to become aware of technological progress not as a project . . . but as an historic and happy fact."[50] Perhaps the most crucial of these innovations was Gutenberg's printing press, and its impact will

be assessed below. But it was hardly alone in shaping Western culture. The possibility of European colonization and the concomitant rise of transatlantic trade was dependent on "the development of the full-rigged ship, armed with guns, and the design of new astronomical methods of navigation."[51] Other advances naturally followed. There were slow but steady improvements "in mining techniques, in the extraction and processing of metals, in the design and use of firearms, in fortification, in the design and use of ships, and in the construction of harbors, canals and bridges."[52] Such developments were the means by which nation-states were able to grow, in terms of both commercial efficiency and military conquest.[53]

By the eighteenth century and the so-called Age of Enlightenment, the West was in the throes of a full-blown technological revolution, with attention now shifting to the provision of more stable energy sources. In previous eras, "the chief energy source had been the muscle power of men or animals,"[54] and thus there were intrinsic limitations to the amount of available energy, from the challenges of accumulating manpower (a problem that slavery could only incrementally diminish) to the expensiveness of feeding both human and animal workers. Meanwhile, natural energy sources such as water or wind represented tantalizing yet inefficient options, circumscribed by geography, unreliable output, and/or the need for capital. Watt's steam engine, however, ameliorated many of these difficulties, converting "accumulated solar energy in the form of wood, coal or oil to mechanical motion" and, in doing so, paving the way for the rise of "steam turbines, internal combustion engines and jet engines that have the same function."[55] As these devices improved and manufacturing increased, vocational schools and engineering societies were founded, leading to better communication among engineers and therefore "more precision and more uniformity" in the process of production.[56] Eventually, this development resulted in the so-called "American system of manufacture," whereby "one part of a mechanical device could be manufactured with such precision that without individual fitting it could be replaced by a similar part from another similar mechanical device."[57] This step paved the way for assembly-line production, which the Ford Motor Company inaugurated in 1914.[58]

It was also around this time that scientists became directly involved in the technological process. This trend began in the textile industry, where "university-trained chemists discovered ways to produce dyes synthetically," but quickly expanded to other industries, resulting in the rise of the "industrial research and development laboratory."[59] Today, such laboratories have become standard within corporations and governments, and they have advanced "a very large part of the technological breakthroughs of the last hundred years."[60] For that reason, new technological devices and ever-expanding technological horizons are now the anticipated outcomes of Western social organization. In other words, it is no longer possible—as it would have been, say, in medieval Benedictine monasteries—to see technology as an expedient that facilitates the practice of a higher, nontechnical end. Instead, technology is understood as an end in itself: technology is now the goal of the modern West's most powerful institutions, inasmuch as it is inseparable from "life, liberty, and the pursuit of happiness." As Nielson puts it, "The modern Western style of living, health and welfare would be unthinkable without Western technology."[61]