

**NO TIME TO THINK:
Reflections on Information Technology
and Contemplative Scholarship**

David M. Levy
The Information School
University of Washington
dmlevy@u.washington.edu

Prepublication Version
December, 2007

The final publication (DOI 10.1007/s10676-007-9142-6) is available online at
<http://www.springerlink.com/content/q5154248132321tn/>.

It also appears in print in *Ethics & Information Technology* 9(4) 2007.

Abstract. This paper argues that the accelerating pace of life is reducing the time for thoughtful reflection, and in particular for contemplative scholarship, within the academy. It notes that the loss of time to think is occurring at exactly the moment when scholars, educators, and students have gained access to digital tools of great value to scholarship. It goes on to explore how and why both of these facts might be true, what it says about the nature of scholarship, and what might be done to address this state of affairs.

“The world has arrived at an age of cheap complex devices of great reliability; and something is bound to come of it.” (Vannevar Bush, *As We May Think*¹)

1. Introduction

In her biography of the Nobel Prize winning geneticist Barbara McClintock, Evelyn Fox Keller asks: “What enabled McClintock to see further and deeper into the mysteries of genetics than her colleagues?” (Keller, 1983, p. 197) Keller answers that McClintock was able to take the time to look and to hear what the material had to say to her. The material, in this case, was corn, and McClintock studied each of her corn plants with

¹Vannevar Bush’s famous article, “As We May Think” (Bush, 1945), has been republished a number of times. Page numbers cited in the present article come from a reprinting that appeared in *From Memex to Hypertext* (Nyce & Kahn, 1991), a collection of essays by and about Bush.

great concentration, patience, care, and even love; she knew each of them intimately. Her method was to “see one kernel [of corn] that was different, and make that understandable.” After giving a lecture at Harvard, Keller tells us, McClintock “met informally with a group of graduate and postdoctoral students. They were responsive to her exhortation that they ‘take the time and look,’ but they were also troubled. Where does one get the time to look and to think? They argued that the new technology of molecular biology is self-propelling. It doesn't leave time. There's always the next experiment, the next sequencing to do. The pace of current research seems to preclude such a contemplative stance.” (Keller, 1983, p. 206)

McClintock's meeting with graduate students took place in the early 1980s. If questions could be justifiably raised more than two decades ago about the pace of life and its consequences for looking and thinking, how much more urgently might such questions be raised today? For in the intervening years, we have inarguably witnessed a further speedup in the pace of life. Books with titles like *Faster: The Acceleration of Just About Everything* (Gleick, 1999) and *No Time: Stress and the Crisis of Modern Life* (Menzies, 2005) now attempt to document the phenomenon, and movements such as *Slow Food* and *Take Back Your Time* have arisen to mount a response. The academic world has hardly been shielded from this acceleration, as today's academics can readily attest. Today's pace of research would make the Harvard students' practices seem leisurely by comparison. Yet during this same period of time a remarkable suite of tools has been developed for research and scholarship. Thanks to networked digital computers, e-mail, and the World Wide Web, access to scholarly information and research results has never been easier; and thanks to the vast computational power now readily available, whole new areas of scholarly investigation have been opened up. (It is impossible, for example, to imagine the decoding of the human genome without the use of such tools.)

We would seem, then, to be losing the time “to look and to think” at the very moment we have produced extraordinary tools for investigating the world and ourselves and for sharing our findings. How might we understand this seeming paradox? The question becomes all the more intriguing, and perhaps puzzling, in the face of this fact: Much of the inspiration for today's digital tools came from a proposal made by a man named Vannevar Bush sixty years ago; his aim was to augment the scholar's ability to think. By proposing technologies to automate the more routine aspects of thought, Bush hoped to free up more time for scholars to devote to the creative aspects of their work. How has it come to pass that technologies developed to make more time to think have seemingly had the opposite effect, and what does it mean for the academy?

I will approach these questions first by exploring Bush's celebrated proposal and by contrasting his ideas with those of Josef Pieper, a German philosopher who argued, from a very different perspective, for the need to reclaim the time for reflection and contemplation. I will locate the roots of both men's concerns in a centuries-long commitment to "more-faster-better," a powerful philosophy that privileges "fast-time" activities over "slow-time" activities, such as thinking. Both Bush and Pieper, it turns out, distinguished between two modes of thinking—one routine or rational, the other mature or creative; I will explore some of the ways that philosophers, artists, and scientists have characterized this difference. And I will conclude by examining how the acceleration and overloading of academic life is depriving faculty and students of time to think, and what we might do about it.

2. As We May Think

Vannevar Bush was trained as an electrical engineer. He received his Ph.D. at MIT, taught there, and in 1931 became its vice president as well as the dean of its School of Engineering. His greatest technical contributions came in the area of analog computing. But Bush mainly made his mark on the world not as a working engineer or as a teacher but as a skilled administrator and political operator: he was arguably the first American technocrat. In 1940, with America's entry into the war on the horizon, Bush approached President Roosevelt with a proposal: to create an organization through which American scientists could develop new weapon systems and other critical technologies that would give the Allies the edge over the Axis powers. Roosevelt approved the plan—first called the National Defense Research Committee, and later the Office of Scientific Research and Development (OSRD)—and Bush oversaw an extensive network of academic scientists who collaborated with military and corporate partners. Bush was deeply involved in Roosevelt's decision to authorize the creation of the first atomic bomb. And based on his wartime successes as a research administrator, he was one of the first to imagine a peacetime successor to OSRD, which became the National Science Foundation. During these intensely productive years, Bush was famous enough to appear on the cover of the April 3, 1944 issue of *Time* magazine, which described him as a "lean, sharp, salty, 54-year-old" Yankee "possessed of insatiable curiosity and a prodigious memory." ("Yankee Scientist", 1944)

This is a stunning record of achievement, yet today Bush is probably best remembered, especially within the computer and information sciences, for the essay he published in the July 1945 issue of *The Atlantic Monthly*. At the heart of the article is his proposal for the memex, a device that would allow researchers to read materials stored in microfilm format and to create associative indexes, "the basic idea of which is a provision whereby

any item may be caused at will to select immediately and automatically another" (Bush, 1991, p. 103). But in addition to imagining, and possibly inventing, hypertext, Bush proposed highly compact storage, head-mounted compact micro-cameras, and voice input devices.

Bush has been justifiably celebrated, even venerated, for the influence he exerted. The central section of "As We May Think," in which he develops the idea of the memex, is certainly the most studied and best known section of the paper. What has received considerably less attention is just how Bush framed his proposal, specifically the reasons he gave for creating the memex. In eight paragraphs at the beginning and two paragraphs at the end, Bush lays out a clear and powerful argument:

A devastating period is now coming to an end, he observes, a terrible war in which science and technology have enabled people to deploy "cruel weapons" against one another. The survival of the human race depends on its ability to transcend such behavior and to "grow in the wisdom of race experience." Such wisdom may perhaps be had by better use of the record of human achievement, for if people have better access to the record, they would be able to "better review [their] shady past and analyze more completely and objectively [their] present problems." (Bush, 1991, p. 106) But there are obstacles today preventing people from making the best use of the record:

"There is a growing mountain of research. But there is increased evidence that we are being bogged down today as specialization extends. The investigator is staggered by the findings and conclusions of thousands of other workers – conclusions which he cannot find time to grasp, much less to remember, as they appear. Yet specialization becomes increasingly necessary for progress, and the effort to bridge between disciplines is correspondingly superficial. . . .

"The difficulty seems to be, not so much that we publish unduly in view of the extent and variety of presentday interests, but rather that publication has been extended far beyond our present ability to make real use of the record. The summation of human experience is being expanded at a prodigious rate, and the means we use for threading through the consequent maze to the momentarily important item is the same as was used in the days of square-rigged ships." (Bush, 1991, pp. 88-89)

In light of these difficulties, Bush suggests, scientists, whose energies have been concentrated on aiding the war effort, should now devote themselves to more peaceful ends. If they were to focus on developing technologies that removed these information

obstacles (being bogged down by the amount and inaccessibility of specialized knowledge), they would make a major contribution to human survival and flourishing.

The problem Bush was hoping to solve, in other words, was that of information overload² and the increasing specialization and inaccessibility of information. He wasn't alone in this concern. By the end of World War I, the management of scientific information had been recognized as a widespread and largely unsolved problem. For, according to Colin Burke, "improvements in printing, communications and transportation [had] created a bundle of opportunities and frustrations that . . . began to be called the 'library' problem" (Burke, 1994, p. 99). This problem manifested itself differently to different constituencies. For the general public, the issue was unequal access to books and the cost of library materials. For scientists, it was "the inability of the traditional library to serve its most important client, the scientific researcher" (Burke, 1994, p. 100). By the end of World War I "scientists were voicing their frustrations and sought to establish . . . an information system for science" (Burke, 1994, p. 110).

Bush's proposal in "As We May Think" was his attempt to address the library problem—which later came to be called "the information problem"—by attending to the information needs of scientists and other researchers. "A record, if it is to be useful to science," Bush observed, "must be continuously extended, it must be stored, and above all it must be consulted." (Bush, 1991, p. 90) He worried that the increasing amounts of information available meant that "truly significant attainments [were more likely to] become lost in the mass of the inconsequential." (Bush, 1991, p. 89) "Bush wanted a fundamental reform of the library," Burke says, "to make it conform to the concepts of the new scientist and engineers. He looked forward to the time when machines would allow practicing scientists to take charge of, if not to bypass, the library" (Burke, 1994, p. 119).

Bush was also explicit about why information overload was a threat to the research enterprise: By enmeshing scholars in the endless practical details of managing the record, including the selection of relevant materials, a surfeit of information would leave them less time to think. Here Bush was careful to distinguish between two kinds or modes of thought. One was routine or repetitive: "logical processes of thought" that ran "along an accepted groove." (Bush, 1991, p. 98) Arithmetic was such an instance, for

² Bush doesn't use—and couldn't have used—the phrase "information overload," for the term wasn't coined until the early 1960s (Levy, 2008). Also see Himma's article (this volume), where he claims that the problem Bush identified should not be considered a full instance of the phenomenon of information overload.

"[a]dding a column of figures is a repetitive thought process." (Bush, 1991, p. 95) The other mode of thought he described as "mature" and "creative": the real work of deep and original thinking. The first he believed could be automated, but not the second: "For mature thought," he said, "there is no mechanical substitute. But creative thought and essentially repetitive thought are very different things. For the latter there are, and may be, powerful mechanical aids." (Bush, 1991, p. 95) Bush's intention was clear: by automating the routine aspects of thinking, such as search and selection, he hoped to free up researchers' time to think more deeply and creatively.

3. Leisure: The Basis of Culture

At the same time that Bush's article appeared, another thinker was also expressing concern over the loss of time for reflection and, as he called it, contemplation. He too was considering how society should proceed in the aftermath of the war, albeit from a very different vantage point. For whereas Bush was an engineer and a technocrat, Josef Pieper was a philosopher and a Roman Catholic theologian. And while Bush was writing from the perspective of the victor, the German Pieper was writing as a member of a vanquished nation just beginning to address the problems of economic and social reconstruction. Both, however, were concerned with the challenge of making the transition to a more peaceful and prosperous world. Each identified a problem, and although not exactly the same problem, they bear a sufficient resemblance to suggest that these two men were seeing some of the same phenomena, if not proposing the same solution.

Josef Pieper was born in 1904 and educated at the University of Berlin and the University of Muenster; he served in the German army from 1940 to 1945. He published more than fifty books, establishing a reputation, in the words of one obituary, "not only as a clear expositor of the classical tradition and its relevance for contemporary discussion but as an incisive critic of what he took to be dehumanizing philosophical trends from positivism to absolute idealism." (Noone, 1997) After the war he was a visiting professor at the University of Notre Dame and Stanford, among other institutions.

He first came to the attention of English and American readers through a small volume called *Musse und Kult*. Originally published in Germany in 1948, it first appeared in English as *Leisure: The Basis of Culture* (Pieper, 1952) with an introduction by T.S. Elliot, and in 1998 in a new translation (Pieper, 1998). The two essays collected in the volume were first presented as lectures in 1947. Whereas Vannevar Bush, writing in 1945, had asked what American scientists should devote themselves to in the immediate aftermath

of the war, Pieper asked the same question of the German people and the German nation. Economic reconstruction was already beginning, with the support of the Allied Powers. But this would not suffice, Pieper claimed. For in light of the aggression and devastation wrought by the German nation, it would have to put its "entire moral and intellectual heritage" back in order. Pieper worried that an overemphasis on economic development, to the exclusion of other human concerns, would prevent the new German republic from recovering its deeper, life-giving roots in Western culture.

For Germany, Pieper claims, is in danger of entering into a world of "total work." "[T]he world of work is becoming our entire world," he says; "it threatens to engulf us completely, and the demands of the world of work become greater and greater, till at last they make a 'total' claim upon the whole of human nature." (Pieper, 1998, p. 140) He invokes images of determined workers, stress and effort etched on their faces, all their energies given over to the never-ending work of efficient production. He worries about the dehumanizing effects of such work, as workers operating as mere "functionaries" would suffer from an "inner poverty of the person" and would acquire a "stoniness of heart." (Pieper, 1998, pp. 43, 14)

The root problem, he claims, is that the culture has lost the practice of leisure. On the face of it, then, Pieper appears to be worrying that people are in danger of working themselves into a workaholic frenzy and at risk of losing their weekends, vacation and recreation time; that they need and deserve more time off, more breaks, more free time. It would be natural to understand him in this way because the English word "leisure" now means "freedom from time-consuming duties, responsibilities, or activities" (*The American Heritage Dictionary, Fourth Edition*, 2001). But to understand Pieper as saying *only* this would be to miss the full import of his argument, which relies on the ancient Greek notion of leisure.

For the Greeks, leisure was the highest good, the ultimate aim of human life, and work was a lesser, though still necessary, form of activity. This prioritization was directly reflected in their language: their only word for work could be translated literally as "not-leisure." Work was what needed to be done for the sake of something else: spinning wool in order to make clothing, lighting a fire in order to keep warm, building a house in order to be sheltered from the elements. Leisure, by contrast, was that which required no justification beyond itself; philosophy, the arts, and the celebration of festivals fell under this category for the Greeks because they were simply an expression of the human spirit and its true life in the world. (It is from this distinction that the modern notion of the "liberal arts" is derived; the liberal arts are those free of any need to justify themselves in terms of utility.)

Pieper clearly realized that this reversal of priorities might seem shocking to his postwar audience, that it might well appear to be a celebration of laziness and idleness. So he invokes Thomas Aquinas to argue that leisure, rightly understood and practiced, is hardly idleness; on the contrary, it is frenetic overwork that constitutes a form of idleness, and it is overwork—or “the restlessness of a self-destructive work-fanaticism” (Pieper, 1998, p. 27), as he so dramatically puts it—that is the true moral lapse. Here Pieper wants to understand idleness not as dawdling or slacking off in the modern sense, as simply lazily lying about, but rather, following the medieval scholastics, as a failure to engage fully and responsibly with oneself and the world. In this older understanding, idleness—or *acedia*, to use a now largely forgotten word—meant “that the human being had given up on the very responsibility that comes with his dignity: . . . that he does not want to be what he really, and in the ultimate sense, *is*” (Pieper, 1998, p. 28).

Idleness or *acedia*, in this understanding, is a disengagement from reality. Leisure, by contrast, is an openness to the world, to things as they are, rather than as we wish them to be. As Pieper puts it:

Leisure is a form of that stillness that is the necessary preparation for accepting reality; only the person who is still can hear, and whoever is not still, cannot hear. Such stillness as this is not mere soundlessness or a dead muteness; it means, rather, that the soul's power, as real, of responding to the real—a co-respondence, eternally established in nature—has not yet descended into words. Leisure is the disposition of receptive understanding, of contemplative beholding, and immersion—in the real. (Pieper, 1998, p. 31)

Like Bush, Pieper was concerned with the future of thinking and scholarship. Like Bush, he distinguished between two kinds or modes of thinking. But whereas Bush made use of commonsense terms like routine and creative thinking, Pieper borrowed his language from the ancient Greeks and the medieval scholastics:

“The medievals distinguished between the intellect as *ratio* and the intellect as *intellectus*. *Ratio* is the power of discursive thought, of searching and re-searching, abstracting, refining, and concluding [*cf.* Latin *dis-currere*, ‘to run to and fro’], whereas *intellectus* refers to the ability of ‘simply looking’ (*simplex intuitus*), to which the truth presents itself as a landscape presents itself to the eye. The spiritual knowing power of the human mind, as the ancients understood it, is really two things in one: *ratio* and *intellectus*: all knowing involves both. The path of discursive

reasoning is accompanied and penetrated by the *intellectus*' untiring vision, which is not active but passive, or better, *receptive*—a receptively operating power of the intellect." (Pieper, 1998, p. 11)

Pieper's concern for thinking and scholarship was intimately connected with his critique of work. If Germany and the West were descending into a leisure-less world of total work, this state of affairs would affect intellectual workers—or, as we might say today, knowledge workers—as well as manual laborers. For intellectual activity too would be seen merely as effortful labor. But this would miss the fundamental insight of the medieval scholastics, that *ratio* is a kind of work, but *intellectus* isn't, because *intellectus* is a form of contemplation, a "lightning-like insight" which "comes to one like a gift [and is] effortless and not burdensome."³ (Pieper, 1998, p. 18). In other words, deprived of *intellectus*, thinking and scholarship would retain their shell of rationality but lose their vital core.

Looking at a world engaged in postwar reconstruction, Pieper could see how the obsessive drive to work ever faster and harder might rob people of their humanity, their responsibility to family and community—how harried and driven workers might be distracted and absent. And so, his proposal to recover the contemplative dimension of life was aimed at helping Germany to reconstruct itself by recovering its ethical and spiritual grounding.

With the clarity of hindsight we can see that Vannevar Bush and Josef Pieper were each right in various ways. Bush was certainly right to have worried about the problem of information overload and the specialization of disciplines. He was also right in foreseeing the possibility of developing brilliant and powerful technological systems for managing the human record. "As We May Think" was immediately hailed as a visionary statement. It was republished in abbreviated form in *Life Magazine* later the same year, this time with illustrations of the imagined device. And the article impressed itself on technologists as well as the lay reader. In the last two decades especially, it has been endlessly cited and celebrated. A major symposium, "Fifty Years After," was held at MIT in October 1995. There is a direct line of influence that stretches from Bush to Tim Berners-Lee (recently knighted for his invention of the World Wide Web), a lineage that

³ As Keller describes it in her biography of Barbara McClintock: "The nature of insight in science, as elsewhere, is notoriously elusive. And almost all great scientists—those who learn to cultivate insight—learn also to respect its mysterious workings. It is here that their rationality finds its own limits. In defying rational explanation, the process of creative insight inspires awe in those who experience it. They come to know, trust, and value it." (Keller, 1983, p. 103)

includes other technological luminaries, such as Douglas Englebart, the developer of the first hypertext system, at SRI in the late 1960s; Ted Nelson, inventor of the terms “hypertext” and “hypermedia”; and Alan Kay, whose imagined “Dynabook” was a major influence on the design of the first networked personal computer at Xerox PARC. Due in large measure to this chain of influence, head-mounted cameras, and even more radical forms of “wearable computing,” now exist. The personal computer, which might be considered a more powerful realization of the memex, is everywhere. And the World Wide Web has made hypertext as ordinary as the television or the telephone.

Pieper was right too to worry about the accelerating pace of work and the reduction of workers to cogs in a machine. Indeed, more than at any time since Pieper’s book appeared, we are in a position to understand the restless and destructive side of work-fanaticism. In the United States, we see this in the total number of hours that most people work per year and in the correspondingly small number of weeks of vacation most workers are permitted (and the even smaller number of weeks workers take). We see this in the fevered pitch of multi-tasking, in the devotion to consumption during “leisure time,” and in the acceleration of most aspects of life. And we even see this in certain examples that would seem preposterous if they weren’t documented, such as the movement to eliminate recess in elementary schools, the argument being that children should be trained early to slot themselves into the fast-moving information economy.⁴

Where Bush was clearly wrong, however, was in believing that the kinds of tools he envisioned would solve the problem of information overload and the increasing specialization of disciplines, or that by mechanizing the routine aspects of thinking people would end up with more time to think creatively. Indeed on the face of it, the development of personal digital information systems and global hypertext seems not to have solved the problems Bush identified but rather to have exacerbated them. Why didn’t Bush’s proposed solution work? Could it be that his imagined tools played into the scenario Pieper feared?

4. More-Faster-Better

Answers to these questions must surely take into the account the widespread acceleration in the pace of life, and increasing expectations of the amount of work that

⁴ See, for example, “Tacoma Elementaries Enforce Ban on Recess” (Roberts, 2004), where it is suggested that “school districts across the country have joined the no-recess wave, with surveys indicating that as many as four in 10 districts have either dropped recess, scaled it back or thought about doing so.”

must be accomplished in a given period of time. But it would be naïve to think that the acceleration of life and work was simply inaugurated by the latest technological developments, for widespread social and economic acceleration emerged well before the computer era. As Hartmut Rosa notes in a recent article, "Social Acceleration: Ethical and Political Consequences of a Desynchronized, High-Speed Society":

"In 1999, James Gleick, exploring everyday life in contemporary American society, noted the 'acceleration of just about everything': love, life, speech, politics, work, TV, leisure, etc. With this observation he certainly is not alone. In popular as well as scientific discourse about the current evolution of Western societies, *acceleration* figures as the single and most striking feature. But although there is a noticeable increase in the discourse about acceleration and the shortage of time in recent years, the feeling that history, culture, society, or even 'time itself' in some strange way *accelerates* is not new at all; it rather seems to be a constitutive trait of modernity itself. As historians like Reinhart Koselleck have persuasively argued, the general sense of a 'speed-up' has accompanied modern society at least since the middle of the eighteenth century. And indeed, as many have observed and empirical evidence clearly suggests, the history of modernity seems to be characterized by a wide-ranging speed-up of all kinds of technological, economic, social, and cultural processes and by a picking up of the general pace of life." (Rosa, 2003, p. 3)

In his book, *The Control Revolution: Technological and Economic Origins of the Information Society*, James Beniger documents the roles played by new technologies and organizational practices in speeding up the American economy, beginning in the nineteenth century. Thanks to the invention of steam power, it became possible to mine raw materials, to manufacture finished products, and to distribute them more quickly than ever before: "Until the Industrial Revolution, even the largest and most developed economies ran literally at a human pace, with the processing speeds enhanced only slightly by draft animals and by wind and water power, and with system control increased correspondingly by modest bureaucratic structures. By far the greatest effect of industrialization, from this perspective, was to speed up a society's entire material processing system. . ." (Beniger, 1986, p. vii) With increasing speed, of course, came new challenges. By the late nineteenth century, existing management methods, largely based on on-site, face-to-face interactions, were no longer up to the task of controlling the new faster-moving, distributed organizations, such as the railroads. This precipitated what Beniger calls "a crisis of control, a period in which innovations in information processing and communications technologies lagged behind those of energy and its application to manufacturing and transportation." (Beniger, 1986, p. vii)

JoAnne Yates fills out this story of late-nineteenth century crisis and innovation in her book, *Control Through Communication: The Rise of System in American Management*. She traces how, over the course of several decades, a new management method emerged, called systematic management, which “promoted rational and impersonal systems in preference to personal and idiosyncratic leadership for maintaining efficiency in a firm’s operation. This general philosophy spawned many specific techniques and movements. Systematic management attempted to improve control over—and thus the efficiency of—managers, workers, materials, and production processes.” (Yates, 1989, p. 1) The new management methods arose hand-in-glove with new information and communication technologies, such as the typewriter, carbon paper, and vertical files, and new genres of business communication, such as the memo, the fill-in-the-blank form, and the executive summary. The result was a new form of institutional structure, the modern hierarchical organization, which was capable of exerting a much greater degree of “control through communication.”

These late nineteenth and early twentieth century innovations may have resolved the immediate control crisis, but their very success precipitated the next one: by the early 1920s, there was growing concern about overproduction. Industry was indeed able to produce more faster, but consumers apparently felt no need to consume larger quantities at a faster pace. As one observer at the time noted, “we are equipped to produce more of the goods that satisfy human wants than we can use; another commented that “experienced businessmen all over the world realize that the market does not expand rapidly enough to keep up with demand.”⁵

What followed was a vigorous debate among business and labor leaders about how to resolve this crisis of production. For labor, it was an argument for reduced hours and greater leisure time: if more was being produced than was needed, why not slow down? Business, however, balked at this suggestion, fearing that more time off would encourage vice and sloth—and, of course, would reduce profits. John E. Edgerton, president of National Association of Manufacturers, spoke for many in the business world when, in 1926, he said:

[I]t is time for America to awake from its dream that an eternal holiday is a natural fruit of material prosperity, and to reaffirm its devotion to those principles and laws of life to the conformity with which we owe all of our national greatness. I am for everything that will make work happier but against everything that will further subordinate its importance . . . the emphasis should be put on work—more work and

⁵ Quoted in (Hunnicut, 1988, p. 37).

better work, instead of upon leisure—more leisure and worse leisure . . . the working masses . . . have been protected in their natural growth by the absence of excessive leisure and have been fortunate . . . in their American made opportunities to work.⁶

The debate was ultimately decided through a new understanding of consumption. The naysayers who thought that human needs had reached the saturation point were wrong; the desire to consume could be further stimulated. The 1929 report of Herbert Hoover's Committee on Recent Economic Changes captured the tone of gleeful discovery: "the survey has proved conclusively what has long been held theoretically to be true, that wants are almost insatiable; that one want satisfied makes way for another. The conclusion is that economically we have a boundless field before us; that there are new wants which will make way endlessly for newer wants, as fast as they are satisfied."⁷ Even if consumers' primary needs for food, clothing and shelter were met, "optional consumption" was virtually limitless, "optional in the sense that this portion of the income may be saved or spent, and if spent the manner of this spending may be determined by the tastes of the consumer or the nature of the appeals made to him by the industries competing for his patronage."⁸ From this fertile soil modern advertising was born, and thus was the crisis of production, reframed as a problem of consumption, resolved.

Viewed in this historical light, today's concerns about busyness, about the accelerating pace of life, and about the surfeit of information and the difficulty of managing it are a fairly straightforward extrapolation of past trends—the latest manifestation of a "more-faster-better" philosophy of life. Digital technologies have clearly made possible a further acceleration of the pace of production and consumption. And once again society is wondering if it has hit some sort of inherent limit, or if we will once again find clever solutions that will allow us to proceed even faster.

The problem of information overload may well be amenable to a combination of social and technological solutions, much like the management crisis of the late nineteenth century that Beniger and Yates describe. There innovations in social and organization practice (hierarchies of jobs, formal reporting relationships, etc.) and information and communication media and technologies (the typewriter, vertical files, the memo, etc.) created institutions that could not only manage but further accelerate the pace of production and consumption. Already today, we see a range of innovations that to

⁶ Quoted in (Hunnicut, 1988, p. 40).

⁷ Quoted in (Hunnicut, 1988, p. 44)

⁸ Quoted in (Hunnicut, 1988, pp. 43-44).

varying degrees have helped people deal with the tidal wave of information, including “don’t call” telephone lists, e-mail filters, and cell phone-free zones. We may at some future time look back on today’s crisis of information overload as a transitional phase, the incunabula period of digital materials, which preceded the development of social and institutional practices capable of imposing greater order.

Yet solving the problem of information overload will not address the problematic aspects of acceleration; in fact, it may only further exacerbate them. We will still be faced with the question: how much faster can we, or do we want to, go? For some human projects the answer is clear: the faster we can cure AIDS or cancer, the faster we can eliminate global hunger and poverty, the better. But as Thomas Hylland Eriksen has pointed out, not all human activities can or should be speeded up. In *The Tyranny of the Moment*, he makes a distinction between “fast time” and “slow time,” between activities that can or must be done quickly, and those that can’t, or shouldn’t. The problem in today’s society, he suggests, is that “[w]hen fast and slow time meet, fast time wins. This is why one never gets the important things done because there is always something else one has to do first. Naturally, we will always tend to do the most urgent tasks first. In this way, the slow and long-term activities lose out. In an age when the distinctions between work and leisure are being erased, and efficiency seems to be the only value in economics, politics and research, this is really bad news for things like thorough, far-sighted work, play and long-term love relationships.” (Eriksen, 2001, p. 150)

It is also really bad news for thinking. Thinking is by its very nature a slow-time activity. Aspects of thought—its more routine dimensions—can perhaps be automated and accelerated, as Bush suggested. But its more creative aspects—both the “work” of concentrated reasoning and the “leisure” of sudden insight—generally require substantial investments of sustained attention, which cannot be truncated or rushed. Bush hoped that his proposed technologies would buy researchers more time to think. But instead they have primarily been used, in the spirit of more-faster-better, to accelerate production and consumption to new, previously unimaginable levels. We are all now expected to complete more tasks in a smaller amount of time. And while the new technologies *do* make it remarkably efficient and easy to search for information and to collect masses of potentially relevant sources on a huge variety of topics, they can’t, in and of themselves, clear the space and time needed to absorb and to reflect on what has been collected. At times it feels like the new technologies are “self-propelling,” as the Harvard students attending Barbara McClintock’s talk suggested, urging us on to ever greater speed and productivity. But what are the costs of allowing ourselves to be so propelled?

5. Ways of Thinking

Barbara McClintock understood that deep reflection couldn't be hurried, that lightning-like insights couldn't be forced, and she cultivated a life that allowed her the time to look and think. She had an intimate understanding of each of the individual corn plants she grew. It was possible to grow two corn crops a year, but "after a while, she'd found that as slow as it was, two crops a year was too fast. If she was really to analyze all that there was to see, one crop was all she could handle." (Keller, 1983, p. 206) Describing the intimacy she developed when viewing corn chromosomes through a microscope, McClintock said: "I found that the more I worked with [the chromosomes] the bigger and bigger [they] got, and when I was really working with them I wasn't outside, I was down there. I was part of the system. I was right down there with them, and everything got big. I even was able to see the internal parts of the chromosomes—actually everything was there. It surprised me because I actually felt as if I were right down there and these were my friends." (Keller, 1983, p. 117)

McClintock was certain that her deepest scientific insights came not simply from logical calculation but from some other mode of thought: "When you suddenly see the problem, something happens that you have the answer—before you are able to put it into words. It is all done subconsciously. This has happened too many times to me, and I know when to take it seriously. I'm so absolutely sure. I don't talk about it, I don't have to tell anybody about it. I'm just *sure* this is it."⁹ (Keller, 1983, p. 103) Often she "saw," or intuitively grasped, the answer she was seeking in a flash, but still needed hours or days afterwards to "work it out."

⁹ Alfred Kaszniak, a neuropsychologist at the University of Arizona, has observed (Personal communication, 2007) that "McClintock's statement is supported by recent empirical research: For example, one study (Bechara, Damasio, Damasio, & Lee, 1999) examined skin conductance responses (SCRs, a measure of activity in the sympathetic branch of the autonomic nervous system) while participants engaged in a computer-administered gambling task in which decisions had to be made about which deck of cards would yield the greatest pay-off. Healthy participants showed anticipatory SCRs prior to making risky choices, even though they could not articulate conscious knowledge of why a choice might be risky or advantageous until much later during the task. Persons with damage to the amygdala or the ventromedial frontal region of the brain failed to show these anticipatory SCRs (and they made much fewer advantageous choices in the task), hypothetically because their brain damage rendered them unable to effectively integrate nonconscious information that normally informs our decisions. In other words, such research provides evidence that problems (e.g., decision as to which card to choose) can be solved (as reflected in overt behavior and peripheral bodily changes) without conscious knowledge of processes by which how the solution occurs."

Such understandings aren't confined to the sciences, but are equally present in the arts and humanities; indeed, it can be argued that all creative work has an immersive, contemplative element. In her recent autobiography, Karen Armstrong, the former nun who has written a number of popular accounts of various religious traditions, recounts her discovery, late in life, that scholarly reading and exploration could be a deeply satisfying, contemplative mode of study. In the following passage, she draws a contrast between three phases of her life: her teenage and young adult years in a Catholic convent, where she failed to find satisfaction and meaning in prayer and meditation; time spent later "researching" various subject matters for television documentaries; and her most recent discoveries of a mode of silent, concentrated study:

"In the convent, I had spent most of my time in silence, but it had been too busy--noisy with tension and anxiety, anger and irritation. . . . Now I was beginning to understand that a silence that is not clamorous with vexation and worried self-regard can become part of the texture of your mind, can seep into you, moment by moment, and gradually change you. The study of texts for *A History of God* [Armstrong's surprise best-seller] had become very different from the research I had done during my years in television, when I had been reading and amassing information at breakneck speed to keep one step ahead of the production team. At that time, I had remained trapped on the cerebral level, as though I were reading a guidebook or an instruction manual. Instead of allowing these images and dogmas to percolate slowly, drop by drop, into the deeper, unconscious levels of my mind, I had grasped prematurely at what I thought they meant." (Armstrong, 2004, pp. 285-286)

And, she continues:

"I discovered that I could scarcely wait to get to my desk each morning, open my books, and pick up my pen. I anticipated this moment as eagerly as a tryst with a lover. I would lie in bed at night waiting for sleep, delightedly reviewing what I had learned that day. Occasionally, while sitting at my desk or poring over a dusty tome in the British Library, I would experience miniseconds of transcendence, awe, and wonder that gave me some sense of what had been going on in the mind of the theologian or mystic I was studying. At such a time I would feel stirred deeply within, and taken beyond myself, in much the same way as I was in a concert hall or

a theater. I was finding in study the ecstasy that I had hoped to find in those long hours of prayer as a young nun.”¹⁰ (Armstrong, 2004, p. 287)

For many centuries, people have tried to characterize and to name the various modes of thinking. “In the West and in the East,” David Loy observes, “a distinction between types of thinking is practically as old as philosophy itself.” (Loy, 1997, p. 161) Kant distinguished between *Vernunft* and *Verstand*, notions that are ultimately derived from the distinction between *ratio* and *intellectus*. Before Kant, Jakob Boehme, the late sixteenth and early seventeenth century mystic, had also distinguished between *Vernunft* and *Verstand*, using religious language to characterize them. Thus for Boehme, *Vernunft* “comprehends nothing of the kingdom of God but the husk” and “always goes round in a circle on the outside of things.” (Loy, 1997, p. 162) In Eastern philosophy, a distinction has been made between *vijnana* (reason or discursive thinking) and *prajna* (intuition) (Loy, 1997, pp. 135-136). While it would be wrong simply to equate the first members of each of these pairs (i.e. *ratio* = *Vernunft* = *vijnana*) and to do the same with the second members, there is nonetheless a striking consistency across these pairs; for at minimum each is trying to point to and name a mode of thinking that is different than, and perhaps goes beyond, rational, discursive thought.

Across the centuries, there have also been numerous self-reports of creative eruptions that are qualitatively different than the workings of discursive reason. Among composers, Mozart described how a musical work would come to him: “my subject enlarges itself; becomes methodized and defined, and the whole, though it be long, stands almost complete and finished in my mind, so that I can survey it, like a fine picture or a beautiful statue, at a glance”; while Tchaikovsky talked about how “the germ of a future composition . . . comes suddenly and unexpectedly . . . [and] takes root with extraordinary force and rapidity.” In the realm of literature, Lewis Carroll asserted that “*Alice* and *Looking Glass* are made up almost wholly of bits and scraps, single ideas which came of themselves.” And in the realm of scientific discoveries, there are many reports of problems being solved in a flash of insight, as in the mathematician Karl Gauss’ recounting how he proved a theorem, “not by dint of painful effort but so to speak by the grace of God. As a sudden flash of light, the enigma was solved.”¹¹ (Einstein asserted that “there leads no logical path [to scientific discovery], but only

¹⁰ Here Armstrong echoes Einstein: “The state of feeling which makes one capable of such [scientific] achievements is akin to the religious worshipper or of one who is in love.” (Quoted in Keller (Keller, 1983, p. 118))

¹¹ Quoted in (Loy, 1997, pp. 152, 156, 159).

intuition, supported by being sympathetically in touch with experience.” (Keller, 1983, p. 145))

Examples of this kind might make it seem that moments of creative insight are limited to certain specially gifted individuals and to rare moments of profound originality, but I would suggest that many people who have worked diligently to make sense of difficult ideas, or to write with clarity, know times when insight comes suddenly and seemingly from somewhere else, and such people understand what Lewis Carroll meant when he says: “Sometimes an idea comes at night, when I have had to get up and strike a light to note it down—sometimes when out on a lonely winter walk, when I have had to stop and with half-frozen fingers jot down a few words which should keep the new-born idea from perishing.”¹² And nearly everyone, I would guess, has had moments of creative insight in the shower, or in equally mundane circumstances.

Both *ratio* and *intellectus*, then, are ordinary modes of mind. A third, equally-common mode deserves to be mentioned alongside these. This is mind chatter, the incessant and obsessive internal monologue that fills the head with snatches of memories, plans, and stories, very often centered around the self: *I wonder what’s for dinner tonight? . . . Oh, I should remember to pick up the dry cleaning. . . I never did take in that pair of pants . . . How embarrassing when I spilled a drink on them . . . Maybe I should lose a little weight . . .* This kind of running commentary is such a common, and I would guess, universal, experience, yet it is curiously inaccessible—presumably because it lies just on, or near, the boundary of conscious awareness. Still, there are simple exercises, such as the attempt to keep one’s attention focused on an object—e.g. the breath—for five or ten minutes, that can quickly reveal the mind’s tendency to wander, to be submersed in patterns of habitual thought.

At times the thinking mind seems to have a mind of its own. One can’t always will it to move in a particular direction. Torrents of mind chatter can make it difficult to focus on, or to *stay* focused on, a problem or an idea. And the creative fruits of *intellectus* apparently arise on their own schedule. Yet it is also clear that the mind can be trained, like a muscle group that is strengthened and made more flexible through exercise. Indeed, contemplative practices are methods of training the mind, helping it to quiet down and building up the attentional faculty, so it can remain more deeply focused for longer periods of time. By tuning the attentional instrument, such practices have the potential to reduce mind chatter and increase concentration; and while they can’t

¹² Quoted in (Loy, 1997, p. 156).

directly stimulate creative thought, they do seem to prepare the ground for them, making it easier to *hear* them when they arise.¹³

6. Thinking, Scholarship, and the Life of the Academy

A recent article on multitasking in the workplace (Thompson, 2005) describes how Gloria Mark, a faculty member at UC Irvine, came to do workplace studies of the phenomenon:

“In 2000, Gloria Mark was hired as a professor at the University of California at Irvine. Until then, she was working as a researcher, living a life of comparative peace. She would spend her days in her lab, enjoying the sense of serene focus that comes from immersing yourself for hours at a time in a single project. But when her faculty job began, that all ended. Mark would arrive at her desk in the morning, full of energy and ready to tackle her to-do list—only to suffer an endless stream of interruptions. No sooner had she started one task than a colleague would e-mail her with an urgent request; when she went to work on that, the phone would ring. At the end of the day, she had been so constantly distracted that she would have accomplished only a fraction of what she set out to do. “Madness,” she thought. ‘I’m trying to do 30 things at once.’”

These remarks caught my attention not just because I recognized the phenomenon from my own academic experience but because I had followed a path similar to Mark’s. For nearly twenty years I was a researcher in a high tech “think tank,” the Xerox Palo Alto Research Center (PARC), where time to think was a given, a preciously guarded dimension of our professional life. And so I was completely unprepared for the onslaught of demands that faced me when I took an academic position at the University of Washington in 2001, leaving me little time for the reflective practices that had been such an essential part of my earlier life.

¹³ Alfred Kaszniak at the University of Arizona (Personal communication, 2007) notes that recent work in neuroscience supports these observations: “In a recent study (Jha, Krompinger, & Baime, In press), persons who participated in an 8-week mindfulness-based stress reduction course that emphasized the development of concentrative meditation skills, in comparison to controls, showed significant improvement in orienting their attention-related behavioral responses within a controlled experimental task. Further, another group of participants who had prior experience in concentrative meditation techniques, and who participated in a one-month intensive mindfulness retreat, showed evidence for more pervasive improvement in attentional skills.”

Although I know of no studies that conclusively demonstrate the decline in time to think, there are clear reasons why academics would likely be busier and more overloaded now than ever before. Within American research universities, for example, the pressure on faculty to obtain outside funding, whether from the government or private sources, is extremely intense; competition is increasing even as the pool of available funds is shrinking. The time spent searching for potential funding sources, writing grant proposals, and shepherding them through intricate bureaucratic procedures is simply added on to the other expectations of the job. Teaching and advising students are extremely time-consuming and demanding activities, as they have always been, but new technologies such as e-mail, by increasing the opportunities for online contact between faculty and students, have also increased student expectations that instructors should and will be available for consultation at all hours of the day and night, weekends included. E-mail has also made professors that much more reachable by the general public, the press, and academics at other institutions, which may be a nuisance or a source of new opportunities, in either case bringing further demands on their time. In this respect, academics face the same difficulty as the rest of the culture in guarding their time, in trying to minimize interruptions, in trying to create the space and time for reading, writing, study, and thinking—except that these are activities academics are supposedly paid to perform.

These trends are extremely discouraging, if true. For universities are our culture's think tanks—the one place in the culture, supposedly, where deep study and reflection are not only sanctioned but encouraged and taught. Today's universities trace their origins to Plato's Academy (from which our term "the academy" is derived) and, more immediately, to the medieval universities that emerged from the monastery schools. Both Plato's school and the medieval universities took contemplative inquiry as central to their mission. (Indeed, our words "school" and "scholar" are derived from the Greek word for leisure.) In the extreme, a loss of allegiance to this dimension of academic life would reduce universities to training institutes, largely preparing people to become efficient multitaskers in a world of "total work." And it would reduce faculty to trainers and coaches, rather than scholars demonstrating and communicating the beauty and power of mature, creative thought.

It would be a mistake, of course, to romanticize an imagined past. American universities were never ideal laboratories of creative reflection. Greek leisure was available only to male citizens and was built on the backs of slavery. Contemplative study was basic to the first universities, but those institutions were narrowly Christian and can hardly serve as a model for today's multi-cultural, secular institutions. Yet just as the West has created democratic institutions that avoid the Greek limitations, we can certainly

imagine academic environments that are more supportive of contemplative scholarship as it might be practiced, as Barbara McClintock has demonstrated, beyond the confines of particular religious beliefs or practices. And it would be a great shame—a tragedy—if we failed to make the best use of our brilliant digital tools because we were spending most of our time Googling rather than absorbing and reflecting.

It would also be a mistake, however, to suggest that the contemplative is simply absent from the academy today. The medieval scholastics, like the Greek philosophers before them, understood that all thinking is a blend of ratio and intellectus. (“[A]ll knowing,” says Pieper, “involves both.” (Pieper, 1998, p. 11)) And I would guess that few people would become researchers or scholars if they didn’t know moments of deep, receptive understanding—even “miniseconds of transcendence, awe, and wonder,” in Karen Armstrong’s words. The problem is not that there is literally *no time* for scholarship in universities, but that there is *so little* of it, and *so little* acknowledgment in the current academic system’s practices of its importance, not just to particular domains of scholarship but to the culture as a whole. At times it seems that contemporary life is constructed to obstruct creative thought—as well it might, since less routine and routinized thinking are enemies of today’s mindless cycle of production and consumption. It would appear that universities are mirroring these societal trends, rather than resisting them and offering alternatives.

7. A Future for Contemplative Scholarship?

I began this article by noting a seeming paradox: that we are losing the time to look and to think at exactly the moment we have produced a remarkable new set of tools for scholarly investigation and communication. I went on to argue that this is no coincidence, for our newest information and communication technologies have arisen in the service of a more-faster-better attitude toward work and life, an attitude that privileges fast-time activities over their slow-time counterparts. Certain activities associated with education and learning—searching for information, collecting and superficially reviewing it—can be speeded up, while others—sustained reflection and contemplation—simply cannot. Vannevar Bush knew this, and hoped that the tools he envisioned would automate the more routine aspects of our information practices, including the non-creative dimension of thought, thus buying people more time for creative reflection.

But this is not what has been happening. For as Thomas Eriksen has rightly noted, fast time activities take precedence over slow time activities, according to one of the cardinal, unwritten rules of the current more-faster-better philosophy. Indeed, in a world that

privileges, and even celebrates, 24/7 availability, it is becoming harder to secure the space and time needed to think. This is a problem for the larger society to the extent that it values reflection as a right and a responsibility of citizenship. It is also a problem to the extent that acceleration and overload are causes of physical and psychological illness, for which there is increasing evidence.¹⁴ But it is a particularly egregious problem for universities, to the extent that they have been, and ought to be, institutions committed to the cultivation of the deepest forms of thinking of which human beings are capable.

So what can be done about this state of affairs? The first step, it seems to me, is to reach agreement on the nature and the extent of the problem. This could mean raising the issue as a topic of discussion and debate on individual university campuses, as well as within umbrella organizations. It could also mean conducting studies to examine faculty and students' perception of the problem.

Another step would be to inaugurate scholarly explorations of human thinking. Thanks in part to the development of new exploratory techniques and technologies, neuroscience is making great strides in understanding mind and brain processes. It might well be possible to begin to explore different modes of thinking—routine and creative modes, as well as obsessive mind chatter—not only to develop more nuanced and refined understandings of these processes but to understand how to encourage or discourage them. Might new scholarship, in other words, begin to demonstrate what physical and mental conditions promote creative thought, and which conditions obstruct it?

Yet another step would be to bring contemplative practices explicitly into university curricula to help students, faculty, and staff strengthen their attentional faculties in the face of the erosion effected by multitasking and acceleration. A hundred years ago, William James noted that “the faculty of voluntarily bringing back a wandering attention, over and over again, is the very root of judgment, character, and will. No one is *compos sui* if he have it not. An education which should improve this faculty would be the education *par excellence*. But it is easier to define this ideal than to give practical directions for bringing it about.” (James, 1950 (1890), p. 424) Clearly, James didn't know that various cultures had, over thousands of years, developed highly effective practical directions for doing just that. There is now a movement, led in part by an organization

¹⁴ On the importance of reflection for governance, see (Scheurman, 2005) and (Levy, 2006). Evidence that speed and overload are causing physical and psychological problems can be found in (Whybrow, 2005).

called Contemplative Mind in Society, to introduce contemplative practices into higher education, a movement in which some of us are already participating.¹⁵

If there is a positive side to the developments I have been reporting, it is that the intensification of our more-faster-better practices may be forcing us to see their destructive character. The extent and potential consequences of global warming—a process that has been going on for centuries—seems finally to have reached public awareness in ways that may well lead to corrective action. It is possible that we may yet realize the dangerous consequences of the loss of time to think, and find ways to welcome back this most remarkable dimension of the human experience. Is it unreasonable to imagine that our universities might lead the way?

Bibliography

- The American Heritage Dictionary, Fourth Edition.* (2001.). New York: Dell.
- Armstrong, K. (2004). *The Spiral Staircase: My Climb Out of Darkness.* New York: Alfred A. Knopf.
- Bechara, A., Damasio, H., Damasio, A. R., & Lee, G. P. (1999). Different contributions of the human amygdala and ventromedial prefrontal cortex to decision-making. *The Journal of Neuroscience*, 19(24), 5473-5481.
- Beniger, J. R. (1986). *The Control Revolution: Technological and Economic Origins of the Information Society.* Cambridge, MA: Harvard University Press.
- Burke, C. (1994). *Information and Secrecy: Vannevar Bush, Ultra, and the Other Memex.* Metuchen, NJ: Scarecrow Press.
- Bush, V. (1945, July 1945). As We May Think. *The Atlantic Monthly*, 176, 641-649.
- Bush, V. (1991). As We May Think. In J. M. Nyce & P. Kahn (Eds.), *From Memex to Hypertext: Vannevar Bush and the Mind's Machine* (pp. 85-107). Boston: Academic Press, Inc.
- Eriksen, T. H. (2001). *Tyranny of the Moment: Fast and Slow Time in the Information Age.* London: Pluto Press.
- Gleick, J. (1999). *Faster: The Acceleration of Just About Everything.* New York: Pantheon Books.
- Hunnicut, B. K. (1988). *Work Without End: Abandoning Shorter Hours for the Right to Work.* Philadelphia: Temple University Press.
- James, W. (1950 (1890)). *The Principles of Psychology.* New York: Dover Publications.
- Jha, A. P., Krompinger, J., & Baime, M. J. (In press). Mindfulness training modifies subsystems of attention. *Cognitive, Affective, and behavioral Neuroscience.*

¹⁵ I received a Contemplative Practice Fellowship from the American Council of Learned Societies and Contemplative Mind in Society for the academic year 2005-2006 which allowed me to create and teach a course on Information and Contemplation.

- Keller, E. F. (1983). *A Feeling for the Organism: The Life and Work of Barbara McClintock*. New York: Henry Holt and Company.
- Levy, D. M. (2006). More, Faster, Better: Governance in an Age of Overload, Busyness, and Speed. *FirstMonday* (Special Issue #7: Command Lines: The Emergence of Governance in Global Cyberspace [http://www.firstmonday.org/issues/special11_9/]).
- Levy, D. M. (2008). Information Overload. In K. E. Himma & H. T. Tavani (Eds.), *Information and Computer Ethics*. Hoboken, NJ: John Wiley & Sons.
- Loy, D. (1997). *Nonduality*. New Jersey: Humanities Press.
- Menzies, H. (2005). *No Time: Stress and the Crisis of Modern Life*. Vancouver: Douglas & McIntyre.
- Noone, T. B. (1997). In Memoriam, Josef Pieper (1918-1997). *The Review of Metaphysics*, 51(2), 491.
- Nyce, J. M., & Kahn, P. (Eds.). (1991). *From Memex to Hypertext: Vannevar Bush and the Mind's Machine*. Boston: Academic Press, Inc.
- Pieper, J. (1952). *Leisure: The Basis of Culture* (A. Dru, Trans.). London: Faber and Faber.
- Pieper, J. (1998). *Leisure: The Basis of Culture* (G. Malsbary, Trans.). South Bend, Indiana: St. Augustine's Press.
- Roberts, G. (2004, September 18, 2004). Tacoma Elementaries Enforce Ban on Recess: Goal is 'Maximizing Instructional Time'. *Seattle Post-Intelligencer*, p. A1.
- Rosa, H. (2003). Social Acceleration: Ethical and Political Consequences of a Desynchronized High-Speed Society. *Constellations*, 10(1), 3-33.
- Scheuerman, W. E. (2005). Busyness and Citizenship. *Social Research*, 72(2), 447-470.
- Thompson, C. (2005, October 16, 2005). Meet the Life Hackers. *New York Times*.
- Whybrow, P. C. (2005). *American Mania: When More Is Not Enough*. New York: W.W. Norton.
- Yankee Scientist. (1944, April 3, 1944). *Time Magazine*.
- Yates, J. (1989). *Control through Communication: The Rise of System in American Management*. Baltimore: Johns Hopkins University Press.