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Simulation and Its Discontents

alone together

Why We Expect More from Technology and Less from Each Other

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TO REBECCA

My letter to you, with love

CONCLUSION

necessary conversations

During my earliest days at MIT, I met the idea (at that time altogether novel to me) that part of my job would be to think of ways to keep technology busy. In the fall of 1978, Michael Dertouzos, director of the Laboratory for Computer Science, held a two-day retreat at MIT's Endicott House on the future of personal computers, at the time widely called "home computers." It was clear that "everyday people," as Dertouzos put it, would soon be able to have their own computers. The first of these—the first that could be bought and didn't have to be built—were just coming on the market. But what could people do with them? There was technological potential, but it needed to be put to work. Some of the most brilliant computer scientists in the world—such pioneers of information processing and artificial intelligence as Robert Fano, J. C. R. Licklеider, Marvin Minsky, and Seymour Papert—were asked to brainstorm on the question. My notes from this meeting show suggestions on tax preparation and teaching children to program. No one thought that anyone except academics would really want to write on computers. Several people suggested a calendar; others thought that was a dumb idea. There would be games.

Now we know that once computers connected us to each other, once we became tethered to the network, we really didn't need to keep computers busy. *They keep us busy.* It is as though we have become their killer app. As a friend of mine put it in a moment of pique, "We don't do our e-mail; our e-mail does

us." We talk about "spending" hours on e-mail, but we, too, are being spent. Niels Bohr suggests that the opposite of a "deep truth" is a truth no less profound.[1] As we contemplate online life, it helps to keep this in mind.

Online, we easily find "company" but are exhausted by the pressures of performance. We enjoy continual connection but rarely have each other's full attention. We can have instant audiences but flatten out what we say to each other in new reductive genres of abbreviation. We like it that the Web "knows" us, but this is only possible because we compromise our privacy, leaving electronic bread crumbs that can be easily exploited, both politically and commercially. We have many new encounters but may come to experience them as tentative, to be put "on hold" if better ones come along. Indeed, new encounters need not be better to get our attention. We are wired to respond positively to their simply being new. We can work from home, but our work bleeds into our private lives until we can barely discern the boundaries between them. We like being able to reach each other almost instantaneously but have to hide our phones to force ourselves to take a quiet moment.

Overwhelmed by the pace that technology makes possible, we think about how new, more efficient technologies might help dig us out. But new devices encourage ever-greater volume and velocity. In this escalation of demands, one of the things that comes to feel safe is using technology to connect to people at a distance, or more precisely, to a lot of people from a distance. But even a lot of people from a distance can turn out to be not enough people at all. We brag about how many we have "friended" on Facebook, yet Americans say they have fewer friends than before.[2] When asked in whom they can confide and to whom they turn in an emergency, more and more say that their only resource is their family.

The ties we form through the Internet are not, in the end, the ties that bind. But they are the ties that preoccupy. We text each other at family dinners, while we jog, while we drive, as we push our children on swings in the park. We don't want to intrude on each other, so instead we constantly intrude on each other, but not in "real time." When we misplace our mobile devices, we become anxious—impossible really. We have heard teenagers insist that even when their cell phones are not on their person, they can feel them vibrate. "I know when I'm being called," says a sixteen-year-old. "I just do." Sentiments of dependency echo across generations. "I never am without my cell phone," says a fifty-two-year-old father. "It is my protection."

In the evening, when sensibilities such as these come together, they are likely to form what have been called "postfamilial families."[3] Their members are alone

together, each in their own rooms, each on a networked computer or mobile device. We go online because we are busy but end up spending more time with technology and less with each other. We defend connectivity as a way to be close, even as we effectively hide from each other. At the limit, we will settle for the inanimate, if that's what it takes.

Bohr's dictum is equally true in the area of sociable robotics, where things are no less tangled. Roboticists insist that robotic emotions are made up of the same ultimate particles as human ones (because mind is ultimately made of matter), but it is also true that robots' claims to emotion derive from programs designed to get an emotional rise out of us.[4]

Roboticists present, as though it were a first principle, the idea that as our population ages, we simply won't have enough people to take care of our human needs, and so, as a companion, a sociable robot is "better than nothing." But what are our first principles? We know that we warm to machines when they seem to show interest in us, when their affordances speak to our vulnerabilities. But we don't have to say yes to everything that speaks to us in this way. Even if, as adults, we are intrigued by the idea that a sociable robot will distract our aging parents, our children ask, "Don't we have people for these jobs?" We should attend to their hesitations. Sorting all this out will not be easy. But we are at a crossroads—at a time and place to initiate new conversations.

As I was working on this book, I discussed its themes with a former colleague, Richard, who has been left severely disabled by an automobile accident. He is now confined to a wheelchair in his home and needs nearly full-time nursing care. Richard is interested in robots being developed to provide practical help and companionship to people in his situation, but his reaction to the idea is complex. He begins by saying, "Show me a person in my shoes who is looking for a robot, and I'll show you someone who is looking for a person and can't find one," but then he makes the best possible case for robotic helpers when he turns the conversation to *human* cruelty. "Some of the aides and nurses at the rehab center hurt you because they are unskilled, and some hurt you because they mean to. I had both. One of them, she pulled me by the hair. One dragged me by my tubes. A robot would never do that," he says. And then he adds, "But you know, in the end, that person who dragged me by my tubes had a story. I could find out about it. She had a story."

For Richard, being with a person, even an unpleasant, sadistic person, makes him feel that he is still alive. It signifies that his way of being in the world has a certain dignity, even if his activities are radically curtailed. For him, dignity

requires a feeling of authenticity, a sense of being connected to the human narrative. It helps sustain him. Although he would not want his life endangered, he prefers the sadist to the robot.

Richard's perspective is a cautionary tale to those who would speak in too-simple terms of purely technical benchmarks for human and machine interactions. We animate robotic creatures by projecting meaning onto them and are thus tempted to speak of their emotions and even their "authenticity." We can do this if we focus on the feelings that robots evoke in us. But too often the unasked question is, What does the robot feel? We know what the robot cannot feel: it cannot feel human empathy or the flow of human connection. Indeed, the robot can feel nothing at all. Do we care? Or does the performance of feeling now suffice? Why would we want to be in conversation with machines that cannot understand or care for us? The question was first raised for me by the ELIZA computer program.[5] What made ELIZA a valued interlocutor? What matters were so private that they could only be discussed with a machine?

Over years and with some reluctance, I came to understand that ELIZA's popularity revealed more than people's willingness to talk to machines; it revealed their reluctance to talk to other people.[6] The idea of an attentive machine provides the fantasy that we may escape from each other. When we say we look forward to computer judges, counselors, teachers, and pastors, we comment on our disappointments with people who have not cared or who have treated us with bias or even abuse. These disappointments begin to make a machine's performance of caring seem like caring enough. We are willing to put aside a program's lack of understanding and, indeed, to work to make it seem to understand more than it does—all to create the fantasy that there is an alternative to people. This is the deeper "ELIZA effect." Trust in ELIZA does not speak to what we think ELIZA will understand but to our lack of trust in the people who might understand.

Kevin Kelly asks, "What does technology want?" and insists that, whatever it is, technology is going to get it. Accepting his premise, what if one of the things technology wants is to exploit our disappointments and emotional vulnerabilities? When this is what technology wants, it wants to be a symptom.

SYMPTOMS AND DREAMS

Wary of each other, the idea of a robot companion brings a sense of control, of welcome substitution. We allow ourselves to be comforted by unrequited love,

for there is no robot that can ever love us back. That same wariness marks our networked lives. There, too, we are vulnerable to a desire to control our connections, to titrate our level of availability. Things progress quickly. A lawyer says sensibly, "I can't make it to a client meeting; I'll send notes by e-mail instead." Five steps later, colleagues who work on the same corridor no longer want to see or even telephone each other and explain that "texts are more efficient" or "I'll post something on Facebook."

As we live the flowering of connectivity culture, we dream of sociable robots.[7] Lonely despite our connections, we send ourselves a technological Valentine. If online life is harsh and judgmental, the robot will always be on our side. The idea of a robot companion serves as both symptom and dream. Like all psychological symptoms, it obscures a problem by "solving" it without addressing it. The robot will provide companionship and mask our fears of too-risky intimacies. As dream, robots reveal our wish for relationships we can control.

A symptom carries knowledge that a person fears would be too much to bear. To do its job, a symptom disguises this knowledge so it doesn't have to be faced day to day.[8] So, it is "easier" to feel constantly hungry than to acknowledge that your mother did not nurture you. It is "easier" to be enraged by a long supermarket line than to deal with the feeling that your spouse is not giving you the attention you crave. When technology is a symptom, it disconnects us from our real struggles.

In treatment, symptoms disappear because they become irrelevant. Patients become more interested in looking at what symptoms hide—the ordinary thoughts and experiences of which they are the strangulated expression. So when we look at technology as symptom and dream, we shift our attention away from technology and onto ourselves. As Henry David Thoreau might ask, "Where do we live, and what do we live for?" Kelly writes of technophilia as our natural state: we love our objects and follow where they lead.[9] I would reframe his insight: we love our objects, but enchantment comes with a price.

The psychoanalytic tradition teaches that all creativity has a cost, a caution that applies to psychoanalysis itself.[10] For psychoanalyst Robert Caper, "The transgression in the analytic enterprise is not that we try to make things better; the transgression is that we don't allow ourselves to see its costs and limitations."[11] To make his point Caper revisits the story of Oedipus. As his story is traditionally understood, Oedipus is punished for seeking knowledge—in particular, the knowledge of his parentage. Caper suggests he is punished for something else: his refusal to recognize the limitations of knowledge. A parallel with technology

is clear: we transgress not because we try to build the new but because we don't allow ourselves to consider what it disrupts or diminishes. We are not in trouble because of invention but because we think it will solve everything.

A successful analysis disturbs the field in the interest of long-term gain; it learns to repair along the way.[12] One moves forward in a chastened, self-reflective spirit. Acknowledging limits, stopping to make the corrections, doubling back—these are at the heart of the ethic of psychoanalysis. A similar approach to technology frees us from unbending narratives of technological optimism or despair. Consider how it would modulate Kelly's argument about technophilia. Kelly refers to Henry Adams, who in 1900 had a moment of rapture when he first set eyes on forty-foot dynamos. Adams saw them as "symbols of infinity, objects that projected a moral force, much as the early Christians felt the cross."[13] Kelly believes that Adams's desire to be at one with the dynamo foreshadows how Kelly now feels about the Web. As we have seen, Kelly wants to merge with the Web, to find its "lovely surrender." Kelly continues,

> I find myself indebted to the net for its provisions. It is a steadfast benefactor, always there. I caress it with my fidgety fingers; it yields up my desires, like a lover. . . . I want to remain submerged in its bottomless abundance. To stay. To be wrapped in its dreamy embrace. Surrendering to the web is like going on aboriginal walkabout. The comforting illogic of dreams reigns. In dreamtime you jump from one page, one thought, to another. . . . The net's daydreams have touched my own, and stirred my heart. If you can honestly love a cat, which can't give you directions to a stranger's house, why can't you love the web?[14]

Kelly has a view of connectivity as something that may assuage our deepest fears—of loneliness, loss, and death. This is the rapture. But connectivity also disrupts our attachments to things that have always sustained us—for example, the value we put on face-to-face human connection. Psychoanalysis, with its emphasis on the comedy and tragedy in the arc of human life, can help keep us focused on the specificity of human conversation. Kelly is enthralled by the Web's promise of limitless knowledge, its "bottomless abundance." But the Oedipal story reminds us that rapture is costly; it usually means you are overlooking consequences.

Oedipus is also a story about the difference between getting what you want and getting what you think you want. Technology gives us more and more of

what we think we want. These days, looking at sociable robots and digitized friends, one might assume that what we want is to be always in touch and never alone, no matter who or what we are in touch with. One might assume that what we want is a preponderance of weak ties, the informal networks that underpin online acquaintanceship. But if we pay attention to the real consequences of what we think we want, we may discover what we really want. We may want some stillness and solitude. As Thoreau put it, we may want to live less "thickly" and wait for more infrequent but meaningful face-to-face encounters. As we put in our many hours of typing—with all fingers or just thumbs—we may discover that we miss the human voice. We may decide that it is fine to play chess with a robot, but that robots are unfit for any conversation about family or friends. A robot might have needs, but to understand desire, one needs language and flesh. We may decide that for these conversations, we must have a person who knows, firsthand, what it means to be born, to have parents and a family, to wish for adult love and perhaps children, and to anticipate death. And, of course, no matter how much "wilderness" Kelly finds on the Web, we are not in a position to let the virtual take us away from our stewardship of nature, the nature that doesn't go away with a power outage.

We let things get away from us. Even now, we are emotionally dependent on online friends and intrigued by robots that, their designers claim, are almost ready to love us.[15] And brave Kevin Kelly says what others are too timid to admit: he is in love with the Web itself. It has become something both erotic and idealized. What are we missing in our lives together that leads us to prefer lives alone together? As I have said, every new technology challenges us, generation after generation, to ask whether it serves our human purposes, something that causes us to reconsider what they are.

In a design seminar, master architect Louis Kahn once asked, "What does a brick want?"[16] In that spirit, if we ask, "What does simulation want?" we know what it wants. It wants—it demands—immersion. But immersed in simulation, it can be hard to remember all that lies beyond it or even to acknowledge that everything is not captured by it. For simulation not only demands immersion but creates a self that prefers simulation. Simulation offers relationships simpler than real life can provide. We become accustomed to the reductions and betrayals that prepare us for life with the robotic.

But being prepared does not mean that we need to take the next step. Sociable robotics puts science into the game of intimacy and the most sensitive moments of children's development. There is no one to tell science what it cannot do, but

here one wishes for a referee. Things start innocently: neuroscientists want to study attachment. But things end reductively, with claims that a robot "knows" how to form attachments because it has the algorithms. The dream of today's roboticists is no less than to reverse engineer love. Are we indifferent to whether we are loved by robots or by our own kind?

In Philip K. Dick's classic science fiction story "Do Androids Dream of Electric Sheep" (which most people know through its film adaptation, *Blade Runner*), loving and being loved by a robot seems a good thing. The film's hero, Deckard, is a professional robot hunter in a world where humans and robots look and sound alike. He falls in love with Rachel, an android programmed with human memories and the knowledge that she will "die." I have argued that knowledge of mortality and an experience of the life cycle are what make us uniquely human. This brilliant story asks whether the simulation of these things will suffice.

By the end of the film, we are left to wonder whether Deckard himself may be an android but unaware of his identity. Unable to resolve this question, we cheer for Deckard and Rachel as they escape to whatever time they have remaining—in other words, to the human condition. Decades after the film's release, we are still nowhere near developing its androids. But to me, the message of *Blade Runner* speaks to our current circumstance: long before we have devices that can pass any version of the Turing test, the test will seem beside the point. We will not care if our machines are clever but whether they love us.

Indeed, roboticists want us to know that the point of affective machines is that they will take care of us. This narrative—that we are on our way to being tended by "caring" machines—is now cited as conventional wisdom. We have entered a realm in which conventional wisdom, always inadequate, is dangerously inadequate. That it has become so commonplace reveals our willingness to take the performance of emotion as emotion enough.

EMOTION ENOUGH

When roboticists argue that robots can develop emotions, they begin by asserting the material basis of all thought and take things from there. For example, Rodney Brooks says that a robot could be given a feeling like "sadness" by setting "a number in its computer code." This sadness, for Brooks, would be akin to that felt by humans, for "isn't humans' level of sadness basically a number, too, just a number of the amounts of various neurochemicals circulating in the brain? Why should a robot's numbers be any less authentic than a human's?"[17]

Given my training as a clinician, I tend to object to the relevance of a robot's "numbers" for thinking about emotion because of something humans have that robots don't: a human body and a human life. Living in our bodies sets our human "numbers." Our emotions are tied to a developmental path—from childhood dependence to greater independence—and we experience the traces of our earlier dependencies in later fantasies, wishes, and fears. Brooks speaks of giving the robot the emotion of "sadness." In a few months, I will send my daughter off to college. I'm both sad and thrilled. How would a robot "feel" such things? Why would its "numbers" even "want" to?

Cynthia Breazeal, one of Brooks's former students, takes another tack, arguing that robotic emotions are valid if you take care to consider them as a new category. Cats have cat emotions, and dogs have dog emotions. These differ from each other and from human emotions. We have no problem, says Breazeal, seeing all of these as "genuine" and "authentic." And now, robots will have robot emotions, also in their own category and likewise "genuine" and "authentic." For Breazeal, once you give robotic emotions their own category, there is no need to compare. We should respect emotional robots as "different," just as we respect all diversity.[18] But this argument confuses the authentic with the sui generis. That the robotic performance of emotion might exist in its own category implies nothing about the authenticity of the emotions being performed. And robots do not "have" emotions that we must respect. We build robots to do things that make us feel as though they have emotions. Our responses are their design template.

Whether one debates the question of robotic emotions in terms of materialism or category, we end up in a quandary. Instead of asking whether a robot has emotions, which in the end boils down to how different constituencies define emotion, we should be asking what kind of relationships we want to have with machines. Why do we want robots to perform emotion? I began my career at MIT arguing with Joseph Weizenbaum about whether a computer program might be a valuable dialogue partner. Thirty years later, I find myself debating those who argue, with David Levy, that my daughter might want to marry one.[19]

Simulation is often justified as practice for real-life skills—to become a better pilot, sailor, or race-car driver. But when it comes to human relations, simulation gets us into trouble. Online, in virtual places, simulation turns us into its

creatures. But when we step out of our online lives, we may feel suddenly as though in too-bright light. Hank, a law professor in his late thirties, is on the Net for at least twelve hours a day. Stepping out of a computer game is disorienting, but so is stepping out of his e-mail. Leaving the bubble, Hank says, "makes the flat time with my family harder. Like it's taking place in slow motion. I'm short with them." After dinner with his family, Hank is grateful to return to the cool shade of his online life.

Nothing in real life with real people vaguely resembles the environment (controlled yet with always-something-new connections) that Hank finds on the Net. Think of what is implied by his phrase "flat time." Real people have consistency, so if things are going well in our relationships, change is gradual, worked through slowly. In online life, the pace of relationships speeds up. One quickly moves from infatuation to disillusionment and back. And the moment one grows even slightly bored, there is easy access to someone new. One races through e-mail and learns to attend to the "highlights." Subject lines are exaggerated to get attention. In online games, the action often reduces to a pattern of moving from scary to safe and back again. A frightening encounter presents itself. It is dealt with. You regroup, and then there is another. The adrenaline rush is continual; there is no "flat time."

Sometimes people try to make life with others resemble simulation. They try to heighten real-life drama or control those around them. It would be fair to say that such efforts do not often end well. Then, in failure, many are tempted to return to what they do well: living their lives on the screen. If there is an addiction here, it is not to a technology. It is to the habits of mind that technology allows us to practice.

Online, we can lose confidence that we are communicating or cared for. Confused, we may seek solace in even more connection. We may become intolerant of our own company: "I never travel without my BlackBerry," says a fifty-year-old management consultant. She cannot quiet her mind without having things on her mind.

My own study of the networked life has left me thinking about intimacy—about being with people in person, hearing their voices and seeing their faces, trying to know their hearts. And it has left me thinking about solitude—the kind that refreshes and restores. Loneliness is failed solitude.[20] To experience solitude you must be able to summon yourself by yourself; otherwise, you will only know how to be lonely. In raising a daughter in the digital age, I have thought of this very often.

In his history of solitude, Anthony Storr writes about the importance of being able to feel at peace in one's own company.[21] But many find that, trained by the Net, they cannot find solitude even at a lake or beach or on a hike. Stillness makes them anxious. I see the beginnings of a backlash as some young people become disillusioned with social media. There is, too, the renewed interest in yoga, Eastern religions, meditating, and "slowness."

These new practices bear a family resemblance to what I have described as the romantic reaction of the 1980s. Then, people declared that something about their human nature made them unlike any machine ("simulated feeling may be feeling; simulated love is never love"). These days, under the tutelage of imaging technology and neurochemistry, people seem willing to grant their own machine natures. What they rebel against is how we have responded to the affordances of the networked life. Offered continual connectivity, we have said yes. Offered an opportunity to abandon our privacy, so far we have not resisted. And now comes the challenge of a new "species"—sociable robots—whose "emotions" are designed to make us comfortable with them. What are we going to say?

The romantic reaction of the 1980s made a statement about computation as a model of mind; today we struggle with who we have become in the presence of computers. In the 1980s, it was enough to change the way you saw yourself. These days, it is a question of how you live your life. The first manifestations of today's "push back" are tentative experiments to do without the Net. But the Net has become intrinsic to getting an education, getting the news, and getting a job. So, today's second thoughts will require that we actively reshape our lives on the screen. Finding a new balance will be more than a matter of "slowing down." How can we make room for reflection?

QUANDARIES

In arguing for "caring machines," roboticists often make their case by putting things in terms of quandaries. So, they ask, "Do you want your parents and grandparents cared for by robots, or would you rather they not be cared for at all?" And alternatively, "Do you want seniors lonely and bored, or do you want them engaged with a robotic companion?"[22] The forced choice of a quandary, posed over time, threatens to become no quandary at all because we come to accept its framing—in this case, the idea that there is only one choice, between robotic caregivers and loneliness. The widespread use of this particular

quandary makes those uncomfortable with robotic companions out to be people who would consign an elderly population to boredom, isolation, and neglect.

There is a rich literature on how to break out of quandary thinking. It suggests that sometimes it helps to turn from the abstract to the concrete.[23] This is what the children in Miss Grant's fifth-grade class did. Caught up in a "for or against" discussion about robot caregivers, they turned away from the dilemma to ask a question ("Don't we have people for these jobs?") that could open up a different conversation. While the children only began that conversation, we, as adults, know where it might go. What about bringing in some new people? What must be done to get them where they are needed? How can we revisit social priorities so that funds are made available? We have the unemployed, the retired, and those currently at war—some of these might be available if there were money to pay them. One place to start would be to elevate elder care above the minimum-wage job that it usually is, often without benefits. The "robots-or-no-one" quandary takes social and political choice out of the picture when it belongs at the center of the picture.

I experienced a moment of reframing during a seminar at MIT that took the role of robots in medicine as its focus. My class considered a robot that could help turn weak or paralyzed patients in their beds for bathing. A robot now on the market is designed as a kind of double spatula: one plate slides under the patient; another is placed on top. The head is supported, and the patient is flipped. The class responded to this technology as though it suggested a dilemma: machines for the elderly or not. So some students insisted that it is inevitable for robots to take over nursing roles (they cited cost, efficiency, and the insufficient numbers of people who want to take the job). Others countered that the elderly deserve the human touch and that anything else is demeaning. The conversation argued absolutes: the inevitable versus the unsupportable.

Into this stalled debate came the voice of a woman in her late twenties whose mother had recently died. She did not buy into the terms of the discussion. Why limit our conversation to no robot or a robotic flipper? Why not imagine a machine that is an extension of the body of one human trying to care lovingly for another? Why not build robotic arms, supported by hydraulic power, into which people could slip their own arms, enhancing their strength? The problem as offered presented her with two unacceptable images: an autonomous machine or a neglected patient. She wanted to have a conversation about how she might have used technology as prosthesis. Had her arms been made stronger, she

might have been able to lift her mother when she was ill. She would have welcomed such help. It might have made it possible for her to keep her mother at home during her last weeks. A change of frame embraces technology even as it provides a mother with a daughter's touch.

In the spirit of "break the frame and see something new," philosopher Kwame Anthony Appiah challenges quandary thinking:

> The options are given in the description of the situation. We can call this the *package problem*. In the real world, situations are not bundled together with options. In the real world, the act of framing—the act of describing a situation, and thus of determining that there's a decision to be made—is itself a moral task. It's often *the* moral task. Learning how to recognize what is and isn't an option is part of our ethical development. . . . In life, the challenge is not so much to figure out how best to play the game; the challenge is to figure out what game you're playing.[24]

For Appiah, moral reasoning is best accomplished not by responding to quandaries but by questioning how they are posed, continually reminding ourselves that we are the ones choosing how to frame things.

FORBIDDEN EXPERIMENTS

When the fifth graders considered robot companions for their grandparents and wondered, "Don't we have people for these jobs?" they knew they were asking, "Isn't 'taking care' our parents' job?" And by extension, "Are there people to take care of us if we become 'inconvenient'?" When we consider the robots in our futures, we think through our responsibilities to each other.

Why do we want robots to care for us? I understand the virtues of partnership with a robot in war, space, and medicine. I understand that robots are useful in dangerous working conditions. But why are we so keen on "caring"?[25] To me, it seems transgressive, a "forbidden experiment."[26]

Not everyone sees it this way. Some people consider the development of caring machines as simple common sense. Porter, sixty, recently lost his wife after a long illness. He thinks that if robotic helpers "had been able to do the grunt work, there might have been more time for human nurses to take care of the more personal and emotional things." But often, relationships hinge on these

investments of time. We know that the time we spend caring for children, doing the most basic things for them, lays down a crucial substrate.[27] On this ground, children become confident that they are loved no matter what. And we who care for them become confirmed in our capacity to love and care. The ill and the elderly also deserve to be confirmed in this same sense of basic trust. As we provide it, we become more fully human.

The most common justification for the delegation of care to robots focuses on things being "equal" for the person receiving care. This argument is most often used by those who feel that robots are appropriate for people with dementia, who will not "know the difference" between a person and a robot. But we do not really know how impaired people receive the human voice, face, and touch. Providing substitutes for human care may not be "equal" in the least. And again, delegating what was once love's labor changes the person who delegates. When we lose the "burden" of care, we begin to give up on our compact that human beings will care for other human beings. The daughter who wishes for hydraulic arms to lift her bedridden mother wants to keep her close. For the daughter, this last time of caring is among the most important she and her mother will share. If we divest ourselves of such things, we risk being coarsened, reduced. And once you have elder bots and nurse bots, why not nanny bots?

Why would we want a robot as a companion for a child? The relationship of a child to a sociable robot is, as I've said, very different from that of a child to a doll. Children do not try to model themselves on their dolls' expressions. A child projects human expression onto a doll. But a robot babysitter, already envisaged, might seem close enough to human that a child might use it as a model. This raises grave questions. Human beings are capable of infinite combinations of vocal inflection and facial expression. It is from other people that we learn how to listen and bend to each other in conversation. Our eyes "light up" with interest and "darken" with passion or anxiety. We recognize, and are most comfortable with, other people who exhibit this fluidity. We recognize, and are less comfortable with, people—with autism or Asperger's syndrome—who do not exhibit it. The developmental implications of children taking robots as models are unknown, potentially disastrous. Humans need to be surrounded by human touch, faces, and voices. Humans need to be brought up by humans.

Sometimes when I make this point, others counter that even so, robots might do the "simpler" jobs for children, such as feeding them and changing their diapers. But children fed their string beans by a robot will not associate food with human companionship, talk, and relaxation. Eating will become dissociated from emotional nurturance. Children whose diapers are changed by robots will not feel that their bodies are dear to other human beings. Why are we willing to consider such risks?[28]

Some would say that we have already completed a forbidden experiment, using ourselves as subjects with no controls, and the unhappy findings are in: we are connected as we've never been connected before, and we seem to have damaged ourselves in the process. A 2010 analysis of data from over fourteen thousand college students over the past thirty years shows that since the year 2000, young people have reported a dramatic decline in interest in other people. Today's college students are, for example, far less likely to say that it is valuable to try to put oneself in the place of others or to try to understand their feelings.[29] The authors of this study associate students' lack of empathy with the availability of online games and social networking. An online connection can be deeply felt, but you only need to deal with the part of the person you see in your game world or social network. Young people don't seem to feel they need to deal with more, and over time they lose the inclination. One might say that absorbed in those they have "friended," children lose interest in friendship.

These findings confirm the impressions of those psychotherapists—psychiatrists, psychologists, and social workers—who talk to me about the increasing numbers of patients who present in the consulting room as detached from their bodies and seem close to unaware of the most basic courtesies. Purpose-driven, plugged into their media, these patients pay little attention to those around them. In others, they seek what is of use, an echo of that primitive world of "parts." Their detachment is not aggressive. It is as though they just don't see the point.[30]

EARLY DAYS

It is, of course, tempting to talk about all of this in terms of addiction. Adam, who started out playing computer games with people and ends up feeling compelled by a world of bots, certainly uses this language. The addiction metaphor fits a common experience: the more time spent online, the more one wants to spend time online. But however apt the metaphor, we can ill afford the luxury of using it. Talking about addiction subverts our best thinking because it suggests that if there are problems, there is only one solution. To combat addiction, you have to discard the addicting substance. But we are not going to "get rid" of the Internet.

We will not go "cold turkey" or forbid cell phones to our children. We are not going to stop the music or go back to television as the family hearth.

I believe we will find new paths toward each other, but considering ourselves victims of a bad substance is not a good first step. The idea of addiction, with its one solution that we know we won't take, makes us feel hopeless. We have to find a way to live with seductive technology and make it work to our purposes. This is hard and will take work. Simple love of technology is not going to help. Nor is a Luddite impulse.

What I call *realtechnik* suggests that we step back and reassess when we hear triumphalist or apocalyptic narratives about how to live with technology. *Realtechnik* is skeptical about linear progress. It encourages humility, a state of mind in which we are most open to facing problems and reconsidering decisions. It helps us acknowledge costs and recognize the things we hold inviolate. I have said that this way of envisaging our lives with technology is close to the ethic of psychoanalysis. Old-fashioned perhaps, but our times have brought us back to such homilies.

Because we grew up with the Net, we assume that the Net is grown-up. We tend to see it as a technology in its maturity. But in fact, we are in early days. There is time to make the corrections. It is, above all, the young who need to be convinced that when it comes to our networked life, we are still at the beginning of things. I am cautiously optimistic. We have seen young people try to reclaim personal privacy and each other's attention. They crave things as simple as telephone calls made, as one eighteen-year-old puts it, "sitting down and giving each other full attention." Today's young people have a special vulnerability: although always connected, they feel deprived of attention. Some, as children, were pushed on swings while their parents spoke on cell phones.[31] Now, these same parents do their e-mail at the dinner table. Some teenagers coolly compare a dedicated robot with a parent talking to them while doing e-mail, and parents do not always come out ahead. One seventeen-year-old boy says, "A robot would remember everything I said. It might not understand everything, but remembering is a first step. My father, talking to me while on his BlackBerry, he doesn't know what I said, so it is not much use that if he did know, he might understand."

The networked culture is very young. Attendants at its birth, we threw ourselves into its adventure. This is human. But these days, our problems with the Net are becoming too distracting to ignore. At the extreme, we are so enmeshed in our connections that we neglect each other. We don't need to reject or disparage technology. We need to put it in its place. The generation that has grown up with the Net is in a good position to do this, but these young people need help. So as they begin to fight for their right to privacy, we must be their partners. We know how easily information can be politically abused; we have the perspective of history. We have, perhaps, not shared enough about that history with our children. And as we, ourselves enchanted, turned away from them to lose ourselves in our e-mail, we did not sufficiently teach the importance of empathy and attention to what is real.

The narrative of *Alone Together* describes an arc: we expect more from technology and less from each other. This puts us at the still center of a perfect storm. Overwhelmed, we have been drawn to connections that seem low risk and always at hand: Facebook friends, avatars, IRC chat partners. If convenience and control continue to be our priorities, we shall be tempted by sociable robots, where, like gamblers at their slot machines, we are promised excitement programmed in, just enough to keep us in the game. At the robotic moment, we have to be concerned that the simplification and reduction of relationship is no longer something we complain about. It may become what we expect, even desire.

In this book I have referred to our vulnerabilities rather than our needs. Needs imply that we must have something. The idea of being vulnerable leaves a lot of room for choice. There is always room to be less vulnerable, more evolved. We are not stuck. To move forward together—as generations together—we are called upon to embrace the complexity of our situation. We have invented inspiring and enhancing technologies, and yet we have allowed them to diminish us. The prospect of loving, or being loved by, a machine changes what love can be. We know that the young are tempted. They have been brought up to be. Those who have known lifetimes of love can surely offer them more.

When we are at our best, thinking about technology brings us back to questions about what really matters. When I recently travelled to a memorial service for a close friend, the program, on heavy cream-colored card stock, listed the afternoon's speakers, told who would play what music, and displayed photographs of my friend as a young woman and in her prime. Several around me used the program's stiff, protective wings to hide their cell phones as they sent text messages during the service. One of the texting mourners, a woman in her late sixties, came over to chat with me after the service. Matter-of-factly, she offered, "I couldn't stand to sit that long without getting on my phone." The point of the service was to take a moment. This woman had been schooled by a technology she'd had for less than a decade to find this close to impossible.[32] Later,

I discussed the texting with some close friends. Several shrugged. One said, "What are you going to do?"

A shrug is appropriate for a stalemate. That's not where we are. It is too early to have reached such an impasse. Rather, I believe we have reached a point of inflection, where we can see the costs and start to take action. We will begin with very simple things. Some will seem like just reclaiming good manners. Talk to colleagues down the hall, no cell phones at dinner, on the playground, in the car, or in company. There will be more complicated things: to name only one, nascent efforts to reclaim privacy would be supported across the generations. And compassion is due to those of us—and there are many of us—who are so dependent on our devices that we cannot sit still for a funeral service or a lecture or a play. We now know that our brains are rewired every time we use a phone to search or surf or multitask.[33] As we try to reclaim our concentration, we are literally at war with ourselves. Yet, no matter how difficult, it is time to look again toward the virtues of solitude, deliberateness, and living fully in the moment. We have agreed to an experiment in which we are the human subjects. Actually, we have agreed to a series of experiments: robots for children and the elderly, technologies that denigrate and deny privacy, seductive simulations that propose themselves as places to live.[34]

We deserve better. When we remind ourselves that it is we who decide how to keep technology busy, we shall have better.

EPILOGUE

the letter

I return from Dublin to Boston in September 2009. I have brought my daughter Rebecca to Ireland and helped her to set up her dorm room for a gap year before starting college in New England. I'm one day back from Dublin, and I have already had a lot of contact with Rebecca, all of it very sweet. There are text messages: she forgot a favorite red coat; she wants her green down "puff" jacket and a pink scarf she would like to drape over her bed as a canopy. Could I please mail them to her? I assemble her parcel and send a text: "On the way to the Post Office." I have downloaded Skype and am ready for its unforgiving stare. Yet, even on my first day home, I feel nostalgic. I sit in my basement surrounded by musty boxes, looking for the letters that my mother and I exchanged during my first year in college, the first time I lived away from home. The telephone was expensive. She wrote twice a week. I wrote once a week. I remember our letters as long, emotional, and filled with conflict. We were separating, finding our way toward something new. Forty years later, I find the letters and feel as though I hold her heart in my hands.

As the days pass, I am in regular contact with my daughter on Skype and by text. As though under some generational tutelage, I feel constrained to be charming and brief in our breezy, information-filled encounters. Once, while

texting, I am overtaken by a predictable moment in which I experience my mortality. In forty years, what will Rebecca know of her mother's heart as she found her way toward something new?

Now, holding my mother's letters, it is hard to read their brightness and their longing. She wrote them when she was dying and didn't want me to know. Her letters, coded, carried the weight of future letters that would never be written. And once a week, I wrote her a letter, telling my mother what I wanted her to know of my life. In discretion, there were significant omissions. But I shared a lot. She was my touchstone, and I wanted her to understand me. My letters tried to create the space for this conversation.

My daughter's texts and Skype presence leave no space of this kind. Is this breeziness about our relationship, or is it about our media? Through my daughter's senior-class friends—she attended an all-girl's day school—I know a cohort of mothers whose daughters have just left for college or their first year away from home. I talk to them about their experiences and the part that technology is playing.

The "mother narratives" have a certain similarity. They begin with an affirmation of the value of technology: mothers insist that they are more frequently in touch with their daughters than, as one puts it, "I would have ever dared hope." Mothers detail the texts and the Skype calls. A few, only a few, say they get an occasional e-mail. Since Skype has video as well as voice, mothers say they can tell if their daughters are looking well. Everyone is vigilant, worried about swine flu. Several hate that their daughters can see them. The mothers are in their late forties through early sixties, and they are not all happy to be closely observed. "I stopped putting on makeup for Skype," one says. "It was getting ridiculous." Another insists that putting on makeup for Skype is important: "I want her to see me at my best, able to cope. I don't want her to worry."

There is wistfulness in the mothers' accounts. For one, "It's pretty much the old 'news of the week in review,' except it's news of the day. But even with the constant updates, I don't have much of a sense of what is really happening. How she really feels." For another, "Texting makes it easy to lie. You never know where they really are. You never know if they are home. They can be anyplace and text you. Or Skype you on their iPhone. With a landline, you knew they were actually where they were supposed to be." One mother shares my feeling that conversations on Skype are inexplicably superficial. Unlike me, she attributes it to the technical limitations of her Internet connection: "It's like we are shouting at each other in order to be heard. The signal cuts off. I'm shouting at the computer."

And for this mother, things become even more superficial when she and her daughter exchange texts. She says, "I know that some people find it [texting] intimate, but it doesn't seem like a place to get into a long story." To this mother I admit that there is something about Skype that seems so ephemeral that I sometimes take "screenshots" of my daughter during our calls. On Skype you see each other, but you cannot make eye contact. I don't like these screenshots. My daughter has the expression of someone alone. Of course, there is irony in my experience of the digital as ephemeral and in my self-indulgent moment as I imagine my daughter in forty years with no trace of our conversations. Because the digital is only ephemeral if you don't take the trouble to make it permanent.

LIFE CAPTURE

Vannevar Bush, director of the Office of Scientific Research and Development during World War II, was concerned about what would happen once the war was over and scientists could dedicate themselves to civilian life. He wasn't worried about the biologists—they could always work on practical, medical problems—but the physicists needed new direction. In a landmark *Atlantic Monthly* article, "As We May Think," Bush suggested one: the physicists should develop a "memex." This would be "a device in which an individual stores all his books, records, and communications, and which is mechanized so that it may be consulted with exceeding speed and flexibility." It would be, Bush wrote, an "intimate supplement to his memory."[1] Bush dreamed of scientists wearing glasses that could automatically record those things "worthy of the record." He dreamed of annotating all that was captured. In his description of how an individual would make a path through all this data, Bush's narrative captures the essence of a Web search.

In the late 1970s, computer scientist Steve Mann began recording his life in a very different spirit—as an act of resistance. In a world filled with surveillance cameras—on the street, in shopping malls, in banks—Mann wanted to turn cameras against the world. To pursue his project, Mann found a way to wear a computer, keyboard, screen, and radio transmitter on his body. He captured his life and posted it on the Web.[2]

Mann's work was part performance art, part engineering research, and part political statement. Now, his once subversive gesture—documenting a life and putting it on the Web—is almost within everyone's reach. These days, anyone with a smartphone (equipped with a camera and/or video recorder) is close to

having a portable archivist. And indeed, many say that when they don't use their mobile phone to document their lives, they feel remiss, guilty for not doing so.

In the mid-1990s, computer pioneer Gordon Bell began a project that would lead him to create a complete life archive. His first steps were to scan books, cards, letters, memos, posters, photographs, and even the logos from his coffee mug and T-shirt collections. Then, he moved on to digitizing home movies, videotaped lectures, and voice recordings. Of course, Bell archived everything he had ever written or read on his computer, from personal e-mails to academic papers. Faced with the question of how to organize and retrieve this data, Bell began to work with his Microsoft colleague Jim Gemmell, and the MyLifeBits project was born. As the system went live, Bell wore voice-recording equipment and a camera programmed to take a new photograph when it sensed (by a change of ambient light) that Bell was with a new person or in a new setting.[3] MyLifeBits recorded Bell's telephone calls, the songs he listened to, and the programs he watched on radio and television. When Bell was at the computer, it recorded the Web pages he visited, the files he opened, the messages he sent and received. It even monitored which windows were in the foreground of his screen at any time and how much mouse and keyboard activity was going on.

Life capture has practical applications. Bell's physician, for example, now has access to a detailed, ongoing record of his patient's life. If Bell doesn't exercise or eats fatty foods, the system knows. But Bell's mind is on posterity. For him, MyLifeBits is a way for people to "tell their life stories to their descendants."[4] His program aspires to be the ultimate tool for life collection.[5] But what of *recollection* in the fully archived life? If technology remembers for us, will we remember less? Will we approach our own lives from a greater distance? Bell talks about how satisfying it is to "get rid" of memories, to get them into the computer. Speaking of photography, Susan Sontag writes that under its influence, "travel becomes a strategy for accumulating photographs."[6] In digital culture, does life become a strategy for establishing an archive?[7] Young people shape their lives to produce an impressive Facebook profile. When we know that everything in our lives is captured, will we begin to live the life that we hope to have archived?

For Bell, a life archive responds to the human desire for a kind of immortality, the ancient fantasy of cheating death. But the experience of building the archive may subvert such intent. We may end up with a life deferred by the business of its own collection. One of life's pleasures is remembering, the good and the bad. Will the fact of the archive convince us that the work of remembering is already done?

When I go to San Francisco to talk with Bell and Gemmell in the summer of 2008, the formal MyLifeBits project is winding down; Bell wears only bits and pieces of his gear to our interview. He turns on a tape recorder. He takes my picture. He has wearied of his hardware. But the two scientists assure me—and I think they have a point—that total recall will be more popular when the technology for documenting your life is less burdensome. In the future there will be no fiddling with cameras and adjusting sound levels. You will be able to wear audio and video recording devices as tiny bits of diamondlike jewelry or, ultimately, as implants.

I am moved by my day with Gordon Bell. We look at his photographs, archived in complex patterns that make it possible to retrieve them by date, subject, and who is in the picture. We look at e-mail archives that span a professional lifetime. But the irony of the visit is that we spend most of our time talking about physical objects: we both love beautiful notebooks, and Bell shows me his Japanese-made journals filled with his elegant sketches of computer circuitry. We talk of physical objects that Bell has saved, things that belonged to his father. At one point, Bell brings out his MIT dissertation written over fifty years ago. It is hand typed. It has the "blueprints" of the circuits he devised—literally, diagrams etched on blue paper. We both touch them with a kind of awe. Now the computer generates such diagrams. But Bell touches the prints with the reverence with which I handle my mother's letters. We are not so ready to let all of this go.

Bell remains an enthusiast of life archiving but admits that it may be having unintended effects. For one thing, he suspects his project may be changing the nature of his memory.[8] Bell describes a lack of curiosity about details of life that he can easily find in his life archive. And he focuses on what the archive makes easily available. So, for example, Bell is mesmerized by a screen saver that draws on his personal archive to display random snapshots. Pictures of long-ago birthdays and family trips trigger waves of nostalgia. But during my visit, Bell tries to use search tools to find a particular photograph that is not coming up on the screen. He pursues one strategy, then another. Nothing works; he loses interest. One senses a new dynamic: when you depend on the computer to remember the past, you focus on whatever past is kept on the computer. And you learn to favor whatever past is easiest to find. My screen saver, my life.

And there are other effects. Bell says he can no longer abide books. He will get one, look at it, but "then I give them away, because they're not in my [computer's] memory. To me they're almost gone."[9] Journalist Clive Thompson, another of Bell's visitors, reflects on this aspect of Bell's experiment. Thompson

says, "If it's not in your database, it doesn't exist. That's the sort of eerie philosophical proposition Bell's project raises."[10]

The proposition may not be so philosophical. To a certain degree, we already live it. Consider Washington, D.C., on Inauguration Day in 2009. Arms are held high; cell phones glint in the sun. People are taking pictures of themselves, of strangers, of friends, of the JumboTron plasma screens that will broadcast the ceremony. The event is a celebration of physical presence, but the crowd reaches out to those who are absent. It is important to have images of the day on one's own phone. And it is important to send them along. A photo from the inauguration, or a text, a posting, an e-mail, a Tweet—all validate the sense of being there. It used to be that taking a photograph marked participation—think of all the tourists who wanted to take their own photographs of the *Mona Lisa* as well as photograph themselves with the painting. But these days, the photograph is not enough. Sending implies being. On the inaugural platform, invited guests have cell phones and cameras raised high. The notables who constitute the picture take their own pictures. We are all pressed into the service of technologies of remembrance and validation.[11] As I write in January 2010, a new issue of *The New Yorker* shows a man and woman at the summit of a ski slope. He is using his digital camera; she is on her cell phone.

COLLECTION AND RECOLLECTION

When I learn about how MyLifeBits software will use face-recognition technology to label photographs automatically, I recall childhood times with my mother when she wrote funny things, silly poems, or sentimental inscriptions on the back of family photographs. She liked putting them all together in a big drawer, so that, in a way, picking a photo out of the drawer was like finding a surprise. Moments around the photograph drawer were times of recollection, in laughter and sometimes regret. Bell and Gemmell see photograph labeling as a "pesky" technical problem, something that computers must learn to do. They sum up the issue of labeling by saying that people "don't want to be the librarians of our digital archives—we want the computer to be the librarian."[12] Subtly, attitudes toward one's own life shift. My mother, happily annotating her drawer of snapshots, never saw herself as a librarian.

Bell says that "offloading memories" onto a computer "gives you kind of a feeling of cleanliness." Clean of remembrance? Clean of messy, unreliable associations? Do we want to be "clean" in this way?[13] Marcel Proust mined and reworked his memories—the things that were clear and the things that he felt slipping away—to create *Remembrance of Things Past*. But one never thinks of Proust getting "rid" of memory as he labored in his cork-lined room. For Sigmund Freud, we understand what things mean by what we forget as well as what we remember. Forgetting is motivated; it offers clues about who we are. What Proust struggled to remember is more important than what came easily to him. He found himself in the memories wrenched from the shadows. Artificial remembrance will be the great leveler.

At Microsoft, computer scientist Eric Horvitz is in charge of a project—Life Browser—designed to make MyLifeBits data more user-friendly by giving it shape and pattern. Installed on your computer, Life Browser observes what you attend to—the files you open, the e-mails you answer, the Web searches you return to. It shows who you are based on what you do. You can intervene: for example, you can manually tag as most important, things you do less often. You can say that infrequent calls are to the most important people. But Life Browser will keep coming back at you with what your actual behavior says about your priorities. To demonstrate the program Horvitz tells it, "Go to July Fourth." Life Browser complies with photographs of parades and cookouts. Horvitz says of the program, "It comes to understand your mind, how you organize your memories, by what you choose. It learns to become like you, to help you be a better you."[14]

I think of my mother's photograph drawer, intentionally kept messy. Her Life Browser would have reflected disorder and contradiction, for every time she chose a photograph, she told a different story. Some were true, and some only bore the truth of wishes. Understanding these wishes made my time at the photograph drawer precious to me. In contrast, Gemmell imagines how Life Browser and its artificially intelligent descendants will relieve him of the burden of personal narration: "My dream is I go on vacation and take my pictures and come home and tell the computer, 'Go blog it,' so that my mother can see it. I don't have to do anything; the story is there in the pattern of the images."[15]

Don, twenty-one, a civil engineering student at a West Coast university, wants a life archive. He shoots photographs with his iPhone and uploads them to the Web every night, often a hundred a day. He says that his friends want to see everything he does, so "I put my life on Facebook. I don't like to make choices [among the photographs]. My friends can choose. I just like to have it all up there." There is nothing deliberate in Don's behavior except for its first premise: shoot as much of your life as possible and put it on the Web. Don is confident that "a picture of my life will emerge from, well, all the pictures of my life."

Don hasn't heard of Life Browser but has confidence that it is only a matter of time before he will have access to an artificial intelligence that will be able to see his life "objectively." He welcomes the idea of the documented life, organized by algorithm. The imperfect Facebook archive is only a first step. Rhonda, twenty-six, also uses Facebook to record her life. Her experience is more labored. "Taking and uploading photographs," she says, "feels like a requirement." Rhonda wants to save things on the computer because of a desire to remember ("I'll know exactly what I did") and to forget ("It's all there if I ever need to remember something. If I put it on the computer, I don't have to think about it anymore"). This is what Gordon Bell calls "clean living"—but with a difference. In Bell's utopian picture, after the saving comes the sifting and savoring. For Rhonda, the practice of saving is an end in itself. Don and Rhonda suggest a world in which technology determines what we remember of the story of our lives. Observing software "learns" our "favorites" to customize what it is important to remember. Swaddled in our favorites, we miss out on what was in our peripheral vision.

The memex and MyLifeBits both grew out of the idea that technology has developed capacities that should be put to use. There is an implied compact with technology in which we agree not to waste its potential. Kevin Kelly reframes this understanding in language that gives technology even greater volition: as technology develops, it shows us what it "wants." To live peacefully with technology, we must do our best to accommodate these wants. By this logic, it would seem that right now, one of the things technology "wants" to do is ponder our memories.

A LETTER HOME

I begin drafting this chapter in the late summer of 2009. After a few weeks, my work is interrupted by the Jewish high holy days. On Yom Kippur, the Day of Atonement, there is a special service of mourning for the dead. This is Yiskor. Different synagogues have different practices. In mine, the rabbi delivers a sermon just before the service. This year, his comments bring me up short. Things that had seemed complicated now seem clear. The rabbi addresses the importance of talking to the dead. His premise is that we want to, need to, talk to the dead. It is an important, not a maudlin, thing to do. The rabbi suggests that we have four things to say to them: I'm sorry. Thank you. I forgive you. I love you. This is what makes us human, over time, over distance.

When my daughter and I have our first conversation on Skype (Dublin/Boston), I'm in the midst of reviewing my materials on Gordon Bell and the MyLifeBits program. I tell Rebecca I'm writing about the possibility of being able to archive everything we do. I ask her if she would like to have a record of all of her communications during her time in Dublin: e-mails, texts, instant messages, Facebook communications, calls, conversations, searches, pictures of everyone she has met and all the travelling she has done. She thinks about it. After a silence, she finally says, "Well, that's a little pack ratty, creepy." When people are pack rats, the volume of things tends to mean that equal weight is given to every person, conversation, and change of venue. More appealing to her are human acts of remembrance that filter and exclude, that put events into shifting camps of meaning—a scrapbook, a journal. And perhaps, at eighteen, she senses that, for her, archiving might get in the way of living. To live most fully, perhaps we need at least the fiction that we are not archiving. For surely, in the archived life, we begin to live for the record, for how we shall be seen.

As Rebecca and I talk about what has weight for her in her year abroad, I tell her that, prompted by her absence, I have been looking over my freshman-year correspondence with my mother. I ask my daughter if she would like to write me a letter. Since she already sends me regular text messages and we're now on Skype talking about what shoes she should wear to the "Back to the Future" Ball at her Dublin College, she has a genuine moment of puzzlement and says, "I don't know what my subject could be." I appreciate that with the amount of communication we have, it could well seem that all topics have been exhausted. Nevertheless, I say something like, "You could write about your thoughts about being in Ireland, how you feel about it. Things that would mean special things to me." Over time, over distance, through the fishbowl of Skype, Rebecca stares at me from her dorm room and repeats, "Maybe if I could find a subject."

As I talk to Rebecca about the pleasures of my correspondence with my mother, she comments sensibly, "So send me a letter." And so I have.

In spring 2010, Facebook's privacy policies again became front-page news. See Jenna Wortham, "Facebook Glitch Brings New Privacy Worries," *New York Times*, May 5, 2010, www.nytimes.com/2010/05/06/technology/internet/06facebook.html?scp=2&sq=wortham%20facebook&st=cse (accessed May 10, 2010), and Miguel Helft and Jenna Wortham, "Facebook Bows to Pressure over Privacy," *New York Times*, May 27, 2010, www.nytimes.com/2010/05/27/technology/27facebook.html (accessed May 29, 2010). This conversation will surely continue.

7. Miguel Helft, "Anger Leads to Apology from Google About Buzz," *New York Times*, February 14, 2010, www.nytimes.com/2010/02/15/technology/internet/15google.html (accessed May 29, 2010).

8. The corporate world has certainly behaved as though transparency about privacy policy is not necessarily in its best interest. When Facebook has been open about how much user data it feels it owns, users have not been happy. The corporate reality, however, is on the public record. An anonymous Facebook employee disclosed that the company saves "all the data on all of our servers, every hour of every day." "At least two people," the employee said, "have been fired" for spying on accounts. Cited in Stephen Burt, "Always On," *London Review of Books* 32, no. 11 (June 10, 2010): 21–22.

9. Polly Sprenger, "Sun on Privacy: Get over It," *Wired News*, January 26, 1999, www.wired.com/politics/law/news/1999/01/17538 (accessed August 4, 2010).

10. Eric Schmidt made the first remark about controlling behavior rather than worrying about privacy to CNBC. The video is available at Ryan Tate, "Google CEO: Secrets Are for Filthy People," Gawker, December 4, 2009, http://gawker.com/5419271/google-ceo-secrets-are-for-filthy-people (accessed June 5, 2010). His remark about name changing was made to the *Wall Street Journal*. Holman W. Jenkins Jr., "Google and the Search for the Future," online.wsj.com/article/SB10001420527487049011045754232940995272 12.html (accessed September 3, 2010).

11. On the issue of computational metaphors being taken as reality, see Harry R. Lewis (with Hal Abelson and Ken Ledeen), *Blown to Bits: Your Life, Liberty, and Happiness After the Digital Explosion* (New York: Pearson, 2006), ch. 3.

12. Robert Jay Lifton, "Protean Man," *Archives of General Psychiatry* 24 (1971): 298–304, and Robert Jay Lifton, *The Protean Self: Human Resilience in an Age of Fragmentation* (New York: Basic Books, 1993). See also Sherry Turkle, *Life on the Screen: Identity in the Age of the Internet* (New York: Simon and Schuster, 1995).

13. Michel Foucault, *Discipline and Punish: The Birth of the Prison*, trans. Alan Sheridan (1979; New York: Vintage Books, 1995).

14. Foucault, *Discipline and Punish*, 195–228. Here is one example of Foucault on the relationship between remembrance and the constitution of a new kind of self: "First, to bring out a certain number of historical facts which are often glossed over when posing this problem of writing, we must look into the famous question of the hypomnemata. . . . Now, in fact, hypomnemata has a very precise meaning. It is a copybook, a notebook. Precisely this type of notebook was coming into vogue in Plato's time for personal and administrative use. This new technology was as disrupting as the introduction of the computer into private life today. It seems to me the question of writing and the self must be posed in terms of the technical and material framework in which it arose. . . . What seems remarkable to me is that these new instruments were immediately used for the constitution of a permanent relationship to oneself—one must manage oneself as a governor manages the governed, as a head of an enterprise manages his enterprise, a head of household manages his household."

See Paul Rabinow, "An Interview with Michel Foucault," in *The Foucault Reader*, ed. Paul Rabinow (New York: Pantheon, 1984), 363–365.

CHAPTER 14: THE NOSTALGIA OF THE YOUNG

1. This recalls how French psychoanalyst Jacques Lacan talks about the analytic encounter. The offer to listen creates a demand to be heard. "In short, I have succeeded in doing what in the field of ordinary commerce people would dearly like to be able to do with such ease: with supply, I have created demand." See Jacques Lacan, "The Direction of the Treatment and the Principles of Its Power," *Ecrits: A Selection*, trans. Alan Sheridan (New York: W.W. Norton, 1977), 254. For a discussion of Lacan and the "intransitive demand," see Sherry Turkle, *Psychoanalytic Politic: Jacques Lacan and Freud's French Revolution* (1978; New York: Guilford Press, 1992), 85.

2. David Andersen, "Erik H. Erikson's Challenge to Modernity" (PhD diss., Bowling Green State University, 1993). After writing this chapter and the next, I found Alan Lightman's elegant essay, "Prisoner of the Wired World," which evokes many of the themes I treat here. In *A Sense of the Mysterious: Science and the Human Spirit* (New York: Pantheon, 2005), 183–208.

3. Anthony Storr, *Solitude: A Return to the Self* (New York: Random House, 1988), 198.

4. Henry David Thoreau, "Where I Lived and What I Lived For," in *Walden* (1854; New York: American Renaissance Books, 2009), 47. I thank Erikson biographer Lawrence J. Friedman for his insights on Erikson and "stillness."

5. Thoreau, "Where I Lived," 47.

6. Katy Hafner, "To Deal with Obsession, Some Defriend Facebook," *New York Times*, December 20, 2009, www.nytimes.com/2009/12/21/technology/internet/21facebook.html?_r=1 (accessed January 6, 2009).

7. Thoreau, "Where I Lived," 47.

8. Kevin Kelly, "Technophilia," The Technium, June 8, 2009, www.kk.org/thetechnium/archives/2009/06/technophilia.php (accessed December 9, 2009).

9. See Sherry Turkle, "Simulation and Its Discontents," in Sherry Turkle, *Simulation and Its Discontents* (Cambridge, MA: MIT Press, 2009), 3–84.

CONCLUSION: NECESSARY CONVERSATIONS

1. Bohr says, "It is the hallmark of any deep truth that its negation is also a deep truth" (as quoted in Max Delbrück, *Mind from Matter: An Essay on Evolutionary Epistemology* [Palo Alto, CA: Blackwell Scientific Publications, 1986], 167).

2. One study comparing data from 1985 and 2004 found that the mean number of people with whom Americans can discuss matters important to them dropped by nearly one-third, from 2.94 people in 1985 to 2.08 in 2004. Researchers also found that the number of people who said they had no one with whom to discuss such matters more than doubled, to nearly 25 percent. The survey found that both family and nonfamily confidants dropped, with the loss greatest in nonfamily connections. Miller

McPherson, Lynn Smith-Lovin, and Matthew E. Brashears, "Social Isolation in America: Changes in Core Discussion Networks over Two Decades," *American Sociological Review* 71 (June 2006): 353–375.

3. Barry Wellman and Bernie Hogan (with Kristen Berg et al.), "Connected Lives: The Project," in *Networked Neighborhoods*, ed. Patrick Purcell (London: Springer-Verlag, 2006), 161–216.

4. Moving past the philosophical, there are contradictions on the ground: a "huggable" robot is a responsive teddy bear that makes it possible for a grandmother in Detroit to send a squeeze to her grandson in Cambridge, Massachusetts. The grandmother hears and sees her grandson through the eyes and ears of the bear, and the robot communicates her caress. All well and good. But when videoconferences and hugs mediated by teddy bears keep grandparents from making several-thousand-mile treks to see their grandchildren in person (and there is already evidence that they do), children will be denied something precious: the starchy feel of a grandmother's apron, the smell of her perfume up close, and the taste of her cooking. Amy Harmon, "Grandma's on the Computer Screen," *New York Times*, November 26, 2008, www.nytimes.com/2008/11/27/us/27minicam.htm?pagewanted=all (accessed December 11, 2009). On the "Huggable" project, see http://robotic.media.mit.edu/projects/robots/huggable/overview/overview.html (accessed April 5, 2010).

5. On ELIZA, see Joseph Weizenbaum, *Computer Power and Human Reason: From Judgment to Calculation* (San Francisco: Freeman, 1976); Sherry Turkle, *The Second Self: Computers and the Human Spirit* (1984; Cambridge, MA: MIT Press, 2005); Sherry Turkle, *Life on the Screen: Identity in the Age of the Internet* (New York: Simon and Schuster, 1995).

6. People who feel that psychotherapists are dismissive or disrespectful may also prefer to have computers as counselors. An MIT administrative assistant says to me: "When you go to a psychoanalyst, well, you're already going to a robot."

7. In fact, we have two robotic dreams. In one, we imagine the robots as perfect companions. In another, we join with them to become new selves. This second scenario itself has two variants. In a first, we evolve. We assimilate robotic parts until there is no "us" and "them." In the short term, we feel smarter and healthier. In the long term, we become immortal. In the second variant, there is a decisive turn, a moment of "singularity" in which computing power is so vast that people essentially become one with machines. For a critique of what he calls "cybernetic totalism," see Jaron Lanier, "One Half a Manifesto," www.edge.org/3rd-culture/lanier-pl.html (accessed August 3, 2010) and *You Are Not a Gadget: A Manifesto* (New York: Knopf, 2010).

8. Psychoanalysis sees truth in the symptom. But it is a truth that has not been given free expression. You don't want to get rid of these truths for they are "signs that something has disconnected a significant experience from the mass of other, non-symptomatic significant experiences. The aim of psychoanalysis is to restore the broken connection, thereby converting the distorted, disconnected experience (the symptom) into an ordinary, connected one." See Robert Caper, *Building Out into the Dark: Theory and Observation in Science and Psychoanalysis* (New York: Routledge, 2009), 90.

9. Kevin Kelly, "Technophilia," The Technium, June 8, 2009, www.kk.org/thetechnium/archives/2009/06/technophilia.php (accessed December 9, 2009).

10. Caper, *Building Out into the Dark*, 93.

11. Personal communication, October 2008.

12. Caper says, "We tolerate the plague of our neurotic symptoms because we fear that discovering the truths they simultaneously rest on and cover over will lead to our destruction." And further, an interpretation, like a new technology, "always poses a danger. . . . The danger consists not in the analysts' search for truth, and not even in the fact that his interpretations are inevitably flawed, but in his not recognizing that this is so." See Caper, *Building Out into the Dark*, 91, 94.

13. Henry Adams, "The Dynamo and the Virgin," in *The Education of Henry Adams: An Autobiography* (Boston: Massachusetts Historical Society, 1918), 380.

14. Kelly, "Technophilia."

15. One roboticist who makes quite extravagant claims about our futures is David Hanson. For videos and progress reports, see Hanson Robotics at www.hansonrobotics.com (accessed December 11, 2009). And, of course, there is David Levy's book on the future of robot affections, *Love and Sex with Robots: The Evolution of Human-Robot Relationships* (New York: Harper Collins, 2007).

16. This is a paraphrase. The exact citation is, "When you want to give something presence, you have to consult nature and that is where design comes in. If you think of brick, for instance, you say to brick, 'What do you want, brick?' And brick says to you, 'I'd like an arch.' And if you say to brick, 'Look, arches are expensive and I can use a concrete lintel over you, what do you think of that, brick?' And brick says to you, 'I'd like an arch.'" See Nathaniel Kahn, *My Architect: A Son's Journey* (New Yorker Films, 2003).

17. Rodney Brooks, cited in "MIT: 'Creating a Robot So Alive You Feel Bad About Switching It Off'—a Galaxy Classic," The Daily Galaxy, December 24, 2009, www.dailygalaxy.com/my_weblog/2009/12/there-is-ongoing-debate-about-what-constitutes-life-synthetic-bacteria-for-example-are-created-by-man-and-yet-also-alive.html (accessed June 4, 2010).

18. Cynthia Breazeal and Rodney Brooks both make the point that robot emotions do not have to be like human ones. They should be judged on their own merits. See Cynthia Breazeal and Rodney Brooks (2005). "Robot Emotion: A Functional Perspective," in J.-M. Fellous and M. Arbib (eds.) *Who Needs Emotions: The Brain Meets the Robot*, MIT Press. 271–310. Breazeal insists that "the question for robots is not, 'Will they ever have human emotions?' Dogs don't have human emotions, either, but we all agree they have genuine emotions. The question is, 'What are the emotions that are genuine for the robot?'" Breazeal talks about Kismet as a synthetic being and expects that it will be "given the same respect and consideration that you would to any living thing." WNPR, "Morning Edition," April 9, 2001, www.npr.org/programs/morning/features/2001/apr/010409.kismet.html (accessed August 12, 2010). See also Susan K. Lewis, "Friendly Robots," Nova, www.pbs.org/wgbh/nova/tech/friendly-robots.html and Robin Marantz Henig, "The Real Transformers," *New York Times*, July 29, 2007, www.nytimes.com/2007/07/29/magazine/29robots-t.html (accessed September 3, 2010).

19. There is much talk these days of a "robot bill of rights." As robots become more complex, there is a movement to have formal rules for how we treat artificial sentience. Robot rights are the subject of parliamentary inquiry in the United Kingdom. In South

Korea, where the government plans to put a sociable robot into every home by 2020, there are plans to draw up legal guidelines on how they must be treated. The focus of these efforts is on protecting the robots. But as early as the mid-1990s, people abused virtual creatures called "norns," tormenting them until they became psychotic, beating their virtual heads against virtual walls. Popular Web videos show even as simple a robotic toy as Hasbro's Elmo Live being doused with gas and set on fire, his red fur turning to charcoal as he writhes in what looks like pain. I have watched the abuse of Tamagotchis, Furbies, My Real Babies, and Paros. The "robot rights movement" is all about not hurting the robots. My concern is that when we torture sociable robots that we believe to have "states of mind," we damage ourselves.

Daniel Roth, "Do Humanlike Machines Deserve Human Rights," *Wired Magazine*, January 19, 2009, www.wired.com/culture/culturereviews/magazine/17-02/st_essay (accessed June 4, 2010).

20. For drawing my attention to what he calls "*formes frustes* of feeling," I thank my colleague Cambridge psychiatrist and psychoanalyst Dr. David Mann, who has reformulated an entire range of unpleasant affects (for example, envy, greed, resentment) in an as-yet-unpublished essay, "Failures of Feeling" (2009).

21. Anthony Storr, *Solitude: A Return to the Self* (New York: Random House, 1988).

22. Quandaries have become a classic way of thinking about moral dilemmas. See, for example, Marc Hauser, *Moral Minds: How Nature Designed Our Universal Sense of Right and Wrong* (New York: Ecco, 2006). Some of the most common quandaries involve trolley cars and the certainty of death. A typical scenario has you driving a trolley car with five workers ahead of you on the track. Doing nothing will kill all five. You can swerve onto a track on which there is only one worker. Do you act to kill one person rather than five? Then, the scenario may be shifted so you are on a bridge, observing the trolley cars. There is a fat man standing beside you. Do you push him onto the track to stop the trolley, thus saving the five people? And so it goes.

23. Traditional psychology was constructed based on experiments done only with men and through theories that only took into account male development. During the first and second world wars, psychological tests were standardized for the male soldiers with whom they were developed. End of story. Psychologists came to see male responses as "normal" ones. The behaviors, attitudes, and patterns of relationship exhibited by most men became the norm for "people." Psychologist Carol Gilligan's 1982 *In a Different Voice* is an example of work that broke this frame. Gilligan portrays the canonical (and stereotypically "male") view of moral reasoning and then points out that it constitutes only one way in which people make moral decisions. The canonical pattern looks at moral choices in terms of abstract principles. Another, equally evolved moral voice relies on concrete situations and relationships. For example, see Gilligan's treatment of "Amy and Heinz" in *In a Different Voice: Psychological Theory and Women's Development* (Cambridge, MA: Harvard University Press, 1993), 26–28, 30. The "robots-or-nothing" thinking about elder care frames a dilemma that begs for a contextual approach; this is what the fifth graders in Miss Grant's class brought to the table.

We hear another moment of reframing when seventeen-year-old Nick tries to find a way to get his father to put away his BlackBerry during family dinners. Recall that

in Nick's home, family dinners are long. His mother takes pride in her beautifully prepared meals with many courses. Nick suggests shorter meals. His parents argue principles: the priority of work versus that of a meal prepared with love. Nick focuses on relationship. The family needs family time. How can they provide that for each other? Nick suggests a shorter meal with no phones.

24. Anthony Appiah, *Experiments in Ethics* (Cambridge, MA: Harvard University Press, 2008), 196–197. Appiah is writing about "trolley car" quandaries, but he could be writing about the "robots-or-nothing" problem.

25. Here I note the work on using robots as a therapeutic tool with people on the autism spectrum. Robots do not overwhelm them as people may. The predictability of robots is comforting. The question remains whether these robots can serve as transitions to relationships with people. I cotaught a course at MIT on robotics and autism with Rosalind Picard and Cynthia Breazeal. Roboticists are of course gratified to feel that they can contribute to therapy in this area; the jury is still out on whether nonhuman faces get us ready for human ones. For a discussion that focuses on the work of roboticist Maja Matarić in this area, see Jerome Groopman, "Robots That Care: Advances in Technological Therapy," *The New Yorker*, November 2, 2009, www.newyorker.com/reporting/2009/11/02/091102fa_fact_groopman (accessed November 11, 2009).

26. This phrase is drawn from Roger Shattuck's book on the "Wild Child" of Aveyron. *The Forbidden Experiment* (New York: Farrar, Strauss, and Giroux, 1980).

27. "Basic trust" is Erik Erikson's phrase; see *Childhood and Society* (New York: Norton, 1950) and *Identity and the Life Cycle* (1952; New York: Norton, 1980).

28. At MIT, the question of risk strikes most of my students as odd. They assume, along with roboticist David Hanson, that eventually robots "will evolve into socially intelligent beings, capable of love and earning a place in the extended human family." See Groopman, "Robots That Care."

29. A University of Michigan study found that today's college students have less empathy than those of the 1980s or 1990s. Today's generation scored about 40 percent lower in empathy than their counterparts did twenty or thirty years ago. Sara Konrath, a researcher at the University of Michigan's Institute for Social Research, conducted, with University of Michigan graduate student Edward O'Brien and undergraduate student Courtney Hsing, a meta-analysis that looked at data on empathy, combining the results of seventy-two different studies of American college students conducted between 1979 and 2009. Compared to college students of the late 1970s, the study found, college students today are less likely to agree with statements such as "I sometimes try to understand my friends better by imagining how things look from their perspective" and "I often have tender, concerned feelings for people less fortunate than me." See "Empathy: College Students Don't Have As Much As They Used To," EurekAlert! May 28, 2010, www.eurekalert.org/pub_releases/2010-05/uom-ecs052610.php (accessed June 4, 2010).

30. I thank my psychotherapist colleagues for ongoing conversations on these matters. In particular I acknowledge the adolescent psychiatrist John Hamilton and the panels on "Adolescence in Cyberspace" on which we have collaborated at the Annual Meetings of the American Academy of Child and Adolescent Psychiatry in October

2004 and October 2008; the participants in the MIT working group, "Whither Psychoanalysis in Digital Culture" Initiative on Technology and Self, 2003–2004; and participants at the Washington Institute for Psychoanalysis's "New Directions" Conference, April 30, 2010.

31. Maggie Jackson, *Distracted: The Erosion of Attention and the Coming Dark Age* (New York: Prometheus, 2008).

32. Matt Richtel, "Hooked on Gadgets and Paying a Mental Price," *New York Times*, July 7, 2010, http://community.nytimes.com/comments/www.nytimes.com/2010/06/07/technology/07brain.html?sort=oldest&offset=2 (accessed July 7, 2010).

33. Nicholas Carr, *The Shallows: What the Internet Is Doing to Our Brains* (New York: W. W. Norton and Company, 2010). Here, the argument is that online activities—surfing, searching, jumping from e-mail to text—actually change the nature of the brain. The more time we spend online, the more we are incapable of quiet reverie, not because of habits of mind but because of a rewiring of our circuitry. This area of research is, happily, getting more and more public attention. See Matt Richtel, "Your Brain on Computers: Outdoor and Out of Reach, Studying the Brain," *New York Times*, August 16, 2010, www.nytimes.com/2010/08/16/technology/16brain.html (accessed August 16, 2010).

34. Of course, one of my concerns is that the moment to summon ourselves to action might pass. We are at a point at which, when robots are proposed as companions for the elderly or as babysitters, we can still have a conversation that challenges these ideas. We still remember why they are problematic. I am concerned that in twenty years, one may simply boast, "I'm leaving my kid with the nanny bot." After the cost of purchase, it will be free and reliable. It will contact you if there is any deviation from the plan you have left for your child—be these deviations in your child's temperature or in a range of acceptable behaviors. I vividly remember leading an MIT seminar in 2001, one that was part of a celebration at the release of Steven Spielberg's *A.I.: Artificial Intelligence*, when for the first time, I was the only person in a room of thirty who did not see any issue at all with the prospect of a computer psychotherapist. Moments when big steps with technology seem problematic have a way of passing.

EPILOGUE: THE LETTER

1. Vannevar Bush, "As We May Think," *Atlantic Monthly* (July 1945): 101–106, www.theatlantic.com/doc/194507/bush (accessed November 20, 2009).

2. See Steve Mann (with Hal Niedzviecki), *Digital Destiny and Human Possibility in the Age of the Wearable Computer* (New York: Random House, 2001).

3. C. Gordon Bell and Jim Gemmell, "A Digital Life," *Scientific American* 296, no. 3 (March 2007): 58–65, http://sciam.com/print_version.cfm?articleID=CC50D7BF-E7F2-99DF-34DA5FF0B0A22B50 (accessed August 7, 2007). The My Life Bits website is http://research.microsoft.com/en-us/projects/mylifebits (accessed July 30, 2010). Bell and Gemmell published a book-length discussion of this project, *Total Recall: How the E-Memory Revolution Will Change Everything* (New York: Dutton, 2009).

4. Bell and Gemmell, "A Digital Life."

5. Thompson notes of his 2007 visit, "MyLifeBits records his telephone calls and archives every picture—up to 1,000 a day—snapped by his automatic 'SenseCam,' that

device slung around his neck. He has even stowed his entire past: The massive stacks of documents from his 47-year computer career, first as a millionaire executive then as a government Internet bureaucrat, have been hoovered up and scanned in. The last time he counted, MyLifeBits had more than 101,000 emails, almost 15,000 Word and PDF documents, 99,000 Web pages, and 44,000 pictures." See Clive Thompson, "A Head for Detail," *Fast Company*, December 19, 2007, www.fastcompany.com/magazine/110/head-for-detail.html (accessed October 1, 2009).

6. Susan Sontag, *On Photography* (New York: Dell, 1978), 9.

7. Bell and Gemmell discuss the burdens of having a digital shadow. They anticipate that other people captured in one's sights may need to be pixilated so as not to invade their privacy, data will have to be stored "offshore" to protect it from loss and/or illegal seizure, and there is danger posed by "identity thieves, gossipmongers, or an authoritarian state." The fact that these three are grouped together as problems to be solved technically illustrates the power of the fantasy of total life capture. For after all, the potential damage from gossipmongers and an authoritarian state are not commensurate. They surely cannot be dealt with by the same technical maneuvers. Yet the fantasy is potent. Bell and Gemmell admit that despite all problems, "for us the excitement outweighs the fear." See Bell and Gemmell, "A Digital Life."

8. Indeed, with far less "remembrance technology," many of us wonder if Google is "making us stupid" because it is always easier to search than remember. The originator of this memorable phrase is Nicholas Carr, "Is Google Making Us Stupid?" *The Atlantic*, July/August 2008, http://www.theatlantic.com/magazine/archive/2008/07/is-google-making-us-stupid/6868/ (accessed August 12, 2010).

9. Thompson, "A Head for Detail."

10. Thompson, "A Head for Detail."

11. Obama himself fought hard and famously to keep his BlackBerry, arguing that he counts on this digital device to make sure that the "bubble" of his office does not separate him from the "real" world. Obama kept his BlackBerry, but in March 2009, the Vatican asked the Catholic bishops of Italy to request that their flocks give up texting, social-networking websites, and computer games for Lent, or at least on Fridays. Pope Benedict has warned Catholics not to "substitute virtual friendship" for real human relationships. On his YouTube site, the pope warned of "obsessive" use of mobile phones and computers, which "may isolate individuals from real social interaction while also disrupting the patterns of rest, silence, and reflection that are necessary for healthy human development." The *London Times* reports that "even Pope Benedict . . . experienced the distractions of obsessive texting" when President Nicolas Sarkozy of France was flagged for rudeness when he checked his mobile device for text messages during a personal audience with the pontiff. See Richard Owen, "Thou Shalt Not Text until Easter, Italians Told," *The Times*, March 3, 2009 (accessed July 30, 2010).

12. See Sherry Turkle, "Reading the *Inner History of Devices*," in Sherry Turkle, ed., *The Inner History of Devices* (Cambridge, MA: MIT Press, 2008).

13. Technology and remembrance is a growing discipline. In addition to *Cyborg*, Steve Mann has written extensively about computation and remembrance. See, for example, "Wearable Computing: Toward Humanistic Intelligence," *Intelligent Systems*

16, no. 3 (May–June 2001): 10–15. From 1996 on, Thad Starner, who like Steve Mann was a member of the MIT cyborg group, worked on the Remembrance Agent, a tool that would sit on your computer desktop (or now, your mobile device) and not only record what you were doing but make suggestions about what you might be interested in looking at next. See Bradley J. Rhodes and Thad Starner, "Remembrance Agent: A Continuously Running Personal Information Retrieval System," *Proceedings of the First International Conference on the Practical Application of Intelligent Agents and Multi Agent Technology* (PAAM '96),487–495, 487–495, www.bradleyrhodes.com/Papers/remembrance.html (accessed December 14, 2009).

Albert Frigo's "Storing, Indexing and Retrieving My Autobiography," presented at the 2004 Workshop on Memory and the Sharing of Experience in Vienna, Austria, describes a device to take pictures of what comes into his hand. He comments on the implications: "The objects I photograph, while used, represent single specific activities that from a more general perspective can visualize how, throughout my life, my intentions, my desires, my sorrows have mutated. The objects become my emblems, the code through which the whole of me can be reconstructed, interpreted." See Albert Frigo, "Storing, Indexing and Retrieving My Autobiography," Nishida & Sumi Lab, www.ii.ist.i.kyoto-u.ac.jp/~sumi/pervasive04/program/Frigo.pdf (accessed November 2009). For a sense of the field's current ambitions, see the Memories for Life project at www.memoriesforlife.org (accessed July 30, 2010) and the Reality Mining group at MIT and the Santa Fe Institute at http://reality.media.mit.edu/about.php (accessed December 14, 2009).

William C. Cheng, Leana Golubchik, and David G. Kay write about the politics of remembrance. They anticipate a future in which we will all wear self-monitoring and recording devices. They discuss the danger that state authority will presume that when behaving lawfully, people will be wearing the device. Not wearing the device will be taken as indicative of guilt. Yet, even given this dark scenario, they conclude with the claim that, essentially, the train has left the station: "We believe that systems like Total Recall will get built, they will have valuable uses, and they will radically change our notions of privacy. Even though there is reason to be skeptical that there will be any meaningful legal protection for the privacy status quo, we believe that useful technologies are largely inevitable, that they often bring social changes with them, and that we will inevitably both suffer and benefit from their consequences." See William C. Cheng, Leana Golubchik, and David G. Kay, "Total Recall: Are Privacy Changes Inevitable?" (paper presented at Capture, Archiving, and Retrieval of Personal Experiences [CARPE] workshop, New York, October 15, 2004), http://bourbon.usc.edu/iml/recall/papers/carpe2k4-pub.pdf (accessed December 14, 2009).

14. Alec Wilkinson, "Remember This?" *The New Yorker*, May 28, 2007, 38–44, www.newyorker.com/reporting/2007/05/28/070528fa_fact_wilkinson (accessed November 20, 2009).

15. Wilkinson, "Remember This?"

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