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Until now, I have discussed physical objects that engender intimacy. What becomes of this intimacy when people work with digital objects?

Any response needs to be complex, as is apparent in the contrast between two essays in this collection. Mitchel Resnick describes his StarLogo program that brings its users to an encounter with ideas about emergent phenomena, much as the concrete objects of Piaget's day put children in touch with ideas about counting and simple categorization. His goal is to have the computer enable a new kind of learning. Yet Susan Yee's testimony about work in a digital archive suggests aspects to life on the screen that may be inherently alienating.

Yee, an architect, begins her relationship with Le Corbusier through the physicality of his drawings. As she works in the Le Corbusier archives in Paris, his original blueprints, sketches, notes, and plans are brought to her in long metal boxes. Le Corbusier's handwritten

notes in the margins of his sketches, the traces of his fingerprints, the smudges, the dirt, all of these encourage Yee's identification with the designer. To Yee, the most "miraculous" moment in the physical archive is finding the little colored paper squares that Le Corbusier used to think through his design for the Palace of the Soviets. Yee says that she could imagine Le Corbusier "fiddling" with the design elements, moving them around, considering different shapes and volumes as he worked. The little bits of colored paper connect Yee to his process. Delighted, Yee "fiddles" with them too. The bricolage of the master is re-experienced in the bricolage of the student. As it happened, Yee was visiting the Le Corbusier archive at a dramatic moment, the day it was converted from physical to virtual space. The philosopher Jacques Derrida sees such transitions as "transforming the entire public and private space of humanity."³⁴ For one thing, while any archive is a selection of material that erases what has been excluded—the digitized archive goes a step further. Its virtuality insures another level of abstraction between its users and what has been selected. It brings to mind Derrida's writing about the word processor where "erasure" is central to his concerns: "Previously, erasures and added words left a sort of scar on the paper or a visible image in the memory. There was a temporal resistance, a thickness in the duration of the erasure. But now everything negative is drowned, deleted; it evaporates immediately, sometimes from one instant to the next."³⁵

Derrida's meditation on erasure brings us back to what troubled Yee in the archive. She is aware that, digitized, the Le Corbusier archives will be available to scholars all over the world and be protected from wear and tear. Yet, when the archive is digitized, Yee experiences the loss of her connection to Le Corbusier: "It made the drawings feel anonymous," she says. More important, the digitized archives make Yee feel anonymous. She is grateful for her own position in a genera-

tion of architects that knows drawing by hand as well as by computer; her narrative captures an anxiety that digital objects will take us away from the body and its ways of understanding.

Through Yee's essay on the archive, this collection engages the problem of virtuality and its discontents. Yet her cautionary essay must be read in relation to other narratives about computational objects—represented by the promise and enthusiasm of Resnick's writing, as well as that of Howard Gardner, Trevor Pinch, and Annalee Newitz—that suggest how digital objects engage us in new and compelling ways.

Indeed, in Newitz's description of her laptop computer, the flickering screen does not appear cold and abstract, but is integrated into her sense of herself. Her experience of the laptop is reminiscent of how Joseph Cevetello, a diabetic, talks about his glucometer, a device for measuring blood sugar. Cevetello notes how over time his glucometer becomes more than companion: the glucometer "has become me." Moment to moment, its output determines his actions. He lances his finger, readies an insulin injection, and waits "for my meter to tell me what to do." The laptop, like the glucometer, is experienced as co-extensive with the self. Newitz feels so close to her laptop that she cannot tell where it leaves off and she begins. Her self-understanding depends on analyzing the flows and rhythms that pass between herself and the machine. In bed, Newitz remembers not to let the blankets cover the computer's vents so it does not overheat. She is at one with her virtual persona: "I was just a command line full of glowing green letters."

Cevetello and Newitz have achieved couplings so intimate between themselves and their objects that we might characterize them as cyborg.³⁶ In the cyborg world we move beyond objects as tools or prosthetics. We are one with our artifacts. And in the cyborg world, the natural and the artificial no longer find themselves in opposition. Says the historian of science Donna Haraway:

"Any objects or persons can be reasonably thought of in terms of disassembly and reassembly."³⁷ No object, space, or body is sacred in itself: "Any component can be interfaced with any other if the proper standard, the proper code, can be constructed for processing signals in a common language."³⁸ Newitz still has to carry her laptop around, but the day is not far off when computation will become part of our bodies, beginning with chips to improve our sight and hearing. Cevetello anticipates the day when his glucometer will be available as an implant; it will provide a digital readout directly sensed by his body.

Once we see life through the cyborg prism, becoming one with a machine is reduced to a technical problem of finding the right operating system to make it (that is, *us*) run smoothly. When we live with implanted chips, we will be on a different footing in our relationships with computers. When we share other people's tissue and genetic material, we will be on a different footing with the bodies of others. Our theories tell us stories about the objects of our lives. As we begin to live with objects that challenge the boundaries between the born and created and between humans and everything else, we will need to tell ourselves different stories.