Special Section: Technology and the Body: Linking Life and Technology

Guest Editorial

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It is well known that we are beholden to Norbert Weiner for coining the modern use of the term "cybernetics" to denote a field of study in technological control mechanisms. In recognition of the fact that the blurring between technology and life is becoming increasing apparent, perhaps the title of this Special Section should have been "The Cyborgs among Us." Using a definition of "cyborg" (i.e., "cybernetic organism") as persons in which the organic and the technical have fused, more than 10% of the American population already qualify, for example, people with artificial organs, limbs, joints, or electronic pacemakers, drug implant systems, or implanted corneal lenses. Of course, such a definition is quite broad and purposefully provocative, but it remains insightful. Technology is already "under our skin" (both figuratively and literally) and the future only promises more interface at the micro-, nano-, and cellular levels.

Papers in this Special Section explore a wide range of intimate human–technology relationships. The first four come from different sources and initiatives, beginning with enabling technologies that alleviate the negative impact of disease or disability all the way to enhancements, so dear to the heart of futurists, that expand human capacities. The ethical issues raised are as equally wide-ranging and varied as the technologies themselves: What are the attitudes among religious traditions toward devices that impinge on bodily processes and organic functioning? What is the impact on questions of personal identity? As we become more machine do we become less human—or more so? What are some of the social issues involved?

The final four papers are the result of a recent panel at the 2006 annual meeting of the American Society for Bioethics and Humanities entitled "Neurosurgical Implants: Research Ethics from Engineering to Standard Care" (for them, we are indebted to Paul Ford, who helped organize the panel and worked with the panelists to finalize their presentations for publication). The intention of the presentations, from which these papers arise, was to provide an overview of the ways in which phases of neural implant development pose special ethical considerations. The selected ethical challenges, ranging from engineering, research protocols, media coverage, and clinical application, demonstrate the breadth of ethical consideration in the development and implementation of neural implants. The authors urge that ethical reflection should begin during the bench science phase and continue through innovative use, actual research protocols, and finally during the transition to a standard care.

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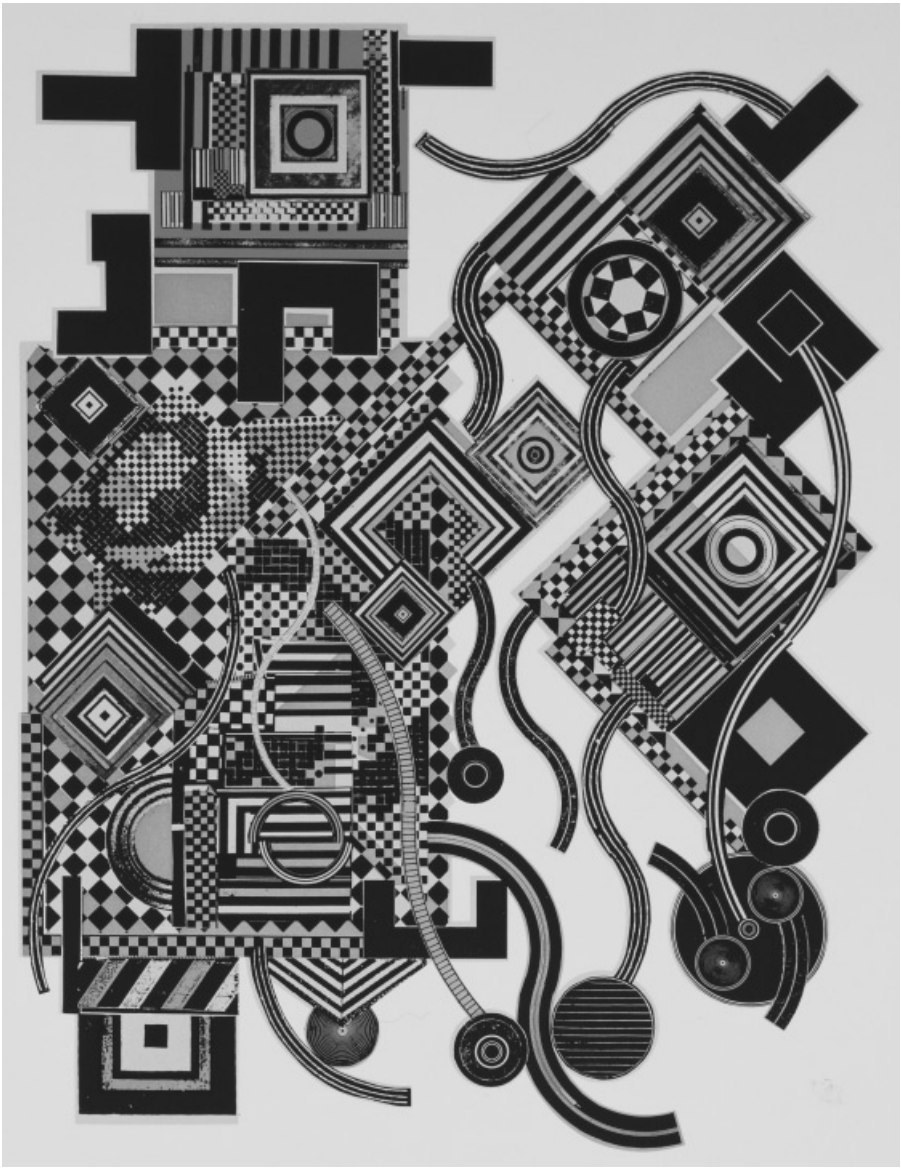
They recognize that a consideration in one phase always has ramifications in other phases, either through a downstream result or when the cycle of development feeds back in the technology refinement loop.

As a whole, the Section only provides a glimpse into an ever-growing area of medical and ethical interest, concern, and study. As demonstrated by the papers herein, the continuous march of technologies that invade and transform the body inevitably gives new meaning to concerns about "intelligent design," practiced here by identifiable and progressive medical and technological experts. And as with any such "progress," we would do well to consider the ethical and social implications with as much foresight as possible.



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