so that objects such as internal defibrillators can be reset by the user-host? Potentially, we can aspire to develop the information and engineering to make biomimesis *sym*biotic—a two-way communication path in which the machinic is informed by the organic, in which the program can be automatically reset by the user to reflect the host body's autonomic certainty that its heart rate is normally rather than abnormally heightened. These kinds of controls are hinted at by adepts of Ayurvedic techniques, who hone a capacity to control their own body temperatures, heart rates, and brainwaves. It is this training and sensitivity that must be brought into contact with technological research so that our biomimetic machines can learn from body intelligence. When the autonomic nervous system, with its alternating dynamics of sympathetic and parasympathetic response, can be put "in touch" with the subcutaneous machine, we may finally feel in control of our biomimetics. And it is to this realm of the subsensorial that theory, culture, and ethical debate must go.

NOTES

1. I am indebted to several conversations with the haptic engineer Mandayam Srinivasan, whose "Touch Lab" at MIT points to the future of biomimetics, and who first suggested the importance of this term. Some of Srini's inspiring thoughts and texts survive in this entry; its point of view is my own.

2. Compare, for example, the friendly site of British biomimetic scientists, The Centre for Biomimetic and *Natural* Technologies (emphasis added), www.bath.ac.uk/mech-eng//biomimetics/home.htm, with the deep anxiety of a typical posting on www.robots.net: "Are Biomimetic Machines Dangerous?" www.robots.net/article/1712.html) The latter quotes from a paper by Rodrick Wallace of the New York Psychiatric Institute: "Mission-critical machines designed to emulate biological systems are likely to fail insidiously, irregularly, and progressively, particularly when necessarily operating outside their training experience." Why "*necessarily*"? Operating outside the training parameters is exactly the kind of social mis-application that ethical debate should question.

3. Here I am referring to the research of Anne Pollock (doctoral candidate in MIT's Science, Technology, and Society program), "Technology to the Heart: Experiences of Internal Defibrillators," presented in the "Evocative Objects Symposium" on March 5, 2004, sponsored by MIT's Initiative on Technology and Self.

4. See Mandayam Srinivasan's "Touch Lab" at MIT: http://touchlab.mit.edu.

5. "The idea originates from the medical need to develop more powerful tools for microendoscopy, one of the most challenging frontiers of modern medicine. We have a prototype traction unit based for its design on the ragworm (Nereis) and are currently miniaturizing it, describing it mathematically and applying the model results." The BIOLOCH project, run by Julian Vincent, John Williams, and Thomas Hesselberg at the Centre for Biomimetic and Natural Technologies, University of Bath, www.bath.ac.uk/mech-eng/biomimetics.

6. Now in development by BioMimetic Pharmaceutical (BMPI): "GEM 21S™ combines recombinant human platelet derived growth factor BB (rhPDGF-BB) with a resorbable synthetic bone matrix (Beta-tricalcium phosphate)." Headquartered in Franklin, Tennessee, the corporation's stated mission "is to be a fully integrated company efficiently developing protein therapeutic products in the rapidly emerging fields of tissue engineering. The company is developing proprietary growth factor technologies with a bottom line focus on clear patient benefits and improving shareholder value." See www.biomimetics.com/index.html.