The Neural Subject in Popular Culture and the End of Life

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ABSTRACT: Scholars in the humanities increasingly scrutinize the contemporary significance of cognitive neuroscience in reshaping the contours of the human subject. The essay considers a specific dimension of this new epistemic and ontological frontier—the neuroscience of consciousness as a threshold of life and death—to develop the argument that the biology of consciousness as a cultural problem is part and parcel of the end of life as a biopolitical problem. It turns to two sites of contemporary popular culture to unpack how a particular rationality of freedom intertwines with neural life in order to give form to, and contain, the concrete material, economic, and political problems faced by the end of life. It argues that contemporary reflections on the biology of consciousness must link the cultural problem of organizing a neural subject to specific economic, legal, and ethical problems of late-modern rationalities of government.

Introduction

In recent years, the notion that the brain is central to many aspects of human nature and thus key to understanding self and society has flourished in popular culture and social thought. Representations of illness, deviance, social order, health, and lifestyle, not to mention legal, economic, and political discourse, increasingly draw on neuroscientific knowledge and imagery.[1] In this regard, popu-

1. Nikolas Rose, "'Screen and Intervene': Governing Risky Brains," *History of the Human Sciences* 23:1 (2010): 79–105; Fernando Vidal, "Brainhood, Anthropological Figure of Modernity," *History of the Human Sciences* 22:1 (2009): 6–35; Anne Beaulieu, "Images

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lar culture and neuroscience are multiplying the discursive spaces where technoscientific relations between the subject and society are imagined.[2] One of the main focal points of critical engagement with the relation between the neurosciences and society has been the configuration of new kinds of subjects.[3] To be sure, cultural configurations of neural subjects are already relevant to everyday clinical and institutional practices that rely on scientific knowledge and technology, but they increasingly invite normative reflections of legitimate social order, justice, and social reform. Indeed, many representations of neural subjects turn on drawing normative conclusions about human beings as moral, social, and even political subjects. As such, neural configurations of the subject are key points of departure for examining late-modern biological citizenship and biosociality.[4]

Are Not the (Only) Truth: Brain Mapping, Visual Knowledge, and Iconoclasm," *Science* 27:1 (2002): 53–86; Joseph Dumit, "Is It Me or My Brain? Depression and Neuroscientific Facts," *Journal of Medical Humanities* 24:1 (2003): 35–47; Natasha Dow Schüll and Caitlin Zaloom, "The Shortsighted Brain: Neuroeconomics and the Governance of Choice in Time," *Social Studies of Science* 41:4 (2011): 515–538.

2. Suparna Choudhury and Jan Slaby, *Critical Neuroscience: A Handbook of the Social and Cultural Contexts of Neuroscience* (Oxford: Wiley-Blackwell, 2011); Martyn Pickersgill, "Connecting Neuroscience and Law: Anticipatory Discourse and the Role of Sociotechnical Imaginaries," *New Genetics and Society* 30:1 (2011): 27–40; Suparna Choudhury, Saskia Kathi Nagel, and Jan Slaby, "Critical Neuroscience: Linking Neuroscience and Society through Critical Practice," *BioSocieties* 4 (2009): 61–77; John T. Cacioppo and Gary G. Berntson, *Social Neuroscience* (New York: Psychology Press, 2005); Eddie Harmon-Jones and Piotr Winkielman, *Social Neuroscience* (New York: Guilford Press, 2007).

3. Martyn Pickersgill, Sarah Cunningham-Burley, and Paul Martin, "Constituting Neurologic Subjects: Neuroscience, Subjectivity and the Mundane Significance of the Brain," *Subjectivity* 4:3 (2011): 346–365; Francisco Ortega, "The Cerebral Subject and the Challenge of Neurodiversity," *BioSocieties* 4:4 (2009): 425–445; Nikolas Rose, "Neurochemical Selves," *Humanities, Social Sciences and Law* 41:1 (2003): 46–59; Alain Ehrenberg, "Le sujet cérébral," *Esprit* 11 (2004): 130–155; Martyn Pickersgill, "Between Soma and Society: Neuroscience and the Ontology of Psychopathy," *BioSocieties* 4:1 (2009): 45–60; Elizabeth Fein, " 'Innocent Machines': Asperger's Syndrome and the Neurostructural Self," in *Sociological Reflections on the Neurosciences*, ed. Martyn Pickersgill and Ira Van Keulen (Bingley, UK: Emerald Group Publishing Limited, 2011), pp. 27–49.

4. Nikolas Rose and Carlos Novas, "Biological Citizenship," in *Global Assemblages: Technology, Politics, and Ethics as Anthropological Problems*, ed. Aihwa Ong and Stephen J. Collier (Oxford: Wiley-Blackwell, 2005), pp. 439–463; Paul Rabinow, "Artificiality to Enlightenment: From Sociobiology to Biosociality," in *Essays on the Anthropology of Reason* (Princeton, NJ: Princeton University Press, 1996), pp. 91–111; Paul Rabinow and Nikolas Rose, "Biopower Today," *BioSocieties* 1:2 (2006): 195–217; Adele Clarke, Janet Shim, Laura Mamo, Jennifer Fosket and Jennifer Fishman, "Biomedicalization: Technoscientific Transformations of Health, Illness, and U.S. Biomedicine," *American Sociological Review* 68:2 (2003): 161–194; Majia Holmer Nadesan, *Constructing Autism: Unrav-*

This essay examines one such configuration of the neural subject, tying the neuroscience of consciousness as a cultural problem to end-of-life care as a biopolitical problem.[5] To do so, we unpack the particular configuration of a neural subject in relation to dying and death by examining two recent cultural artifacts: *Death and the Powers*, an opera produced by the American Repertory Theater in collaboration with MIT; and *The Diving Bell and the Butterfly*, a critically acclaimed film. The human being as a neural subject is central to anchoring the narrative of both stories; in particular, both artifacts draw on neurocentric claims about the nature of consciousness and the self to tell their stories.[6] By drawing on a neurocentric view of consciousness, the stories articulate a similar, normative view of freedom at the boundaries of life and death; in doing so, they presume as matter of fact a set of claims about the subject that undergirds, in our view, a number of end-of-life practices over the last fifty years. Indeed, we argue that representations of the neural subject are key to understanding how dying and death, over the last fifty years, has expanded into a biopolitical problem.

Death and the Powers and *The Diving Bell and the Butterfly* enable us, we argue, to untangle a specific configuration of the neural subject in contemporary society. By drawing on neurocentric philosophies of mind, these artifacts tell stories about who we are as neural subjects in relation to social practices on how die. Over the last fifty years or so, the threshold and definition of life and death have be-

eling the 'Truth' and Understanding the Social (London: Routledge, 2005); Francisco Ortega and Fernando Vidal, "Mapping the Cerebral Subject in Contemporary Culture," *Electronic Journal of Communication, Information & Innovation in Health* 1:2 (2007): 255–259.

5. For closely related studies in the area of end-of-life care, brain death, and organ transplantation, see Linda F. Hogle, *Recovering the Nation's Body: Cultural Memory, Medicine, and the Politics of Redemption* (New Brunswick, NJ: Rutgers University Press, 1999); Sharon Kaufman, *And a Time to Die* (New York: Scribner, 2005); Margaret M. Lock, *Twice Dead: Organ Transplants and the Reinvention of Death* (Berkeley: University of California Press, 2002); and Sarah Franklin and Margaret M. Lock, *Remaking Life & Death* (Santa Fe, NM: School of American Research Press, 2003).

6. Daniel Dennett, "Are We Explaining Consciousness Yet?" *Cognition* 79 (2001): 221–237; Patricia Smith Churchland, *Neurophilosophy* (Cambridge, MA: MIT Press, 1989); Douglas Hofstadter and Daniel Dennett, *The Mind's I* (New York: Basic Books, 2001); Jean-Pierre Dupuy, "Some Pitfalls in the Philosophical Foundations of Nanoethics," *Journal of Medicine and Philosophy* 32:3 (2007): 237–261; Lily E. Kay, "Cybernetics, Information, Life: The Emergence of Scriptural Representations of Heredity," *Configurations* 5:1 (1997): 23–91; Anne Beaulieu, "From Brainbank to Database: The Informational Turn in the Study of the Brain," *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* 35:2 (2004): 367–390.

come an important space of biopolitical thought and governmentality.[7] The neuroscience of consciousness plays a critical role in this transformation. Within the shifting practices and discourse of end-of-life care today there is a preference for neuroscientific conceptualizations as a state within a spectrum of "disorders of consciousness"—an important strategy for organizing care for dying or incompetent patients in clinical settings. Clearly, the ethical issues are not reducible to a classic bioethical issue of a right to die, the state's imperative to make live, or the preservation of consent. From a biopolitical point of view, the neuroethical issue is to ask what is at stake when neuroscientific claims about consciousness are linked to biopolitical practices that manage and regulate care for the dying. We will address that question in our concluding comments.

A Couplet of Cultural Figures of Death, Consciousness, and Self

In autumn 2010, MIT's Media Lab attracted public attention in the United States when the opera it produced in collaboration with the American Repertory Theater, *Death and the Powers*, opened to critical acclaim in Monaco. What incited the attention and excitement of commentators was, in part, the opera's elaborate technical set that used light and sound, which were meticulously calibrated to the digitized voices and bodily movements of off-stage actors, to tell its story. Robots, screens, lights, and props were not only intended to simulate a sense of human subjectivity on the stage itself, but to sustain a persistent tension: if consciousness can be uploaded into machines, will we still be, and be recognized as, human? By materially enacting this tension, the opera introduced a late-modern twist (represented by the sentience of computational machines) into an old operatic genre—that of existential crisis. At the same time, it captured for audiences the look and feel of a not altogether alien future in which post-human life, enacted by the cognitive/computational symbiosis of the subject, realizes a centuries-old promise of immortality.

Death and the Powers invites us to imagine a future when an essential condition of human life—*death*—has been overcome, because an abiding production of Western science and philosophy—*the division of mind and body*—has been resolved by technical ingenuity. Simon

7. Patrick Hanafin, "Rights of Passage: Law and the Biopolitics of Dying," in *Deleuze and Law: Forensic Futures*, ed. Rosi Braidotti, Claire Colebrook, and Patrick Hanafin (Basingstoke, UK: Palgrave Macmillan, 2009), pp. 47–58; Rosi Braidotti, "Biopower and Necropolitics," in *Springerin, Hefte für Gegenwartskunst,* Band XIII Heft 2 (Vienna: Folio Verlag, 2007); Mitchell Dean, "Powers of Life and Death Beyond Governmentality," *Cultural Values* 6:1/2 (2002): 119–138.

Powers, a man of considerable wealth and intellect, has devised a way to upload his consciousness into an elaborate system of computers and robots and thus to exist *as* a digital environment referred to as "The System." Driven by an insatiable will to power and an obsession with mortality, he dreams of living forever by returning to a material form—light—from which he claims all human life initially originated. Within the context of the drama, light clearly enjoys a promiscuous presence: it is the effect of pulsating electrical circuits; it symbolizes a universal material phenomenon; in more aesthetic terms, it represents omnipresence and omnipotence; and it is, most fundamentally, an index of being.

By transferring his self into light and thereby assuming a new form of embodiment, Powers escapes the foregone conclusion of death; indeed, in or rather as The System, he revels in an unrivaled mastery over life that this new form of being affords. Expressing himself through mundane robotic devices, he convinces his wife and his physically disfigured graduate assistant to transcend their organic incarnations and join him. "No matter the matter," he reassures them. And yet a persistent question in his negotiations with his family is whether, in fact, the matter *does* matter with respect to being recognizable as a human being. "I am the same," Powers declares—but the same as what, and in what sense? Miranda Powers, Simon's only child, is reticent to abandon her organic, mortal coil for a presumably immortal silicon chip, and part of the dramatic tension in the opera is organized around this reticence: "The body of this death is who I am, it is my mind," she offers in response to her father's insistence that she join the family in a "world of light." "Who will I be?" she asks, "and what will I see when my body is gone?" Powers's research assistant, disfigured and with a prosthetic arm, reassures Miranda that while embodied now in The System, her father is the self-same being who once inhabited a body. The relation of self to embodiment is a matter of degree and not kind, he claims. The body we are embodied in is a possession of being rather than its condition: "my left arm" he says, "is . . . mine, not me."

The questions posed by *Death and the Powers* have a formidable history stretching across Western history and, in particular, the West's modernity. But what the opera's staging of these questions best captures is the way in which conventional understandings of the distinctly "human" are transmogrifying. *Death and the Powers* promotes an understanding of the brain as a distinct signifier of the self, while also articulating, along with this understanding, a set of assumptions about how the mind and consciousness are physically constituted. The opera frames the existence of the subject *per se* by

drawing on what, over the last century or so, has come to be characterized as the cognitivist critique in psychology and the philosophy of mind. Speaking generally, this is an approach that holds that the brain's biology—its neurophysiology—is simply a computational phenomenon. And what follows from this approach and the view of the brain as a functional or cognitive system is the notion that it can as such exist in any kind of material, nervous or otherwise.[8] The brain does not need, and need not be limited by, the mortal body; it has, or will soon have, other options.

When Simon Powers claims that what is essential to his self is, literally, immaterial, he is invoking a constellation of meanings, and philosophical arguments, about what counts as the self that falls increasingly and centrally within the purview of neuroscientific research. (We shall return to this point in a moment.) His claim also celebrates the prowess of that research and, in particular, a promise to exchange the material ontology of what is given, for a material ontology of what is or can be made. Powers's transposition from flesh and bone to computational circuits is such a promise realized. Indeed, through a shift in perspective—humans are, at bottom, nothing but thinking machines—and a feat of engineering, death can be transcended and the self finally liberated to become what it most fully and thus authentically is.

Julian Schnabel's 2007 film *The Diving Bell and the Butterfly*, based on the best-selling book by Jean-Dominique Bauby, proposes a different set of cultural representations and meanings for the relations among the brain, subjectivity, and death.[9] Bauby, former editor-in-chief of *Elle* magazine, suffered a catastrophic stroke that rendered him completely paralyzed, yet aware and cognitively intact—a condition referred to as "locked-in syndrome." Left with some movement in his head and one functioning eye, he was able to communicate and ultimately write the memoir on which the film is based by blinking his eye, identifying each letter of each word, one by one. Like the memoir from which it was drawn, the film offers the last testimony of a person for whom an acceleration toward death enacts a transformation that embraces life. The film and the book both stage Bauby's physical condition as the end of a previous life (one marked by professional success, materialism, and excess) and the beginning of a perhaps more authentic life. Despite its physi-

8. For an important critique of cognitivism, see Vincent Descombes, *The Mind's Provisions: A Critique of Cognitivism* (Princeton, NJ: Princeton University Press, 2010).

9. Jean-Dominique Bauby, *The Diving Bell and the Butterfly: A Memoir of Life in Death* (New York: Vintage Books, 1998).

cally disabled condition and stripped of all late-modern excesses, this new life purports to reveal the essence of a person through the figure of a cognitively intact mind.

Although the film depends on invoking the brain as the locus of the self, the notion that computation undergirds cognition and mental life is, in fact, absent. In contrast to *Death and the Powers*, it is the body that is framed by physical determinism and that Bauby calls his "diving bell," a metaphor hauntingly depicted onscreen by the image of Bauby trapped and panicked in a diving suit, descending into a cold, watery abyss. Much like *Death and the Powers*, however, it is the brain's capacity to produce consciousness that defines the space in which the protagonist resists mortality. Dying in this film is organized and facilitated by a whole institutional-medical complex that aims at constantly rehabilitating the body—a complex that Bauby, by and large, finds humiliating, torturous, and dehumanizing. And, for Bauby, unlike Powers, death *is* immanent and cannot be transcended through technical ingenuity or re-embodiment. However, through the bounties of a cognitively intact mind, the biomedicine of the end-of-life body can be circumvented. And here, ironically, is where the film produces its most lasting and significant argument: liberated from the fetters of a previous life, Bauby's mind is able to experience a form of freedom that goes beyond concern with professional success or biomedical health. The visual staging of this liberation is nothing short of inspiring: not only has the mind remained intact, but as a consequence of being trapped in the diving bell of the body it has been liberated to realize itself in a more authentic way.

If Bauby experiences himself as living in a diving bell and physically cut off from the sensuous world, his imagination nevertheless allows him to reenter, or at least re-appropriate, that world; to, in his words, take "flight like a butterfly."[10] It is his imagination that allows him to travel in a fashion that is acutely attuned, and to see the world and himself in ways not otherwise available to him as a "perfectly functioning earthling."[11] In his mental escapades, Bauby is re-embodied in a pristine form, gorging on a carnival of small pleasures: the degustation of crustaceans with his translator; a sexual encounter with his mistress while in Lourdes; shaving the gruff of his dying father's leathered, sun-beaten face. We see staged in these mental escapes the richness of relationality realized through the brain. Indeed, it is the imagination of an intact brain, and its flights of fancy

10. Ibid., p. 5.

11. Ibid., p. 119.

and fantasy, that led critics across continents to see in Bauby's story an uplifting account of the human spirit transcending adversity, a celebration of "the liberating power of consciousness." Whereas such a phrase might at one time have worked against the material relations of power and institutions, now a different materiality is referenced—that of the body, mortality, and finitude. Bauby's body is a useless, decaying, uninhabitable, and hostile host, the object of rehabilitation, clinical regimentation, and a host of life-sustaining efforts; its susceptibility to infection is a persistent medical shadow. And yet, to the extent that Bauby is able to reorient his sense of self and mentally liberate his mind from the prison of flesh, he is to that extent able to recover and more fully inhabit his humanity.

As we noted earlier, the notion that consciousness can be re-embodied in digital media remains absent from *The Diving Bell and the Butterfly*. Nevertheless, the film stages consciousness as an emergent property of the brain that, over and against its materiality, supports practices of self-recovery and self-fashioning. In life's apparently most decisive moment—the moment when one is facing death—it is the biology of consciousness that frames the human subject. A slew of aesthetic choices sets up these links in *The Diving Bell and the Butterfly*. Bauby's memories and escapes into fantastic reverie are shot with an ethereal sentimentality that plays with focus and light. In contrast, the scenes of Bauby's medical care are dark, dim, and brutal; in these scenes, his body is prodded, contorted, and submerged by physicians and rehabilitative specialist trying to rehabilitate even the most basic of tasks: the slight elevation of the tongue or the deliberate twitching of a finger. While Bauby's mental travels always take place outside the clinical complex, his medical body is locked within its confines. This is a space in which most individuals in Western societies can expect to face death, and what the film details for audiences is the painstaking process of transit across this space or through the threshold between life and death. As the medical, technical, and scientific gaze intensifies to prop up the life of the dying body, it is the brain as the locus of both consciousness and freedom that comes to define the "beingness" of the subject and to liberate it.

To tell their stories, *Death and the Powers* and *The Diving Bell and the Butterfly* situate their respective subject in relation to consciousness as an achievement of the brain. Although the relation between subjectivity and brainhood has long been drawn, the association has a particular salience in the context of a recent and emerging turn by the social sciences, humanities, and popular culture to neu-

roscience.[12] To fully appreciate the cultural work that these stories perform in presenting the brain as the physiological basis of mental life, we need to consider how the neurocentric discourse of the subject and consciousness invoked by these cultural artifacts is linked to late-modern institutional and clinical practices. With respect to *Death and the Powers,* this entails exploring the cognitivist neuroscience of consciousness invoked to frame the opera's existential dilemmas. While *The Diving Bell and the Butterfly* does not directly invoke a cognitivist critique of mind, its framing of the subject is, in fact, extremely relevant to end-of-life biomedicine as a biopolitical problem. By foregrounding the brain as the seat of a practice of freedom, liberation, and emancipation, *the film* can be read as a strategic representation of the subject in contemporary end-of-life care.

Within the context of the neural turn, then, each work articulates a cultural representation of the subject that finds a strategic purchase in relation to a biopolitical articulation of dying and death. Indeed, both texts mobilize a neuroscientific register of consciousness in order to organize a series of meanings about dying and death. The way that each framing of subject is recognized, in the end, expresses the way that culture refigures the human subject when the biomedicine, bioscience, and the institutions that provide for dying patients have been transformed.

Computation, Cognition, and the Science of the Mind

We noted earlier that the particular science invoked by *Death and the Powers* is cognitive science, which at least since the late 1960s has more or less dominated the sciences of the mind. Cognitive science proffers an account of the mind that goes beyond the view that mental activities are largely computational or the claim that psychological events have physiological bases; rather, it regards the mind as a self-organizing system that emerges from basic, logical mechanisms immanent to nervous system activity.[13] In this paradigm, the nervous system is not simply a complex apparatus of reflexes that vary with environmental stimuli, but an information-processing system that represents environmental stimuli, and then organizes itself based on these representations. Put another way, nervous systems

12. Melissa M. Littlefield and Jenell Johnson, *The Neuroscientific Turn: Transdisciplinarity in the Age of the Brain* (Ann Arbor: University of Michigan Press, 2012); Pickersgill and Van Keulen, eds., *Sociological Reflections on the Neurosciences* (above, n. 3).

13. Kay, "Cybernetics, Information, Life" (above, n. 6); Warren S. McCulloch and Walter Pitts, "A Logical Calculus of the Ideas Immanent in Nervous Activity," *Bulletin of Mathematical Biology* 5:4 (1943): 115–133.

are physiological systems that communicate and compute information that is then relayed to produce higher-level mental activities and regulate the body, among many other things. Understood in this way, cognitive science can be traced back to cybernetics (since it relies on concepts of feedback, governance, control, complexity, and so on). By expanding the concept of computation (which is assumed to bridge materiality and mentality), it legitimated a return to mentalism, but with a twist: namely, mental phenomena are interpretable through an empirical science.[14]

Needless to say, there are heated philosophical debates over what we have just written. These debates cluster around, for example, the concept of natural computation, the form of existence of mental representations, the concept of qualia (the neural bases of first-person experience), the role of human history and culture in mental processes, and the experimental method appropriate to founding the physiological psychology. However, these philosophical disagreements are possible because of what is a basic consensus in the sciences of the mind that sees mental processes as supervening nervous processes. *Death and the Powers* relies on a strong version of the science of the mind called cognitivism. If one can exhaustively describe a mental process in computational terms, then, according to cognitivism, the mind can be embodied in any material system that satisfies the functional criteria required for those computations. Indeed, what is new in the cognitivist critique of mind is that the brain is, above all things, a representational machine.

For all its flaws, cognitivism remains dominant in the sciences of the mind. It is a foundational position. And no mental phenomena better expresses cognitivism's profound claims (and the divisions in the sciences of the mind) than consciousness and, in particular, self-consciousness. What is it about my brain that gives my mental life a unique sense of "what it feels like" to experience the world? Where is the origin of the *self* in my phenomenology? Questions like these are also subject to considerable debate.[15] But since the mid-1980s,

14. Roger W. Sperry and Polly Henniger, "Consciousness and the Cognitive Revolution: A True Worldview Paradigm Shift," *Anthropology of Consciousness* 5:3 (1996): 3–7; Howard Gardner, *The Mind's New Science: A History of the Cognitive Revolution* (New York: Basic Books, 1987).

15. John R. Searle, "Minds, Brains, and Programs," *Behavioral and Brain Sciences* 3:3 (1980): 417–424; Antonio Damasio, *The Feeling of What Happens: Body and Emotion in the Making of Consciousness* (Orlando, FL: Mariner, 1999); Daniel C. Dennett, *Brainstorms* (Cambridge, MA: MIT Press, 1981); David J. Chalmers, *The Conscious Mind* (Oxford: Oxford University Press, 1997); Smith Churchland, *Neurophilosophy* (above, n. 6); Terrence J. Sejnowski, *The Computational Brain* (Cambridge, MA: MIT Press, 1996).

drawing on computational modeling, some neuroscientists and philosophers have carved out a new space of research with respect to what has been called the "neural correlates of consciousness": to wit, the neural processes that give rise to the "selfhood" of mental experience.[16] What is especially interesting about this research is that it disputes the very existence of a self. For these philosophers, the self is a fiction, a category without actual neurological referent. To use an oft-repeated term in this science, the self is a "second-level representation." Consider for a moment that everything you believe is uniquely yours about your experience, the way you experience love, make an ethical choice, or conduct yourself socially. What cognitivist, computational neuroscientists of consciousness would argue is that, in fact, much of the way "you" feel, act, and decide takes place at a level of mind that is far below the experience of a self. There is no stable, biological "I" in the brain. For these philosophers, what you call a "self" is not a *source* of mental experience; it is, rather, an *effect* of mental processes: "the sense of self in the act of knowing is . . . created" by the brain's representational capacities.[17] Given the range of cerebral activities currently taking place in your brain, this creation is rather limited. The experience of the self is an emergent property of particular kinds of brains—human brains, to be more precise; all metaphysics of the self must, therefore, be thrown out the window. According to cognitive neuroscience, brains are representational machines that evolved second-order representational strategies—strategies of presenting its own representations of the organism and the world to its self—primarily in the interest of survival.

In *The Mechanization of Mind*, Jean-Pierre Dupuy argues that such claims are foundational and paradigmatic in the sciences of the mind. In this important book, he sets out to recover the philosophical origins of cognitive science—which is to say, recover a science of behavior.[18] Thus he asks: What is the metaphysical research program of cognitive science (to use a phrase borrowed from Popper)? What sets of neither testable nor falsifiable claims about the world does this program hold to be true? Dupuy finds these origins in cybernetics, particularly in the work of Warren McCulloch, and traces their flourishing during the Macy Conferences (1946–1953). McCulloch

16. Thomas Metzinger, *Neural Correlates of Consciousness* (Cambridge, MA: MIT Press, 2000); Axel Cleeremans, "Computational Correlates of Consciousness," *Progress in Brain Research* 150 (2005): 81–98.

17. Antonio Damasio, "How the Brain Creates the Mind," *Scientific American* 281 (1999): 75–79.

18. Jean-Pierre Dupuy, *The Mechanization of Mind* (Cambridge, MA: MIT Press, 2009).

was not only a neurophysiologist, but also a philosopher, and his work with logician Walter Pitts systematized the first mathematical model of a neural network. Their breakthrough was the hypothesis that "thinking" is computation immanent to physical activity (of neurons) that could be simulated without resorting to mental constructs. Norbert Wiener, perhaps the most well-known cybernetician, and colleagues thematized these insights with the concept of feedback and other "teleological mechanisms"; that is, mechanisms that, as observable behaviors of organisms, appeared to be intentionally guided toward specific ends.[19] Cybernetics claims to completely resolve all previous psychologies (which were more or less philosophies of mind and philosophies of the subject) and their division from scientific empiricism. In order to explain behavior, one need not refer either to a mentalistic psychology with no physical referent or a behaviorism that refused internal mechanisms; instead, thinking is composed of functional systems that produce behavior and only appear to be those of a subject.

The ideas of the cyberneticians were not limited to logic and neurophysiology. Over the course of the Macy Conferences, a number of social scientists and philosophers radically developed their ideas into cultural, social, and scientific theories. They argued that the world of human culture, behavior, society, and mental life is governed not by the actions of subjects or by the teleology of history, but by auto-regulating, auto-transcending mechanisms and devices. Mechanisms like these can be modeled because they are computational in nature, and they can be engineered because computation is reducible to physical laws. Thus on the European continent, the cybernetic model of mind influenced Lacanian psychoanalysis, structuralism, symbolism, and social theory, while in the Anglo-Saxon world it laid the groundwork for rational choice theory, the Austrian school of economics, and linguistic philosophy. But as Dupuy suggests, cybernetics ran into a series of deep philosophical errors with respect in particular to its account of subjective experience and indeed the subject *per se*, which it failed to grasp. Ignoring these problems, cognitive science forged ahead drawing heavily on the metaphor of the computer.

But what happens to the subject under the spell of cognitivism? The "aim of cognitive science was—and still is today," Dupuy argues, "the mechanization of the mind, not the humanization of the

19. Arturo Rosenblueth, Norbert Wiener, and Julian Bigelow, "Behavior, Purpose and Teleology," *Philosophy of Science* 10:1 (1943): 18–24.

machine."[20] For the sciences of the mind, subjects are made up of nothing but "subjectless" processes, or as Dupuy puts it: "Cognitive science, from the time of its cybernetic origins up through the present day, has presented a picture of the individual subject itself as a sort of quasisubject; that is, as a collective entity manifesting the properties of subjectivity."[21] We have therefore an empirical science of the mind and subject where the attributes of "subjectivity are *emergent effects produced by the spontaneous, self-organized functioning* of a complex organization in the form of a network."[22] The philosophical armature that grounds cognitive science does not simply mechanize the mind, it mechanizes the subject by continually "revealing" that our entire cultural and philosophical traditions of the subject are empirically grounded in subjectless, self-regulating mechanisms. Any appearance of an intentional being is just that—an appearance. This deathblow to humanism and its attendant metaphysics, however, has been an enormous boon to cognitive science, which sees its relevance burgeoning in institutional, economic, mental health, and public-policy applications.

With this brief account, we are now perhaps in a better position to understand the cultural *work* of Simon Powers as a contemporary cultural signifier. His journey into The System does not pose the question of whether it is possible that machines can harbor subjectivity, or even the question of whether the mind can be uploaded into silicon and the subject re-embodied in machines. Powers's entry into The System is possible on the condition that his status as a subject is reframed in an epistemology of mind that regards the subject as a centerless network of self-regulating mechanisms. He presumably reveals to us the truth of cognitive science's gambit: that you are not a subject rooted in a self by virtue of your given nature, and that your *self* is nothing other than the effect of a particular kind of intelligent machine. What makes this claim work for audiences is clearly *not* their familiarity with cognitive science, computational philosophies of mind, or the understanding of the physiology of consciousness. What makes this claim work is the twist that frames mortality. Mortality is inescapable in a body given by nature. Technology allows us to exchange this body for one that has been made. Indeed, the concept of death functions as the persistent, traditional sign of the human status that Powers refuses. By claiming to

20. Dupuy, *The Mechanization of Mind* (above, n. 18), p. xi.

21. Ibid., p. 160.

22. Ibid.

defeat the givenness of human existence, Powers strikes a deathblow to a foundational presupposition of what counts as human: namely, that we die and depart from the world. What a waste it is to die when we may live forever! But in order to "be" and live as a cognitive system, one must surrender the presuppositions that secure the *a priori* status of the human and accept new criteria: that we are, and have always been, nothing but mechanisms that we can engineer.

Death and the Powers clearly offers a set of cultural narratives and categories that give meaning to scientific programs already underway. It situates a physicalist ontology of mind within recognizable ethical problems, not least of which concern developments in biotechnology, biomedicine, and bioscience. In doing so, *the opera* invites us to search for a particular kind of self-knowledge. This is not knowledge of a subject who is dependent for its existence on the exteriority of culture, society, and alterity, but is rather the knowledge of a subject who is a detached, inward-looking functional system. Ironically, perhaps, this form of knowledge is regulating social, economic, and political practices in precisely the area of life that Powers decidedly refuses—the area of dying and end-of-life care. What we propose to do, therefore, in the section that follows is to look more closely at how the notion of the mind and self, as neurally produced phenomena, has come to remediate our understanding of dying and death. How have the problems of dying, mortality, and the mind as brain found a space of articulation not only in popular culture, but in clinical practices and bioethical reasoning?

The End of Life and the Threshold of Consciousness

Addressing this question returns us to *The Diving Bell and the Butterfly*. Bauby's account graphically foregrounds the myriad of practices and processes that together render end-of-life care as an often confused, painful, and prolonged affair. These practices and processes appear overwhelming medically and appear to be, at least ostensibly, shaped by bioscientific advances that sustain the body well beyond its own independent, physiological capacities. But significantly and less obviously, they are also social, moral, economic, and institutional; indeed, "end-of-life care" is the name we give to an ever expanding political apparatus and economy of dying. And, going to the core of the provisions that govern the life of a population, this political apparatus and economy of dying can be understood as a kind of biopolitics.[23]

23. Louisa Cadman, "Life and Death Decisions in our Posthuman(ist) Times," *Antipode* 41:1 (2009): 133–158.

Central to this biopolitics—and this is a point that the film illustrates well—is the production of the dying subject as a particular kind of social and moral actor. In other words, in order to regulate the dying subject's economic, medical, ethical, and institutional care and better manage the process of life's termination, the subject's status as a living being must be refigured. Two reference points in *The Diving Bell and the Butterfly* capture this refiguring and at the same time index what we are suggesting is a biopolitical logic: these reference points being the body and the brain. On the one hand, the body is met by biomedicine or practices that produce a modicum of functionality and thus sustain life through a host of rehabilitative initiatives. These practices aim to restore a certain physiological stability; but they also work to restore a perceived loss of autonomy and self-control, even while both, at first blush, seem a cruel fiction, especially when the body is in a state of utter dependence (from which it cannot recover). But this is where the brain, as that which produces mind, comes in. The brain continues against all odds to produce consciousness, indeed a self that, while imprisoned in a body (that must be medically managed), is not in some basic, agential way bound by it.

The notion that choice is possible, even essential, to the constitution of the dying subject, is radically represented in *The Diving Bell and the Butterfly* as the film explores, often from Bauby's vantage point, what it means to live as a self radically alienated from a body in which one is nevertheless locked. Over the course of the film, the audience is invited to recognize the seat of human difference and distinction in a place that it might not have considered before: the operations of a brain; and to grasp in an utterly different way a certain truism refigured across the ages, which holds freedom as a function of consciousness, a certain mindful orientation. Precisely because Bauby is present, a double logic is instantiated: first, while the body ushers an individual into a biopolitical and biomedical regime of regulating dying and death, then the seat of human difference and a practice of freedom in dying are located in the capacity of a mind to produce a self, despite all outward appearances to the contrary.

The origins of this end-of-life subject can be traced, in part, to medical reforms on the criteria of death and scientific advances in biotechnology from the mid-to-late 1960s. But as early as the 1940s, clinical cases called for a cerebral criterion of death, recognizing that, both clinically and philosophically, the traditional definitions of death located in the heart and lungs were outdated and prob-

lematic.[24] Big questions could have been raised at this historical juncture about the ascent of technological intervention in shaping decision-making practices, for example, or the diminution of traditional ethical valuations. But when committees were set up in the 1960s to reform the criteria of death, grasping the enormous territory of problems posed by the technological mediation of dying was not a particularly pressing concern. Perhaps the most influential of these committees was the 1968 Harvard Ad Hoc Committee on Brain Death, which introduced the total cessation of electrical activity in the brain as a criterion for human death.[25] The committee's goal was, by and large, to advance organ transplantation by making freshly dead bodies more readily available.[26] By the early 1980s, most state legislatures in the United States had passed statutes inscribing into law criteria that remain to this day rather ambiguous. Despite earnest and thoughtful philosophical debates in the 1970s on the new status of human death, physicians expressed rather little interest in these debates.[27]

The Harvard committee's failure to adequately grasp the nature of the problem it was called to answer, unwittingly and ironically produced a new space of scientific research about human life itself. This effect became manifested foremost in the clinic: without a clear definition of death though armed with life-support machines, the clinic became an enormous field of brain-injured, brain-dead bodies whose life status was not entirely clear. This lack of clarity posed problems for clinicians, but it also presented interesting opportunities for scientific investigation.[28] Neuroscientists recognized in the population of clinically available brain-injured bodies a natural ecology of scientific research on the physical processes of mind and consciousness. Meanwhile, bioscience continued to produce more advanced life-support systems, complicating the moral, legal, and clinical questions about managing the health and possibly slow death of severely brain-injured patients.

24. Ernst Kretschmer, "Das Apallische Syndrom," *Zeitschrift für die gesamte Neurologie und Psychiatrie* 169:1 (1940): 576–579; P. Mollaret and M. Goulon, "Le coma dépassé (Mémoire Préleminare)," *Revue neurologique* 101 (1959): 3–15.

25. Eelco F. M. Wijdicks, "The Diagnosis of Brain Death," *New England Journal of Medicine* 344:16 (2001): 1215–1221.

26. Mina Giacomini, "A Change of Heart and a Change of Mind? Technology and the Redefinition of Death in 1968," *Social Science & Medicine* 44:10 (1997): 1465–1482.

27. Peter Steinfels and Robert M. Veatch, *Death Inside Out: The Hastings Center Report* (New York: Harper Forum Books, 1974).

28. Bryan Jennett, *The Vegetative State: Medical Facts, Ethical and Legal Dilemmas* (Cambridge: Cambridge University Press, 2002).

Consider, by way of example, the persistent vegetative patient. Described by Bryan Jennett and his colleague in 1972, the vegetative patient is clinically defined by an absence of conscious behavior, even while signs of cerebral activity might be present (as, for example, certain vegetative functions of the nervous system).[29] For several decades, behavioral examinations were used to diagnose vegetative patients, and efforts to identify distinguishing characteristics of distinct states gave rise to what became known generally as disorders of consciousness.[30] A wide range of disorders are included under the aegis of this sweeping category, including the condition from which Bauby suffered: locked-in syndrome. But no disorder has drawn as much attention as the vegetative state, and, in recent years, a number of neuroscientists claim to have discovered consciousness in vegetative patients through the use of cognitive neuroscience.[31] The introduction of neurological criteria for death, ambiguous as they were, made it possible for a new science of human life to develop at the intersection of neuroscience and the clinic. And with the advance of these developing practices, clinicians have moved away from behavioral examinations,[32] opting instead to adopt the experimental techniques of computational neuroscience, as well as the paradigm of the cognitive sciences, described earlier.[33] As a result, the "threshold" of life and death today is constituted not primarily by medical criteria, but via scientific inquiry on the physical processes of consciousness.

It was from a discourse of neurological life that an economic, legal, and state problematization of human death first developed. Not-quite-dead patients began appearing on federal ledgers in the 1970s,

29. Bryan Jennett and Fred Plum, "Persistent Vegetative State After Brain Damage: A Syndrome in Search of a Name," *The Lancet* 299:7753 (1972): 734–737; see also Bryan Jennett, "Assessment of the Severity of Head Injury," *British Medical Journal* 39:7 (1976): 647–655.

30. Steven Laureys, "Death, Unconsciousness and the Brain," *Nature Reviews Neuroscience* 6:11 (2005): 899–909; Martin M. Monti, Steven Laureys, and Adrian M. Owen, "The Vegetative State," *British Medical Journal* 341 (2010): 292–296.

31. Adrian M. Owen et al., "Detecting Awareness in the Vegetative State," *Science* 313 (2006): 1402; John F. Stins and Steven Laureys, "Thought Translation, Tennis and Turing Tests in the Vegetative State," *Phenomenology and the Cognitive Sciences* 8:3 (2009): 361–370; Martin M. Monti et al., "Willful Modulation of Brain Activity in Disorders of Consciousness," *New England Journal of Medicine* 362:7 (2010): 579–589.

32. Joseph J. Fins et al., "Neuroimaging and Disorders of Consciousness: Envisioning an Ethical Research Agenda," *American Journal of Bioethics* 8:9 (2008): 3–12.

33. Joseph Dumit, "Objective Brains, Prejudicial Images," *Science in Context* 12:1 (1999): 173–201.

particularly after the passage of Medicare and Medicaid. The Quinlan (1974) and Cruzan (1990) cases each responded to the ambiguity of caring for dying-but-not-dead patients by establishing what is today called the "right to die" framework. Both cases emerged from conflicts over the indefinite care of vegetative patients and together laid the groundwork for recognizing this patient as a particular kind of ethical and social actor with legal rights. But this framework, which sought to balance autonomy and the state's interest in life, also made it possible for the vegetative patient, as an ethical and social actor, to be intelligible within the political economy of dying. Indeed, these cases established a certain kind of actor that could mediate processes in relation to dying, because of the enormous ambiguity of diagnosing death from a neuroscientific perspective. What emerged as a result was a particular rhetoric and ethics of dying—the freedom and right to die as one wishes—which could also be effectively mobilized to regulate the provision of services for a dying patient.

As *The Diving Bell and the Butterfly* illustrates well, the threshold between life and death—that space within which end-of-life care transpires—is not rigidly established; rather, the threshold of life and death is a late-modern, biomedical, and neoliberal territory occupied by dying bodies and a certain kind of subject and afforded recognition as a living consciousness. By dividing the body from the brain, *the film* invokes two crucial aspects of contemporary neural subjectivity and the end of life: on the one hand, it stages the recovery of the self in the brain as the problem of science and medicine discovering consciousness in bodies that appear dead; and on the other, the film stages the exercise of consciousness—its capacity to "fly like a butterfly" no matter how fragile or fleeting its appearance—as an essential practice of freedom in relation to death, as its moral ideology. These two poles of the film's narrative make possible a subsequent set of existing, meaningful stories—stories about heroic medicine, remorse and regret, relational closure, and the "good life"—that circulate more widely in contemporary society. What anchors the economic, political, and medical reality of dying and death today is not simply science, law, and/or the ethical policies of medical institutions, but is as well the emergence of a new kind of social, legal, economic, and ethical actor—the individual in relation to his/her own death—that has been produced on the radically re-scripted foundation of biological consciousness. Indeed, cultural representations of this actor more or less explicitly rely upon a set of meanings about the experience of death as a recovery of the self, and in this respect they shape the horizon within which science

conducts its inquiry; law and bioethics stake their claims, and states regulate the social provision for dying individuals. Although clearly not all of dying is mediated through the neural subject, it is nevertheless a major vector through which a rationalization of dying has been extended. We might even say that how the human being is figured in its "recovery"—how the discourse of life through which a relation to death is organized—is a strategic element of the biopolitics of dying. Not only does this configuration of the subject legitimate certain kinds of biomedical interventions as part and parcel of a practice of freedom, but it also makes invisible certain economic rationalizations that are central to the biopolitics of late-modern societies.

Concluding Comments

Death and the Powers and *The Diving Bell and the Butterfly* invoke a neural ontology of being that, at its core, places the existence of a subject in doubt. Is there a *there*, there? While this question is differently staged in each work, their representations of mortality, dying, and death are linked and invoke the broad institutional terrain of end-of-life discourse. Each narrative frames the social, economic, political, legal, and ethical fields of practices and institutions in which we die as multifaceted, nonoverlapping, and heterogeneous. Nevertheless, both the history of end-of-life care and the narratives of these works have something in common: each seeks to bring order to a field of bodies whose relation to death has been extended by biomedicine, law, the state, and bioethics by inciting the desire to locate, more fully and authentically, precisely how and where the subject exists.

Simon Powers and Jean-Dominique Bauby can be read as cultural allegories that set up dying as the experience of a particular kind of biopolitical subject. Each character represents a particular strategy of the biopolitics of dying and death today. In *Death and the Powers*, audience members are asked to reframe the notion of their respective selves not as an object given by nature, but as an effect of a particular kind of machine that can be known, discovered, and remade by cognitive science. Indeed, Powers represents a particular kind of cyborg, to invoke Donna Haraway's well-known figure.[34] And this cyborg companion asks us to reconfigure how we understand ourselves as thinking, feeling, and acting individuals

34. Donna J. Haraway, "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late 20th Century," in *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1991).

who occupy late-modern technoscientific imaginaries.[35] What is at stake here is not only the end of life as a medical, legal, or economic problem, but also our knowledge of ourselves through a scientific knowledge of the physical processes of mind. Following on the work of Joseph Dumit, we can say that reading Powers as a particular kind of subject entails engaging in "objective-self fashioning." "The objective-self," he writes, "consists of our taken-for-granted notions, theories, and tendencies regarding human bodies, brains, and kinds considered as objective, referential, extrinsic, and objects of science and medicine."[36] And in his view, we fashion ourselves after these objective-selves in the ways we receive taken-for-granted facts—for example, by developing new social practices, institutional reforms, or medical interventions. However, what Dumit does not consider when taking stock of the culture's neural objective-self is what Dupuy identifies as the anti-humanist move that grounds its science of the mind. For cognitive science, the human subject is nothing other than a set of computational models, internal representations, and functional systems; the self is not an essence, but is instead the result of subjectless processes. From the point of view of cognitivism, the self and self-consciousness are the result of a functional system that belongs to no one in particular; the self and consciousness are, rather, the properties of a particular kind of computational system.

Medical anthropologists and sociologists have shown through careful ethnographic research that the proliferation of categories like brain death, the vegetative state, and the minimally conscious state, among various other disorders of consciousness, profoundly confuse notions of the self and agency in clinical care for the dying.[37] Instead of providing certainty in practice, categories of life, death, self, and consciousness are a source of ambiguity. But they are also, ethnographically, a point of departure for understanding how the person is culturally produced. In many ways, Simon Powers foregrounds precisely the problem faced in the clinic: when the criteria of life for a human being has shifted to the brain, can a technoscientific understanding of the mind provide a certain diagnosis of a subject? Can such science tell us who and how this subject "is" or whether there is, in the end, "there" there?

35. Martyn Pickersgill, "From Psyche to Soma? Changing Accounts of Antisocial Personality Disorders in the American Journal of Psychiatry," *History of Psychiatry* 21:3 (2010): 294–311.

36. Dumit, "Is It Me or My Brain?" (above, n. 1), p. 39.

37. Sharon R. Kaufman and Lynn M. Morgan, "The Anthropology of the Beginnings and Ends of Life," *Annual Review of Anthropology* 35 (2005): 317–341.

The Diving Bell and the Butterfly suggests that what is at stake in our relation to death is the reconstruction of the subject. This reconstruction unfolds along two simultaneous tracts. On the one hand, the complex of the clinic has in place a set of medical, institutional, and ethical processes designed to respond to the problem of whether or not a patient is conscious. The reconstruction of this life is a cold, bleak, painful, and humiliating process that intensifies the focus on a basic set of productive capacities: the twitch of an eye to communicate, the rehabilitation of a tongue to swallow, and the reach of a thumb to attend to an itch. An entire institutional apparatus exists to manage the division of labor and delivery of expensive, time-consuming services. But what is also crucial in this reconstruction is the production of a particular kind of freedom through the vehicle of an intact consciousness. Bauby remains conscious; there is a "there" in his brain. It is consciousness that, in end-of-life care, allows for freedom to draw into the orbit of managing death legal and, more recently, economic rationalizations of dying. The fact that "being" is framed by consciousness allows for a whole range of legal technologies (for example, advanced directives and living wills) and economic rationalizations (for example, futility laws and rationing of medical care) to structure end-of-life care.[38] Bauby's story, in this regard, can be tied to the ethics of choice in a biopolitical regime of dying: I remain there to manage dying on my terms. A neurocentric self enables the reconstruction of a social, legal, and ethical actor tied to governing dying as a biopolitical problem.

On the other hand, Bauby is reconstructed through the limitless capacity of his mind to remember, dream, and imagine in a manner entirely detached from his body. His reveries transport him back into the delights of carnal pleasures, the heights of love and lust, and the melancholy of regret and loss. In fact, Bauby's locked-in state appears to offer him respite from a professional life in which the opportunities to appreciate what it is that makes up a good life were disturbingly few. Now faced with the prospect of immanent death, he writes a memoir and, as it were, realizes that he has led a full life in every respect but years. A very different kind of subject from that of the biopolitical morass of dying is recognized here: it is the subject who has indeed led a good life, a life of defining choices.

38. Morris B. Abram *et al.*, *Deciding to Forego Life-Sustaining Treatment: A Report on the Ethical, Medical, and Legal Issues in Treatment Decisions* (Washington, DC: Library of Congress, 1983); Joel Zimbelman, "Good Life, Good Death, and the Right to Die: Ethical Considerations for Decisions at the End of Life," *Journal of Professional Nursing* 10:1 (1994): 22–37; Angela Fagerlin and Carl E. Schneider, "Enough: The Failure of the Living Will," *The Hastings Center Report* 34:2 (2004): 30–43.

And in reconstructing this good life, the film invites the audience to recognize a "good death"—a death that, while premature, is nevertheless met after a definite sense of completion, preparedness, and peace. And yet this expression is not so remote from end-of-life care either. The "promise of a good death" is a dominant ethical value in contemporary bioethics;[39] it means providing the means of autonomously directing the course of one's end-of-life decisions, such that those decisions correspond to how one defines what is good.[40] Accordingly, representations of end-of-life subjects like Bauby suggest that to die means to die well in a fashion that is consistent with the way one lived. But is this an adequate formulation of freedom?

The broader cultural intersection of brainhood and death suggests that a physicalist, neural ontology of the subject has, in fact, little to do with a discourse on freedom. The sentimental narrative of consciousness is culturally powerful; its framing of neural subjectivity, especially that of the dying subject, offers narratives of hope, belonging, and eternal life. Nevertheless, the rationalization of end-of-life care as a utilitarian, technical staging of the human subject within social, economic, and political processes is hard to escape. In this regard, it seems clear that the cultural staging of the brain performs a strategic biopolitical function: it obscures the way in which our social, legal, and cultural reform of dying, invested as it is in the rationality of the state, individualistic ethics, and economic rationale, is abetting the rational instrumentalization of human life in the name of freedom. The danger does not exist simply in the technoscientific modes by which we seek to remake ourselves through our biology; more immediately, it exists through the reordering of social, institutional, economic, and legal practices that presume that biological consciousness is a proper ontology of being by which to interpret dying in a legal, social, and cultural way. How, after all, will subjects be recognized as human when the technoscience of the neurosciences are demolishing and remaking all of the traditional markers that distinguish human beings as such?

39. Ezekial Emanuel, "The Promise of a Good Death," *Lancet* 351 (1998): 21–29.

40. Ronald Dworkin, *Life's Dominion: An Argument about Abortion, Euthanasia, and Individual Freedom* (New York: Vintage Books, 1994).