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Chimeras of Nurture

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The boy crouched in his room, rocking to and fro—like a beast in the Paris menagerie, the young doctor thought. He could not return his gaze, and his eyes wandered from one thing to the next, restlessly, insensibly. Sometime a sudden spasm ran through the boy; a convulsive twitch that shook his whole body...

In catching the wild child, society had created an obligation... Here in the savage boy was... a dependence that was complete despite his obvious and formidable ability to survive... They could not return him to the wilds; they could not punish him for his misery with endless incarceration. An indissoluble link was formed.

—Michael Newton *Savage Girls and Wild Boys* (2002, 93–103)

In *Savage Girls and Wild Boys: A History of Feral Children*, author Michael Newton describes the fascinating and heart-wrenching tales of children abandoned to the dead or the unknown, to be raised or to grow outside of human society either among other species or alone. Many feral children who survived the cruelty of absent parenting were brought up by animals, often female wolves (Youngson 1997), or endured years of loneliness of young life in the wilderness. Other feral children were kidnapped and imprisoned. Whatever their fate, they have for generations provided scholars with insights into the essence of human nature, identity, and the impact of experience on human learning (Newton 2002).

Lest the reader think that we are about to compare neuroethics to the concept of “feral,” let us quickly allay your fears—the analogy rests in the concept of hybridism. Our goal is to reflect on some of the lessons learned from the empirical and observational studies of these feral children that date back 350 years, to the mid-1600s.¹ Of the more than 100 documented cases, children raised among animals in particular became chimeras of nurture—unlike the chimeras of nature or in the biologic sense that Greely et al. (2007) discuss in the first target article in this issue—profoundly imprinted by goals and priorities of survival. Many became reasonably well integrated in society and some lived long lives, but few

ever fully grasped the order and coherence of the human language and behaviors to which they became exposed. Despite enormous potential for plasticity within early windows of neurodevelopment, bringing out age-appropriate self-reflectiveness in these children remained a challenge for those who took on their education.

Neuroethics is a hybrid of nurture too, albeit without any limitations of plasticity on its development. Our prediction is that, despite various attempts to pull neuroethics (back) into bioethics or to push it toward related areas such as the ethics of consciousness (Metzinger 2006), it too will remain a hybrid. The relationship of neuroethics with neuroscience is the other part of its hybrid identity. This relationship is sometimes welcome and sometimes tense. Even as neuroethics remains on an upward trajectory of engagement, like the feral children who have enlightened our knowledge of human moral development, it sometimes causes occasional unease by its very nature.

Although provocative discussions about the identity or newness of neuroethics are far from new (see, for example, Illes and Racine [2005] and the accompanying open peer commentaries), they took hold in the molecular biology community for the first time at the European Molecular Biology Organization (EMBO) / European Molecular Biology Laboratory (EMBL) meeting in Heidelberg, Germany, *From Genetics to Neuroethics* (November 2006). The context for the meeting was “Science and Society.”

The first set of talks was about *Drosophila*, well suited to the discussion of genes and behavior. The second set of talks moved the audience from behavior to mind, and the third set from mind to manipulation. But it was the fourth set of talks that was key to the question at hand.

Taking both a look back at and a view forward of scholarly work that draws on bioethics, Erik Parens constructively advanced his analysis of hyphenated ethics (Parens and Johnston 2006) by reflecting on old habits and traps (Parens 2006). One trap is that of overpromise. In a

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1. We found one account of a feral child recorded Roman historian Procopius of a baby boy, abandoned by his mother during the chaos of the Gothic wars in about AD 250, found and suckled by a goat (Procopius 550 [1966], II, xvii; available online at <http://www.forteanimes.com/articles/161.feralkids.shtml>; accessed February 25, 2007).

presentation that drew upon Parens' own experiences of working to deliver policy on enhancement and prenatal testing, he cautioned neuroethicists to neither "over expect" nor overstate what they can deliver. Measured steps in new knowledge can have at least as great an impact as grandiose goals that yield only effects that appear, on the surface, to be compromises, if not disappointments. This was a sobering and valuable lesson reminiscent of the small, dedicated steps that went a long way in the integration of the feral children into society and in efforts toward their cognitive rehabilitation.

Raymond De Vries (2006) reinforced Parens' urgings with some severity by issuing an important call for self-reflection and critical analysis in neuroethics. In taking a look at the sociology of modern neuroethics since its formalization in 2002 (Marcus 2002), DeVries urged that the field not fall lazily to long-standing principles of paternalism and autonomy to guide it, but move ahead in a dynamic way with fresh perspective. Again, we may draw on lessons learned from feral children: while they could adapt to and embody some existing principles in their new worlds, these children would also create novel approaches to others. Thus, what they could not do was relinquish those aspects of their chimeric identities that were fundamental to who they were. To the extent that retaining such an identity is not patently injurious, like the deep-rooted multidisciplinary of modern neuroethics, this strategy may well be highly adaptive.

The second target article by Canli and colleagues (2007) reflects a further hybridization of neuroscience and ethical issues in an arena as yet untouched by this merger on a scale as large as national security. In this context, neuroethics captures a newly hybridized role for basic research neuroscientists, extending them to a domain beyond the pursuit of new knowledge and methods to improve the human condition (Leshner 2007). For physician-neuroscientists it substantially stretches their fundamental commitment to beneficence and non-maleficence. Led by a new breed of professionals (or an old breed with a new mandate), an ethical hybridization of neuroscience tools for the purpose of national security is not impossible. Such development and translation into real-world use, however, will have to draw on what a broad range of scholarly disciplines would urge as lessons from the past: that science, the translation of science to society, and the policies surrounding that translation

embrace proactively and exhibit explicitly a commitment to restraint over exuberance. All roads to these applications must meet the highest standards of scientific acceptability on a global scale. Whether such standards for this yet other, new form of hybridism can be met, remains an open question. ■

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