

Notes toward a Neuropsychology of Moral Injury

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Summary

This brief essay asks a question from the perspective of neuropsychology: What implicit neural processes are triggered when one sees a comrade mortally wounded? The nightmares of wounded and dying combatants and civilians might be understood as the simulations still active in the living neural circuitry of the warrior, long after the events.

Friedrich Nietzsche wrote, presciently, “Whoever fights with monsters should see to it that he does not become one himself. And when you stare for a long time into an abyss, the abyss stares back into you.”¹

We have sent a new generation to the wars in Afghanistan and Iraq and have learned again the lessons we had forgotten—the enormous cost not just to those slain or maimed, but for those returning from war whose inmost being has been changed forever. We have witnessed and recorded once more their darkness of spirit, the uneasy silence about acts witnessed and done, the trigger response to the sound of a car braking or the slamming of a door, the tense search for safety in crowded places, the dislocation from civil society, the loss of intimacy in family life.

Most enduring of all and least amenable to change are the sudden flashbacks and nightmares where images of the destruction of life and limb, experienced in combat, are revived. These recurrent dreams and recollections confront the combat survivor anew in each flashback with the profound ethical challenge of soldiering in modern warfare. Sometimes warded off for decades, they return in times of vulnerability and later life crises.

I believe there is a dimension of these experiences which has not been explicitly explored in the light of the relatively new findings in the field of neuropsychology: the presence of mirror neurons in the human brain.² First observed in monkeys, these neurons have now been confirmed in our species as well.

A recent brain imaging study showed that when we observe goal-related behaviors executed with effectors as different as the mouth, the hand, the foot, different specific sectors of our pre-motor cortex become active.³

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These cortical sectors are the same sectors that are active when we perform the same actions. Whenever we look at someone performing an action, besides the activation of various visual areas, there is a concurrent activation of the motor circuits for the observed action—our motor system becomes active as if we were executing the same action we are observing. A process of action simulation automatically establishes a direct implicit link between agent and observer.⁴

The discovery of mirror neurons has been hailed as the basis both of empathy and imitation, illuminating vast areas of human learning and social behavior.

[M]any researchers believe that our empathic responses present a better case for simulation as the means by which we identify the mental states of others. My having empathy for your predicament, according to this view, depends on simulating, in my brain, your sad facial expression. This action makes me feel a little sad, and thus I can recognize what you are experiencing. Ditto for fear, disgust, anger, and so forth. Taking this fairly old idea and packaging it in terms of mirror neurons, neuroscientist Marco Iacoboni has proposed a general account for empathy according to which “the core imitation circuitry would simulate (or internally imitate) the facial emotional expressions of other people.”⁵

Suppose we extrapolate these findings from the quiet precincts of the clinical laboratory to the messy chaos of the war zone: are we not led to ask what implicit neural processes are set off when the warrior discharges his weapon into another living human being, in face to face encounter? What circuitry is activated when a soldier watches the abuse of prisoners of war? What implicit neural processes are triggered when one sees a comrade mortally wounded?

In military service, the warrior cannot choose what scenes she or he will witness. Activation of the circuits that underlie empathy are, it seems, a constant in the complex fabric of our experience of others. It is reasonable to assume, therefore, that as the warrior inflicts suffering and death on enemy combatants or on innocents trapped in the wrong place at the wrong time, the sights and sounds of that suffering and death will be simulated in that warrior.

In the modern science of war, military training strategies are directed purposefully at blocking empathy for those defined as the enemy. Stereotyping, de-humanizing, ridiculing, demonizing, discrediting—all are aimed at breaking down identification with the dangerous Other to promote efficient killing. These strategies are successful in practice: in World War II it is said that fewer than 20 percent of soldiers discharged their weapons at the enemy, while in today’s wars about 95 percent do so.

The question is, however, whether military training can override processes that are “hard-wired” into our neural functioning, as mirror neurons

simulate the experience of those we injure and slay, and record the plight of comrades injured and slain before our eyes. It seems doubtful, as well, that training can be more than a temporary overlay, and it likely ceases to “cushion” the simulated experience, once the warrior returns to civilian life.

We must listen carefully, then, when the veteran of our wars complains that he feels as if something died in him during his deployment to the war zone. The nightmares of wounded and dying combatants and civilians perhaps should be understood as the simulations still active in the living neural circuitry of the warrior, long after the events—in effect the most powerful kind of learning of which humans are capable. *It is not surprising that psychotropic medication is often ineffective in easing the sense of spiritual damage and despair.*

We are only at the threshold of understanding the ramifications for our life experience and our experience of self and other—of the intricate, subtle and powerful activity of mirror neurons. In an earlier century, William James raised the question of how Peter and Paul are able to distinguish, when they wake in the morning, whose thoughts belonged to each in their discussion the night before.⁶

Thus far, we have not approached the understanding of how, when we fight with monsters, we might yet escape becoming monsters ourselves. This we must learn from those for whom we care. They have looked long into the abyss, the abyss has looked back at them, and they will tell us, in their own good time, what eternal truths the abyss had to show them.

NOTES

1. Frederich Nietzsche, Epigram 146, *Beyond Good and Evil*, Rolf-Peter Horstmann and Judith Norman, eds., Judith Norman, trans. (Cambridge, UK: Cambridge University Press, 2002), 69.
2. Sue Taylor Parker, Jonas Langer, and Constance Milbrath, eds., *Biology and Knowledge Revisited: From Neurogenesis to Psychogenesis: The Jean Piaget Symposium Series* (Mahwah, NJ: Lawrence Erlbaum Associates, 2005).
3. *Ibid.*, 208–209; Parker cites Giovanni Buccino, Ferdinand Binkofski, Gereon R. Fink, Luciano Fadiga, Leonardo Fogassi, Vittorio Gallese, Rüdiger J. Seitz, Karl J. Zilles, Giacomo Rizzolatti, and H.-J. Freund, “Action Observation Activates Premotor and Parietal Areas in a Somatotopic Manner: An fMRI Study,” *European Journal of Neuroscience* 13, no. 2 (2001): 400–404.
4. *Ibid.*, 209.
5. Patricia S. Churchland, ed., *Braintrust: What Neuroscience Tells Us About Morality* (Princeton, NJ: Princeton University Press, 2011), 148.
6. William James, *Psychology* (New York: Henry Holt & Co., 1909), 158.