Biology

THE ALTRUISTIC BRAIN: How We Are Naturally Good by Donald W. Pfaff. New York: Oxford University Press, 2015. 312 pages. Hardcover; $27.50. ISBN: 9780199377466.

The Altruistic Brain offers an antidote for the assumed selfishness of human nature common in the biological sciences by describing the neural brain mechanisms predisposed for creating trust and empathy in human relationships. Its author, Donald W. Pfaff, is a neuroscientist at Rockefeller University in New York who has investigated neural processes involved in numerous types of behavior and is now turning his attention to altruism. His altruistic brain theory (ABT) is primarily a result of his own interaction with the evolutionary and neuroscientific literature. It reflects his belief that neuroscience now offers a comprehensive perspective on the neural circuits of the human brain that explains altruistic and prosocial behavior in the human species.

His theory describes a five-step set of neural processes through which persons act benevolently toward others. In step one, the altruistic action is unconsciously represented to the person prior to the action being carried out based on the neural process of corollary discharge. Corollary discharges are copies of neural signals sent by the brain and spinal cord to the muscles that also go to sensory systems "so that the brain knows what is about to happen" (p. 55). In step two, the person who will benefit from the altruistic act is represented in the visual cortex either as the actual person currently being seen or as a generic person representing a large group of persons; this representation is based on current evidence of the neural systems involved in visual processing. In step three, the images of the recipient of the benevolent action and the self are merged through a variety of neural processes such as increased "excitatory inputs delivering the neurotransmitter acetylcholine" as well as the functional properties of mirror neurons (pp. 87–88). In step four, the outputs of steps one and three arrive at the prefrontal cortex, which evaluates the moral significance of the potential action, and because of the merger that happens in step three, the other is seen as the self which increases the likelihood of the action. In step five, the action is carried out using basic motor control mechanisms.

Pfaff presents several lines of corollary evidence for ABT that are interesting for those not acquainted with the literature. He argues that the biological basis for concern for others lies in human sexuality and parenthood. There is evidence for this thesis especially in regard to attachment theory, which is foundational for certain types of concern for others. Sexuality may be a more difficult argument to support, given the ways in which mate selection and retention strategies are not necessarily concerned with the well-being of the other; a more nuanced account using contemporary evolutionary psychology would have been helpful. Pfaff cites several current research projects exploring moral behavior including Joshua Greene's work using fMRI analysis of ethical decisions, Michael Tomasello's work with moral behavior in children, and the role of oxytocin in generosity from Paul Zak. Much of this research contributes to a broader understanding of the role of various neural mechanisms in altruistic acts. However, this research does not necessarily support ABT directly; rather, it shows that certain brain mechanisms are important for altruism more generally.

Although ABT is based on neuroscience, the theory is highly speculative regarding the moral and altruistic aspects of the mechanisms employed during benevolent actions. Most of the mechanisms are not directly altruistic in any straightforward way; they are the same mechanisms that would be operative during any type of behavior. Most of the steps of ABT are plausible but not directly tested empirically on actual persons who are performing moral actions. Rather, the theory is given as a possible explanation for various moral behaviors. This is the major drawback of the book.

Although the author often claims that his theory is scientific, there is not enough evidence to fully endorse ABT as the underlying process involved in altruistic behavior. There is some evidence in social neuroscience of the importance of representing the other, which fits ABT's step three, but nothing conclusive. Social and affective neuroscience has explored many of the neural mechanisms involved in empathy and compassion, but no comprehensive theory similar to ABT has emerged. In fact, Pfaff's theory does not interact with several contemporary perspectives in social and affective neuroscience such as those of Ralph Adolphs, Tania Singer, Claus Lamm, or Christian Keysers. Pfaff focuses more on general neural systems rather than testing these neural systems during moral or social behaviors. He does little to interact with contemporary moral psychology as well. This is a consequence of his thoroughly reductionist approach, which argues that if we just understood the altruistic brain mechanisms, moral actions would easily follow.

According to Pfaff, these altruistic brain mechanisms provide the basis for a new scientific theory of altruism that can be used to encourage more benevolent behaviors among humankind. "If we understand how the brain works, we can design a rational system of ethics having more predictable outcomes, consistent with an actual human nature undistorted by outmoded ideologies" (p. 4). Pfaff argues that several philosophical

positions on human nature are not based on the data provided by neuroscience. This is particularly interesting in his critique of Patricia Churchland, who has done considerable work in relating neuroscientific research to several problems of human nature in philosophy. His dismissal of her work seems to indicate a deficiency in his understanding of relating the complexities of human nature to the neural mechanisms of the human brain, especially since Churchland and Pfaff seem to be involved in similar projects. Pfaff is also interested in replacing religious and theological positions that focus on human selfishness and wants to demonstrate that persons are "wired for goodwill" (p. 5).

In Pfaff's view, if a neural explanation of altruism can be described, it is no longer necessary to assume a role for religion in moral formation. If persons knew that they were "wired" for goodness, they could use this knowledge as a basis for changing their behaviors. "A kid could simply say 'I'm good and I know it,' that is, my brain naturally and instinctively produces my good behavior; any other type of behavior would seem unnatural and self-defeating" (p. 163). Statements such as this one indicate a naïve optimism that is present throughout his work without any real engagement with the obvious counterarguments that make his theory highly unconvincing. Pfaff's work demonstrates a cursory reading of the philosophical and psychological sources on human nature that would dispute his claim. His assumption of an easy inferential leap from neural mechanisms to humans "wired for goodwill" masks a multitude of historical, philosophical, and psychological problems with his theory.

Although Pfaff's theory is based on neuroscience, he draws from several areas to support his theory, including sociology, political science, and economics. In his final chapter, he proposes two primary strategies for allowing the altruistic brain circuits to function as they were designed: " … we treat concerns over moral behavior as we would a problem of public health" and "the empowerment of women, lessening the effect of testosterone-driven behavior in society" (p. 251). Both of these suggestions seem plausible at the practical level, but it remains unclear whether ABT theory requires these kinds of solutions; persons who do not adhere to ABT could still endorse them. Is the solution really decreasing "testosterone-driven behavior" or is it decreasing dominant social structures and violence? There is no real evidence to demonstrate that focusing on neural structures involved in altruism will provide a better foundation for morality—as opposed to religion or philosophy.

Philosophers and theologians have often offered more positive perspectives on the altruistic aspects of human nature in comparison to a "selfish gene" perspective. However, whether someone is thought to be good because they have a soul or an altruistic brain, the difficulties that often accompany and cause negative social behavior cannot be overcome so simply, because morality is more than neural function. It is a consequence of multiple layers of causative effects at several levels within the hierarchy of science, including economic, cultural, familial, and psychological. Pfaff offers many interesting descriptions of current research in cognitive neuroscience, which will be of interest to persons not familiar with the field, and his emphasis on the positive aspects of human nature is a welcome change from evolutionary accounts that emphasize human self-interest. However, his theory of how altruism works based on several brain mechanisms requires additional empirical support to be accepted as an accurate description of the more empathetic, benevolent, and compassionate aspects of human nature.

Additionally, Pfaff makes the mistake of assuming that science is self-interpreting. He assumes that properly interpreted neuroscientific research leads directly to conclusions about its moral, philosophical, and theological relevance. Pfaff's theory contains many philosophical assumptions that are not "in the data" themselves, but part of a larger philosophical and at least partially antitheological worldview that goes largely unacknowledged. From a Christian perspective, I think this is the larger problem with the work. Although the science is at times very interesting, the philosophical and theological assumptions are not sufficiently discussed to allow the Christian theist to interact with the material in a critical way. For Christians interested in learning some of the perspectives in evolutionary science and neuroscience on altruism, this may be a helpful read, but for those wanting a more nuanced approach to how this area of science impacts morality and theology, a different source would be required.

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EDUCATION

MAPPING YOUR ACADEMIC CAREER: Charting the Course of a Professor's Life by Gary M. Burge. Downers Grove, IL: InterVarsity Press, 2015. 138 pages, bibliography, index. Paperback; $14.60. ISBN: 9780830824731.

Gary Burge has provided a valuable resource to those of us whose vocation is that of university or college professor. Drawing on decades working as a college professor, Burge has written a wise and easy-reading book full of sage advice for university faculty. Although professors are well prepared in their chosen disciplines, without a wise mentor, they are often unaware of the patterns that accompany the typical academic career.