Book Review

Defining Right and Wrong in Brain Science: Essential Readings in Neuroethics

Edited by: Walter Glannon, Dana Press, 2007

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Neuroethics is a young but very active sub-field of bioethics. Several new academic journals and special issues devoted to considering the ethical implications of developments in neuroscience have emerged since the landmark 2002 conference in San Francisco that is widely credited with stoking the interest in neuroethics. Walter Glannon's book, *Defining Right and Wrong in Brain Science: Essential Readings in Neuroethics*, captures well the debates that have engaged neuroethics and provides a thorough introduction to the field.

The anthology is comprised of Glannon's general introduction, 30 articles organized into six thematic sections with helpful introductions to the sections, and an epilogue by Steven Rose. All of the articles have previously been published elsewhere, and many have been very influential in neuroethics. Included in this volume are multiple articles authored or co-authored by Martha Farah, Judy Illes, Paul Root Wolpe, Joseph J. Fins, as well as William Safire's address to the 2002 neuroethics conference.

The issues covered by the authors in this anthology are diverse, but most articles deal with ethical concerns related to neuroimaging or psychopharmacology. The articles in Part I dealing with "Foundational Issues" ask a number of questions. Will new imaging technologies threaten the privacy of our thoughts? What adverse effects of intervening in the brain (i.e. through pharmacological or psychosurgical techniques) should we be cautious of? Several authors note that enhancing our capacity for memory might alter our ability to forget, which has a therapeutic function, and which also plays a role in our ability to make conceptual generalizations.

Section II on "Professional Obligation and Public Understanding" contains articles that discuss how to involve the lay public in the use and direction of neuroscientific research. These articles also address the problem of maintaining public trust in neuroscience given that this area of science has the potential to reveal sensitive and unwelcome information about ourselves.

The articles on "Neuroimaging" (Part III) deal with issues in the practice of neuroimaging studies and with the consequences of greater knowledge of the brain arising from powerful imaging techniques. How do we manage incidental findings about brain tumours or anomalies that might arise in non-therapeutic brain imaging research studies? There are also concerns about the way neuroimaging data are interpreted, since such interpretation is inevitably shaped by social and cultural frameworks, and since the brain is the seat of our identity, or the "organ of individuality" as Safire puts it.

The fascinating section on "Free Will, Moral Reasoning, and Responsibility" (Part IV) contains articles that discuss what neuroscience can tell us about moral reasoning. There are also several key essays which consider whether knowledge of the deterministic nature of the brain as revealed by neuroscience will cause us to abandon belief in moral and legal responsibility for our actions. Our capacity for free will seems in doubt if the functioning of our brains is determined by the causal nexus, just like any other physical object. Notable articles by Michael Gazzaniga and Stephen J. Morse are skeptical that neuroscience will cause us to resign our belief in moral or legal responsibility.

Part V on "Psychopharmacology" deals with ethical issues in the treatment and enhancement of our brains through pharmacological means. Is the neuroenhancement of capacities like memory or concentration justifiable? Will the ability to blunt or eliminate unwanted memories threaten our future capacities for such necessary emotions as regret, shame or empathy?

The articles in Part VI investigate ethical issues relating to "Brain Injury and Brain Death". What are the neurological indices of death? Are we dead when the whole brain ceases to function, or is death rather the cessation of integrated brain function? With regard to the issue of brain injury, several articles discuss how we could improve the treatment of people with severe brain injury, such as those who exist in a minimally conscious state.

In general, this is an excellent overview of the state of neuroethics. Though I had read several of the articles in this volume before, Glannon's selections offered several pleasant surprises for me. Among them is a very engaging debate between Arthur L. Caplan and Paul R. McHugh on the ethics of cognitive enhancement,

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entitled "Shall We Enhance?" (Chapter 23). In that debate, Caplan provides a lively rehearsal of the argument that enhancing your child's brain through the off-label use of psychopharmaceuticals is no different, in principle, from enhancing the brain through other means, such as by attending after-school study classes. McHugh argues against neuroenhancement by claiming that the desire to use pharmaceuticals in this way contributes to negative social phenomena that prevent many of us from being happy. The exchange between Caplan and McHugh is an accessible and thought-provoking introduction to the ethics of neuroenhancement, a perennial issue of concern in neuroethics.

The Goals of Neuroethics

The articles in Glannon's anthology aim to do many different things. For example, they:

- Identify current and emerging ethical issues caused by advances in neuroscience;
- Make predictions about the social changes neuroscience might bring;
- Debunk or dissolve frightening predictions about the consequences of greater knowledge of, and control over, the brain;
- Propose policies that deal with ethical problems related to neuroscience;
- Propose procedural or institutional mechanisms for solving ethical problems;
- Advance moral judgments based on rational argumentation;
- Exhort us to pursue a different course in response to a problematic issue raised by new knowledge of the brain (for example, in the medical treatment of those in a minimally conscious state);
- Unmask the real motivations that lie behind an application of brain science (for example, in the promotion of fMRI lie detection by private companies);
- Give an account of what neuroscience tells us about moral reasoning (the neuroscience of ethics);
- Make claims about what we should believe about ourselves on the basis of what neuroscience has discovered;
- Undertake legal analyses of some issues relevant to brain science; and
- Make recommendations about the direction neuroscience or neurotechnology should take.

This is not meant to be an exhaustive list of all the goals taken up by the articles in Glannon's book, and many items in the list overlap in scope. The diversity of these goals notwithstanding, neuroethics is a young field of study, and in this volume there is thus a disproportionate focus on issue-identification – the first item in my list – rather than on offering arguments meant to solve ethical issues in brain science. All of the articles in Part I of the book perform this issue-identification service, and many of the articles in the sections on Neuroimaging and Psychopharmacology have a tentative flavour and an unwillingness to make normative claims. In this way, *Defining Right and Wrong in Brain Science* is fairly representative of the field of neuroethics in general. As the field matures, it is likely that more work will be devoted to tackling the issues that have been identified in this early phase of the discipline as deserving ethical attention.

Although Glannon's volume tackles most of the topics that have occupied students of neuroethics, there is one significant omission. There is an important sub-genre of articles and books in neuroethics that advance an ethical critique of the powerful interests that are behind some of the more disturbing uses of brain science. For example, the American military is highly interested in the development of mind reading and mind control technologies. The ethicist Jonathan D. Moreno presents this issue in his book *Mind Wars: Brain Research and National Defense* (2006). A lot of good work has also been done on the overwhelming and sometimes malign influence of large pharmaceutical companies on the development of psychopharmacology. David Healy's work on this topic comes immediately to mind. Essays critical of these powerful institutions and their uses of neuroscience are absent from Glannon's anthology, and since this is an important area of neuroethics scholarship, the anthology might have benefited from the inclusion of a few representative articles.

Our Brains and Our Social Lives

One issue that *Defining Right and Wrong in Brain Science* covers especially well is the examination of neuroscience's potential impact on our conceptions of human identity. The authors included in this book often remark upon the close connection between the brain and the self. Such claims are made in articles by Adina Roskies, Farah and Wolpe, Illes and Eric Racine, and by Lynette Reid and Françoise Baylis. Intervening in the functioning of the brain has the potential to alter our identities and our sense of what it means to be human.

However, in addition to the relation of the brain to the self, another striking connection brought out by Glannon's anthology is the one between the brain and human society. The discussion of ethics in brain science leads quite often into an analysis of more general social norms and the structure of society. Issues in neuroethics appear especially entrenched in wider social concerns. Our motivation

to know more about the brain through imaging or manipulation of it, and our concern to pursue these scientific ends in an ethical way, are intimately tied to our hopes, dreams, and fears about the nature of our relationships and our place in society.

In his contribution to the article "Shall We Enhance? A Debate" Paul R. McHugh gives a number of examples of patients who come into his office looking for a pharmaceutical cure for some deficiency they see in their lives, or in the lives of someone they care for. In one example, parents seek drugs that will help their son's school performance. In another, a young woman is looking for a way to alter her personality so that she will be more attractive to the men she dates who never want to commit to a relationship with her. In each case, McHugh (a psychiatrist) claims he would refuse to prescribe medications that would provide the desired enhancement. His strategy in counselling such patients is to shift the person's attention away from their desire for a drug that will take away their problems and to focus on the nature of the situation in which they find themselves. He argues that the desire for neuroenhancement reflects values and relationships which might not be conducive to the happiness that they seek – such as academic competitiveness, or "cooperating with a cultural system that permits males to remain perpetual adolescents" (Caplan and McHugh, 2007: 280). McHugh thinks that such patients need to be re-directed towards more realistic attitudes "about what is to be admired and what is to be scorned, about what advances and what retards our human pursuits" (Caplan and McHugh, 2007: 281). In discussing the question of the justifiability of neuroenhancement, we quickly bump up against the old philosophical question of what constitutes the good life for social animals like us. McHugh's thoughts about these patients also make one wonder about who ought to bear the costs of living in a negative social environment. How do we alleviate the unhappiness of individuals who are the victims of these environments? If neurological enhancement is unjustified, then what measures are justifiable?

The way in which discussions of neuroethics often lead into discussions about the structure of social relationships is also illustrated by a number of the articles on free will.

In their essays, Michael Gazzaniga and Stephen J. Morse each consider whether neuroscientific knowledge will undermine belief in the legal responsibility of criminals. According to neuroscience, the brain is like a machine and we are simply physical objects subject to the deterministic laws of nature, with all human behaviour occurring by virtue of causes outside of our own control. Gazzaniga's essay (which is a chapter from his book *The Ethical Brain*) is entitled "My Brain Made Me Do It", and Morse's is "New Neuroscience, Old Problems: Legal Implications of Brain Science". Each author believes that neuroscience will not undermine legal responsibility, and each characterizes the question as based on a mistaken assumption about what neuroscience can tell us.

According to Gazzaniga, even though neuroscience understands the brain in deterministic terms, he says the concept of responsibility is not denied by neuroscience, because the concept simply is not part of the neuroscientific description of human behaviour. Instead, the attribution of personal responsibility "is a socially constructed rule that exists only in the context of human interaction" (Gazzaniga, 2007: 192). To explain, he gives a helpful analogy: an optometrist can measure a person's vision is (i.e. 20/20 or 20/40 vision). However, an optometrist alone cannot make the value judgment about the level of vision one ought to have in order to drive a school bus. This judgment is a social choice. Similarly,

> psychiatrists and brain scientists might be able to tell us what someone's mental state or brain condition is but cannot tell us (without being arbitrary) when someone has too little control to be held responsible. The issue of responsibility (like the issue of who can drive a school bus) is a social choice (Gazzaniga, 2007: 193).

The mistaken assumption is to treat a concept put to use in social interaction, namely personal responsibility, as part of the intellectual apparatus of neuroscience, where it is in fact absent.

Morse's account is similar. The concept of legal responsibility is a product of social interaction. For instance, courts decide when responsibility is present or absent. According to Morse,

> In various legal contexts, how much and what type of rationality is required for responsibility is a social, moral, and political issue that divides people … Science could not answer this question because it is not a scientific issue; the debate is about human action (Morse, 2007: 197).

Again, the mistaken assumption is to suppose that legal responsibility – a social construct – can be measured by scientific means. These examples elucidate the fact that when we debate ethical issues related to new developments in brain science, we are often forced to think about the nature and provenance of our social norms. Discussing ethical issues in brain research often throws us back into thinking about the nature of our social relationships.

In many cases, the articles in *Defining Right and Wrong in Brain Science* suggest that taking a brain-based neuroscientific view of an issue of ethical concern to us – such as the question whether we have ultimate responsibility for our actions – may not be the best way to approach the issue. In order to answer some of the pressing ethical questions raised in this anthology of essays, we need to look outward at our social lives just as much as we need to look inward at the structure and functioning of the brain. This observation is not to question the quality of Glannon's anthology. The essays show a clear awareness of the socially-situated nature of the ethical implications of our increasingly sophisticated understanding of the brain. It is an excellent overview of the current state of neuroethics.

References

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