Advanced Medical Technology and the Brain

Questions on Personhood, Patient Autonomy and Patient Rights

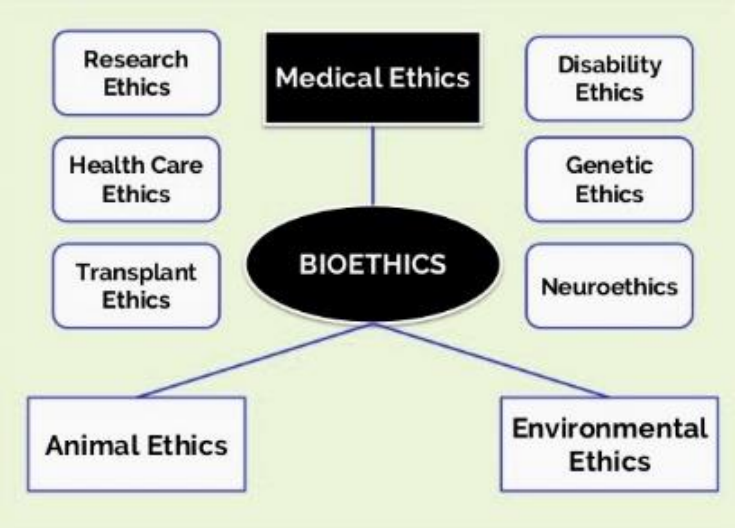
Dr. Derrick Au

CUHK Centre for Bioethics

4th Bioethics Journal Club meeting (21.9.2017)

Bioethics – taking a broad view

- Studies the ways in which decisions in medicine and science touch upon our health and lives and upon our society and environment.
- A branch of Applied Ethics often requiring contribution from multiple disciplines including law, philosophy, theology, medicine, the life sciences, nursing and social science.
- Values at stake: human life, the dignity of the frail and elderly, just healthcare, bodily integrity and the ability to make reasonable decisions.



Adelaide Centre for Bioethics and Culture
http://www.bioethics.org.au/Resources/Bioethical%20Issues.html

About the Journal Club

- Topics of interest bringing people from different disciplines and affiliations together
- Share thoughts in some depths
- Evolve streams of ongoing discussions
- Previous meetings:
  - Proxy decisions and respecting autonomy of elder patients
  - Medical dissensus and pluralism for end of life care
  - Moral distress in nursing
  - This one…considering ethical challenges from advanced medical technologies in neuro-interventions

Review TRENDS in Cognitive Sciences Vol.9 No.1 January 2005

Neuroethics: the practical and the philosophical

Martha J. Farah

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In comparison with the ethical issues surrounding molecular genetics, there has been little public awareness of the ethical implications of neuroscience. Yet recent progress in cognitive neuroscience raises a host of ethical issues of at least comparable importance. Some are of a practical nature, concerning the applications of neurotechnology and their likely implications for individuals and society. Others are more philosophical, concerning the way we think about ourselves as persons, moral agents and spiritual beings. This article reviews key examples of each type of issue, including the relevant advances in science and technology and their accompanying social and philosophical problems.

Introduction

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Like the field of genetics, neuroscience concerns the biological foundations of who we are, of our essence. The relation of self to brain is, if anything, more direct than that of self to genome. Perhaps more important, neural interventions are generally more easily accomplished than genetic interventions. Yet until recently there has been little awareness of the ethical issues arising from neuroscience. Beginning in 2002, neuroscientists began to address these issues in the scientific literature (e.g. [1–5]) and the field gained a name, 'neuroethics' [6].

Neuroethics encompasses a large and varied set of issues, and initial discussions focused on various different subsets of those issues. Some neuroethical issues concern the practical implications of neurotechnology for individuals and society. Technological progress is making it possible to monitor and manipulate the human mind with ever more precision through a variety of neuroimaging methods and interventions. For the first time it may be possible to breach the privacy of the human mind, and judge people not only by their actions, but also by their thoughts and predilections. The alteration of brain function in normal humans, with the goal of enhancing psychological function, is increasingly feasible and indeed increasingly practiced. At the same time, progress in basic neuroscience is illuminating the relation between mind and brain, a topic of great philosophical importance. Our understanding of why people behave as they do is closely bound up with the content our laws, social mores, and religious beliefs. Neuroscience is providing us with increasingly comprehensive explanations of human behavior in purely material terms. Although the field of neuroethics is young and still evolving rapidly, the time seems ripe for a review in which the key issues of neuroethics, both practical and philosophical, are surveyed and placed in relation to one another.

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Available online 13 December 2004

Brain imaging and brain privacy

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Ethical issues from advanced technology (1): First genetic engineering, then neural interventions

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- "Neuroethics"' – a term first coined in 2002.
- Like genetics, concerns the foundations of who we are, "our essence".
- Some new ethical issues are not clinical: (1) brain imaging and 'brain privacy' – monitoring the human mind; (2) enhancing psychological functions – manipulating the human mind

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- Non-pharmaceutical Methods for altering brain functions rapidly moving from laboratory to clinical: transcranial magnetic stimulation (TMS), surgery, brain stimulation, brain-machine interfaces
- Philosophical – our conception of human nature, and 'human soul'; moral responsibility and 'blaming on the brain'; neuroscience edging out intuitive or religious views of persons.

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Ethical considerations in deep brain stimulation for psychiatric illness

Ryan A. Grant [a,*], Casey H. Halpern [b], Gordon H. Baltuch [b], John P. O'Reardon [c], Arthur Caplan [d]

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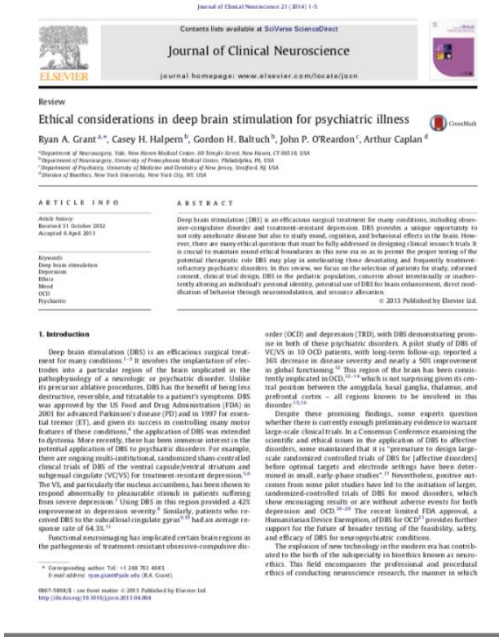
Deep Brain Stimulation (DBS) for Psychiatric Illness (1)

- Implants electrodes to specific region of the brain implicated in the pathophysiology. Approved by FDA in 2001 for advanced Parkinson's Disease. Moved on to investigational treatment of resistant depression as. Early trials ls to treat OCD.
- Research ethics: Protection of vulnerable research subjects and aftercare. Risk of abuse. Informed consent is a real challenge. Sham surgery as control is another issue.



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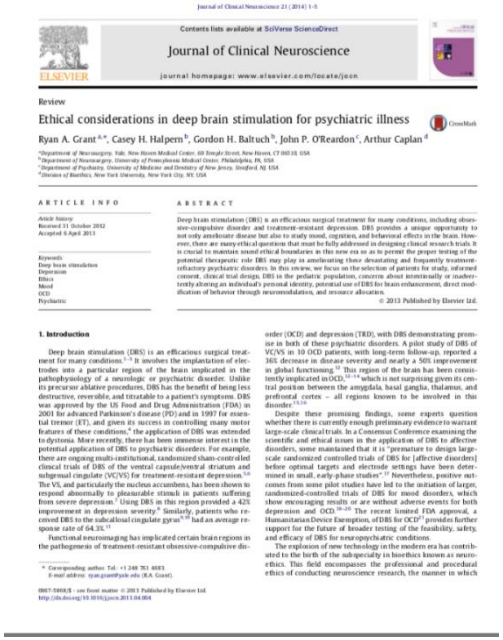
Deep Brain Stimulation (DBS) for Psychiatric Illness (2)

Identity and personhood issues:

- Self-adjusting or switching ‘on’/’off’ of pulse generators?
- How much change in established personality is acceptable?
- Adverse effects on memory?



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Psychosurgery and Neuroimplantation: Changing What is Deep Within a Person

GRANT GILLETT

Psychosurgery and neuroimplantation are two overlapping sets of procedures both aimed at 'the source of our pleasure, merriment, laughter and amusement, as of our grief, pain, anxiety and tears' (Hippocrates, 1978). Some of the techniques involved have demonstrable and relatively objective results but some do not; some have well-established indications and measures of success but others are controversial; all share the excitement of the new and appeal to both theorists and therapists. Such is the current interest in the interconnections between neuroscience and ethics that the term 'neuroethics' has been coined to cover the innovative academic (and not-so-academic) writing in this area (Journal of Medical Ethics).

The ethical aspects of interventions in the stuff of mind are best considered against a philosophical understanding of the mind or soul in relation to the brain. I will explore an Aristotelian understanding of that relation (1986) because it renders the mind/brain relation comprehensible and accessible to detailed discussion. It therefore allows a perceptive purview of the implications of mind/brain for psychosurgery, neural repair and neural enhancement with cybernetic technology in relation to issues of both well-being and identity.

ARISTOTLE ON THE SOUL

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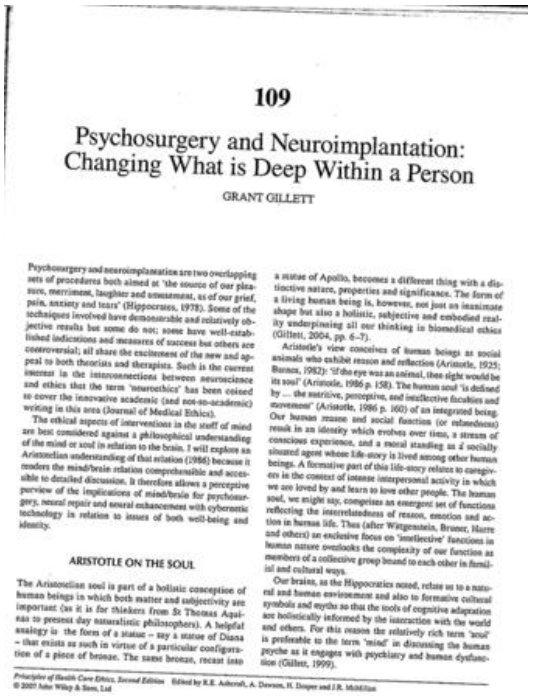
Philosophy of the Mind (or Soul) (1)

- Aristotle: The Human Soul defined by human reason and human relatedness.
- The bitter experience from ‘the lobotomy years’ – curing a disorder or transforming a person to someone who is more acceptable to the rest of us?
- Evaluation of objective good and patient’s subjective wish not easy – relevant assessment is affected by the evaluative and observer-dependent nature of the judgments.
- Embryonic tissue transplant has been a hot topic



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Psychosurgery and Neuroimplantation: Changing What is Deep Within a Person

GRANT GILLETT

Psychosurgery and neuroimplantation are two overlapping sets of procedures both aimed at 'the source of our pleasure, merriment, laughter and amusement, as of our grief, pain, anxiety and tears' (Hippocrates, 1978). Some of the techniques involved have demonstrable and relatively objective results but some do not; some have well-established indications and measures of success but others are controversial; all share the excitement of the new and appeal to both theorists and therapists. Such is the current interest in the interconnections between neuroscience and ethics that the term 'neuroethics' has been coined to cover the innovative academic (and not-so-academic) writing in this area (Journal of Medical Ethics).

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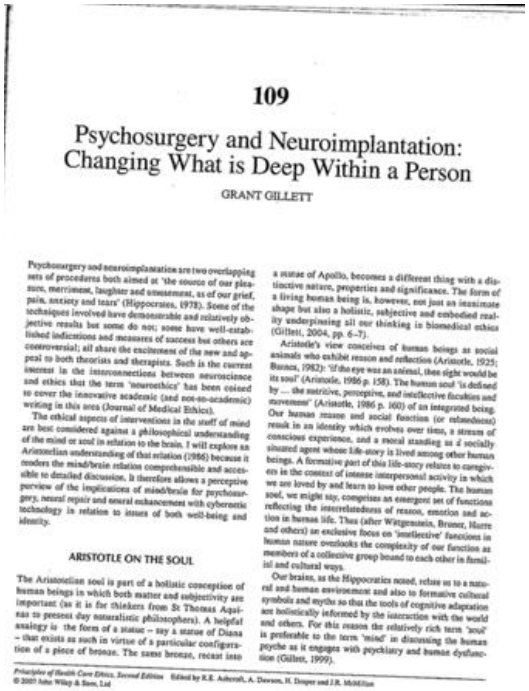
Philosophy of the Mind (or Soul) (2)

- Clinical ethics issues: Pressure to use experimental treatments. Long term complications may be unknown.
- Cyborgs: part-human and part-machine complexes developing fast.
- “The technologies of the psyche are deeply problematic in that they straddle a deep-seated ideological divide.”
- “Don’t play with what lies deep in another person.”(Wittgenstein, 1980)



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Thank you for your attention