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Neuroethics in Christian Perspective

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As it was in the beginning...

Then they said, 'Come, let us build ourselves a city, and a tower with its top in the heavens, and let us make a name for ourselves; otherwise we shall be scattered abroad upon the face of the whole earth.' The LORD came down to see the city and the tower, which mortals had built. And the LORD said, 'Look, they are one people, and they have all one language; and this is only the beginning of what they will do; nothing that they propose to do will now be impossible for them. Come, let us go down, and confuse their language there, so that they will not understand one another's speech.' So the LORD scattered them abroad from there over the face of all the earth, and they left off building the city. Therefore it was called Babel, because there the LORD confused the language of all the earth; and from there the LORD scattered them abroad over the face of all the earth. (Genesis 11:4-9).

In the story of the Tower of Babel, God sees the danger of human pride and where it might lead. Humanity endeavours to be like God, and suffers a judgement of confusion and dispersion in which it is denied a single language or sense of unity. It is in this context that we must see the advances of modern science – their motivations, methods and goals. This applies not least to the fast-developing medical application of neuroscience and neurotechnology.

The Progress of Science

The history of science, and particularly the medical sciences, is one of innovation and progress. Even in our own lifetimes we have experienced the mapping of the human genome, moves towards genetic cloning, stem cell research, and nanotechnology. And now we are seeing major breakthroughs in the neurosciences. Martha Farah from the Center for Cognitive Neuroscience at the University of Pennsylvania offers a telling snapshot of the agenda and possibilities in her field, and stresses the need for ethical reflection on them:

Technological progress is making it possible to monitor and manipulate the human mind with even 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 practised. 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 of our laws, social mores, and religious beliefs. Neuroscience is providing us with increasingly comprehensive explanations of human behaviour in purely material terms.¹

Before assessing these developments and responding to them proactively in ethical terms, it will be helpful to reflect more broadly on the progress of science itself.

Reflections on the Progress of Science

The forward march of scientific knowledge seems inexorable. The human spirit of enquiry appears limitless. It drives scientists to yet further discoveries and applications. This, coupled with the desire to improve the well being of humans by overcoming not only illness and disease but also less tangible weaknesses and limitations, is powerfully at work in the medical science community. However, advances in this area are often double-edged. Nuclear fission provides a relatively cheap and environmentally friendly source of energy, but carries with it both the means to make horrific weapons and, as in Chernobyl, the potential to wreak environmental damage far beyond the boundaries of a single nuclear plant or a single nation.

In a cash-strapped research world, science often seems to promise more than it delivers. The much-heralded mapping of the human genome has so far produced remarkably few genuine genetic-based cures or therapies, either by gene replacement or by gene manipulation. Indeed, one can be forgiven for imagining that disease seems intractable. We no sooner discover some way of eliminating or reducing tuberculosis than we find that cancer, heart disease and even new strains of tuberculosis flourish.

It is also clear that medical developments are subject to revision. The contraceptive pill was once hailed as an unmitigated success, allowing women to control their own fertility and make choices about whether and when to work and whether and when to have children. It was only after many years that related problems of heart disease and infertility began to emerge. The safety of medicines and medical treatments is vital. In Edinburgh a Cyclotron was used for the treatment of cancer, and appeared to reduce the number of repeat cancer victims to zero. It looked like a cure for cancer had been found, until someone asked what had happened to all those treated. It was then revealed that they had not returned with cancer because they had all died. What looked like a cure was in fact lethal in its effects.

Medical advances can also have a significant social impact. The development of easily accessible and user-friendly contraception has transformed the sexual attitudes and behaviour of re-

cent generations. Of course, the interaction of social change and scientific development is complex, but there is obviously a link between them.

Scientific research is also susceptible to both academic and financial pressures. The old adage 'publish or perish' has renewed power in an age of assessment reviews and exercises. Labs and those who work in them are at risk unless they achieve their goals and show that they can deliver. This is not so much about winning a Nobel Prize for Medical Science as securing funds for research, keeping a job, and being part of an existing research team. Money is in fact the main concern for such research teams and, of course, for those who fund them. With the severe cut-backs in governmental and general research funding bodies, ever more drug-company funding is sought. Pharmaceutical firms are in the business of making money and so fund winners and successful teams rather than speculative medical research. This can pressurise researchers to promise more than they can realistically achieve, and creates hype not only in the science world but also in society at large. This in turn may unduly raise patient and family expectations. The actor Christopher Reeve was understandably committed to stem cell research in the hope that this might provide some cure for his paralysis. In fact, even with a major breakthrough today, it will be many years before the average patient will benefit directly from such advances. The gap between laboratory success and general medical usage is often five years or more. But with such severe competition for limited money, exaggerated claims and predictions of success are to be weighed carefully.

When scientific research was developing, there was a simple test for the ethical validity of any piece of research: 'Would a doctor do it to himself?' Then it was discovered that many doctors would do anything to themselves for the sake of their theory. A new test suggested was, 'Would a doctor do this to a member of his or her family?' Then it was discovered that some doctors would do anything to their families for the sake of their theories. Now we have a complex regulatory system not only to ensure the scientific validity of any piece of medical research but also to confirm that it fulfils certain ethical criteria. In medical research these criteria usu-

ally centre on whether patients involved in the research project are fully informed about its nature, aims and consequences, and whether their consent is uncoerced and validly recorded.

At the coal face, this regulatory task is assigned to Local and Multi-Centre Research Ethics Committees. Beyond these, however, lie a welter of professional, governmental and international controlling and advisory bodies. This all bears out the need to maintain public confidence in science and scientific research – to offer reassurance that medicine is being practised in a morally responsible way and that any rogue scientists will be restrained and disciplined.

Is Neuroethics a Unique Problem, or Are There Parallel Dilemmas?

One of the dangers we face when confronted with new medical discoveries is to imagine that they are unique, and that we must begin from scratch in deciding how to respond to them. Recent developments in the field of the neurosciences may offer some distinctive questions and problems, but there are many helpful parallels which can be brought to bear on them:

1. Whatever neuroscience produces, we shall be driven back to our essential understanding of humanity and human nature. What we consider to be fundamentally human will be at the core of our response.
2. Likewise, whatever the neurosciences produce, we will need to ask foundational questions about the nature of the individual, what worth, dignity, protection, rights and responsibilities individuals possess, and how those qualities should be protected.
3. With the application of new neuroscientific techniques to the human brain, questions about our view of the future will be set in sharp focus. Already we struggle with our definitions of life and death, with our attitudes towards life after death, and with defining the limits on human power and control. In this neuroscientific drive, it is no surprise that some argue that we should proceed with brain implants, memory adjustment and human enhancement in order to live longer and keep death at bay. The motives of

these so-called transhumanists will have necessarily to be set against concerns about access to and control of medical advances and techniques.

4. It is easy to see that control of the mind and adjustment of brain activity raise key questions about freewill and determinism. Are human beings simply complex machines who may be programmed and directed according to the purposes chosen for them by their creators and manipulators? Or are we free and responsible beings, characterised by our ability to make decisions and to bear their consequences? These questions touch not only on the freewill debate but also on what if anything distinguishes humanity from machines and robots, and what impact new discoveries about brain function and control will have on our institutionalising of praise, blame, punishment and education.

There are further key parallels to these issues in other related areas, and we would do well to heed them:

1. Robotics has already developed thinking machines, albeit in a programmed way. Creativity and discovery are being built into robots, but we are still left with a sense that there is a fundamental difference between a robot and a human being. This is not just a question of what robots can do at the present time. It is also a question of the nature and status of a humanly designed machine in comparison with a human being – whether fully capable and active, or at the edges of capacity and life, as with severely mentally handicapped people or those afflicted by senile dementia.
2. The Mind-Body problem has bedevilled philosophy and the philosophy of science for generations. In the past fifty years there has been much written and discussed.² Physicalism suggested that sensations are nothing but brain processes, and that we could reduce all talk of mind and mental activity to purely mechanical and material categories. This led to a robust critique from Donald MacKay, who warned of a ‘nothing buttery’ in which human beings were seen as ‘nothing but’ their physical body, rather than as the complex of every aspect of what it means to be human.³

3. P. F. Strawson, the well-known logician, made a key contribution to the mind-body debate with his insistence that the fundamental category in understanding human beings was that of the 'person'⁴. Strawson urged that we talk about an individual person both in terms of material qualities like appearance and bodily form, and in terms of qualities like character, attitudes, beliefs and memories. Both sorts of description were seen by Strawson as necessary and intertwined from the start. Indeed, he warned that if we accept the premise of a mind-body split, it will be well nigh impossible to reconcile the two elements later.

4. Stuart Hampshire offered a more socially based reflection in his book *Thought and Action*⁵. He argued that our social practices and institutions reflect our beliefs that human beings are free and responsible. For Hampshire, we are neither simply products of our environment, nor simply of physical and psychological training. Nor are we merely machines. Our practices of praising and blaming, of punishing and rewarding others reveal our common understanding of human freedom and responsibility. Our legal, penal and educational systems operate on these fundamental presuppositions and as such represent an important aspect of what it means to live in community.

5. Paul Ziff offers an excellent, tongue in cheek comparison between human beings and machines in order to clarify what he regards as the fundamental differences between them:

A machine uses power, but a man has lunch;
A machine can take, but a man can borrow;
A machine can kill, but a man can murder;
A machine can calculate, but a man can be calculating;
A machine can breakdown, but a man can have a breakdown;
Coveting my neighbour's robot wife is more like coveting his robot than coveting his wife.⁶

If there are dangers in embracing the developments of the neurosciences, these tendencies to reductionism and mechanism are among the most serious, and the most assiduously to be avoided. Human beings are far more, and far more complex, than their neural activities – far more than just complicated machines.

Developing Key Ethical Distinctions

In reflecting more specifically on the ethics of neuroscience, some key distinctions may be helpful.

1. Needs v Wants

In the tortuous business of resource allocation distinctions are often drawn between what people need and what they merely want. Thus responsible cosmetic surgeons will try to differentiate procedures necessary for the well being of seriously damaged patients from those which other patients desire, but without which they can live very well. Enhancements now being developed by neuroscience mean that it may soon be possible to wipe the memories of soldiers, rape victims and anyone who has unpleasant experiences. Yet will this be done for the essential well being of the individual concerned, or will it be marketed as a premium lifestyle preference, as suggested in the recent film *Eternal Sunshine of the Spotless Mind*?⁷ With criminal and military personnel in particular these issues will become crucial.

2. Natural v Artificial

All medicine may be seen as an interference with the natural order of things; yet many doctors and nurses maintain that the purpose of medicine is to restore natural function. There is a clear sense of what is normal and natural for most human beings, and medicine seeks to protect and restore it. The diabetic cannot produce insulin naturally, so pills or injections are used to fulfil the natural function. It is pretty clear what is natural and what is artificial, and the artificial

serves only as a substitute for what is naturally missing. What is natural is good and what is unnatural is bad, unless the latter is restoring natural function.

Of course, we can debate how exactly to define what is natural. What is seen as unnatural today may in time seem to be the most natural thing in the world. Ethicists would do well to consider whether this innate sense of what is natural and unnatural is related to some deeply embedded moral capacity, or to more contingent influences.

3. Restoring What Has Gone Wrong v Enhancement

In the world of genetic manipulation many have tried to draw a line between using genetic technology to put right what has gone wrong and so restore normal functioning, and using such technology to enhance human performance or appearance. Again, cosmetic surgery offers a pertinent corollary: should a burn-damaged patient or someone who needs a mastectomy because of cancer be treated before someone who simply wants a more pert nose or larger breasts? Similarly, it seems that we are comfortable with using drugs to restore normal function but are extremely uneasy when athletes or soldiers use drugs to enhance performance. We can and do distinguish legitimate from illegitimate drug use. On analogy with this, as we begin to alter the very mechanisms of brain function and so affect the nature and expression of individuals and society, we must ask what motives are at stake, and what criteria might justify our actions. This will be especially important for doctors and nurses involved first hand in changing the minds and the behaviour, and indeed the very personalities, of their patients.

4. Treat People as Ends in Themselves, Not Just as Means

Immanuel Kant famously propounded the principle of treating individuals as ends in themselves rather than as merely means to our own or some other end. This has been a key criterion for human rights legislation and

for modern conceptions of human dignity. Those who have the power to alter the human brain and mind will be able to use and abuse people – to manipulate them to fulfil particular functions. If it does become possible to wipe the memory of an atrocious bombing from a soldier who witnessed his comrades killed in action, it might be very welcome. But that same capacity might also allow us to programme someone's mind to kill without remorse – indeed with no lasting memory of what they had done. Such power would enable some to treat others not as free and worthy individuals possessing dignity and rights, but rather as useful means towards whatever ends the powerful had in mind.

5. Autonomy and Community

One of the main challenges in public health today is how to balance the good and the freedom of the individual with the good and the safety of the community. In the development of neuroscience it is not difficult to see how tensions will arise between the desire of the individual for neurological enhancement, and the stability and well being of society and social institutions. Part of what it means to live in community is that we accept limits to our own freedom and autonomy. The well being of the community has preference over that of the individual, unless fundamental principles of justice and fairness are compromised in the process. Thus, it may indeed be necessary for the common good that one man should suffer. The use of neuroscience must not be left to individual whim, desire or autonomy without clear concern for the wider community.

Bioethics and the Four Principles

In response to the collapse of agreement over moral issues and a growing relativism and scepticism about moral consensus in medicine, Beauchamp and Childress proposed four principles of common morality.⁸ These principles may serve well as we formulate ethics appropriate to the neuroscientific advances we have been examining:

1. Non-maleficence

We are to seek to do no harm: that is, to avoid intentional or accidental harm to anyone. This is largely a defensive principle, which may also seek to protect the perpetrator as much as those affected by the actions or inaction of that individual or group.

2. Beneficence

This is to seek to do what is good. It is an active principle, which tries to ensure benefit to others. It may mean taking initiatives and focussing on ensuring good outcomes from what we do and omit doing.

3. Autonomy

Modern medicine has emphasised the freedom of individuals to make their own decisions and to order their lives in keeping with their freely chosen ends and purposes. In such an emphasis we must not forget that this autonomy applies to everyone involved in medical and nursing practice. Hence the researcher, the doctor and the nurse alike must have their autonomy considered, as well as the patient and those who seek to support the patient. One of the key dilemmas in modern medical ethics is how to resolve conflict between these differing expressions of autonomy. Those involved cannot be left to do whatever is right in their own eyes if to do so adversely affects the freedom and integrity of others.

4. Justice

When reflecting on the importance of medical techniques and procedures, and of their applications, it is vital to consider issues of justice. Already there are immense disparities in health care, and these in turn connect to further disparities of health, education, poverty, hunger, freedom and democracy across the world. Similar cases must be treated in similar ways and different cases differently, always ensuring that adequate and appropriate justification for difference is given.

Tests of Morality

Ethicists in general and Christian ethicists in particular, are charged with developing workable standards for morality. How are we to judge the propriety of a new scientific development or medical procedure? I wish to suggest that there are at least five key tests which we can apply:

1. Motives matter

What is the motivation in any novel neuroscientific development or procedure? There is clearly a world of difference between seeking to help the sick and disabled and trying to gain a reputation, win a Nobel Prize, make a fortune, or secure some kind of 'immortality'. One of the clear teachings of Jesus is that our motives bear heavily on the morality or immorality of our deeds (Matt. 23:25-8).

2. Principles

If we are reflective and careful people, we will base our actions on identifiable reasons, aims and principles. Moral principles express what we value and offer moral justification for what we do and why we do it. Some principles are clearly good, like preserving the sanctity of human life and upholding human dignity. Other principles are clearly bad, such as killing people for fun or abusing children because we feel like it. I have heard child abuse re-described as 'inter-generational intimacy'; yet no change of language can conceal or lessen the evil of such actions. Principles are usually seen as right or wrong in themselves and enable us to offer moral justification for actions, policies and behaviour.

3. Consequences

For many years I used to argue that Christian Ethics was definitively principle-based, and that consequences were not really important. We had to do what was morally right and avoid what was morally wrong, regardless of the consequences. However, a more careful and thorough reading of Scripture shows that God is deeply concerned about consequences, both in the short term and in the perspective of eternity. Jesus' warnings about what will

happen if we ignore the needs of others underline the importance of consequences as we make moral choices; indeed, his clear teaching on judgement is crucial to a full-orbed understanding of the Bible and the nature of God (Matt. 25:31-46).

4. Nature of Action

Sometimes it is vital to understand exactly what is involved in a particular action. If we consider contraception we recognise that different contraceptives act in different ways. Crudely, while all contraception is designed to prevent pregnancy, some types use a barrier method, preventing the sperm and egg uniting, while others expel fertilised eggs before they are implanted in the womb. The latter group are literally abortifacients. If our moral view is that human life begins at fertilisation, then abortifacient methods would be morally objectionable because they terminate pregnancy rather than preventing it. The nature of the action is in itself sufficient to indicate what is morally permissible. Perhaps much of the Natural Law tradition feeds off just such a view, examining what is natural and unnatural about an action or behaviour. Thus same-sex sexual activities are often condemned on the grounds that they are in themselves unnatural. The nature of actions must be considered in making moral judgements.

5. People Affected

When I was teaching Christian Ethics in the early 1970s, the one book everyone had to grapple with was Joseph Fletcher's *Situation Ethics*.⁹ Fletcher's argument faltered not so much on its self-contradictions as on its core definition of 'agapeic love'. At first glance, it would seem that no Christian could seriously oppose this as a defining criterion of morality. Yet it was not the principle of agapeic love itself which was wrong, but the means used to arrive at that principle. Specifically, Fletcher offered an inadequate account of the biblical context in which this understanding of love arose, and of what such 'love' actually entailed. Even so, we fail as Christians unless 'agapeic love' – the love of Christ –

lies at the very heart of our ethic. Surely this must mean a consistent commitment to the good of others. We could call it a 'service' mentality, a spirit of selflessness or just plain 'love', but unless our moral consideration of people and their present and eternal well-being is at the forefront of our motivations and decisions, we will not really be 'doing' Christian ethics at all.

These tests can in turn be seen as woven through the moral-theological fabric of biblical narrative – from creation, fall and law to redemption and final consummation. As such, they offer a helpful framework for the sort of Christian neuroethics we have been seeking to explore and formulate.

Conclusion

As a major 'new wave' of medical research and practice, neuroscience is already posing fundamental questions about human nature and the limits of human endeavour and adaptation. It suggests ways of directing individuals and societies which echo Aldous Huxley's *Brave New World* and a host of similar books and films warning of human pride and social control. As an antidote to such pride and control, the Christian gospel in general and Christian ethics in particular, provide rich resources for interpreting and responding to neuroscientific advance.

The ultimate test for any medical treatment or technique is not whether it enhances individual competitiveness or success, but whether it serves those in deepest need. Only by putting the latter concern before the former can medical applications of the neuroscientific developments we have reviewed here hope to serve and honour Christ.

Endnotes:

1. Martha J. Farah, 'Neuroethics: the practical and the philosophical', *Trends in Cognitive Sciences* 9 (1), Jan 2005: 34-40.
2. See especially: Ned Block (edn), *Readings in Philosophy of Psychology* (Cambridge, Mass.: Harvard University Press, 1985); Ted Honderich, *Mind and Brain: A Theory of Determinism* (Oxford: Oxford University Press, 1988); Paul M. Churchland, *Matter and Consciousness : A Contemporary Introduction to the Philosophy of Mind (Revised Edn)* (Cambridge, Mass.: Harvard University Press, 1998); David Rosenthal (ed.), *The Nature of Mind* (Oxford: Oxford University Press, 1991).
3. Donald M. MacKay, *The Clockwork Image: A Christian Perspective on Science* (Leicester: IVP, 1974).
4. P. F. Strawson, *Individuals: an Essay in Descriptive Metaphysics* (London: Methuen, 1959).
5. Stuart Hampshire, *Thought and Action* (London: Chatto & Windus, 1959).
6. Paul Ziff, 'The Feelings of Robots', in Alan Ross Anderson (ed.), *Minds and Machines* (Engelwood Cliffs, NJ: Prentice-Hall, 1964). Originally published in *Analysis* 19 (3), January 1959: 64-68.
7. Momentum Pictures DVD, 2004.
8. Tom L. Beauchamp & James F. Childress, *Principles of Biomedical Ethics* (New York: OUP, 1979).
9. Joseph Fletcher, *Situation Ethics: The New Morality* (Louisville: Westminster/John Knox Press, 1966).

Recommended for further reading:

- Martha J. Farah, 'Neuroethics: the practical and the philosophical', *Trends in Cognitive Sciences* 9 (1), Jan 2005: 34-40.
- Ned Block (edn), *Readings in Philosophy of Psychology* (Harvard University Press, 1985)
- Ted Honderich, *Mind and Brain: A Theory of Determinism* (Oxford University Press, 1988)
- Paul M. Churchland, *Matter and Consciousness : A Contemporary Introduction to the Philosophy of Mind (Revised Edn)* (Harvard University Press, 1998);
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- Tom L. Beauchamp & James F. Childress, *Principles of Biomedical Ethics* (OUP, 1979).
- Joseph Fletcher, *Situation Ethics: The New Morality* (Westminster/John Knox Press, 1966).

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