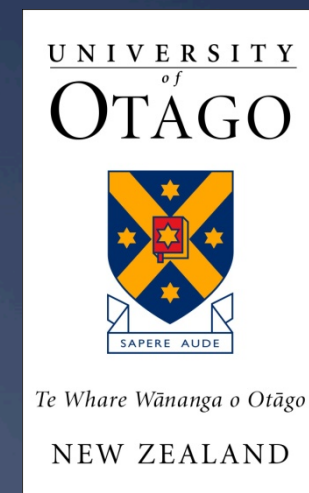


Glorifying God in a Scientific Milieu

The contrasting domains of neuroscience & reproduction

D Gareth Jones



Introduction

Christian writers tend to be more concerned about the **reproductive** realm than the **neuroscientific**

Do either or both represent illicit forays into a realm that may well lie outside the bounds of legitimate human activity?

The tensions and complexities of the two areas are remarkably similar

Introduction

Intrusions in both spheres represent the exertion by human beings of significant control over human life

Both represent potential means for glorifying God and serving humanity, or for asserting mastery over human existence

Area 1: Reproductive biology

Using technology to bring new life into existence

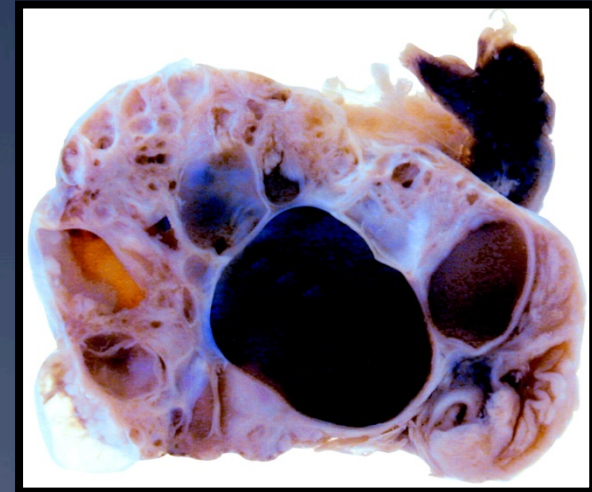
Condition 1 - polycystic ovary syndrome

Janine is 23 years of age and has been married for three years. She and her husband would like a child but are having difficulties conceiving. After consulting a gynaecologist it soon emerges that Janine is suffering from polycystic ovary syndrome (PCOS).

Using technology to bring new life into existence

Polycystic ovary syndrome

- relatively common condition
- eggs do not mature in follicles and form very small cysts in ovary
- imbalance of estrogen and progesterone
- insulin resistance, diabetes, obesity are all strongly correlated



Using technology to bring new life into existence

Treatment

- weight loss
- progesterone pills to regulate menstrual cycles
- Clomiphene (Clomid) and FSH (follicle stimulating hormone)
- Metformin and other insulin-sensitising drugs

Relatively straight-forward treatment to rectify hormonal imbalance

Approaching childlessness

Childlessness in Scripture is always a tragedy

2 Samuel 6:23

Expectation that women were to bear children, and failure to do so was a reason for mourning



Approaching childlessness

Blessings of fertility throughout Scripture
(Genesis 1:28; 9:1; Psalm 113:9)

Repeated examples of God causing “barren”
women to become pregnant

- Abraham and Sarah (Gen 16-18, 21)
- Isaac and Rebekah (Gen 25:21)
- Jacob and Rachel (Gen 30, 35)
- Manoah and wife (Jdg 13:3-5)
- Elkanah and Hanna (1 Sam 1)
- the Shunammite woman (2 Ki 4:8-17)
- Zechariah and Elizabeth (Luke 1)

Approaching childlessness

God opens the womb, removing the woman's reproach (Gen 16:2; 20:18; 30:23; 1 Sam 1:5, 10-11; 2:1-10)

No instances in Scripture of infertility remaining unresolved

If Israel is faithful to God, there will be no barrenness (Ex 23:26; Deut 7:14)

Childlessness was sometimes seen as the result of sin (Gen 20:17; Num 5:11-31; 2 Sam 6:20-23)

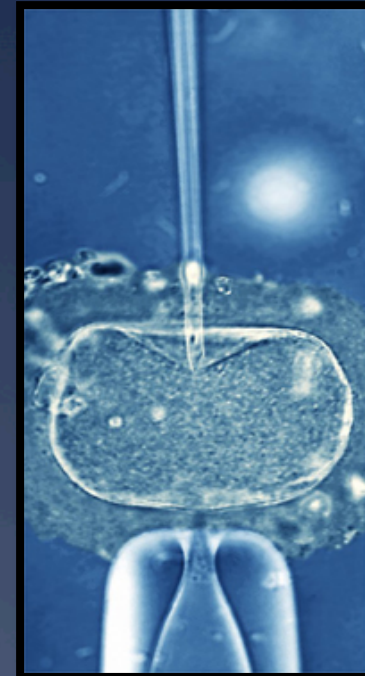
Approaching childlessness

Christian commentators dwell mainly on artificial means of **contraception**, and **IVF**

Limited attention paid to other procedures to bring about fertilization

Scriptural evidence points in positive direction

Movement from Scriptural context to contemporary scene



Approaching childlessness

Alleviating infertility brings wholeness to marriage within a framework of

- dependence upon God both individually and communally
- support and understanding of the Christian community
- affirmation of the value of the marital bond, with or without children

Minimally invasive interventions should come before more aggressive ones

Approaching childlessness

Limits to human overcoming; the hope of the gospel is eschatological

More important in long run to be obedient to the call of God

All are to seek God's help and directives to face resulting challenges

Making genetic choices regarding the character of new life

Condition 2 - cystic fibrosis

Sally and Greg have a little boy, Sebastian, who has cystic fibrosis (CF). He is dependent upon a very high level of technological expertise



They begin to contemplate the birth of a second child

Cystic fibrosis – the options

Option 1 - decide against having another child

Option 2 - take a one-in-four chance, and hope their next child will be unaffected. The welfare of their next child is in God's hands regardless of the outcome.

Cystic fibrosis – the options

Option 3 – take a chance and abort the fetus if it turns out to be affected



Option 4 - IVF and PGD (pre-implantation genetic diagnosis) - an embryo that does not have the CF gene will be transferred to Sally in the normal way. Affected embryos will be discarded

Cystic fibrosis – the options

They do not have to go in a technological direction, but they do have to choose

What pointers does Scripture provide?

Option 1 - self-inflicted childlessness. Is this an acknowledgement that God is in charge, or are they taking too much control into their own hands?

Cystic fibrosis – the options

Option 2 - perfectly acceptable way forward for Christians, but not the only or even the ideal way for Christians

It is prepared to allow into the world an individual with a well recognized disease



Cystic fibrosis – the options

Option 3 - the most problematic

May have severe negative repercussions for the parents, especially the mother

Revolves around the ethical and theological legitimacy or otherwise of induced abortion

Cystic fibrosis – the options



Option 4 - financial costs, invasive and involves the selection of embryos

Debate often comes down to the value placed upon embryos to the neglect of the other participants including the future child

IVF/PGD part of scientific milieu

Cystic fibrosis – the options

What resources do Christians possess?

- protect the defenceless and disenfranchised
- importance of human flourishing
- ultimate dependence upon God
- Jesus came to proclaim good news to the oppressed
- human life is not devoid of meaning simply because it is physically flawed

Cystic fibrosis – the options

- transformative power of physical and spiritual healing
- human creativity manifested in medical achievements brings hope
- uncertainty and ambiguity
- limited nature of human powers

Easy way out is to remain ignorant, but do we have a Scriptural mandate to do so?

Cystic fibrosis – the options

Chosen ignorance is not a moral virtue and hence a dubious option for Christians

Option 2 is not as virtuous as frequently depicted

They should not resort to a technological solution without very considerable reflection and without putting its use into a broad human and divine framework

Trust to be in goodness of God

Cystic fibrosis – the options

Science and faith are inextricably linked

Options 1,2,4 possible

Prayer and realistic assessment of technology

Would elimination of the CF gene involve excessive shaping of our bodies and identities?



Area 2: Neuroscience

Altering the function of an existing life

In both neuroscience areas the attempt is to change people using the tools of science

Can such tools be employed to bring glory to God?

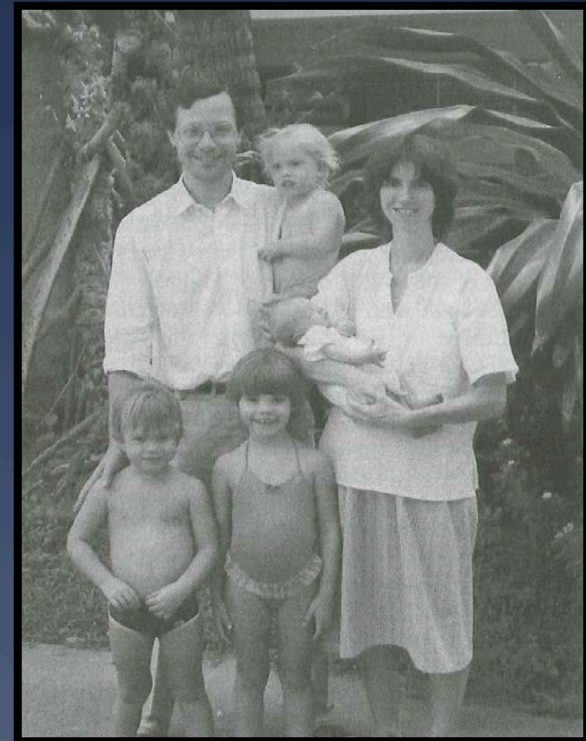
Do we try and rectify these pathological states, and if so, how do we do so?

Altering the function of an existing life

Condition 1 – behavioural abnormalities

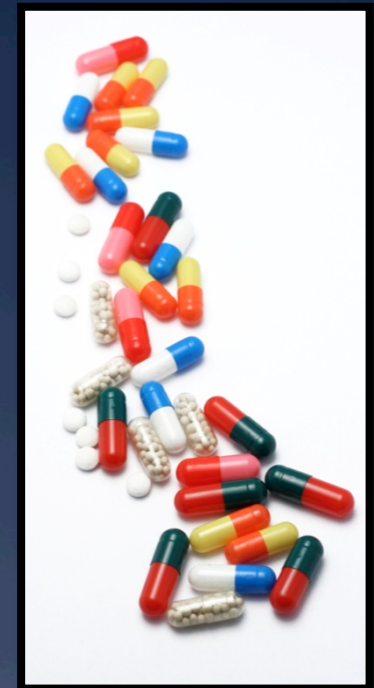
“My life journey took me through a single, but continuous, seven-year episode. It was a terrible nightmare of torture and imprisonment. I am one of the fortunate ones to have survived and recovered”

Cathy Wield (2006)



Altering the function of an existing life

- 7 years of extreme mental anguish
- repeated bouts of electro shock therapy
- 5 different hospitals, 7 psychiatrists
- 13 different classes of drugs
- 4 years in hospital, 2 on enforced detention
- Neurosurgery for mental disorder



Altering the function of an existing life

“I believed that God had stepped in and his healing touch had been upon me. No one could give me any medical explanation for what had happened, but whatever anyone believes, there is no doubt that something truly remarkable had put me back into life without the need for any of the extensive rehabilitation programme which had been planned.”

Altering the function of an existing life

Doing something to the brain can have major consequences for good in an individual's mental state



What Christian authority do we have for altering an individual's brain in this manner?

What is normal behaviour?

Neurosurgery for mental disorder

Small discrete areas within the brain are destroyed by passing electric currents through implanted electrodes

Cingulotomy - depression and obsessive-compulsive states

Amygdala - extreme violence and aggression



Neurosurgery for mental disorder

Only carried out as a last resort

What does it mean to modify the way in which someone's brain functions?

This is modification to an individual's inner being

Done for serious and eminently worthy reasons, standing alongside the individual in their misery and weakness

Neurosurgery for mental disorder

Numerous ways of modifying the brain:

- behaviourally
- electrically
- drugs that alter neurotransmitter levels
- counselling
- surgery

Temporary or permanent changes to existing individuals



Enhancing the functioning of an existing life

Condition 2 – cognitive enhancement

Felicity is an ambitious student, determined to get into the University of her choice. She has always worked hard, but the competition will be cut-throat. She also knows that the students around her are taking methylphenidate (Ritalin) in order to stay awake and alert for much longer than they would otherwise be able to do. Realizing that she may be disadvantaged if she doesn't follow suit, she starts using this non-prescription drug

Cognitive enhancement

She also knows that it acts directly on her brain by increasing dopamine levels



She is dimly aware of the ethical issues. She has not thought at all that what she is indulging in is a form of neurocognitive enhancement

Cognitive enhancement

Drugs originally designed to treat a medical condition are employed by healthy individuals to improve their performance

- Ritalin for ADHD
- Provigil (modafinil) for narcolepsy
- Donepezil (Aricept) for Alzheimer's disease



Cognitive enhancement

- neuroimplants
- deep brain stimulation
- plastic and cosmetic surgery
- prostheses

These biomedical enhancements aim to address a specific problem using appropriate technological innovations. The end-result may exceed the performance found in otherwise healthy individuals

Cognitive enhancement

The borderline between therapy and enhancement is indistinct

We are being enhanced all the time in subtle ways

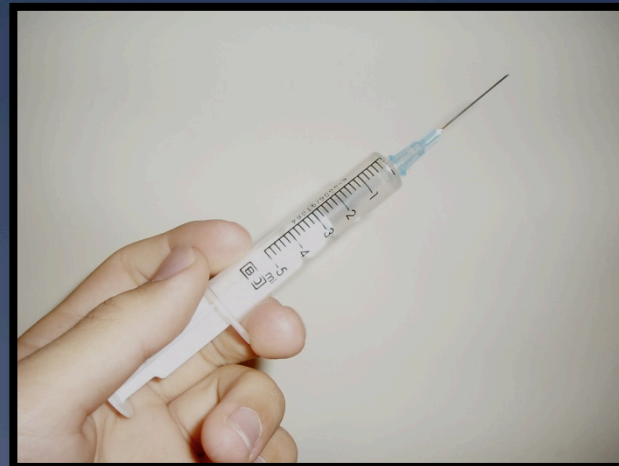
Christian commentators often stress a precautionary stance

Cognitive enhancement

In what manner is biomedical technology changing our conception of what constitutes the life of faith?

Enhancement began many years ago

- public health measures
- vaccination
- antibiotics etc



Cognitive enhancement

There is no place within Christian thinking for self-gratifying fantasies whereby human suffering and pain can be totally and finally eradicated by technological prowess

What place is left for God's purposes and human responsibility?

Enhancement technologies should promote community and co-operation rather than pride and self-absorption

Cognitive enhancement

Cognitive enhancement by students may be at odds with Christian conceptions; fails to accept existence of limits for embodied persons

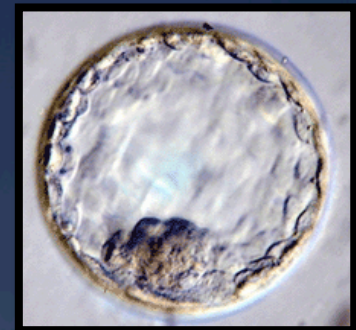
Excessive dependence upon scientific propensities, to the partial or complete exclusion of a God-centred perspective

Some enhancements may be important in serving mankind and are to be welcomed

Reproduction & neuroscience

Four means by which technology impinges on Christian thinking and attitudes

- bringing new lives into existence
- genetic choices in shaping future individuals
- altering the neural functioning of existing individuals
- improving the cognitive performance of existing individuals



Reproduction & neuroscience

Significant control by human beings

Potential means for glorifying God and serving humanity; all have their drawbacks

Embryo, fetus, and adult are to be viewed in their wholeness rather than as machines to be deconstructed

Tension inherent in science's ability to dissect and analyze smallest components

Reproduction & neuroscience

- Will the procedure help those affected image God better and will it facilitate their relationship with Him, or not?
- Can we view it within the context of our own finiteness and of our ultimate dependence upon God?
- Will it enhance or detract from the fundamental role of community and family?



Reproduction & neuroscience

- Are we able to accept that it will not alleviate all weakness and that it will neither bring about bodily perfection, nor eliminate all suffering?
- Does it enable us to rejoice in God as our creator and the one who has endowed us with these creative scientific powers?

Reproduction & neuroscience

The Christian vocation is to wait patiently for the redemption of our bodies

We are also to seek to improve lives in ways that will assist others

Glorifying God in a scientific milieu is not without its challenges and highly controversial aspects, both in neuroscience and reproduction