Faith and my Brain
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The motto of the University of Oxford

‘The Lord is my light’ which is from Ps 27: ‘The Lord is my light and my salvation - whom shall I fear.’
Faith?
(Christian) Faith

- trust in the validity of a procedure
- belief in the absence of evidence (Dawkins)
- religious commitment of any kind (Prince Charles?)
- following Jesus as Saviour and Lord

My Brain

- Billions of nerve cells, with their complex interconnections via dendrites, axons & synapses, and sensory inputs and motor outputs
- Necessary for, and activity correlated with, me
  - seeing, hearing, feeling pain, ...
  - remembering, ...
  - making moral decisions, ...
  - being happy, ...
  - knowing God?
But aren't Christians (and Jews) committed to dualism?

The Old Testament Hebrew word translated as ‘soul’ (nephesh) does not carry the meaning of the English word. It is more like ‘life’. For example all animals have nephesh.

While there are defenders of the view that the Bible teaches a dualist view of human nature many biblical scholars doubt this.
The ancient Hebrews were monists: Deuteronomy 6:4-5 incorporates a four-way parallelism

And one of the scribes came up and heard them disputing with one another, and seeing that he answered them well, asked him, "Which commandment is the first of all?" Jesus answered, "The first is, `Hear, O Israel: The Lord our God, the Lord is one; and you shall love the Lord your God

  with all your heart,
  and with all your soul,
  and with all your mind,
  and with all your strength.'

The second is this, `You shall love your neighbour as yourself.'

(Mark 12:28-34 quoting Deuteronomy 6:4-5 and elsewhere.)
“...a human being is created when God conjoins two ingredients: the dust of the earth and the breath of life. ... The human body is formed from the earth but it does not live or function humanly until God adds *ruach* or *neshama* from outside\(^3\).”

\(^3\) Gen 2.7; Ezekiel 37:10

(Cooper in Corcoran, *Soul, Body & Survival*, Cornell, 2001, p220)

But what is there in the text to justify the term *ingredients*? What God does is described as an action; but is it an action of adding an ingredient, or of animating the inanimate?
What if brain activity and my experience are two correlated stories?

- The outside view (of the scientist observer) and
- the inside view of the owner of the brain,
- with neither view the whole story and
- a very complex relationship between the two stories
  – perhaps with patterns of activity across many brain areas
  being the correlates of everyday experiences such as
  recognising a letter box.
What is unusual about patterns of activity in the brain are that they (or some of them) encode/represent other things or abstractions. A (limited) analogy is that the pattern of lines and curves betokens a species of animal. To say the lines and curves are *nothing but* spots of light in a pattern, misses the point that they represent something else. My view is that to say that as persons we are nothing but the material processes in our brains similarly misses the point.
Some data

Observations on patients with disease or damaged brains

   Ecstatic (temporal lobe) seizures

   Damage to parietal cortex changes 'self transcendance'?

Observations on patients in extreme physiological states

   Near death experiences

Functional imaging of the brain in normal subjects

   God spots

Structural imaging of the brain in normal subjects

   God damage?

Brain stimulation

   Persinger's helmet
Ecstatic (temporal lobe) seizures

“there was a moment or two almost before the fit itself ... when ... all his doubts and worries seemed composed in a twinkling, culminating in a great calm, full of sense and harmonious joy and hope .. a blinding inner light flooded his soul ...” Dostoyevsky, The Idiot, 1869

- Dostoyevsky himself experienced such ecstatic seizures.
- Penfield induced religious feelings by stimulating the temporal lobes.
- Dewhurst and Beard (1970) described a small number of cases in which religious conversion had followed ecstatic seizures.
Near-death experiences


- 344 consecutive cardiac arrest patients
- 62 (18%) reported near death experiences (NDEs)
  - Out of body experience
  - Moving through a tunnel
  - Communication with light
- Some patients report veridical observations from out of and above the body
Coronary care unit nurse reported

- ambulance brings in a comatose man into the coronary care unit
- removes his dentures and put them into the 'crash car'.
- after more than a week meets the patient, now recovered
- the moment he sees the nurse he says:
- “Oh, that nurse knows where my dentures are … you were there when I was brought into hospital and you took my dentures out of my mouth and put them into that 'car', it had all these bottles on it …”
Stimulating illusory own-body perceptions

- Right cortex of patient being evaluated for surgical treatment for epilepsy
- Yellow marks where stimulation produces OBE
Could part of the OBE be illusory and part veridical?

- A simple interpretation of the lack of objective proof for 'the self' being above and outside the body would be that this feature of the OBE is illusory.

- It does not follow that every aspect of the experience is an illusion.

- Might some of the apparently comatose patients still be able to receive sensory data about the events - visually if the eyes are open, or by ear – and this provide the veridical detail?
Damage to the inferior posterior parietal regions increases self-transcendence

- 98 patients with gliomas or meningiomas given Cloninger's Temperament and Character Inventory (TCI) questionnaire before and after surgery to remove tumors

- Those with posterior gliomas had significantly higher scores than those with anterior gliomas only on the 'self-transcendence' component of TCI

- The self-transcendence scores increased after surgery only in those with posterior gliomas

Damage to the inferior posterior parietal regions (Brodmann's area 7) increases self-transcendence.

Fig. 2 of Urgesi et al.
Brodmann's areas (BAs)
Damage to the inferior posterior parietal regions increases self-transcendence

Examples of Cloninger's questions about self-transcendence

- Often I have unexpected flashes of insight or understanding while relaxing
- I love the blooming of flowers in the spring as much as seeing an old friend again
- Sometimes I have felt as if I was part of something with no limits or boundaries in time or space
- I have made real personal sacrifice in order to make the world a better place - like trying to prevent war, poverty and injustice

(from Kirk et al. (1999) Twin Research 2: 81-87)
Damage to the inferior posterior parietal regions increases self-transcendence

The standing of Cloninger's TCI questionnaire

“Overall there is not strong support for the main assumptions of Cloninger’s theory, nor us there solid support for the hypothesised structure of personality traits as measured in several versions of his inventory.”

Brain correlates of religious experience

Azari et al (2001) imaged brain activation (using PET scanning) religious and non-religious subjects reading silently or reciting various texts, including the first verse of Psalm 23,

particular brain areas (in the prefrontal cortex and parietal cortex) of religious subjects that were activated when they considered Psalm 23 but not otherwise.

But what does this mean? For example, suppose one were to perform a similar experiment with committed Marxists pondering a thrilling passage from ‘The Communist Manifesto’. Might that not light up the brain similarly? I dare say the same would happen when a devoted admirer of the liberal principles of the *Economist* ponders a passage from J.S. Mill.
Neural correlates of a mystical experience in Carmelite nuns

- 15 female subjects
- BOLD fMRI in 3T magnet
- In separate blocks, subjects asked to:
  - remember and relive the most intense mystical experience ever felt in their lives as a member of the Carmelite order (Experimental, E)
  - remember and relive the most intense state of union with another human being ever felt in their lives while being affiliated with the Carmelite order (Control, C)
  - rest (Baseline, B)
- Found that various areas of cortex had higher Z scores in C than B, and those and further areas higher scores in E v. B, with some differences between E and C.
- Conclusion: mystical experiences are mediated by several brain regions and systems


Experiencing an intimate relationship with God $\uparrow$ BA 21

Experiencing fear of God’s anger $\downarrow$ BA 7 & 11

Non-religious pragmatism $\uparrow$ BA 7 & 17

$\uparrow$ and $\downarrow$ refer to brain volume, not degree of activation.
Brodmann's areas (BAs)
Persinger's helmet failed to replicate (not only with Richard Dawkins)


- Double blind expt (n=89) with sham stimulation control
- Used Persinger's stimulator and assessed 'sensed presence' using Persinger's questionnaire (and others)
- NO difference of scores between experimental and control groups
- But scores co-vary with personality variables
- Persinger's magnetic fields are six orders of magnitude weaker than standard TMS (transcranial magnetic stimulation) fields.
Are we nothing but our brains?

The view that we are ‘nothing but’ … is an example of reductionism.

That we have the mental abilities we do is a fact. However close the relationship between features of brain activity and these capacities, the former do not explain away the latter – but they may illuminate how we do what we do, cognitively, and why mental abilities sometimes fail so disastrously.
One can accept that reductionism is self-defeating without being a dualist

“Suppose we really could succeed in ‘reducing’ rational behaviour to molecular or cellular causation. In that case, we would no longer be able meaningfully to express the truth of what we had succeeded in doing. No such reduction is conceivable. We know what it is to be rational, and what it is to lose that capacity. That knowledge has nothing to do with the question of whether there exist specific and causally sufficient neural states and interactions while I am writing this book, for example. Of course there are. So what?

If we could discover them, they may well provide a complete explanation for how my brain operates while ‘I’ am thinking and writing. But they would not lead to the discovery of where ‘I’ am to be found. Nor do ‘I’ need to consult my brain states to know what I am doing and intend to do.”

(Noble, The music of life, 2006, p126)
If everything we do involves our brains, as we are renewed in Christ our brains will change. This is both a work of grace and work for us.

“Set your minds on things that are above, not on things that are on earth, for you have died …

Put to death therefore whatever in you is earthly: fornication, impurity, passion, evil desire and greed …

… you must get rid of all such things – anger wrath malice slander and abusive language

You have stripped off the old self with its practices and have clothed yourselves with the new self, which is being renewed in knowledge according to the image of its creator.”

Colossians 3: 2-10
References


The Bible Deuteronomy 6:4-5

The Bible Mark 12:28-34


Cooper in Corcoran, Soul, Body & Survival, Cornell, 2001, p220


Kenny AJP (1989) The metaphysics of mind. OUP

Koenigs M et al. (2007) Nature 446, 908-911


Watts F (1994) 'You're nothing but a pack of neurones!' J. Consciousness Studies 1:225-9
Physiological determinism?

“Physiological determinism ...[is]... the view that all human activity is determined via neurophysiological states of the brain and central nervous system. ... If the environment in which humans live is deterministic, and the human body is merely a complicated machine, can there be any genuinely free action? ... Physiological determinism need in no way involve the theory that wants do not affect actions: if it did, it could be dismissed out of hand ... Any plausible physiological determinism must make room for such facts as that if I [say] wanted to strangle the kitten I would. It follows that whatever story the physiological determinist tells about my present state must contain a proviso that my brain state would be different from what it now is if I wanted something different from what I now want (if, for instance, I wanted to strangle the kitten). Consequently, whatever my present state is, it is not such a state that if I wanted to strangle the kitten I could not. But only such a state would prevent me from strangling the kitten, or deprive me of an opportunity to strangle the kitten.

Kenny p 146-9
Logical indeterminacy

“[If] ... all you think, believe, hope, experience, and so on is represented by the physical state of some part of your brain, ... it follows ... that there must be one part of the brain – namely the mechanism that represents what you believe – which must necessarily change if any change takes place in what you believe.

Does there then exist a complete specification of that part of your brain, which you would be both correct to believe and mistaken to disbelieve if only you know it? Obviously not. Suppose I had the mean of analysing your brain state and producing a complete description of it which is correct as I see it here and now; then obviously if you were to believe it, that state must change. By the same token even if I could calculate completely the immediate future of your brain from my description (without letting you know), my detailed prediction would have no claim to your assent. What I would be correct (secretly) to believe about your future is something that you would be mistaken to believe!”

MacKay, Human Science and Human Dignity, Hodder & Stoughton, 1979, p52-3
Was St Paul’s experience on the Damascus Road an example of the sort of religious experience that can be associated with temporal lobe epilepsy?

No strictly scientific conclusion possible about an individual case so long ago with such limited documentation, but some points are:

- We don't know for sure that Paul was epileptic
- Jewish culture had a rather guarded attitude to the assumption that an ecstatic experience was of the divine: it was the truth of what the prophet said that carried weight not the manner of his prophesying.
Suppose Paul did have a seizure? What would that undermine?

He would not have been an apostle, but no doubt he was in some ways regarded as a second class apostle anyway.

The vision was no doubt a powerful factor in his changing his attitude to Christ, but it was not the only reason, witness his arguing from the Scriptures about why Jesus was the Messiah.

But suppose every experience of the divine could be associated with some sort of brain malfunction; or those with such experiences shown to be those and only those with a particular genetic anomaly?
Science presupposes observers who can make valid observations, communicate them to others, make inferences from them etc.

If there is ‘nothing to us but’ neural activity, then there are no observations, no inferences and thus no science. But for us to make genuine observations etc we do not need immaterial parts; all we need is to have those abilities.