
Dr Alan Gijsbers

NEUROSCIENCE, ADDICTION AND THE GOSPEL



OUTLINE

- The challenge to ISCAST
- Issues in neuroscience
 - Reductionism
 - Mind-body as seen through the emotions
 - Addiction as an emotion
 - Emotional maturity and relationships
 - Insight – and its lack in patients and ourselves
- Interaction between emotions and reason



GOSPEL MINISTRY

- Has dispassionate rationalism robbed the Gospel of vital elements?
- Do the results of neuroscientific reflection point to a different way forward?
- Does addiction management suggest a different way of evangelism?



A VISION FOR ISCAST

- Scientific tent-makers in secular Australia
- Scientifically sound, theologically able, spiritually discerning
- Creating an open dialogue between science and faith to their mutual enriching
- By that dialogue encouraging people to come to the light of the world.



NEUROSCIENTIFIC ISSUES

- Complexity vs reductionism
- Mind/body issues via the emotions
- Addiction and its meaning
- Addiction and relationships
- Insight and its lack in our patients



NEUROSCIENCE

Contains within it a number of sciences from

- Basic neurophysiology and neuropharmacology
- Neurology
- Neuroimaging
- Neuropsychology
- Biological psychiatry
- Psychology
- Psychiatry
- Sociology
- Spirituality

REDUCTIONISM

“you, your joys and sorrows...are no more than a vast assembly of nerve cells and their associated molecules...the idea that man has a disembodied soul is as unnecessary as the old idea that there was a Life Force.”

Crick, F 1994 *The Astonishing Hypothesis* New York Simon & Schuster.
Quoted in Jeeves MA, Berry RJ. *Science, Life and Christian Belief*.
Apollos 1998:135

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COMPLEXITY

Emergent systems

You cannot understand water by looking only at hydrogen and oxygen

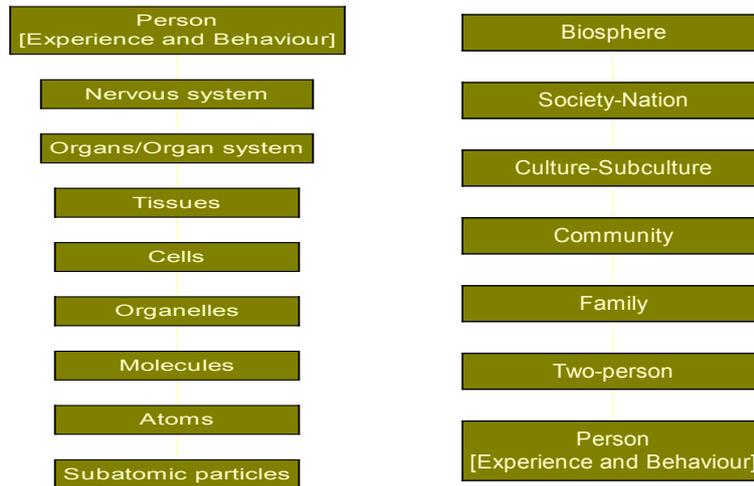
You cannot understand wetness by only looking at a water molecule

You cannot understand a waterfall by looking at a drop of water.

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ENGEL'S BIOPSYCHOSOCIAL MODEL

American Journal of Psychiatry 1980;137:535-544



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LAYER RELATIONSHIPS

- Emergence
- Supervenience
- Meaning

- Top-down as well as bottom-up causation

EMERGENCE

At the next level new systems emerge which were not predicted from the level below

Each new level brings a new way of seeing reality, eg chemistry to biochemistry, biochemistry to model making, L-dopa receptor considerations to Parkinson's disease.

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ENGEL'S SYSTEMS ANALYSIS

Used to describe the events surrounding the death of Mr Glover from a heart attack

- Coronary occlusion
- Intervention of employer
- Unsuccessful venipuncture
- Cardiac arrest
- Defibrillation

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AN EXAMPLE OF TOP-DOWN CAUSATION



Fatman, 21 Kt. Dropped on Nagasaki 8 September 1945

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A MORE BENIGN VERSION OF TOP-DOWN CAUSATION

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NEUROBIOLOGY OF EMOTIONS



EMOTIONS - definition

- “Move out”
- Ecstasy – similar concept
- Sense of transport outside of ourselves
- Subjectivity seems central but...

THE SCIENCE OF EMOTIONS

- Animal neural systems that control “emotional behaviour” and associated physiological responses.
- Emotional systems are said to have evolved as “behavioural (sensorimotor) solutions to problems of survival.”
- Emotional responses do not require feelings.

Joseph LeDoux. *Emotions viewed through the brain.*
In Russell RJ, Murphy N, et al. *Neuroscience and the person.*
1999.

EG

- Responses to danger
 - Freeze
 - Physiological responses to this freeze which support or are a consequence of the freeze behaviour
 - Further responses which will anticipate subsequent events (eg flight/fight)
 - Reaction, Action, Habitual action.
 - Feelings are a late accompaniment in brains that are conscious, and lead to considered action

BASIC NEUROSCIENTIFIC VIEW

- Feelings are not the function that emotion systems were designed to perform(!)
- Emotion systems did not evolve to produce feelings
- Emotional feelings are what happens when emotion systems are present in brains that are conscious.
- The problem of feelings is the mind-brain problem.

Joseph LeDoux. *Emotions viewed through the brain*.
In Russell RJ, Murphy N, et al. *Neuroscience and the person*. 1999.

HENCE WE ARE DIRECTLY INTO THE MIND-BODY PROBLEM

How can neural networks and synapses
give rise to such a rich inner life as we
humans experience?

WHILE NEUROBIOLOGISTS PONDER...

- Emotional dysregulation is a particularly common problem in addiction
- Patients coming off addictive agents often *feel* terrible, not just because they are withdrawing but also because they need to come to terms with the emotional state they were escaping by their drug taking
- AODs make me feel good: stopping AODs makes me feel bad.

THE CLINICAL PHENOMENA

- Hyper-hedonia
- Emotional dysregulation
- Emotional incontinence
- The conflict of many and varied emotions
- “What can stop that committee in my head?”

MULTIPLICITY OF EMOTIONS

(From GFR Ellis)

Damasio suggests primary emotions are:

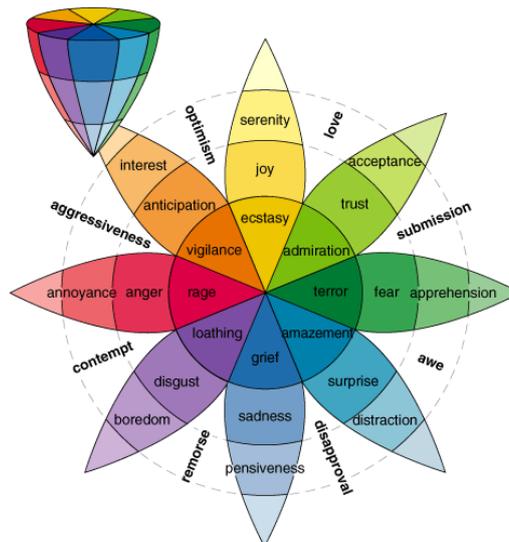
P1. happiness **P2.** sadness **P3.** fear
P4. anger **P5.** surprise **P6.** disgust

(acceptance and expectation are not in this model)

and characterises developmentally emergent secondary emotions as:

S1: embarrassment, shame, guilt
S2: contempt, indignation
S3: sympathy, compassion
S4: awe/wonder/elevation, gratitude, pride
S5: jealousy, envy.

ROBERT PLUTCHIK'S MODEL OF EMOTIONS



<http://www.fractal.org/Bewustzijns-Besturings-Model/Nature-of-emotions.htm>

EMOTIONS – NEGATIVE DESCRIPTIONS

- Disorganised interruptions of mental activity
- “Rule your feelings, lest your feelings rule you” Pubililius Syrus C1
- A disorganised response, largely visceral, resulting from a lack of an effective adjustment

Dylan Evans. *Emotion: The science of sentiment*. OUP 2001

EMOTIONS POSITIVE DESCRIPTIONS

- An organizing response because it adaptively focusses cognitive activities and subsequent action.
- Processes that arouse sustain and direct activity

Dylan Evans. *Emotion: The science of sentiment*. OUP 2001.

NEGATIVE RELATION OF EMOTIONS TO REASON

- Plato: emotions are obstacles to intelligent action.
- Locke's Punctual self.
- Hume's "Reason is the slave of the emotions."
- Romantics: conflict between cold reason (society) and warm heart (nature). Hence back to nature.

Adapted from: Dylan Evans. Emotion: *The science of sentiment* OUP 2001.

POSITIVE RELATION OF EMOTIONS TO REASON

- Emotions are vital to individual and social existence
- Emotions the thread that weaves together the fabric of society.
- It is rational to be emotional.
- No science of the mind is complete without also addressing the heart.
- Thinking more clearly is not opposed to feeling more deeply.
- Emotions are a universal language that binds humanity together into a single family.

Dylan Evans Emotion: *The science of sentiment* OUP 2001

RELATION OF THE EMOTIONS TO REASON

- Reason the arbiter of action which are implemented by the will to the control of feelings
- Fact - faith - feeling train
- “Reason is the slave of the emotions” – Hume
 - Reason steers; emotions drive – emotions as energy
 - Emotions commit; reason justifies – reason as rationalisation

DAMASIO'S CLAIM

- Clinical observations on neurological patients show that reasoning is impossible without intact emotional neurological apparatus.
- Hence Descartes's error was not only separating the mind from the brain but reducing the mind to pure reason rather than the integration of reason and emotion.

Antonio Damasio. *Descartes Error: Emotion, reason and the human brain*. Penguin 1994.

EMOTIONAL INTELLIGENCE

Emotional Intelligence (EI), often measured as an **Emotional Intelligence Quotient (EQ)**, describes an ability, capacity, skill or (in the case of the trait EI model) a self-perceived ability, to identify, assess, and manage the emotions of one's self, of others, and of groups.

http://en.wikipedia.org/wiki/Emotional_intelligence

EMOTIONAL INTELLIGENCE

“the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions.”

Peter Salovey and John D. Mayer (1990) "Emotional intelligence"
Imagination, Cognition, and Personality, 9, 185-211



EMOTIONAL INTELLIGENCE

Used by business as a way of understanding social behaviour and improve inter-personal effectiveness within businesses.



HENCE

- Emotions and reason can be seen as in partnership rather than in conflict
- Emotional maturity arises out of good relationships
- Emotional maturity creates good relationships

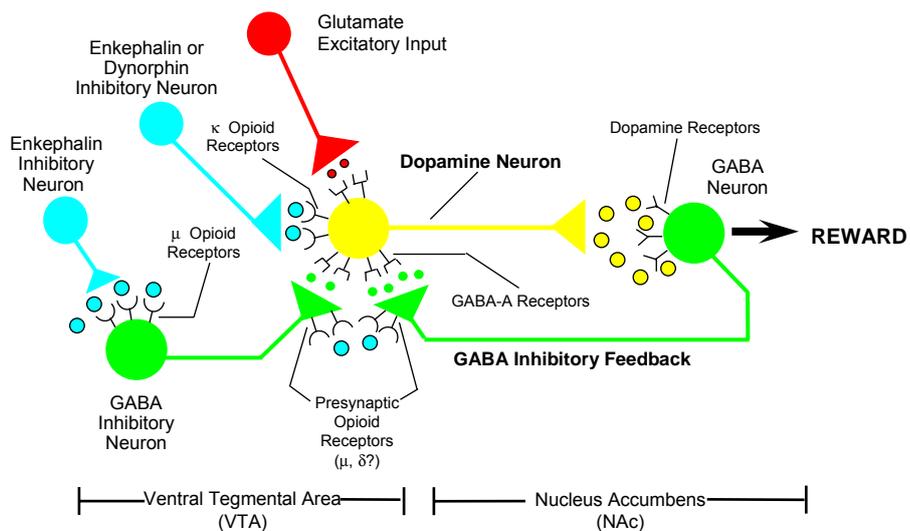
NEUROBIOLOGICAL CIRCUITS IN ADDICTION

“Circuits that serve to colour an experience with emotion and direct the individual’s response to rewarding stimuli, including food, sex and social interaction.”

Nestler Ej, Malenka RC. The addicted brain. Sci Am March 2004:50-7

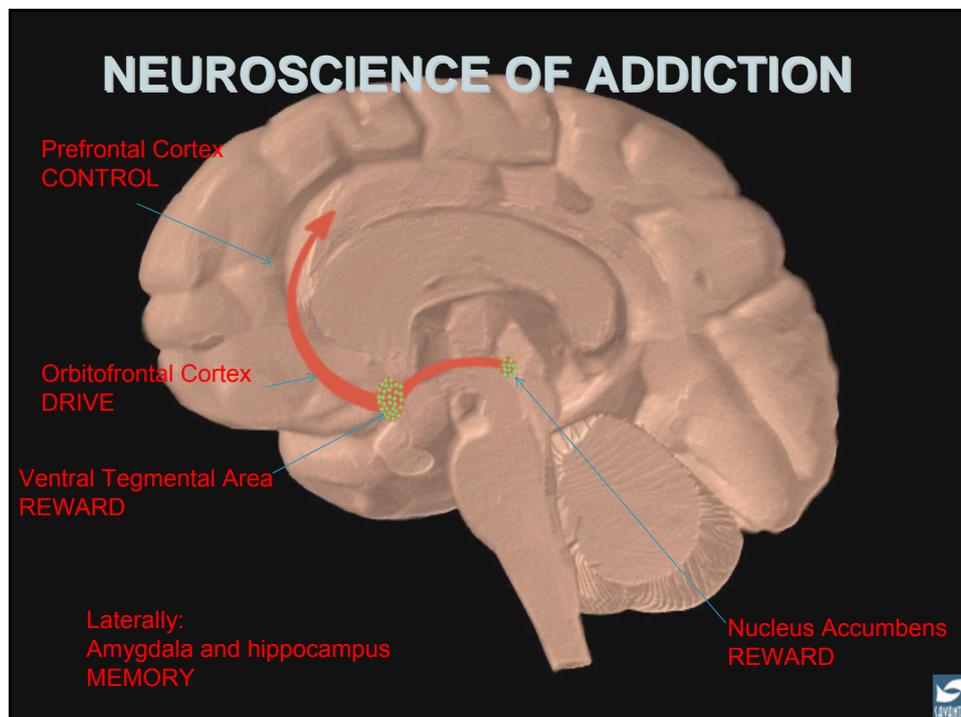
ICMDA Preconference 2006

REWARD PATHWAYS



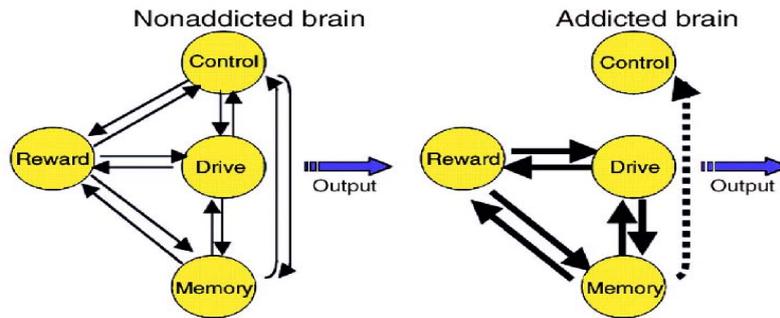
ADDICTION – MORE THAN JUST REWARD?

- Not just the pursuit of pleasure
- But a drive to use – cravings and compulsions
- Add drive and control to the basic reward mechanisms
- (Raises questions of the relation of addiction to other compulsions – OCD, anorexia, bulimia)



INTEGRATION OF PLEASURE PATHWAYS

Volkow ND et al J Clin Invest. 2003;111:1444-51.



LOCALIZATION OF ADDICTION PATHWAYS

Volkow

- Control – prefrontal cortex and the anterior cingulate gyrus
- Drive - Orbito-frontal cortex
- Reward – Nucleus accumbens and the ventral pallidum
- Memory – Amygdala and hippocampus

A FULLER VIEW OF ADDICTIVE BEHAVIOUR

- Chemical holiday from intolerable self-hood (Huxley)
- Temporary relief from “the committee in my head”
- Unless we address the emotional incontinence we will not address the underlying reasons for a significant proportion of the addictions.

EMOTIONS AND RELATIONSHIPS

- Emotional incontinence can often be traced to poor relationships
 - In childhood
 - In adult life
- A lot of my clinical approach includes exploring the person’s feelings about their 4-fold relationships to themselves, others, the environment and the divine.

DEFENCE MECHANISMS

Denial, rationalisation, reaction formation etc are ways we can “defend” ourselves from the full impact of reality.

These are a way of developing emotional continence

Their effectiveness or otherwise can be evaluated by how the patient feels and how the patient behaves.

ADAPTIVE MECHANISMS



Denial – ain't just a river in Egypt –

Mark Twain
1835-1910



DEFENCE MECHANISMS CAN LEAD TO BLINDNESS

- Eg John 9
- Similarly we sit with patiently with patients as they come to terms with eg the amount they drink, the impact of their drinking, the reasons for their drinking and the damage of their relationships
- And ask for gentle insight for they often feel a great deal of grief and shame

RELATIONSHIPS ARE CENTRAL TO THE GOSPEL - I

- Kenotic love in creation as well as in the coming of Christ
(Moltman, Polkinghorne, Ellis)
- Broken relationship with God because of sin (Adam and Eve) – and its flow on effect towards others (Cain and Abel)
- The God of love seeks and saves a people for Godself so that all the families of the earth may be blessed



RELATIONSHIPS ARE CENTRAL TO THE GOSPEL - II

- The transforming love of God – restoring us to God and to each other

- Creating a new community of love united to each other and to the true God



GOD'S TRANSFORMING LOVE

- God's love is supremely shown in the life of Jesus by the way in which he sought out the outcast and transformed them from within...
- And by his atoning death on the cross whereby he bore our sins that we might be liberated and enjoy God's freedom
- That transforming love does not leave the sinner unmoved or unchanged

GOD'S LOVE

- That transforming love is expressed in a community in which old barriers have been broken down and all those who are Christ's are one with one another.

Eph 3:14-21

- "There is no fear in love, for perfect love casts out fear"

1 John 4:18

"The notion of an unchanging, passionless God is a view more in tune with a philosophical view of monotheism rather than with the dynamic, relational, trinitarian understanding of God who is essentially love expressed in the incarnate Jesus Christ."

Edgar B. *The Message of the Trinity* IVP 2004:61.

WHAT IS CHRISTIAN LOVE?

- Αγάπη: “A passionless condition of strenuous benevolence”

Charles Taylor *The Secular Age*

- Love virtually synonymous with obedience

ADH Mayes. *New Century Bible Commentary Deuteronomy*.
Eerdmans.1979:176

- Nygren: “Too often we have confused ερος and αγάπη”

Quoted in P Ramsay. *Basic Christian Ethics* Westminster/John
Knox 1950:

HAVE WE MISSED SOMETHING?

Love, joy, peace,
Patience, gentleness, goodness
Meekness kindness, continence

All have affective components but cannot be
entirely characterised only as emotions

There are aspects of decision, commitment,
and spontaneity – but there is also an
affective component

KENOTIC LOVE

A MISCONCEPTION

- When applying the concept of kenosis some of my patients they say, “I always do that .” – they however do not have the same courtesy returned to them.
- Shattered self-esteem drives this distortion of relationships
- True love is a mutuality of kenosis...
- There is an element of self-assertion in true kenotic love

GOSPEL RELATIONAL ISSUES

Guilt, shame, are central to the burden of many people in my practice

Dealing with unjust treatment suffered in relationships is a major issue for them

A lot of my patients have been more sinned against than sinning

Forgiveness, atonement, restoration, accepting injustice and moving on are daily issues in counselling addicts



FROM MY PRACTICE

- “Bashing yourself is not a way of changing your behaviour”
- Forgiveness is great, but it is hardest to do it to yourself
- Forgiveness by itself is not enough – how do I move on? How can I forget?
- I had a fear of emotion, I am gradually learning to accept how I feel and to live with that...and be gentle with myself



Is there something in Augustine’s famous

“Thou awakest us to delight in thy praise for thou hast made us for thyself and our heart is restless until it repose in thee.”



Is there something in John Newton's

“solid joys and lasting pleasures
none but Zion's children know”?



SPREADING THE GOSPEL

- Word, deed and transformed life
- Emotions as well as reason
- Relationships as well as proclamation
- Recognising and working with the defence mechanisms
- Loving people into the Kingdom



CONCLUSION

- In reading the two books, God can cast new light from one to the other forcing us to reinterpret the way we perceive God's word in these books.
- In neuroscience, emotional research resonates with theological insights suggesting that Gospel ministry is the ministry of a transformed community which proclaims God's love in word and deed and which proclaims the Gospel...Affectively!.