

# **Evolutionary Science, Religion, and Our Human Future.**

**St Anselm Institute, UVA**

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## **Abstract**

This lecture will develop a theological response to contemporary evolutionary science, arguing that evolutionary anthropology and social neuroscience offer an understanding of the human that is a resource for theological thinking. Studies over the last ten to fifteen years about social cognition, in particular the place of mirror neurons and the social cognition system, have offered descriptions of the human over deep time that are a potential for thinking about theological, as well as philosophical, anthropology. In particular, studies of the face-to-face encounter reveal a structure that is important for the ways we think about ourselves in terms of religion and Theology. This research is optimistic in what it implies about human beings and our future.

## **Introduction**

- Evolutionary anthropology and social neuroscience offer an understanding of the human that is a resource for theological thinking.
- Important developments in Social Cognition over the last ten to fifteen years show the centrality of mirror neurons and the social cognition system.
- Descriptions of the human over deep time are a potential for thinking about theological and philosophical anthropology.
- Evolutionary Science offers new ways of thinking to Theology and about religion.

## **Evolutionary Background: the Extended Evolutionary Synthesis (EES)**

- Importance of cooperation in human evolution. In the Extended Evolutionary Synthesis (EES) ‘heredity is a developmental process influenced not only by genes, but by an organism’s cumulative interaction with its chemical, natural, and social environments.’<sup>1</sup>

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<sup>1</sup> M. Kay Martin, *Social DNA: Rethinking Our Evolutionary Past* (New York: Berghahn, 2019), p. 7. See Agustin Fuentes, *The Creative Spark: How Imagination Made Humans Exceptional* (New York: Penguin,

- *Epigenesis* – a process that modifies the expression of genes without changing the underlying molecular structure of DNA [contrast selfish gene idea].
- Nonrandom phenotypic variation shows storage and transmission of learned information. This allows the phenotype to change in response to rapid environmental change. This is Social DNA.
- Evolutionary Anthropology charts the emergence of hominins of which *homo sapiens* is the focus of our interest with the science of Social Cognition that pays attention to the ways in which our social behaviour has emerged in relation to cognition and brain states.

### **Social Cognition and the Face-to-Face Encounter**

- The importance of the face-to-face encounter. Social neuroscience has begun ‘to illuminate the complex biological bases of human social cognitive abilities.’<sup>2</sup>
- As human beings we can track and monitor emotion in the face, which is an innate ability established at a very early age – a newborn baby can track the mother’s face within half an hour of birth.<sup>3</sup>
- Social behaviour and brain are linked and the face-to-face encounter between people operates below consciousness and below language. There is a mirroring process at cellular level that occurs in face-to-face cognition reflected at higher levels in imitation of gesture, eye movement and facial expression. This is studied in ‘second person neuroscience’, so called because in identifying these structures in social cognition, the researcher’s social cognition is itself brought into play in developing the experimental data to show models of how we interact.

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2017), p. 7: ‘Mutation (changes in the DNA) introduces genetic variation, which in interaction with the growth and development of the body (from conception to death) produce a range of variations (differences in bodies and behaviour) in organisms.’ See also Rasmus Winther, *Our Genes* (Cambridge: Cambridge University Press, 2022).

<sup>2</sup> Leonard Schilbach, Bert Timmermans, Vasudevi Reddy, Alan Costall, Gary Bente, Tobias Schlicht, Kai Vogeley, ‘Towards a Second Person Neuroscience,’ *Behavioural and Brain Sciences* 36/4: 393-414; 2013. Also see related issues in Chris D. Frith, *Making up the Mind: How the Brain Creates our Mental World* (Oxford: Blackwell, 2007) and Ethan Kross and Kevin K. Ochsner, ‘Integrating Research on Self-Control across Multiple Levels of Analysis: Insights from Social Cognitive and Affective Neuroscience.’ In Ran R. Hassin, Kevin N. Ochsner, and Yaacov Trope (eds.), *Self Control in Society, Mind and Brain* (Oxford: Oxford University Press, 2010), pp. 76-92. For more recent developments see the survey article: Elizabeth Redcay and Leonard Schilbach, ‘Using Second Person Neuroscience to elucidate the mechanisms of social interaction,’ *Nature Reviews Neuroscience*, 20, 495–505 (2019). <https://doi.org/10.1038/s41583-019-0179-4>. For a development of this thinking in relation to religion see my *Religion and the Philosophy of Life* (Oxford: Oxford University Press, 2019), pp. 368-83.

<sup>3</sup> Kurt Hugenberg and John Paul Wilson, ‘Faces are Central to Social Cognition,’ p. 168, in Carlston (ed.) *The Oxford Handbook of Social Cognition* (Oxford: Oxford University Press, 2013), pp. 167-93.

- Social cognition is set within the idea of *epigenesis*. Schilbach and his colleagues show that social cognition entails at least three networks in the brain: the mirror neuron system, which allows us to identify with somebody else as an ‘I’; the mentalizing system that allows us to identify somebody else as a ‘she’ or ‘he’; and a system that allows us to react to each other as a ‘you’. This is what face-to-face recognition involves.<sup>4</sup>
- Such face-to-face encounter is important phylogenetically in group interaction and the development of what the primatologist Tomasello calls joint intentionality (concerned only with the immediate situation) that becomes shared intentionality (that can be future orientated) characteristic of modern humans.<sup>5</sup>
- The face-to-face encounter functions in the context of shared intentionality and because it may be linked to the origins of language in that pointing has contributed to the development of language. According to Tomasello, we are the only species that points and furthermore, we point with our eyes, which is why we are the only species with a pronounced sclera or the whites of the eyes.<sup>6</sup>
- The German Philosopher Peter Sloterdijk has referred to this capacity of the human face-to-face encounter as ‘the species wide interfacial greenhouse effect.’<sup>7</sup> So with the face-to face- encounter we are dealing with a feature fundamental to the human, to use an old-fashioned language, fundamental to human nature.
- Social Neuroscience is linked to the Interactive Brain Hypothesis (IBH) that challenges the older Theory of Mind (TOM).<sup>8</sup> This claims that we need to take account of the body and through face-to-face interaction we directly perceive the other, the other person is immediately present to awareness rather than what they call the ‘mindreading’ inference model of TOM. In the TOM model we infer the existence of the mind from behaviour, but the IBH model claims that there is direct and immediate perception of animated person through the face and through behaviour.

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<sup>4</sup> Schilbach et al., ‘Second Person Neuroscience,’ p. 397.

<sup>5</sup> Michael Tomasello, *A Natural History of Human Thinking* (Cambridge, MA: Harvard University Press, 2014), pp. 10-11. For recent developments see Liu, J., Zhang, R., Xie, E. *et al.* ‘Shared intentionality modulates interpersonal neural synchronization at the establishment of communication system,’ *Communications Biology*, 6, 832 (2023). <https://doi.org/10.1038/s42003-023-05197-z>.

<sup>6</sup> Tomasello, *A Natural History of Human Thinking*, p. 77; Tomasello, *Why We Cooperate* (Cambridge, MA: MIT Press, 2009), pp. 75-6; H. Kobayshi and S. Kohshim, ‘Unique Morphology of the Human Eye,’ *Journal of Human Evolution*, vol. 40, 2001, pp. 419-35.

<sup>7</sup> Peter Sloterdijk, *Bubbles*, trans. Wieland Hoban (Los Angeles: Semiotext, 2011), p. 169.

<sup>8</sup> Ezequiel Di Paulo, and Hanne de Jaegher, ‘The interactive brain hypothesis,’ *Frontiers in Human Neuroscience*, vol. 6, June 2012, article 163, p. 1.

- [Incidentally, this is close to Taylor and Dreyfus' robust realism in which we have unmediated contact with the reality known.<sup>9</sup>

## Hypothesis

- The bioenergy of the face-to-face encounter is recapitulated as a higher-level system that feeds back to the face-to-face controlling social interactions.
- The pre-linguistic face-to-face encounter is a precondition of religion, which is fundamentally concerned with human interaction expressed in the stories we tell about ourselves, through narrative, and through the rules that we have developed to guide our interactions, namely law.
- E.g. laws of marriage (endogamy/exogamy), laws of commensality, food regulations.
- The pre-linguistic face-to-face encounter is an *index* of the condition of the person (emotional states such as fear, anger, happiness), while the linguistic articulation of the face-to-face encounter is articulated as *sign*, namely language ('I'm pleased to see you,' or 'what are you doing here?'). Now we have a further level in the development of the face-to-face encounter at the level of *symbol* that occurs in religion.
- Index refers to the immediate apprehension of the face-to-face in pre-linguistic communication. Sign is the indirect apprehension of the face of the other and the other's body through the medium of language, through cultural mediation constrained by our bio-sociology.
- We can identify anger or happiness universally as Paul Eckman's studies showed.<sup>10</sup>
- Symbol articulates a metaphoric relationship in which the body and face become symbol for cosmos and narrative process. Religions are, in part, series of symbols of the relationship between person or community and wider cosmos, which we might argue is a transformation of the pre-linguistic bioenergy of the face-to-face encounter.

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<sup>9</sup> Hubert Dreyfus and Charles Taylor, *Retrieving Realism* (Cambridge: Harvard University Press, 2015).

<sup>10</sup> Paul Ekman, 'Universals and cultural differences in facial expressions of emotion,' in J. Cole (ed.), *Nebraska Symposium on Motivation 1971* vol. 19 (Lincoln NE: University of Nebraska Press, 1972), pp. 207-83; Paul Ekman and W.V. Friesen, 'Constants across cultures in the face and emotions,' *Journal of Personality and Social Psychology*, vol. 17, 1971, pp. 124-29; Paul Ekman, W.V. Friesen, M. O'Sullivan, A. Chan et al., 'Universals and cultural differences in the judgments of facial expression of emotion,' *Journal of Personality and Social Psychology*, vol. 53, 1989, pp. 112-17.; A.J. Fridlund, *Human Facial Expression; an Evolutionary View* (San Diego CA: Academic Press, 1994); N.H. Fridja and A. Tcherkassof, 'Facial expressions as modes of action readiness,' in J. A. Russell and J. A. Fernandez-Dols (eds.), *The Psychology of Facial Expression* (New York: Cambridge University Press, 1997), pp. 78-102. Although the universality of Eckman's study has been brought into question. See R.E. Jack et al. 'Facial Expressions of Emotion are not Culturally Universal,' *Proceedings of the National Academy of Sciences of the United States of America.*, vol. 109 (19), 2012, pp. 278-311.

### **Symbols of the Face through History (see power-point presentation)**

- Lowenmensch (40000 BP)
- Venus of Brassempouy (25000 BP)
- Neolithic plastered skulls with shell eyes, Jericho (7-6000 BC)
- The Face in the history of religions
- Social neuroscience has relevance in suggesting a transformation of interface mechanism (the social cognition system) at a higher level of cultural articulation.

### **The Meeting of Discourses/Disciplines in the Face-to-Face Encounter**

- (a) Social neuroscience (of face-to-face interaction),
- (b) The phenomenology of religious symbol (the face)
- (c) Theology (as an account of the relationship between the invisible and the visible).
- All meet together in the constellation of the face-to-face encounter (as index, sign, symbol of the invisible).

### **But is this Scientism?**

- But is an account of the human simply in terms of Social Cognition a form of 'Scientism' or a reductionism?
- No, because Theology is not opposed to formal scientific mode of inquiry such as social neuroscience.
- It is possible to recover an underlying metaphysics from which scientific phenomena emerge or come to clarity.
- The significance of evolutionary social cognition stands out because of the underlying metaphysics that Theology can posit as we have seen in the history of Theology. Medieval theologians such as Aquinas were up to speed with the Averroist Aristotelianism of his time even when he disagreed.
- In our time, identifying the underlying metaphysics behind scientific discovery can be helped by a discussion of nature and supernature.

### **Towards A Theology of the Face-to-Face Encounter**

- Face as symbol of holiness (= invisible power opened as symbol)

- Religions establish existential meanings for communities. These meanings at the level of culture might be seen as transformations of bioenergy rooted in the evolution of human inter-personal communication or, constrained by face-to-face social cognition that is specific to human niche construction.
- The face-to-face has enabled community development and is probably linked to the development of language as sign through the importance of pointing, not only with our hands but crucially with our eyes.
- This immediacy of the face-to-face is transformed into language and the ability to articulate both affective states and the projection of a future world.
- It introduces the possibility not only of keeping a promise but of breaking a promise too.
- At a structurally higher level, the bioenergy of the face-to-face is transformed through language into symbol.
- In one 20<sup>th</sup> cent theological language we can understand this structure of the face-to-face as supernature resting upon nature.
- Henri de Lubac articulated this as the desire for the beatific vision and desire to see God.
- The bioenergy of the face-to-face encounter provides the basic human material upon which theological reflection must be based.
- De Lubac arguably understood this and builds his theology of supernature grounded in the natural orientations of human beings within nature.
- The face-to-face encounter entails a human *openness* to the other and by extension to the non-human other in both nature and supernature.
- Openness to transcendence is rooted in the kind of beings that we are, and the kinds of beings that we are is demonstrated in the face-to-face encounter.
- A theology of openness rooted in Social Cognition is complemented by a capacious phenomenology.
- A capacious phenomenology can accommodate different theological positions without itself being committed to any one metaphysical claim of that kind.
- It is necessarily detached from its objects.
- This is a pluralist phenomenology that can be both metaphysically realist and pluralist.

## **The Human Future**

The using of cognitive neuroscience of the face-to-face shows us:

1. we are cooperative and interconnected at a structurally and temporally deep level.
2. This structural interconnectivity shows the centrality of cooperation that hopefully overcomes obstacles of non-cooperation.
3. The face-to-face points to a pluralist phenomenology and a theology of openness that is both metaphysically realist and pluralist.

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