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# **Psychologising and Neurologising about Religion: Facts, Fallacies and the Future Transcript**

Date: Wednesday, 23 January 2008 - 12:00AM

# PSYCHOLOGISING AND NEUROLOGISING

## ABOUT RELIGION

**Professor Malcolm Jeeves CBE FRSE**

### Welcome

*George R. Bush*

The Revd George R. Bush has been Rector of St Mary-le-Bow since 2002. Before coming to St Mary's he was Vicar of St Anne's, Hoxton, having held earlier appointments as a curate in inner-city Leeds and a chaplain at Cambridge. He has studied history, history of art, canon law and theology and has published on certain developments in canon law involving a previous Bishop of London, Edmund Gibson (1669-1748). He is a past President of Sion College. In 2007 he co-edited (with Michael Byrne) a 380-page volume of essays - *St Mary-le-Bow: A History*.

When I was a chaplain to students, it fell to me to interview all new entrants individually as part of their initiation. I had a carefully crafted and rehearsed conversation which involved explaining the life of the chapel and the role of the chaplain as an independent non-academic resource. One student replied to this explanation, boldly I thought, 'Oh you're a sort of social worker'. Although that may well have amply described what the authorities - for whom my likely pastoral competence was the touchstone - hoped for from me, I felt it as a trivialisation and an offence. I wrote at the time that 'the display of being approachable and unshockable may be read as giving the nod to unbelief or the absence of personal moral seriousness'.

An unmistakable consequence of the rise of psychology has been the pastoral professionalisation of the clergy - or at the very least the pitting of their contribution to individual welfare against that of others who might seem to be in the field. And for some this has acquired a priority, sometimes with clear theological intent - more often as a retreat from the more difficult business of Christian ministry. More recently the reform of the liturgy has attempted to emphasise the power of historic worship to shape and recreate human life through the dynamic participation in resurrection and divinisation. The pastoral efficiency of liturgy has been re-affirmed.

But any Christian minister will know that the experience of vocation - which I take to be a 'religious experience' - could readily (and often should be) analysed into its component parts of personal background, disposition, influence - injury even; and yet would retain an indefinable element for which psychological explanation might perhaps fall short. An openness to the complexity of my personality need not cause me to doubt the authenticity of the call; though it might assist me to ensure that the 'call' is efficient and of use to others.

But at the same time psychology might be thought to have increased the individualisation of religious experience, the emphasis on personal spirituality and salvation which has ushered in a crude - and psychologically damaging - soteriology, suggestive that God is interested in persons rather than communities. That does injury to the tradition and warrants a correction.

In welcoming you all to this fifth revived Boyle Lecture, I am delighted that once again Gresham College, together with other supporters, have most graciously agreed to record the proceedings and to make them available by webcast - there should, before long be a link from St Mary-le-Bow's own website. I record a debt of gratitude to the Lecture's Trustees for their guidance and enthusiasm, as to the Worshipful Company of Mercers and especially to the Worshipful Company of Grocers, by turn patrons of the parish, whose interest and generosity has, once again been imaginative and unstinting.

It is my pleasure to introduce Dr Michael Byrne, with whom I have lately - and happily - collaborated on a history of the parish available tonight for purchase and who with characteristic energy and good humour convenes these lectures.

### Introduction

*Michael Byrne*

Michael Byrne convenes the Boyle Lectures at St Mary-le-Bow. He studied genetics at Trinity College Dublin and holds post-graduate degrees in history and theology as well as a PhD in history of science from Birkbeck College London. He is a graduate student in divinity at Emmanuel College Cambridge and has been a member of Birkbeck's governing body since 2000. He works as chief operating officer of Principal Search Limited, a head-hunting company based in the City, and is also a magistrate in West London. In 2007 he co-edited (with George R. Bush) a 380-page volume of essays - *St Mary-le-Bow: A History*.

It's my pleasure to join the rector in welcoming you to the fifth in this new series of Boyle Lectures. As you know, the original Boyle Lectures ran for 40 years from 1692 to 1731 here and in a number of other churches in the City and Westminster. It's heartening to realise we only have another 35 years to go to beat that record!

Our first two lecturers, Jack Haught in 2004 and Simon Conway Morris in 2005, looked at possible connections between Darwinian evolution and Christian theology. In 2006 Philip Clayton asked whether the new ideas of 'emergence theory' held any lessons for theology. And last year John Barrow gave us an overview of contemporary cosmology and asked about the 'theology of the whole universe'.

One of our trustees, John Polkinghorne, then suggested that we should extend our reach from the physical and biological sciences to deal with the human sciences too, and the wisdom of that suggestion has been borne out in what you will shortly hear from Malcolm Jeeves and Fraser Watts about the sciences of psychology and neurology and the insights which theology may be able to gain from those disciplines.

These Boyle Lectures in some ways represent an updated version of the 'natural theology' which was so important in Boyle's day as an exercise in Christian apologetics. But natural theology – or even a less ambitious 'theology of nature' – is in fact roundly rejected by certain sections of Christian opinion. Following Karl Barth, many conservative and evangelical Christians do not accept that theology has much if anything to learn from the natural or human sciences. For them God's revelation is complete in the Incarnation and in Scripture: all else is a distraction, or perhaps worse. The Catholic tradition has never had such a negative attitude to the possibility of learning from the sciences. And the Liberal Christian tradition also affirms that while neither discipline should ever dictate terms to the other, an outright refusal of either to learn from the other would be an unwise curtailment of the opportunity for deeper mutual understanding. St Mary-le-Bow is famous for its tradition of dialogue, which is why it seems appropriate for these lectures to foster an ongoing conversation between theology and the sciences.

This would not be possible without distinguished speakers who show great generosity in giving of their time to deepen that dialogue. Our lecturer this evening, Professor Malcolm Jeeves, is a renowned psychologist, emeritus professor of psychology at the University of St Andrews, a department which he established, and a former president of the Royal Society of Edinburgh. Professor Jeeves was appointed CBE in 1992 for his services to science and psychology in Britain. Responding to the lecture will be Dr Fraser Watts, reader in theology and science in the University of Cambridge, a priest of the Church of England, and a former president of the British Psychological Society. Dr Watts became Starbridge Lecturer in theology and the natural sciences at Cambridge in 1994 and we are very pleased to have Susan Howatch (who endowed that lectureship) with us as our guest this evening.

In a subtle marketing ploy and with characteristic modesty George has already mentioned the *History of St Mary-le-Bow* which he and I edited last year - 380 pages, £30, excellent value even in these straightened times... One chapter in the *History*, written by a German scholar, Johannes Wienand, traces the history of these Boyle Lectures from 1692 to the present day. What emerges from Johannes' chapter is something that struck me when George and I first talked about reviving these lectures five years ago: the fact that they represent such a remarkable confluence of diverse themes and disciplines - science, philosophy, theology, public dialogue, Christian apologetics, and City history - in this splendid building, Christopher Wren's most ambitious City church. In listening to Malcolm and Fraser this evening we are rich participants in that tradition and we continue the history of 'dialogue in search of understanding' for which St Mary-le-Bow is so well known.

It's therefore my pleasure to introduce Professor Malcolm Jeeves and invite him to deliver the 2008 Boyle Lecture.

### *Malcolm Jeeves*

Professor Malcolm Jeeves is Emeritus Professor of Psychology at the University of St Andrews, and was formerly President of the Royal Society of Edinburgh, Scotland's national academy of science and letters. He was made Commander of the Order of the British Empire (CBE) in 1992 for his services to science and psychology in Britain. He established the department of psychology at St Andrews, and his research interests centre around cognitive psychology and neuropsychology.

### From Heaven to Earth

John Barrow focused his 2007 Boyle lecture on exciting developments in cosmology, including "the enormous distances between planets, between stars, between galaxies..." A millennium and a half earlier St. Augustine<sup>1</sup> put it rather differently when he wrote of the "tracts of the heavens...the distance of the stars...and space". This year I want to follow St Augustine's lead because whilst he declared, with evident approval, that, "Men go out and gaze in astonishment at high mountains, the huge waves of the sea, the broad reaches of rivers, the ocean that

encircles the world, *or the stars and their courses,*" he also significantly added, "they pay no attention to themselves." He went on to exclaim, "Oh Lord, I am working hard in this field, *and the field of my labours is my own self.....* I am not now investigating the tracts of the heaven, or measuring the distance of the stars, or trying to discover how the earth hangs in space. *I am investigating myself, my memory, my mind.*" The question St. Augustine posed so many generations ago was, in short, "*What is my nature?*" Then it was a religious question. Today as a recent leading article in the high profile scientific journal *Nature* illustrates it is also seen as a scientific question.

A lead article in the 14th of June 2007 issue of *Nature*<sup>2</sup> proclaimed, "With deference to the sensibilities of religious people, the idea that man was created in the image of God can surely be put aside". In discussions of human nature such headline-grabbing claims are, today, all too familiar. The *Nature* article added, "Scientific theories of human nature may be discomfiting or unsatisfying, but they are not illegitimate." With that I heartily agree. As we struggle to answer the perennial question, 'What is my nature?' I want to share with you my thoughts, as a neuropsychologist, about how best to answer the question whilst doing full justice both to scientific theories and to ancient wisdom. As I do so I shall remember that any account will be incomplete if it omits the fact that, however far back we look into our chequered history (e.g. Brooks<sup>3</sup>, 2007), we find humans reaching after something beyond themselves and that something is frequently found in the many expressions of religions whether primitive or more sophisticated. As my title suggests, I shall summarise the relevant facts from psychological science and neuroscience, noting as I do the, at times, fallacious interpretations of the data. Then I shall ask how, by learning from past reactions, we may respond constructively to new challenges.

### Gaining Perspective

The 20th century saw the coming of age of psychology from being a branch of philosophy to an empirical science. Many predict that the 21st century will be the century of neuroscience and certainly the early evidence supports this view. It is already clear that psychology and neuroscience are likely to be two of the disciplines most relevant to deepening our understanding of human nature, and in saying this we recognise that both have strong and productive links with evolutionary biology. Although the first psychologist elected a fellow of the Royal Society of London, Professor Lloyd Morgan at Bristol, was a student of animal behaviour, it was however another 70 years before research in evolutionary psychology really took off. By briefly looking backwards we learn from past attempts to psychologise and neurologise about religion. We shall look for examples to follow, and errors to avoid, as we focus on today's exciting developments and especially those in the last three decades in both disciplines. The issues we discuss are not confined to the halls of academia. Ever since the United States Senate declared the last decade of the past century as the Decade of the Brain the wider public have been left in no doubt about how rapidly neuroscience is advancing. The first decade of this century has already been labelled the Decade of the Mind.

### Psychologising about Religion

Confronted by such a large literature on the psychology of religion I can hope to do no more than identify some of the key figures whose contributions were, in my view, significant or whose views received wide publicity because they were seen as directly questioning the beliefs of religious people. I have selected particular figures because they exemplify general points about the purpose and products of psychologising about religion.

In the first three quarters of the last century the progress of the psychology of religion flowed mostly from developments within psychology that impacted religion. During that period most psychologists shared Michael Argyle's<sup>4</sup> 1958 working definition of religion as "a system of beliefs in a divine or superhuman power, and practices of worship or other rituals directed towards such a power." (p.1, Argyle and Beit-Hallami<sup>5</sup>, 1958, 1975).

In 1985, Argyle<sup>6</sup> pointed out that for a long-time "the psychology of religion tended to be rather parasitic on mainstream psychology". At that time, however, he believed he had observed a change in which the situation was being reversed, so that, for example, social psychologists were becoming interested in religious sects and their conversion techniques, and cognitive psychologists were becoming interested in religious experience.

### Resurrecting the Science and Religion Warfare Metaphor

The relation between psychological science and religious belief did not escape the warfare metaphor, used by some to characterize the relation between science and religion in the nineteenth century, even though it is largely discredited by historians of science. It is not unusual to hear highly intelligent and well-informed people spontaneously repeat the claim that psychology, in general, and Freud, in particular, has "explained away" religious beliefs as "nothing but wishful thinking - whistling in the dark of an empty universe, to keep our spirits up". In this sense, at least, the warfare metaphor is alive and well and ready to be used as a shorthand way of portraying "the ongoing relation between psychology and religion". But how accurate is this way of portraying

the relationship? Does it fit the facts?

Broadly speaking, psychologists who have taken an interest in religion have concentrated on what we might call its roots and its fruits. Hearnshaw identified four significant influences at the end of the nineteenth century that provided the basis for later psychological studies of religion: (1) Francis Galton's studies of the manifestations of religion (e.g., prayer); (2) studies by anthropologists, such as Sir James Fraser, of comparative religion and the origins of religion; (3) the writings of theologians such as W. R. Inge on mysticism and religious experiences; and (4) the beginnings of the systematic psychology of religion (e.g., E. G. Starbuck). These in turn culminated in William James's<sup>7</sup> classic, *The Varieties of Religious Experience* (1902).

It is noteworthy that none of the influences listed above seem to have been motivated by a desire to generate or perpetuate a warfare metaphor to describe the relationship between psychology and religion. Certainly, in the case of William James, the relationship was a strongly positive one as he sought to explore how psychology could deepen our understanding of the roots and fruits of religion.

### Psychoanalysis and Religion

As we move further into the twentieth century the picture changes so that by the time Sigmund Freud's radical views were becoming more widely known in society at large, the stage was set for a strong resurgence of the warfare metaphor. Despite Freud's own disclaimers that his accounts of the roots and fruits of religion were neutral as regards the truth value of specific religious beliefs which, he agreed, must be decided on other grounds, nevertheless his own accounts were soon seen as 'explaining away' religious beliefs and exposing the practices of religions as 'nothing but' the persistence of an interim social neurosis that we must eventually grow out of.

In due course Freud's views on the origins of religion in *Totem and Taboo*<sup>8</sup> (1919) and *Moses and Monotheism*<sup>9</sup> (1938) were severely criticized as it became clear that many of the so-called facts on which he based his theories were shown by professional anthropologists to be incorrect; this did little in the popular mind, however, to bring his views into disrespect (e.g., B. Malinowski<sup>10</sup>, *Sex and Repression in Primitive Society* [1927] and *The Foundations of Faith and Morals*, [1936]). Freud had produced a good story and his influence in this, as in other areas, persisted long after his views were widely discredited and disregarded by scholars in related disciplines.

Much the same may be said about Freud's views of developed religion presented in *The Future of an Illusion* (1927) and *Civilisation and Its Discontents* (1930). Here, as we mentioned above, in Freud's terminology an "illusion" stands for any belief system based on human wishes. He was careful to point out that such a basis does not necessarily imply that the system is false; nevertheless, as far as Christianity was concerned, he clearly believed that it was. In that sense he championed and perpetuated the warfare metaphor.

Another major figure in psychology during the first half of the twentieth century was Carl Jung. For a time Jung was a close collaborator with Freud though he subsequently developed his own views within the psychoanalytic tradition. Freud and Jung, as in matters psychological, ultimately differed radically in their views of religion. Whereas for Freud psychology pointed to religion as a neurosis that in time could be dispelled and the patient (the human race?) cured, for Jung religion was an essential activity of humanity. The task of psychology was not to explain away religion, but to try and understand how human nature reacts to situations normally described as religious.

Freud's and Jung's contrasting views were aptly summarized by G. S. Spinks<sup>11</sup> when he wrote, "For Freud religion was an obsessional neurosis, and at no time did he modify that judgment. For Jung it was the absence of religion that was the chief cause of adult psychological disorders." These two sentences indicate how great is the difference between their respective standpoints on religion.

### Psychoanalysis - a Two Edged Sword - a Timely Lesson

A major problem for the psychoanalytic treatment of religion as being the product of unconscious wishes, is that it can be applied equally well to the understanding of unbelief in those who wish to refute religion. This was penetratingly demonstrated by Rumke<sup>12</sup> in his little book *The Psychology of Unbelief*. In it he looked carefully at the history of Freud's own life, such as his poor relationships with his father, his intense dislike of his Roman Catholic nanny and he put these together to show how, on the basis of Freud's own theory, a picture emerges from which we would predict that a person with such a background would, on reaching maturity, produce a rationalised set of beliefs in which he would reject religion and in particular a religion in which God was seen as a father figure. And Freud did just that.

While Freud and Jung captured the headlines and the public interest in what was happening at the psychology-religion interface in the first half of the 20th century, there were others such as R. H. Thouless<sup>13</sup> who were writing on the same topic and in many psychologists' judgments making a much more lasting contribution, as

evidenced by the 1971 reprinting of his book *Introduction to the Psychology of Religion*, first published in 1923. Thouless's approach was primarily constructive and a complete contrast with the warfare metaphor.

### Psychologising about Religion in the Second Half of the 20th Century

Since the Second World War there have been several noteworthy attempts to offer new insights into religion through the eyes of psychology. Notable among these are G. W. Allport's<sup>14</sup> *The Individual and His Religion* (1951), Michael Argyle's several books, including *Religious Behaviour* (1958) (with Beit Hallahmi) *The Social Psychology of Religion* (1975). These, like Thouless's book, are not confrontational and bear no mark of the warfare approach.

Mention of Gordon Allport's book with its penetrating psychological analysis of "The Nature of Doubt" brings to mind the part played by constructive doubt in the life of Robert Boyle. Reijer Hooykaas<sup>15</sup> in his chapter on 'Boyle's Life and Times' records how after his 'conversion', Boyle according to a fragment of an autobiography, "made a vow to repent, and respond to Christ, 'who had long lain asleep in his conscience'. MacIntosh and Anstey<sup>16</sup> (2007) in similar terms note how, "In Geneva on his continental tour Boyle underwent what he clearly felt to be a conversion from nominal or at least unthinking Christianity to committed Christianity". They go on to record how "...the later Boyle stressed the need to have an *examined* faith. He pointed out that "usually, such as are born in such a place, espouse the opinions true or false, that obtain there" (BW, 12:421, Birch 1772, VI:712), indeed, "the greatest number of those that pass for Christians, profess themselves such only because Christianity is the religion of their Parents, or their Country, or their Prince, or those that have been, or may be, their Benefactors; which is in effect to say, that they are Christians, but upon the same grounds that would have made them Mahometans, if they had been born and bred in Turkey" (BP 7:233, BOA §3.7.5, pp 301-2). Boyle felt that more was required of the thinking believer. Locke agreed: often a child's notion of God does more "resemble the Opinion, and Notion of the Teacher, than represent the True God" (Essay, 1.14.13).

Hooykaas tells us how Boyle's conversion was followed "by grave doubts about some of the fundamentals of Christianity". These doubts were followed by depression and "only the fact that the Christian religion forbade it kept him from taking his own life". However, Hooykaas also records that, "One day after receiving the sacrament, God restored to him the lost sense of his favor". Thereafter he was from time to time subject to what he called a "disease of my faith" but, writes Hooykaas, "it brought him to the grounds of his religion, *for doubt impelled him to give an account of the fundamentals of Christianity*". As Edward Davis<sup>17</sup> has reminded us most recently, Boyle recorded the aphorism, "He whose Faith never Doubted, may justly doubt of his Faith" (p.120). This resonates with Allport's statement that "*if each person understood the doubting process, he would be in a better position to determine the cogency of his own grounds for belief or disbelief*" (p.115). All of this underlines one of the purposes of these 21<sup>st</sup> century Boyle lectures which is to follow Boyle's aim to have an 'examined' and 'thinking' faith.

### Behaviourism and Religion

There are many excellent books on the psychology of religion that are not infused with the warfare metaphor and, while they are read by psychologists and others interested in deepening our understanding of the insights that psychology can offer into the part played by religion in our thoughts and feelings, they are not newsworthy because they are not confrontational. Such, however, was not the case with B. F. Skinner's views of religion.

If Skinner's views were perhaps the most widely publicized of the warfare genre in the second half of the 20<sup>th</sup> century, this was because of his well-deserved reputation as the leading behaviourist psychologist of the past sixty years. Having achieved considerable success in the development of techniques for shaping and modifying behaviour, Skinner<sup>18</sup> went on to speculate about how such techniques might be harnessed to shape the future of society. He believed that similar principles, based on rewards and punishments, could explain how the practice of religion functions psychologically. "The religious agency," he said<sup>19</sup>, "is a special form of government under which 'good' and 'bad' become 'pious' and 'sinful.' Contingencies involving positive and negative reinforcement, often of the most extreme sort, are codified - for example as commandments, maintained by specialists, usually with the support of ceremonies, rituals and stories." He argued that the good things, personified in a god, are reinforcing, whereas the threat of hell is an aversive stimulus. Both are used to shape behaviour.

Underlying Skinner's whole approach is a reductionist presupposition. He speaks of concepts of god being "reduced to" what we find positively reinforcing. There is no doubt that Skinner provided ready ammunition for anyone wishing to perpetuate the warfare metaphor of the relation of psychology and religion.

### Sperry and the Bankruptcy of Behaviourism

If Skinner wished to champion the warfare metaphor, another distinguished figure in psychology in the second

half of the 20th century took quite a different view. Psychologist, neuroscientist, and Nobel Laureate Roger Sperry wrote not only of the bankruptcy of some forms of behaviourism but strongly advocated the benefits of a positive relationship between psychology and religion viewed as allies engaged in a common task. Typical of Sperry's views is the following<sup>20,21</sup>.

The answer to the question, "Is there convergence between science and religion?" seems from the standpoint of psychology to be a definite emphatic "yes." Over the past 15 years, changes in the foundational concepts of psychology instituted by the new cognitive or mentalist paradigm have radically reformed scientific descriptions of human nature, and the conscious self. The resultant views are today less atomistic, less mechanistic, and more mentalistic, contextual, subjectivistic and humanistic. From the standpoint of theology, these new mentalistic tenets, which no longer exclude on principle the entire inner world of subjective phenomena, are much more palatable and compatible than were those of the behaviourist-materialist era. Where science and religion had formerly stood in direct conflict on this matter to the point even of being mutually exclusive and irreconcilable, one now sees a new compatibility, potentially even harmony with liberal religion—defined as religion that does not rely on dualistic or supernatural beliefs, forms of which have been increasingly evident in contemporary theology.

From the above quote, several things are clear. Whilst Sperry had once used the warfare metaphor to characterize the relation between science and religion he later believed that as far as psychology is concerned that is now a thing of the past. However, he placed his hopes in a liberal theology that made no supernatural claims - hence some of Sperry's views of religion would sound very strange to conventional Christian believers. Nevertheless what he wrote remains provocative and worthy of careful consideration.

### The Continuing Search for a Constructive Partnership

As we noted above, there remains the widespread impression in some quarters today that psychology has "explained away" religious experience and behaviour and that religious beliefs are "nothing but" wishful thinking. In a way this is strange since two of the major figures in academic and applied psychology in the 20<sup>th</sup> century, whose enduring contributions are increasingly acknowledged, held positive, sympathetic, and constructive views of religion. Both Gordon Allport in the United States and Sir Frederic Bartlett in Britain made a point of emphasizing the potential for a positive cooperative relationship of psychology and religion, at the same time underlining the limits of psychological inquiry, at least when practiced as a science.

Allport<sup>14</sup>, a major personality theorist, wrote that "different as are science and art in their axioms and methods, they have learned to cooperate in a thousand ways - in the production of fine dwellings, music, clothing, design. Why should not science and religion, likewise differing in axioms and method, yet cooperate in the production of an improved human character without which all other human gains are tragic loss? From many sides today comes the demand that religion and psychology busy themselves in finding a common ground for uniting their efforts for human welfare."

Bartlett, described very recently<sup>22</sup> ( Nov. 2007 , *The Psychologist*) as making "one of the most substantial contributions to psychology of the past century" and one of the architects of "the cognitive revolution" in psychology, wrote<sup>22</sup>:

It is inevitable that the forms which are taken by feeling, thinking, and action within any religion should be moulded and directed by the character of its own associated culture. The psychologist must accept these forms and attempt to show how they have grown up and what are their principal effects. Should he appear to succeed in doing these things, he is tempted to suppose that this confers upon him some special right to pronounce upon the further and deeper issues of ultimate truth and value. These issues, as many people have claimed, seem to be inevitably bound up with the assertion that in some way the truth and the worth of religion come from a contact of the natural order with some other order or world, not itself directly accessible to the common human senses. So far as any final decision upon the validity or value of such a claim goes, the psychologist is in exactly the same position as that of any other human being who cares to consider the matter seriously. Being a psychologist gives him neither superior nor inferior authority.

Both Allport and Bartlett thus held a high view of the potential benefits of a developing science of psychology. They also recognized the distinctive approaches to the gaining of knowledge possible through the scientific enterprise - a view already well articulated by leading physical scientists of earlier generations.

If there were psychologists using the warfare metaphor who were antagonistic to religion there were also Christians who were antagonistic to psychology. Hendrika Vande Kemp<sup>24</sup> noted that,

the antipsychologists seem to regard psychology as offering alternative answers to the same questions answered by Christian theology and biblical revelation, questions concerning knowledge of God and salvation history and a proper human response to both. Psychologists, for the most part, are not interested in "knowing God." They are interested in what kinds of images of God persons entertain and what beliefs they embrace, and how their faith relates to practice - but these involve "knowledge" of a very different sort. . . . The most

conservative of the antipsychologists, who reject all sources of knowledge other than authority, should be equally sceptical of empiricism (or science), rationalism (or philosophy), and mysticism (or phenomenology), as all involve "excessive curiosity." Since no form of psychology would be acceptable to them there is little point in presenting an argument. One might challenge, them, however, as to their exegetical method - it is hard to envision one that involves neither induction, deduction nor intuition.

### Pervasive Shared Assumptions about the Psychologist's Task when Studying Religion

Though expressed in different ways, the majority of the early figures writing on the psychology of religion shared a common approach to their task. It is well expressed in the opening chapter of Thouless's 1971 revision of his 1923 book when he wrote "the essential function of the psychologist was to study and observe the phenomena of religion without concerning himself with making judgments as to the truth of its propositions or trying to appraise its values."

Allport<sup>25</sup> set himself "the task of discovering the place of religion in the life economy of the individual." He noted that "without a psychological understanding of the nature and functioning of the religious sentiment all talk of mutual policy on the one hand, or of "opiates" and "superstition" on the other, is prejudiced or empty." Again he made it clear that "I make no assumptions and no denials regarding the claims of revealed religion. Writing as a scientist, I am not entitled to do either "(p.1x).

This view was echoed by Sir Frederick Bartlett<sup>26</sup> in his Riddell lectures: "So far as any final decision upon the validity or value of such a claim goes, the psychologist is in exactly the same position as that of any other human being who cares to consider the matter seriously. Being a psychologist gives him neither superior nor inferior authority". The same approach was taken by Michael Argyle<sup>27</sup> when he concluded "that psychological research can tell us nothing about the truth, validity or usefulness of religious phenomena: these are questions which must be settled in other ways." (p.3)

Contemporary writers in the psychology of religion such as Fraser Watts and Mark Williams<sup>28</sup> echo these views. "We need to make absolutely clear here that we are not, as psychologists, commenting on whether or not religious beliefs are correct, whether they are justified by rational argument and empirical evidence. Our concern is rather with how people arrive at what they take to be religious knowledge". (Fraser Watts and Mark Williams, in *The Psychology of Religious Knowing* (p.4.)

### Work in Progress - Reminders of a Rapidly Changing Scene

The last half century has witnessed rapid advances in neuropsychology and evolutionary psychology. Discoveries in both fields have implications for our discussions of religion. Anyone aware of the rates at which these two specialisations are advancing will need no reminding that any accounts such as mine today, must be of "work in progress". Consider a few of the changes in only the last half century.

Fifty years ago few self-respecting North American 'scientific psychologists', concerned about their reputations as scientists, would dare to speak or write freely about the mind, only about behaviour. Behaviourism was dominant. Only with the cognitive revolution did it once more become scientifically respectable to carry out research on the mind. This new respectability is underlined on all sides today. For example, the publicity for a 2006 meeting of the Royal Society of London on "Mental Processes in the Human Brain" boldly declared that "The scientific study of the human mind and brain has apparently come of age, with the advent of technologically advanced methods for imaging brain structures and brain activity..... these advances promise sophisticated new accounts of how mental processes are implemented in human brain, but they also raise new challenges".

Forty years ago psychoanalysis was fighting a vigorous rearguard action and it was confidently taught and widely believed that autism was the result of poor relations between the young child and his parents. Today it is clear that some forms of autism are the result of malfunctioning of specific neural substrates some of which have already been identified.

Thirty years ago we taught our students that you made all your neurones before birth and spent the rest of your life with the supply of nerve cells you obtained during the earliest months. Today we know that the brain actually makes more neurones than it needs and there is a process whereby excess neurones are selectively removed, a process that shapes the adult brain. What we now know is that the brain makes new neurones, a process called neurogenesis, which is regulated by hormones.

Most recently a paper has appeared in the *International Journal of Neuroscience* reviewing 15 years of experiments which have claimed to show that the sensed presence of a 'sentient being' can be reliably evoked by applying very specific temporal patterns of weak trans-cerebral magnetic fields applied across the temporal-parietal region of the two hemispheres of the brain. Later we shall see a further clue to remind us that our spirituality is firmly embodied.



## Psychology , Neurology and Religion: Converging Interests

As we saw above, the converging and overlapping interests of psychology with those of religion arise naturally out of their shared interests in cognition and behaviour. Currently the most widely used textbook of psychology in North America is by David Myers<sup>29</sup>. In it he writes "Today we define psychology as the scientific study of behaviour and mental processes." He continues "Behaviour is anything an organism does-*any action* we can observe and record. Yelling, smiling, blinking, sweating, talking, and questionnaire marking are all observable behaviours. Mental processes are the internal, *subjective experiences* we infer from behaviour-sensations, perceptions, dreams, thoughts, *beliefs*, and feelings." Thus, amongst other things, psychology studies, *experience, belief and action*. Where have we heard that before? - in Sir Frederick Bartlett's Riddell Memorial lectures referred to above entitled *Religion as Experience, Belief and Action*.

Thus as the domains of religion and science converge psychology can be an ally of religion in the shared search for truth. In religion we feel, at times, that we have intuitive insights into another realm of reality, at times we are too readily judgemental of those who do not share our views and if we believe Freud a hundred years ago, and Dawkins today, we are prone to illusory beliefs. Psychology can offer help in curbing such knee-jerk reactions. Myers reminds us that "The story of psychology.... *enhances our abilities to restrain intuition with critical thinking, judgmentalism with compassion, and illusion with understanding*". And in the same spirit, for their part he encourages psychologists to be "*sceptical but not cynical, open but not gullible*". It is in that spirit that this lecture is offered.

Despite the widely shared view of many of the earlier investigators whose views we looked at earlier that 'psychology should not concern itself with making judgments of the truth of propositions', it is evident that in recent years some of the most exciting developments at the interface of psychology and neuroscience have been interpreted as raising questions about the truth of certain core religious beliefs.

The most vocal and widely quoted exponent of the view that developments in neuropsychology directly challenge long and widely held religious beliefs was the Nobel laureate Francis Crick. Having reviewed recent work on mind-brain Crick<sup>30</sup>, in his book *The Astonishing Hypothesis*, argued that the evidence from neuroscience made it clear that "the idea that man has a disembodied soul is as unnecessary as the old idea that there was a Life Force. This is in head-on contradiction to the religious beliefs of billions of human beings alive today". And he went on to ask the question, "How will such a change be received?"

As he rightly observed, this raises several questions about long and widely held traditional Christian beliefs about what constitutes the human person and specifically in what sense are humans made in the image of God. Other questions about core beliefs have been raised by another rapidly growing area of contemporary psychology, evolutionary psychology, a point not missed by the sociobiologist E.O. Wilson<sup>31</sup> who has boasted "We have come to the crucial stage in the history of biology when religion itself is subject to the explanation of the natural sciences.... Theology is not likely to survive as an independent intellectual discipline".

## Mind and Brain: Body and Soul -Relationships of Irreducible, Intrinsic, Interdependence?

Francis Crick was right to say that part of the impact of advances in neuropsychology on wider beliefs about the human person will mean that a challenge has been mounted to a belief shared for centuries by the majority people including Christians, that they possess an immaterial immortal soul, a separate thing, that is somewhere attached to their physical body.

It is one thing to demonstrate the intimate inter-relationship between what is happening at the conscious mental level and what is happening at the level of the brain and the body. The unanswered question is how can we most accurately characterise this intimate relationship without making claims or assumptions about what we know about the relationship between the two which have not yet been demonstrated?

It is clear is that there is a remarkable *interdependence* between what is occurring at the cognitive level and what is occurring at the physical level. We could perhaps describe this as a relationship of *intrinsic interdependence*, using *intrinsic* to mean that, as far as we can see, it describes the way the world is in this regard. Could we perhaps go further than this and say that on our present knowledge it is an *irreducible* intrinsic interdependence, *by this meaning that we can not reduce the mental to the physical anymore than we can reduce the physical to the mental. In this sense there is an important duality to be recognised but it is a not a duality that necessarily implies a substance dualism.*

It is significant that equally committed Christians hold differing views about how to model this duality. Thus we have emergent dualism (William Hasker<sup>32</sup>), non-reductive physicalism (Nancy Murphy<sup>33</sup>), substance dualism (Stewart Goetz<sup>34</sup>), a constitution view of persons (Kevin Corcoran<sup>35</sup>), or dual aspect monism (Malcolm Jeeves<sup>36</sup>, Donald Mackay<sup>37</sup>). All share the view that eliminative materialism is inadequate in that it fails to give adequate weight to the primary data of conscious experience.

Very recently Thomas Nagel<sup>38</sup>, a leader amongst contemporary philosophers, had no doubt that, "so far as we can tell, our mental lives and those of other creatures, including subjective experiences, are strongly connected with and perhaps strictly dependent on physical events in our brains and on the physical interaction of our bodies with the rest of the physical world." Nagel also had no doubt that "we have to reject conceptual reduction of the mental to the physical". But if that is the case how are we to think about it? He acknowledges that "the mind-body problem is difficult enough so that we should be suspicious of attempts to solve it with the concepts and methods developed to account for very different kinds of things. Instead we should expect theoretical progress in this area to require a major conceptual revolution." He believes this will require a change in our thinking at least as radical as relativity theory was in physics.

Nagel's view is shared by neurologist Adam Zeman<sup>39</sup> who believes that "Theories which depict experience and its neural basis as inseparable aspects of a single process may hold out the greatest promise. But we do not have any clear understanding of how a single process could have two such different aspects. Making sense of their relationship may require us to rethink the nature of matter, mind, or both."

We must be patient and resist the temptation to foreclose an issue on which the jury is still out, where more data will emerge and where in due course, hopefully, the conceptual break through will be found.

### Some Specific Challenges to Long-Held Religious Beliefs

#### *Humans Made in the Image of God*

The notion that humans possess a soul was typical of the thinking of major figures from the past such as Plato, Aristotle, Origen, Demetrius, Augustine (who held a modified Platonic view), and Descartes. Until relatively recently in the Western world the dominant cultural influences have been the religious ones. As Stevenson<sup>40</sup> notes "Under Aristotle's influence Aquinas thus retained an element of Platonism, arguing that the soul has a separate existence until the resurrection, and that this helps to solve the problem of maintaining personal identity but at the cost of incurring all the problems associated with dualism". Similar strongly dualistic views are present in the writings of some of the Protestant reformers such as John Calvin<sup>41</sup> who wrote, "It would be foolish to seek a definition of "soul" from the philosophers. Of them hardly one, except Plato, has rightly affirmed its immortal substance....Indeed from Scripture we have already taught that the soul is an incorporeal substance..."

Robert Boyle, according to Hooykaas<sup>42</sup>, thought, as did his contemporaries, within a dualistic framework, so that he believed that, "although in physical respects man is a tiny and negligible part of the universe, he alone has a rational soul" (p.72). At the same time Boyle firmly believed that man is God's image bearer. (p.78).

MacIntosh and Anstey<sup>43</sup> in their discussions of Boyle's views on 'Perception and the Soul' remind us of the intellectual climate when Boyle was living. They write, "Two distinct notions of the soul occupied centre stage in the seventeenth century. One, stemming from Plato and the Pythagoreans, with theological trimmings by Augustine, had been given immense prestige by Descartes' championing of it. This view was what Geach has called the "savage superstition ... that a man consists of two pieces, body and soul, which come apart at death." Geach adds, "the superstition is not mended but rather aggravated by conceptual confusion, if the soul-piece is supposed to be immaterial" (Geach 1969, 38).

The second main account, stemming from Aristotle, had been taken over and made Christian by St Thomas Aquinas. In this account the soul was, though incorporeal, not simply a separate bit attached to the body, but was the form of the individual animal in question, whether human or not".

In light of these influences they note that "despite the problems that substance dualism raises, a number of which presented themselves clearly to Boyle, there was no *general* problem concerning incorporeal entities, and there were, Boyle felt, strong arguments for the incorporeality of the human soul".

The possession of an immaterial immortal soul wherein the capacity to reason resides has, at times, been seen as the grounds for the claim that humans are made in the image of God. A Catholic Catechism<sup>44</sup> states "God... can be known...by the natural light of reason ...man has this capacity because he is created "in the image of God".

The accumulating evidence from neuropsychology makes it extremely difficult to maintain a view that there are two different substances interacting in the human person. All the emphasis rather is on the unity of the person, two aspects of which must be studied and taken seriously if a full account is to be given of the mystery of the human person.

Clearly we must discount the idea that 'in-breathing' should be equated with the acquisition of a 'soul'. Joel Green<sup>45</sup> (2004: 196) comments on the word translated 'soul' in *Gen. 2: 7* ("The Lord God formed a human being of the dust of the ground, breathed into his nostrils the breath of life, and the human being became a living soul"):

In fact, the same term (a living soul) is used only a few verses earlier with reference to 'every beast of the earth', 'every bird of the air' and 'everything that creeps on the earth' - that is, to everything in which there is life, demonstrating incontrovertibly that 'soul' is not, under this accounting, a unique characteristic of the human person... Genesis does not define humanity in essentialist terms but in relational - more specifically identifying the human person as Yahweh's partner.

Another feature claimed to be a defining characteristic of the *imago dei* is the capacity for moral agency. North American theologian Jonathan Edwards<sup>46</sup> wrote that "herein does very much consist that image of God wherein he made man....viz. in those faculties and principles of nature whereby he is capable of moral agency". If Edwards was claiming that this capacity was unique to humans, then we may ask "How does such a claim stand today in light of developments in evolutionary psychology?"

The accumulating evidence from evolutionary psychology demonstrating rudimentary forms of altruistic behaviour in nonhuman primates which, if seen in humans, would be interpreted in terms of moral agency, make it increasingly difficult to defend the capacity for moral agency as the defining characteristic in humans of the *imago dei*.

Within the Christian tradition it is not necessary to deny the emergence of elements of altruistic or self-giving behaviour in non-human primates in order to defend the uniqueness of the self-giving and self-emptying of Christ. The self-giving of Christ was unique and it is by faith that we affirm that the ultimate act of Christ's self-giving, by its nature, sets Him and it apart from all others.

The nature of altruism in animals continues to be a subject of lively debate amongst evolutionary psychologists. Some argue that some of the problems in trying to understand the evolutionary emergence of altruistic looking behaviour are lessened if the basic idea of inclusive fitness (or 'kin selection' as it is often called) is complemented and extended beyond close relatives by 'reciprocal altruism' - that self-sacrifice can be understood as self-interest, providing there was a chance the beneficiary would repay the deed in the future (Trivers<sup>47</sup>, 1971).

There has been considerable discussion as to whether this mechanism is really sufficient to explain human behaviour (Clayton & Schloss<sup>48</sup>, 2004). A major problem is that humans cooperate in much larger groups than non-human primates, extending beyond those with whom they interact socially. Responding to this, Gintis<sup>49</sup> *et al*(2003) have argued for 'strong reciprocity', by which they mean a predisposition to cooperate with others and to punish those who violate the norms of cooperation, even when it is implausible to expect these costs to be repaid either by others or at a later date. More controversially, David Sloan Wilson<sup>50</sup> (2003) has broadened the idea of altruism between non-relatives even further to 'group selection' which is difficult to explain on orthodox Darwinian theory.

It would be wrong to assume that all altruistic behaviour involves self-awareness. Francisco Ayala<sup>51</sup> (1998) has pointed out that to assume that the motivation behind altruism in (say) insects or birds is the same as human altruistic behaviour involves falling into the naturalistic fallacy.<sup>52</sup> He disagrees with the assumption that human ethical behaviour is causally related to animal social behaviour<sup>53</sup> and distinguishes between the capacity for ethics (which he sees as involving an ability to anticipate the results of one's actions; to make value judgments; and to choose between possible courses of action) and the moral norms accepted for guiding actions. He argues that the former is a necessary but secondary consequence of intellectual ability, not because it is adaptive in itself (as sociobiologists maintain), while the latter is wholly a cultural matter.

The basic point remains that we do not need to deny the emergence of self-giving altruism in primates in order to assert a unique self-emptying form of sacrifice manifest in the account of Christ in the Christian gospels. Some have argued recently and I believe correctly that the concept of altruism as used by evolutionary psychologists is found to be greatly impoverished when compared with the fully Christian view of agape love.

Others have mobilised the results of recent work in cognitive psychology in their attempts to explain the evolutionary origins of religion. A typical example of this would be the work of Pascal Boyer<sup>54</sup>. In his book, *Religion Explained: the Evolutionary Origins of Religious Thought*, Boyer gives an openly reductive application of cognitive psychology to the study of religion. He argues that the human mind receives and processes information by the functioning of innate dispositions often called modules and these enable him to think in distinctive ways that in turn have contributed to our adaptive fitness as a species throughout evolutionary history. These are then taken to be hardwired cognitive abilities which are advantageous to the survival of our species. He goes on to argue that some of these hardwired abilities get us into 'cognitive trouble' so that we tend to see everything in the world in terms of agency, we perceive predators and prey everywhere, we are confronted by many 'false positives'. Boyer argues that religion is a cognitive false positive, a faulty application of some of our innate mental machinery that leads us to believe in the existence of supernatural agents like gods that do not really exist. He certainly makes an interesting story but like similar accounts based on reductionist presuppositions he never confronts the question that this theory, like any other, remains neutral as to the validity in reality of the claims of specific religious beliefs. Either Jesus Christ lived, taught, died and rose again or he did not. No amount of psychologising can settle those issues.

*Amongst theologians there seems to be now a general agreement that the imago dei is not anatomical, genetic, neurological or behavioural, and that it combines functional and structural elements (Middleton,<sup>55</sup>2005). Chris Wright<sup>56</sup> (2004. p.119) puts it well, "We should not think of the image of God as an independent 'thing' that we somehow possess. God did not give to human beings the image of God. Rather it is a dimension of our very creation. The expression 'in our image' is adverbial (that is, it describes the way God made us), not adjectival (that is, as if it simply described a quality we possess). *The image of God is not so much something we possess, as what we are. To be human is to be the image of God.*"*

### *Embodied Morality*

Morality, like religion, is not often considered to be a part of the operation of our bodies. If you hold a body-soul dualism view of the person, processes of moral decision-making are presumed to happen primarily in the domain of the soul, not the body. In contrast a non-dualist view of the person would presume that it is the brain/body doing the deciding. It is as yet not entirely clear what one might expect regarding the engagement of brain systems in such behaviours. So we pause to ask what is known and being learned about brain systems and processes that contribute to the moral regulation of behaviour?

Arguably the most famous single case in all of neurology is Phineas Gage<sup>57</sup>. The brain injury suffered by Gage and its outcome illustrates the impact on moral capacity of damage to the frontal lobe of the brain, particularly to the lower-middle portion of the frontal lobe known as the orbital frontal cortex.

Gage received major damage to his frontal lobes when an iron bar that he was using to tamp an explosive charge was blown up through his eye-socket and out the top of his head. While Gage never lost consciousness, and seemed to have recovered physically within days, he was never the same person. Prior to the accident he was an intelligent person, capable and efficient worker, excellent manager, responsible family man, and upstanding citizen. While he maintained his general intelligence after the accident, damage to his frontal cortex resulted in an interpersonal style best described as unreliable and capricious, socially inappropriate, and amoral.

Study of other patients with this form of brain damage shows that they typically have difficulty regulating their behaviour in order to abide by norms of socially acceptable or moral behaviour. Such individuals may, capriciously and without malicious intent, violate social conventions, laws, ethical standards, or the rules of courtesy, civility, and regard for the benefit of others.

### Brain Activity During Moral Decision-making

Today there is a rapidly developing field in neuroscience which involves the mapping of the brain areas involved in different forms of interpersonal, economic, and moral decision-making. The general approach in this form of research is to have persons engage in decision-making tasks while their brains are being scanned using functional magnetic resonance imaging (fMRI). For example, a number of studies have demonstrated the activation of the limbic (emotional) areas of the brain during what one would presume to be tasks requiring merely the "cold" calculation of the likelihood of financial gains and losses. Limbic involvement is particularly intense when the financial decision also involves interpersonal variables such as trust.

Using similar techniques, Greene<sup>58</sup> and collaborators have studied moral decision-making. First, they merely observed the enhancement of activity in different brain areas as the moral dilemmas that were presented became more difficult. They found that the lateral frontal lobes and limbic cortex became more active as moral decision became more difficult. A follow-up study involved moral dilemmas that required one to imagine either directly inflicting harm on one person in order to save the lives of many other persons, or indirectly allowing harm to come to one person in order to save the others. Functional brain imaging indicated that having to choose to directly harm another person in order to save many others was correlated with activation of a different pattern of brain areas (including the medial frontal cortex and parietal lobes) from those activated by imagining a decision involving indirectly allowing harm. Thus, decisions about whether or not to directly inflict harm activated an additional network of brain areas more involved in modulation of social action and representations of the self.

*The general finding from this kind of research is that moral regulation of behaviour is an embodied process, and that different forms of moral decision-making involve different patterns of brain activity.* The somatic marker theory suggests that important elements contributing to moral behaviour are the feelings elicited during interpersonal encounters - both feelings towards others (e.g. empathy and compassion) or feelings about the interpersonal nature of a situation (e.g., unfairness or social isolation). Like moral reasoning and religious experiences, various aspects of the experiences of human relatedness have been the subject of neuroscience research over the last two decades. This rapidly growing field of research is referred to as Social Neuroscience.

### Neurologising about Religion

What possible relevance can neurology have for understanding religion? The famous classical scholar Walter Burkert, influential for his work in anthropology and religious studies in the early Greek period, wrote about early theories to explain the phenomenon of religion through the activity in certain parts of the brain, claiming that religious thought belongs to an 'older' part of our brain.

A more tendentious attempt to link the brain to religion occurs when, commenting on the scientific hubris of some of his contemporaries Robert Boyle described amongst the false pretensions they presented as established facts the claim that "religion is founded on the imagination of an overheated brain" whilst "science is based on reality perceived by cool minds with the aid of the senses". Surely one of the first appeals to neurotheology in the scientific era! ( R. Hooykaas<sup>59</sup>, *Robert Boyle*, p.58, 1997).

Two centuries ago one of the leading anatomists of the day was Joseph Gall. Gall's motto was, "God and the brain, nothing but God and the brain". Why Gall used this motto is unclear. Robert Rieber<sup>60</sup> believes it is that Gall worked within the Pantheist tradition of religion, of holding the mirror up to nature. Rieber believed that it was Gall's desire to explain the order of the whole of nature that led him to his motto, not as is usually held, his way of placating the church and the Austrian monarchy. Gall was also one of the originators of phrenology, a new theory of how the mind and the brain were related which was regarded as the cutting edge of neurology. Today, for good reasons it is in disrepute. At the same time, with the burgeoning field of neurotheology, aspects of religion whether of experience, belief or action, are again being linked to specific areas or systems within the brain using sophisticated brain imaging techniques. You may be surprised to know that already a volume exists with the title *The Neurology of Religious Experience*<sup>61</sup>.

Against a background of how ancient and modern accounts of mystical experiences have been associated with the use of hallucinogenic drugs, and bolstered by the long-standing association in clinical neurology between a form of seizure activity and religious experiences, recent neuroscience research using functional brain imaging is making it increasingly clear that our religious and spiritual experiences, like all our experiences, are grounded in neural substrates. Consider some of the evidence.

### Hallucinogenic Drugs and Religious Experience

Ancient religious rituals used plants to facilitate ecstatic and mystical states – for example, mushrooms (by the Aztecs), peyote cactus (by the Huicol of Mexico), and ayahuasca (by the natives of Northwestern South America), as well as substances from water lilies, mandrake, opium poppies, morning glories, and marijuana plants. Since these drugs act on the brain to bring about their effects, study of these effects on various brain systems can reveal brain mechanisms relevant to understanding more about experiences that people often describe as religious<sup>62</sup>.

Chemicals that create the hallucinogenic experience fall into one of three categories (tryptamines, phenethylamines, and ergolines). All three of these categories of drug have been found to activate the serotonin system of the brain via a specific receptor (the 5-HT<sub>2A</sub> receptor). A complex array of interactive brain systems are known to be affected (directly or indirectly) by these drugs, although the relationship between the sites and mechanisms of action and the subjective (and, in some cases, religious) experiences elicited by the drugs is at this stage merely speculative. Hallucinogens affect the ventral tegmental area of the midbrain that projects dopamine-releasing axons to the cortical and subcortical structures<sup>63</sup>. The result of dopamine increase is to mark events as biologically significant and causing memory systems to be activated.

The relationship between the alteration of the brain serotonin systems by hallucinogenic drugs and the *subjective* qualities of either psychedelic or religious experiences is, at this point, somewhat speculative. However, based on what is known of the systems affected and the nature of the changes created by the drugs, it has been suggested that such drugs "perturb the key brain structures that inform us about our world, tell us when to pay attention, and interpret what is real. Psychedelics activate ancient brain systems that project to all of the forebrain structures that are involved in memory and feeling; they sensitize systems that tell us when something is novel and when to remember it."<sup>64</sup> *The common subjective experiences elicited by these drugs-related changes in brain systems include: altered perception of reality and self; intensification of mood; visual and auditory hallucinations, including vivid eidetic imagery and synesthesia; distorted sense of time and space; enhanced profundity and meaningfulness; and a ubiquitous sense of novelty.* Whether these experiences are interpreted as a psychedelic 'trip', or as spiritual and transcendent, is hypothesized to be due primarily to one's experience-based expectations, the setting in which the drugs are taken, and the cognitive/theological network out of which one provides a post-hoc interpretation of the experience.

### Temporal Lobe Epilepsy and Peak Religious Experiences

Fyodor Dostoyevsky<sup>65</sup> (who himself had a seizure disorder) gives a particularly graphic literary description of

subjective feelings during some seizures in his account of the experiences of Prince Miskin in *The Idiot*. The following is a passage from this book in which Dostoyevsky describes (in the thoughts of Miskin) the sort of religious experiences that are sometimes associated with temporal lobe seizures:

he fell to thinking that in his attacks of epilepsy there was a pause just before the fit itself ... when it seemed his brain was on fire, and in an extraordinary surge all his vital forces would be intensified. The sense of life, the consciousness of self were multiplied tenfold in these moments. ... His mind and heart were flooded with extraordinary light; all torment, all doubt, all anxieties were relieved at once, resolved in a kind of lofty calm, full of serene, harmonious joy and hope, full of understanding and the knowledge of the ultimate cause of things. ... If in that second—that is, in the last lucid moment before the fit—he had time to say to himself clearly and consciously: “Yes, one might give one’s whole life for this moment!” then that moment by itself would certainly be worth the whole of life.

A recent literary reference to this phenomenon can be found in Mark Salzman’s modern novel, *Lying Awake*<sup>66</sup>. Salzman writes about a nun with religious visions associated with temporal lobe seizures.

There is a significant literature in clinical neurology that suggests that in some cases, individuals with temporal lobe epileptic seizures experience intense religious states as a part of the aura leading up to a seizure. In these persons experiences of intense religious awe, ecstasy, or ominous presence appear to be a product of the abnormal electrical activity of the brain that constitutes their seizures. Although such cases are rare, they happen often enough to suggest something about the physical processes that may be associated with normal religious experiences.

Accounts of religious-like experiences associated with a temporal lobe seizure can be found in the modern neurological literature. Naito and Matsui<sup>67</sup> present the following self-description (similar to Dostoyevsky’s) from one of their patients of the experience of the aura preceding a seizure: “Triple halos appeared around the sun. Suddenly the sunlight became intense. I experienced a revelation of God and of all creation glittering under the sun. The sun became bigger and engulfed me. My mind, my whole being was pervaded by a feeling of delight.”

*Whatever the most appropriate statement of the meaning of this phenomenon, it is clear that certain patterns of electrical activity involving the temporal lobes (sometimes occurring during a seizure) can cause intense, personally significant experiences that some persons describe as religious.*

### Religious Experiences Elicited by Brain Stimulation

Abnormal activity of the temporal lobes can be induced artificially in non-epileptic individuals using a non-invasive procedure called Transcranial Magnetic Stimulation. Michael Persinger reports experiments where electromagnetic stimulation of the right temporal lobe resulted in the person reporting a “sense of presence.” This “sense of presence” is sometimes experienced by the person as the presence of God or angels or other supernatural persons. This has led Persinger to suggest that all persons who have religious experiences are having microseizures of the right temporal lobe. A similar explanation is given by Persinger<sup>68,69</sup> for other paranormal experiences, such as reports of encounters with aliens. While the extrapolation of this form of brain stimulation to an account of normally occurring forms of religious experience seems unwarranted, this research does suggest that magnetically induced physical changes in the temporal regions of the brain can result in experiences that, in some cases, are interpreted as religious in nature. These findings of Persinger’s should, however, be treated with caution since a recent report at an attempted replication of Persinger’s studies but using better controlled experiments including double-blind techniques failed to replicate Persinger’s results.

### Brain Activity During Religious States

Andrew Newberg<sup>70</sup> and his collaborators have studied brain activity during various religious states. In these studies they observed changes in regional cerebral blood flow using Single Proton Emission Computed Tomography (SPECT scans). They first studied religious meditation in both Buddhist monks and Catholic nuns. In both groups the results showed increased bilateral frontal lobe activation, and decreased right parietal lobe activity, when the meditator reported reaching a state of total absorption and “oneness”. Decreased activity of the right parietal lobe was interpreted as a neural correlate of the absence of a sense of self that is experienced in such meditative states.

Newberg et al. have recently extended this research to include another religious state that is very different from meditation - that is, the ecstatic religious state involving glossolalia (speaking in tongues). They compared this state to merely singing along with gospel music. Activity in the frontal lobes decreased significantly during glossolalia, consistent with the self-report of loss of intentional control of behaviour in this state. This change in the frontal lobes is opposite to that seen during meditation. Decreased activity was also observed in the left temporal pole and left caudate nucleus. In contrast to the reduced right parietal activity seen during meditative states, glossolalia was associated with increased activity in the left superior parietal area.

Thus, these studies suggest both that religious states are associated with identifiable changes in the distribution of brain activity, and that different religious states are associated with different patterns of brain activity - in some cases quite opposite changes in brain activity.

### Perspectives on Brain Function and Religious Experiences

Whether drug-induced, seizure-related, caused by magnetic stimulation, or simply brain changes associated with normal religious states, it is clear that the functioning of the brain is intimately involved in our religious states and experiences. The question is what is to be made of such relationships?

Ramachandran<sup>71</sup> has made the strongest claim in maintaining that there exists within the temporal lobe a "God module" in the form of a neural area dedicated to religious experiences. In essence, he believes that increased activity in this brain area would be necessary and sufficient for a person to have a religious experience. Thus, if this area becomes abnormally active during a seizure, the person will necessarily have a religious experience and not some other form of experience. This would be the case regardless of the person's prior life experiences, expectancies, habitual ways of interpreting their life experiences, the context in which the seizure occurs, etc. Thus, religious experiences are, in the view of Ramachandran, a unique and intrinsic class of experiences served by a unique brain structure.

A different interpretation of the same clinical data has been offered by Rubin and Saver<sup>72</sup>. They argue that certain temporal lobe seizures activate a brain system which marks mental processes with a quality of deep significance, harmoniousness, joy, etc. *Whether or not the experience is described in religious terms is a product of the prior experiences and interpretive networks of the person having the seizure.* This explains why some persons have temporal lobe seizures that have similar experiential qualities, but are not described or experienced by the person as religious. This interpretation is consistent with the theory of religious experiences offered by the early 20<sup>th</sup> Century American psychologist, William James. According to James, differences in the religious (or non-religious) interpretations given by persons to mundane or unusual experiences are related to culturally inherited "over-beliefs". Religious meaning is not intrinsic to the experience, but applied by the interpretive network of the experiencer. Thus, it is possible that a general-process neural system (not a "God module") is activated by certain forms of temporal lobe seizure activity, and that when this area is subject to abnormal activation, it is fitted into wider brain cognitive systems that provide one or another sort of interpretation.

In this light, the work of Persinger also does not lend itself to an interpretation involving brain systems specifically involved in religious experiences. It is clear in Persinger's work that the primary experience is the experience of a sense of the presence of another person. However, it is more likely that this is a general purpose system that signals our cognitive systems about the greater significance carried by the presence of another human being than by the presence of a chair or a dog. When this system is abnormally activated by magnetic stimulation, and when there is no sensory information suggesting the presence of an embodied human person, and when the person whose brain is being stimulated has a worldview that accommodates the idea of a spiritual presence, then the person experiences the brain activity as indicative of the presence of a spiritual being - God, an angel, a ghost, an alien, etc. *A particular form of over-belief is necessary for the experience to be given a religious interpretation.*

Newberg's original understanding of the results of his studies of meditators indicated to him that the brain is wired for religious experiences and, as expressed in the title of his book, that is why "God won't go away." However, his studies of glossolalia do not support the idea of a particular and unique brain module or system for religious experiences. Rather, the brain activity associated with different religious experiences are different. There is no single brain area where greater or lesser activity is necessary and sufficient for one to have an experience that is understood as religious. It is not necessary to interpret any of the changes in brain activity found in these imaging studies as unique to the religiousness of the experience, but as manifestations of the operation of more general systems commandeered as a part of the neural realization of a particular religious state, and interpreted as religious by the context of the experience and the personal history of the experiencer.

Van Huuysteen<sup>73</sup> has perceptively reminded us that, "...d'Aquila and Newberg's speculations on the kind of meta and megatheologies that might be derived from this is bad science as well as bad theology. Ultimately biology or neuroscience cannot explain religious experience completely. It is indeed only the human person experiencing something within a highly specific cultural context, and his or her interpretation or identification of this experience as religious, that qualifies an experience as a religious experience."

One major point emerging from all these studies is the pervasive evidence underlining the tightness of the links between what we are experiencing and the activity of our brains. Nothing radically new in this, but when it is so all pervasive it underscores the need to consider closely how we can best describe this intimate interrelationship of mind and brain. Hence the ongoing lively debate noted earlier amongst Christians of the relative merits of non-reductive physicalism, dual-aspect monism and so on.

## *Embodied Spirituality*

The research we have surveyed suggests that brain function, brain damage, brain stimulation, or even genetics can in various ways affect, or give some account for, our moral, religious, and interpersonal experiences and behaviours.

Such a view sits uneasily with the beliefs of many people that such experiences are manifestations of nonmaterial human minds, souls, or spirits. Even though we might rationally agree that our brains and bodies are involved in these experiences, we implicitly feel that such experiences are not physical, and, thus, should not be affected by, or be the products of, our bodies or our brains.

All of this has implications for theology as the theologian Wolfgang Pannenberg<sup>74</sup> has noted, asking, "When the life of the soul is conditioned in every detail by bodily organs and processes, how can it be detached from the body and survive it?" Pannenberg believes that the consequences of neurological damage and disease, as well as the growing number of laboratory studies of human brain functions associated with the most human aspects of our behaviour (including our moral, religious, and interpersonal experiences and behaviour) together suggest abandoning dualism, reinforcing further a conclusion we reached after reviewing the implications of mind-brain research earlier. How then can personhood and moral agency and the truth of religious experiences and theological reflection be preserved in the face of the scientific research we have just reviewed?

The answer, I believe is by returning to a Hebrew-Christian view of the person advocated increasingly over the past century by biblical scholars. They have urged us to remember that within Scripture the question posed is never simply, what is a human being? "There is always more to the question", writes Old Testament scholar Patrick Miller<sup>75</sup>, "so that the answer offered in each instance is indirect in that it is in response to the more specific formulation of the question rather than to a generalised and abstracted request for a definition of human existence, of human being". Miller illustrates this from the Psalms. In each instance where it occurs, "the question is "What is a human being *that you ...?*" "What is a human being *that you regard / care for / think of / test / visit?*" the question is never asked in the abstract, never posed as a theoretical question. It is always asked in dialogue with God, and its formulation is a basic clue to the fact that the Psalms are not going to answer the anthropological question about who and what we are as human beings *except in relation to God.*"

In this same spirit we note that according to Hooykaas<sup>76</sup> (p.124), "...it is clear that faith was more for Boyle than a mere intellectual matter; it was a personal relationship with God." For Boyle, "to convince them is not to convert them", what is required is, "a conversion of the inward man and this is the work of divine grace". (p.124).

When Patrick Miller's fellow Old Testament scholar Bill Arnold<sup>77</sup> posed the same question as posed by Miller, but now specifically with reference to the early chapters of *Genesis*. He had no doubts but that:

Human personhood can only finally emerge as God intended through creation in the framework of relationship, not out of some inner possession or part of human nature;

*Genesis*2 joins *Genesis* 1 in defining human existence principally in terms of standing under the divine word. Humans receive commands that are clearly statements of vocation;

whatever else humanity shares with the animal world, humanity alone can look into the face of the Creator and say "No thanks"; and

if the Bible does not in fact demand, nor even support, a classically dualist reading of human nature as "matter" and "spirit" perhaps this is a mercy. We would not be scandalised by discovering that depressed people can grow spiritually when they taking medication."

These views resonate with recent thinking about embodied spirituality. Sarah Coakley<sup>78</sup> has helpfully reminds us that since 'spirituality' has become so much of a 'buzz' word in the hand-waving category it is doubly important that anyone using it must be clear about their meaning. She points out that for some 'spirituality' is a sort of controlled religious 'high' frequently devoid of almost all the precise content which it would entail if one were talking about the 'spirituality' of institutionalised Christian churchgoers holding clear doctrinal beliefs.

Coakley has questioned a widely held assumption that a belief "has negligible intellectual let alone neurological significance". We have already made the point that religion may well be a contextual variable that controls the interpretation of the neural events, not a primary outcome of the neural state itself. In discussing research on the neurology of religion, we have asked, would the same neural events be considered religious by a participant if that person had no religious background whatsoever, or was not currently in a context that semantically primed religious interpretations?

Spirituality involves experience, belief, and action, the study of which, as we saw at the beginning, is the bread and butter and staple diet of psychologists. Experience in terms of our awareness of the transcendent, beliefs in terms of what we believe about God, about ourselves and about the world in which we live, and action in terms of how we live our lives. The evidence we have reviewed repeatedly highlighted the intimate interdependence between brain processes, cognitive processes and behaviour, and this is relevant to understanding how those



aspects of spirituality which mobilise and depend upon cognitive processes are not free floating but firmly *embodied*. Such embodied beliefs and expectations, we suggest, are major factors in understanding some of the spiritual dimensions of life. At the same time we recognise that cognitive processes such as beliefs and expectations, are frequently held within social contexts, and that reminds us that spirituality is also firmly *embedded*.

The spiritual dimensions of our lives are *both* firmly *embodied* so that they do not remain immune to the effects of changes in the brain and also *embedded* so that they may sculpture our brains and be efficacious in bringing about some of the observed subjective benefits of religious beliefs and practices. Such a view finds strong support from recent studies demonstrating the efficacy of 'top-down' effects on the brain and the immune system.

Thus whilst there is little doubt that spirituality is firmly embodied in our biological make up, any wider discussion under headings such as 'the neurology of religion' must be seen as no more than a convenient label for what is in reality a neurology of the cognitive contributions to specific behaviours and experiences regarded by the individual as religious, and these latter result from personal beliefs and behaviours in social contexts.

Except in very rare instances such as the lonely hermit, the spiritual dimensions to life and experience are lived out in community. In a word, as with all other aspects of our daily existence, our spirituality develops, is maintained and manifests itself in community. It is fully embedded in our physical, cultural and social environments. Embeddedness becomes important when, for example, discussing the spiritual dimensions of healing for which there is a substantial body of social psychological research, extending over many decades, linking personal and group beliefs with well-being.

### Neurotheology a 21st century Phrenology?: Past Lessons to Guide Current Thinking

Exaggerated claims and overinterpretation of some of the findings from neurotheology call for the kind of sober assessments given by writers such as Jeremy Gropman and Mario Beauregard. Jeremy Gropman<sup>79</sup> a distinguished Jewish physician wrote, "Why do we have this strange attempt, clothed in the rubric of 'neurotheology', to objectify faith with the bells and whistles of technology?", later adding, "Man is a proper subject for study in the world of science ..God is not." Similar views were echoed by Mario Beauregard who works in the departments of radiology and psychology at the Universite de Montreal whose was reported by Christopher Stawski<sup>80</sup>, as saying, "Obviously, the external reality of God can be neither confirmed nor disconfirmed by delineating neural correlates of religious/spiritual/mystical experiences. In other words, the neuroscientific study of what happens to the brain during these experiences does not tell us anything new about God."

Any belief that our spirituality is securely protected within an immaterial part of us labelled the soul is most obviously challenged by the common experience of carers of loved ones who have developed Alzheimer's disease. Some of these deeply religious people have suffered agonising distress as they have subjectively witnessed the fragmentation of some of the most precious aspects of their religious life and experience. Such distress has been equally agonising to their loved ones and carers.

Today some religious people have been so dazzled by the amazing findings made possible through modern techniques of brain imaging, as well as the rapidly advancing field of neuropsychology, that they have failed to pause and ask how their forebears, those who shared their Christian beliefs, reacted when two centuries ago the then cutting edge neurology was making claims seen by some as potentially challenging to their faith. Two centuries ago it was phrenology that was making the running. The majority of its adherents were medically qualified practitioners not, as is often widely, assumed uneducated cranks.

As we view what happened then there are lessons to be learned as we formulate our reactions to the wider impact of cutting edge neuroscience today.

The first and most obvious is the need to recognise the importance of producing empirical evidence to support any claims that are made about the brain and how it functions. Phrenologist Joseph Gall saw the power and the potential of the approach of the naturalist. However, he did not also see the equal need to undertake experiments to investigate tentative conclusions provided by the naturalistic approach. Gall's failure to do this adequately was the Achilles heel of his own research. As Robert Young<sup>81</sup> commented, "Gall drew data from each method *in so far as it was found to support his initial hypothesis. In short he sought only confirmations.* It was not his naturalism that was at fault; it was his anecdotal method and the standards of evidence".

Secondly we note, and greatly to Gall's credit, the need to be aware of the ever present danger of slipping into an unthinking reductionism. There was no doubt in Gall's mind that we must first understand the mental functions we are studying before we can begin to link them in a meaningful way to what is happening in the brain.

Thirdly we note that at times Gall and some of his supporters who were critical of the efforts of the experimentalists such as Flourens, and aware like them, of the limitations of experimental methods being used, *unwisely proclaimed that it would never be possible, experimentally, to investigate the links between brain*

processes and cognitive ones. The challenge always remains as a stalling tactic to say 'you may have shown so-and-so but you will never be able to show so-and-so'.

Fourthly we notice the temptation to revert to a method used in the past to seek to bolster ideas in one domain by association with authoritative figures in another. In the case of phrenology it was the practice of invoking the names of leading literary figures to support new scientific ideas. That is not likely to happen today but nevertheless it is at times a temptation to want to appeal to science to bolster religious beliefs. In the domain of brain science the most obvious contemporary example is neurotheology where the discovery of the so-called 'God module' has been used by some to add support to their religious beliefs.

Fifthly, and now within the more circumscribed domain of Christian beliefs, we find that Joseph Gall had certainly thought about how his science related to wider beliefs. For example, he wrote, "The investigator of nature can only fathom the laws of the world of the body and takes for granted that no natural truth could be inconsistent with any revealed one. Beyond this, he knows that... he has nothing to decide about mental life. He only sees and teaches that in this life mind is bound to body organisation." He was obviously careful not to overstate the case, a lesson worth remembering.

Sixthly as Robert Rieber<sup>82</sup> has shown from his analysis of Gall's writings, there were hidden within it implications in direct opposition to some of the long held dogmas of the Church. Rieber believed that some of these included the fact that Gall's unified theory of mind and body was a threat to the notion of free will. A topic that philosophers still grapple with.

Seventh, it was clear from the reactions by different leading Christians of the time that a variety of views could be held about the impact of developments in brain science on Christian beliefs and practices. George Combe<sup>83</sup> saw *phrenology as a further critique* of Christianity within the Enlightenment tradition. He also found here support for his Deist beliefs. Orson Fowler<sup>84</sup> saw phrenology as a means of *giving practical guidance in pastoral matters* such as marriage, education, and child rearing. Charles Cowan<sup>85</sup> believed that Scripture *must accommodate* itself to the truths of nature. William Scott<sup>86</sup>, much like Joseph Gall, believed that there was a *harmony* of phrenology with Scripture.

Finally we note that phrenology is not so old-fashioned as it seems. It is difficult for the enthusiastic non-scientist reader, regaled almost daily with dramatic pictures from brain imaging which claim to show separate parts of the brain selectively active for almost every conceivable human activity, not to reach the conclusion that a 21st-century phrenology is the best way of thinking about how the mind and personality relate to the brain.

## Social Neuroscience

Within the space of 12 months several major volumes of collected papers on what has come to be known as social neuroscience have appeared. *The Neuroscience of Social Interaction*<sup>87</sup> edited by Chris Frith and Daniel Wolpert, a reprint of a meeting held at the Royal Society in London, *The Cognitive Neuroscience of Social Behaviour*<sup>88</sup> edited by Alexander Easton and Nathan Emery, and *Social Neuroscience*<sup>89</sup> edited by John Cacioppo and Gary Berntson, are typical examples. A common theme runs through them well captured in Simon Baron-Cohen's<sup>90</sup> chapter in *The Cognitive Neuroscience of Social Behaviour*. In the early and formative years of cognitive neuroscience it followed a parsimonious approach of assuming that the brain is a general information processor. It made sense therefore to seek to identify for example the general operating principles of memory systems within the brain. The second possible explanation suggested by Baron-Cohen is that cognitive neuroscientists were natural scientists and thus sought to isolate variables in a system under as controlled conditions as possible. Such an approach reaped great benefits.

There was a similar story in psychology. There was a nonsocial cognitive psychology exemplified by the work of the Swiss psychologist Piaget. In due course however cognitive psychology added the field of social cognition rather as cognitive neuroscientists had embraced the cognitive neuroscience of social behaviour within their remit.

As long as cognitive neuroscience occupied itself with the mind- brain unity as a general-purpose information processor concentrating on, for example, basic perceptual processes and on memory mechanisms, there were no obvious points of contact or overlap with the concerns of religion. However, things have begun to change. The massive amount of cognitive neuroscience work on face perception, for example, only relatively recently began to study the neural substrates of the ways in which social interaction partly depends on how we appraise others on the basis of their facial appearance. Once research of this kind was embarked upon words began to appear in the social neuroscience literature which hitherto were more familiar in the literature of personal religious beliefs. For example, just as the Psalms have much to say about "seeking the face of the Lord", they equally have much to say about trust. "Put your trust in the Lord" exhorts Psalm 4 verse 5. In Proverbs 3 verse 5 there is the call to "Trust in the Lord with all your heart". Trustworthiness is attributed to God and his precepts. Psalm 111 verse 7 tells us that "all his precepts are trustworthy", Psalm 93 verse 5 reminds us that "Your decrees are trustworthy". But now we find similar terms appearing in the titles of scientific papers. For example, one of those in the book on *Social Neuroscience* referred to above, has the heading 'Automatic and

## Intentional Brain Processes during Evaluation of Trustworthiness of Faces<sup>91</sup>.

In this paper the authors describe how they determined the neural basis for trustworthiness judgments using event-related functional magnetic resonance imaging. But trust and trustworthiness are familiar and important words in the religious domain where, for example, a key aspect of the sense in which humans are made in the image of God is, according to theologians, the human capacity for a personal relationship with God, but personal relationships depend upon trust and trustworthiness. In a word, this further underlines how some of our most basic religious activities are firmly embodied in our physical makeup.

Once again, as we find familiar terms used in the two different domains of science and theology, we face the challenge to maintain semantic hygiene otherwise we have a recipe for confusion. This is another case, like the one mentioned earlier where it was necessary to make a distinction between altruism, as studied intensively by evolutionary psychologists, and the agape love central to the Christian life. For a further discussion of this distinction see my chapter, 'The Nature of Persons and the Emergence of Kenotic Behaviour' in *The Work of Love* edited by John Polkinghorne<sup>92</sup>.

In the volume edited by Cacioppo and Berntson<sup>93</sup> there is a final section which includes a set of readings demonstrating that biological does not mean fixed or predetermined regardless of environmental influences and demonstrates that socio-cultural and biological processes have reciprocal influences. As the editors write, "In some ways this is so blatantly obvious as to be trivial. The culture in which we live influences what will be deemed to be valuable and beautiful, and these learned evaluations in turn modulate activity, for instance, in the reward circuitry in the brain." (p.239).

All of this is very relevant to any discussion of the neurology of religion since the practice of religion is both a private and a social activity. Let us explore this further.

### Religion Embodied and Embedded

Can the fruits of psychologising and neurologising about religion offer any hints to help us to a deeper understanding of religion itself? Let me offer some suggestions.

It is simplistic to believe that religion can be reduced to a primary form of cognitive activity such as language or speech and then linked with identifiable neural systems and structures. Within the Christian tradition it is "together with all the Lord's people" that we are able "to grasp how wide and long and high and deep is the love of Christ"(Ephesians 3:18). I should like to recapture this emphasis by borrowing from and adapting a metaphor suggested by Warren Brown<sup>94</sup>, that "religion" is more like "football" (for Warren Brown it was baseball)—a cultural and sociological concept that summarizes a wide variety of group and individual activities, events, and experiences.

As we know from the media, the concept of 'football' includes a variety of behaviors and experiences. It encompasses group participation as either spectators or players. For participants there is a form of group activity involving particular sets of motor skills. For the spectator and fan, it is a topic of continual interest, conversation, and occasional attendance at games. It is evident from watching the crowds that football can involve moments of intense emotional experience (for some, for example, when a decisive goal is scored, it seems, not unlike a moment of religious ecstasy), and certain ritual-like participations (e.g., pre-game warm-up for players, singing songs well known to the supporters, "You'll never walk alone" and such like.). Clearly football involves many complex layers of interpersonal and social organization. We should consider the possibility that religion is not itself a basic cognitive process like language or speech, but rather is a more broadly inclusive social phenomenon like football.

If then football is a better model for religion than a basic form of human cognitive activity like language or speech, what would be the implications for neurological study? First, we would not expect to find a specific 'neurology of football' - that is, no unique neurological systems that would contribute specifically to football and not to other forms of life. Football is neither sufficiently unitary as an experience or event, nor sufficiently temporally bound for study at the level of neurology. Second, we would not expect a neuropathology specific to football, although many forms of neurological disorder might have an impact on different forms of participation in, or appreciation of, football. Thirdly, it would be somewhat far-fetched to imagine an evolution of the specific capacity for football, or to argue for the survival advantages of football to individuals or social groups, or to argue that the specific capacity for football is 'hard wired'. Rather, football is a complex social emergent of many more basic sociocultural systems involving a wide variety of activities and experiences that, in turn, piggy-back cognitively, neurologically, and evolutionarily on a large number of more general cognitive capacities and skills.

This leads to the further question as to whether religion is essentially individual or corporate - within individual persons or between persons (or persons and social contexts). As C. S. Lewis<sup>95</sup> notes when reflecting on the ancient Hebrews, "The individual, as such, seems to have been less aware of himself, much less separated from others, in those ancient times," so that "it is not always easy to know whether the speaker in a Psalm is the

individual poet or Israel itself” Anyone taking the doctrine of the church seriously knows how important is belief in the importance of fellowship in the body of believers .

If religion is primarily corporate - that is, if it exists in the interpersonal, social, and cultural domains, a point emphasized recently by my fellow psychologist David Booth<sup>96</sup> - then any study at the level of neurology cannot be about religion, but must be about the neurology of more general cognitive and psychosocial functions that are engaged by a very particular form of interpersonal and social interactions in particular contexts. There would, therefore, not exist a unique neurology of religion, *per se*, nor would there be a distinctive neurology of particular forms of religious behavior or experience, but rather a neurology of contributory neuropsychological systems which interact within the individual to allow for the emergence of religious behaviors and experiences within social contexts.

Hitherto neuroscience has focused heavily on the nature of extraordinary religious experiences. However, the evidence suggests that even extraordinary religious experiences do not appear to involve any unique brain areas or any uniquely identifiable pattern of nervous system activity. Extraordinary religious experiences involve a combination of religious mental content and high levels of activity in systems involved with the recognition or attribution of significance and the consequent triggering of affective subjective experiences. There probably does not exist within the nervous system a "religion nucleus" or a "God module" that switches on during unusually intense religious experiences. Thus, the neuroscience data on extraordinary religious experiences does not appear to constitute a unique neuroscience - the phenomena demonstrated are largely overlapping with neural phenomena occurring in other non-religious forms of experience that elicit certain forms of subjective experience, and are perceived as particularly significant to the self.

### Facts, Fallacies and the Future

In what I have already written I have tried, for the nonspecialist, to give a feel for the relevant facts entailed in psychologising and neurologising about religion. In so doing I have also, from time to time, pointed out some of the fallacies that creep in in the interpretation of the facts. In closing may I briefly underline some of the salient points that I have tried to make and briefly glimpse the future.

#### *Facts*

Psychologising and neurologising about religion has moved from being parasitic to a field in its own right. It will however most likely continue to reflect major developments within the fields of psychology and neuroscience. Already there are those who are speculating about the next shift in emphasis in the focus of psychology. For example, at a national psychology conference in Scotland at the end of 2007 one speaker entitled his lecture 'Psychology: From its behavioural and cognitive past to its emotional future'. (*Bulletin of the Scottish Branch of the British Psychological Society* no.32, p.1., Autumn 2007<sup>97</sup>). Not really news to this evening's respondent to my lecture, Fraser Watts<sup>98</sup>, who fourteen years ago wrote a book with the title *Neuropsychological Perspectives on Emotion!*

Psychology can continue to help us to check and to validate some of our deepest intuitions. It should inculcate within us a greater compassion for those whose embodiment is compromised through disease and aging. It will serve as a constant reminder against jumping to simplistic conclusions about profound issues about our mysterious nature such as the dualism-monism debates. Already we have reports of fascinating laboratory studies of the genesis of 'out-of-the-body' experiences. Hopefully in due course the radical breakthrough will occur which will help us to a deeper understanding of such issues.

There are many beneficial outcomes of psychologising and neurologising about religion in addition to the way it prompts us to greater compassion, such as the need to recognise that our spirituality is both embodied and embedded. It will afford us new insights into the nature of religious knowing as has already been demonstrated by Fraser Watts and Mark Williams<sup>99</sup>. It may help us to fresh insights into understanding the words of Christ himself as Fraser Watts<sup>100</sup> has recently suggested.

It may also, as one of today's leading international New Testament scholars has shown, be able to shed new light on enduring issues about the interpretation of the ancient texts, about the extent to which they are, as was claimed last century, inevitably encrusted with traditions and the extent to which they are still properly to be regarded as eyewitness accounts. Richard Bauckham<sup>101</sup> in his most recent book *Jesus and the Eyewitnesses*, described as a blockbuster by his peers, has a most insightful chapter in which he draws upon the very latest evidence from psychological studies of memory to give profound new insights into the way in which the evidence points to the text as giving eyewitness testimony to the person of Jesus.

Such an approach would surely have been warmly endorsed by Robert Boyle who wrote that, "We know a revelation through testimony, not through ratiocination" (in section headed "The Nature of Boyle's Faith" in Hooykaas<sup>102</sup>, *ibid.*, p.122).

## *Fallacies*

Whenever we are offered a new psychological or neurological account of some facet of religious experience, cognition or behaviour we shall do well to remember the ever present temptation to slip into 'Nothing buttery', a term used by Donald Mackay in his debate with B.F. Skinner<sup>103</sup> who from his underlying reductionist presuppositions, said that when listening to someone talking about God, he 'ran a translation inside'. The translation was from 'God talk' to what he regarded as the original version, namely statements in terms of schedules of reinforcement. At the time Mackay pointed out to Skinner that what he was saying was tantamount to asserting that a 'No Smoking' sign is nothing but ink on cardboard and therefore it is perfectly alright to go on smoking. It is like saying that what is going on in a computer when it is solving a mathematical equation is nothing but electronics.

As we saw earlier the same fallacy was evident in Freud's 'explaining away' of religious beliefs and exposing the practices of religions as 'nothing but' the persistence of an interim social neurosis that we must eventually grow out of. Is God then 'nothing but' the fantasy father figure-another of Freud's claims? For some people he may be; in which case that will tell us something interesting about the person who holds that belief. But it will certainly not tell us anything about the existence of God. If we want an answer to that question we shall not find it by studying the psychological differences between people in the way in which they hold their religious beliefs.

One would have hoped that the fallacy of nothing buttery had by now been exposed by the oft repeated statements of writers like Gordon Allport<sup>104</sup> that, "The plain truth is that origins can tell nothing about the validity of a belief", and Bartlett's<sup>105</sup> comment that "So far as any final decision upon the validity or value of such a claim (about the truths of religion) goes, the psychologist is in exactly the same position as that of any other human being who cares to consider the matter seriously. Being a psychologist gives him neither superior nor inferior authority".

We shall find the answer to questions about the existence of God by considering the relevant evidence with a critical and open mind, with a readiness to be confronted with the truth when it, or as we would prefer to say He, is presented to us. Our task, as one high profile Christian<sup>106</sup> reminds us, is to continue our "personal search for the face of the Lord", so as to "help foster the growth of a living relationship with him". (*Jesus of Nazareth* by Joseph Ratzinger, Bloomsbury, pp.xxiii, xxiv, 2007). In this he is echoing the voice of the devout Hebrew in Psalm 27 where he exclaims, "You have said 'Seek my face', and he responds 'Your face Lord I will seek'". A view further underlined by the Old Testament scholar Patrick Miller<sup>107</sup>, who, after reviewing the evidence from the Psalms concerning what it means to be a human being and comparing this with the book of Hebrews wrote, "The writer to the Hebrews hears in the Psalms the word that whatever we say about the human reality must take into account the face of Jesus Christ.... [But] the Hebrews writer says the critical words 'But we do see Jesus'. We do see Jesus, who for a little while was made lower than the angels, crowned with glory and honour because of the suffering of his death, so that by the grace of God he might taste death for everyone (Hebrews 2:9).....

Whatever therefore is to be said about the human cannot be confined to general statements about humanity apart from God. It cannot be said apart from the discovery that in Jesus Christ we see who we are and we also see God for us. And what he said about the human cannot be said as a general statement that assumes that what we see now is all there is to see. The answer to the question about who we are is finally eschatological, where tears are no longer part of the human reality, where joy is the order of eternity, and where our transience disappears in the disappearance of death. *We cannot see that yet. But we do see Jesus. That will have to do. I think it is enough*". And speaking personally, for me it certainly is.

## The Future

What about the future? Two months ago it was reported that the UK's largest medical research charity was going to "plough £1 million into the search for the nerve mechanisms that explain beauty-and with it love, truth and happiness." The leader of the project is to be Professor Semir Zeki already with a distinguished reputation as a neuroscientist with experience "in using functional MRI brain scanning to study the 'neural correlates of subjective mental states' - in layman's terms what happens in the brain when we experience strong feelings".

The author of the *Times*<sup>108</sup> report had interviewed Zeki and raised the question, "What if this is all, to use the words of Keats, unweaving a rainbow - a momentous endeavour that in the end removes the mystery and awe from the things that make life worth living?"

Zeki responded that..." he had pondered this possibility at length". He went on, " I don't see it like that, my sense of awe of Michelangelo's *pieta* isn't diminished by knowing that there is a part of my brain that responds to the human body and another part that responds to the face. There is still a feeling of wonder. What we gain is the knowledge of the characteristics of the human brain that give us our common humanity."

Zeki is here underlining yet again a point I have tried to make several times earlier that at times more than one level of explanation is necessary to do full justice to a phenomenon. Sadly, reflecting on some of the interactions between science and religion over the past century, it is difficult to avoid the conclusion that all too often we have witnessed theologians seeming to spend much of their time playing 'catch up' with science. It is as if they were standing on the seashore rushing around filling sandbags in an attempt to stem perceived new threats from science carried in on the incoming tide. Rather, what we need to do is to see science as flowing over the shore on which we stand and washing away some of the litter of ignorance and false ideas left by the past and giving us fresh and clearer insights into the wonder and majesty of creation including ourselves. In so doing we shall be following in what MacIntosh and Anstey<sup>109</sup> remind us was Boyle's aim. They write, "He viewed his theological interests and his work in natural philosophy as forming a seamless whole and constantly used results from the one area to enlighten matters in the other".

However successful we are in identifying the psychological and neurological roots of various aspects of religion we must resist the temptation thereby to claim that we have now shown that religion is *nothing but* this or that facet of our neuropsychological make-up. Equally when we get a deeper understanding of what is happening in the brain when we are behaving religiously or pondering deep religious truths we must resist the temptation to claim that therefore the truths being pondered are *nothing but* the eruptions of our brains. Perhaps this message will come home most clearly in the future when brain imaging techniques have become so miniaturised and so mobile that you will all be able to sit in a lecture such as this and be told afterwards which parts of your brains were most active (and when you went to sleep!). You will also have available at the end a readout of what was happening in the brain of the lecturer. What I think no one will believe is that their judgment of the truth or falsehood of what was said can be read off from any of this information about your own or the lecturer's brain activity. That must be judged against the relevant evidence.

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(c) Professor Malcolm Jeeves, Gresham College, 23 February, 2008

## **Psychology, Religion and Theology: A Response to Professor Malcolm Jeeves**

Fraser Watts

Malcolm Jeeves has presented a very interesting survey of the relationship between psychology and religion, a relationship that is sometimes conflictual, sometimes convergent. He has offered us a sample of the rich harvest of empirical findings about religion that psychology has been garnering, and directed our attention to some of the key issues on the interface of the two disciplines. There is nothing in his presentation with which I disagree, and I think the most useful way in which I can complement what he has done is to stand back from the details, and try to offer a fuller conceptual framework to understand the interface of psychology and religion.

First of all, let me emphasize the familiar distinction between theology and the study of religion. Theology is the rational reflection of religious traditions such as Christianity, and a core task of theology is reflection on the 'doctrines' of Christianity in relation to contemporary culture. That task of theological reflection took on a new character at the beginning of the nineteenth century as 'modern theology' began the task of responding to the increasingly secular thought of the Enlightenment. The study of religion developed in the latter part of the nineteenth century, and saw religion as a phenomenon to be studied in as detached, neutral and scientific a way as possible.

John Milbank (1990) in his powerful book on *Theology and Social Theory* argued that the detached scientific approach of the social sciences is anti-theological, and incompatible with a theological perspective. I am not persuaded by that claim. It seems to me that the human sciences, both psychology and the social sciences, are predominantly *a*-theological rather than *anti*-theological, and simply bracket out the perspective of theology as they go about their daily business. I see no problem in bringing that detached perspective into dialogue with theology. I suspect that Milbank's position stems from the implicit view that theology ought to be given a dominant role and that, if denied such a status, it is effectively being denied any role at all. I do not share that rather grand view of theology, which sits very uneasily with the kenotic strand in Christian thinking.

The distinction between theology and religious studies enables us to distinguish the dialogue between theology and psychology from that of the psychological study of religion. It is clear that psychology is one of the disciplines studying religion scientifically. However, there is also a dialogue between theology and psychology (Watts 2002), which has a place within the broader dialogue between theology and the sciences. Different sciences have such different interfaces with theology that I feel increasingly strongly that we should call this field 'theology and the sciences', rather than just 'theology and science'. It is thoroughly misleading to call it 'religion and science', as that confuses the distinction I have just made between theology and religious studies.

In a recent editorial in *Zygon* (Watts 2007), I argued that the dialogue between theology and the human sciences (such as psychology) has a particularly important place in the general dialogue between theology and the sciences, giving several reasons for such a position. First, the methodology of the human sciences is closer to that of theology, which leads to a richer and more fruitful interface between the two disciplines. Psychology is a methodological hybrid, partly a natural science, partly an interpretative or hermeneutic discipline. It can therefore provide a methodological bridge between the detached methodology of the natural sciences and the interpretative methodology of theology. Second, the human sciences connect with a broad range of topics in Christian doctrine, such as soteriology and ecclesiology, whereas the dialogue between theology and the natural sciences seldom strays beyond creation and providence. Thirdly, because psychology includes the study of religion, there is a particularly interesting dialogue between psychology and theology about religion itself.

In terms of these distinctions, Malcolm Jeeves' lecture is mainly concerned with the dialogue between theology and psychology. Partly, it is concerned with their different views about human nature in general, including issues such as mind-brain relations and the nature of morality. It is also concerned with the dialogue between theology

and psychology about religion itself, and here it draws on recent empirical work in the psychology of religion. I will now comment separately on each of these, starting with the general dialogue between theology and psychology about human nature.

### Perspectives on Human Nature

Each science seems to interface with Christian doctrine rather selectively. For example, cosmology intersects chiefly with creation and eschatology. Psychology has its main interface with the theology of human nature, 'theological anthropology' as it is called. It is not, I suggest, that psychology intersects exclusively with theological anthropology. As I have said, I believe that psychology intersects with most areas of doctrine. However, I suggest that theological anthropology is the area of doctrine through which much of psychology's dialogue with the rest of doctrine is mediated.

One important issue about human nature concerns the human constitution - the relationship between body and soul. There are important antecedents in the Hebraic thought of the Old Testament for seeing the human being as an 'ensouled body'. Though some later Christians thought takes a more dualistic view of human nature that is not the view of the Old Testament. The New Testament view is more debatable, though Green (1998) has put forward to a convincing case that it also is not dualistic.

The important question for those concerned with the dialogue between neuroscience and theology is how far this Biblical view can be reconciled with that of contemporary neuroscience. It is important here to make a distinction between the scientific data itself and the prevailing assumptions about how it should be interpreted, that is the 'metaphysics' about human nature with which the data are intertwined. It seems to me hard to doubt that the prevailing assumptions of neuroscience are reductionist; it is assumed that the higher aspects of human nature, whether soul, mind or spirit, are to be explained in terms of the physical. However, it is much less clear that the data necessitates such an interpretive framework.

It is worth emphasizing here that assumptions about the primacy of the physical are not universally shared in contemporary secular culture. Social constructionism, in its own way, can be as reductionist as much contemporary neuroscience. The assumption here is the all propositions arise within a particular linguistic and cultural context, from which they cannot be divorced. In its most extreme form (which I find implausible) it is suggested that they cannot, therefore, convey information about how things really are. However, even if we don't take that extreme step, it is helpful to be reminded of the cultural context in which science proceeds. Leaving aside any considerations arising from the dialogue with theology, it is wise for secular thought to eschew extreme forms of both physical reductionism and social construction, and to seek a balanced and integrative view of the physical, personal and social aspects of human nature. Because psychology is both a biological and asocial science, it is well placed to grapple with the task of integrating these perspectives.

As Jeeves points out, various non-reductionist solutions to the mind-body problem are being touted, the most prominent in the theology-and-science community being the non reductive physicalism of Nancey Murphy, and the emergentism of Philip Clayton. However, I have much sympathy with the alternative approach that Malcolm Jeeves himself takes on these matters, in terms of dual-aspect monism, an approach in which he was influenced by the late Donald Mackay. Jeeves proposes an 'irreducible intrinsic independence' between the mental and physical by which he means that neither can be reduced to the other. He suggests that there is an important duality to be recognized between them, but not one of substance dualism. Jeeves, a distinguished neuroscientist, clearly sees nothing in neuroscientific data that is incompatible with dual-aspect monism. The conclusion I draw from this is that the neuroscience data are compatible with a variety of metaphysical assumptions about human nature, and do not necessitate the physical reductionism that prevails among neuroscientists. The mutual interdependence between the mental and physical that Jeeves proposes reminds me, in some ways, of the two-way reductionism proposed by Michael Arbib and Mary Hesse (1986) in their Gifford lectures.

The trouble with emergentism, from a theological point of view, as Philip Clayton points out with admirable honesty in the final chapter of his book on mind and emergence (2004) is that, while it may be possible to harmonise an emergentist view of the human mind with theological anthropology, it is not possible to take an emergentist view of the mind of God within any remotely orthodox Christian theology. It is a limited gain to find an approach to mind-body questions that can be reconciled with the theological and anthropological, if it has to be abandoned when we come to the doctrine of God. I have a growing suspicion that Malcolm Jeeves' dual-aspect monism can be reconciled with systematic theology in a more satisfactory and comprehensive way than either non-reductive physicalism or emergentism. However, I have not yet done the careful work to be able to argue that through in detail. So, for the time being, it remains a gleam in the eye, and a promissory note for the future.

I also want to support what Jeeves says about the distinctive aspects of human altruism, and to set that in the general context of issues about human distinctiveness. It is very difficult to take a balanced view of what is distinctive about human nature. Those with theological motivations are inclined to take a strong view of human distinctiveness. On the other hand, atheists tend to minimize human distinctiveness and to emphasize continuity between humans and other animals. However, if you scratch below the surface there are more complex debates going on among secular thinkers than those initial generalizations would suggest. Herbert Spencer, in the 19<sup>th</sup>

century, saw human ethics as a product of evolution, but the agnostic Thomas Huxley argued against that position. There are comparable debates in 20<sup>th</sup> century sociobiology about evolution and culture, with E O Wilson wanting to see all human cultural phenomena as determined by evolution, whereas Richard Dawkins, in *The Selfish Gene*, quietly abandons Wilson's position, clearly sensing that it is a lost cause, and invents the idea of memes to fill the gap.

I wish that we could escape the pull of religious or atheistic motivation on questions of human distinctiveness, and I suggest two propositions on which I hope it may be possible to secure general agreement, regardless of religious viewpoint. One is that all the higher aspects of human beings, their 'soul' qualities, have antecedents in 'higher' animals. The second is that these many of qualities are developed to a much greater degree in humans than other animals, so that they become qualitatively different. I have no doubt that Jeeves is right to emphasize both the evolutionary antecedents of human altruism, but also that human altruism is qualitatively different from that found in animals. As Jeeves emphasizes, and to pick up an earlier theme, understanding morality is something that requires a balanced and integrative view of the bodily, personal and social aspects of human nature. Social neuroscience is an important step in this direction.

### Perspectives on Religion

Now, in the final section of this paper, I turn to the dialogue between theology and psychology about religion itself. Religion is a term that has gone through huge shifts of meaning. For Aquinas, for example, 'religio' meant something like a rule of life. Now, with the advent of secularism, religion has taken on a new meaning, and has been contrasted with the secular. Another problem with the concept of religion is that the faith traditions of the world tend to be lumped together as 'religions', whereas in fact they differ a good deal from one another. However, the 'psychology of religion' is, for the most part, not a psychological study of religion across the world, but has largely focused on Christianity in America and northern Europe. It has also tended to study Protestantism more than Catholicism.

It is worth noting that theology is rather ambivalent about 'religion'. Jesus, as presented in the synoptic Gospels, is iconoclastic about the religion of his day. In the twentieth century theologians such as Dietrich Bonhoeffer have been unenthusiastic about many aspects of religion and have welcomed the dawn of what they saw as 'religionless Christianity'. There has been a noticeable shift in public attitudes, away from religion and towards a more free-floating spirituality. In passing, let me say that I decry that shift less than many of my colleagues, but that is another story. The psychology of religion has begun to make an effort to broaden its scope to include the psychology of spirituality as well.

As Western culture has become more secular, Christianity has been individualized and privatised in a way that has distorted the tradition. Many of the key figures in the psychology of religion have adopted that perspective. William James, for example, begins his definition of religious experience by talking about it as the 'experience of individual men in their solitude'. There is no reason in principle why the psychology of religion should adopt this individualizing perspective, but a good deal of the psychology of religion has done so. Religion is a complex, multifaceted phenomenon that includes beliefs, experiences, practices (public and private), and moral and social behaviour. The psychological study of religion needs to take a broad view of religious life that includes biological, individual and social aspects of human nature.

The psychology of religion has taken different paths in different countries. It has often been seen as an area of social psychology, and social psychology has shown more cultural specificity than most aspects of the discipline. In America it has been predominantly experimental; in continental Europe it is predominantly hermeneutic. In the U.K. it stands somewhere between the two. Though British psychology has been fairly closely allied with American psychology, there are interesting differences. British psychologists have never shown much enthusiasm for the excesses of behaviourism and, in the first half of the twentieth century, continued to be much more influenced by philosophical idealism than was American psychology, something that helped to sustain a sympathetic approach to religion. If I were to risk a sweeping generalization, it would be that British psychology has a tradition of being open to multiple influences and attempting to hold them together.

The recent wave of research on the brain and religion has been almost entirely American. A helpful volume edited by Patrick McNamara (2006) takes stock of what has been achieved so far. It is a research area that I welcome and support, and believe that it will ultimately produce interesting and important findings. However, like Malcolm Jeeves, I am sceptical - perhaps even more so than him - about what has been achieved so far.

Brain scanning technology has been crucial to recent advances in neuroscience. However, it has severe limitations. Scanning research is usually restricted to very small sample sizes, from which secure generalizations cannot be made, given the enormous differences between people in religiousness. Also, the forms of religious experience and activity that can be studied by scanning techniques are highly restricted. They don't allow us to build anything approaching a broad-based psychology of religious life, but just focus on a few specialized activities such as meditation. Religious life is so complex and multifaceted that it seems likely that most areas of the brain will be involved in some way or other. So, the proper question is not where religion is located in the brain, but rather how different aspects of religious life and experience can be mapped on to different areas of the brain.

The methodological problems are huge, and though we will probably eventually make headway with them, it will be a slow and difficult business, and there should not be too much excitement about early findings. My own scientific instinct would be to concentrate first on the cognitive systems involved in religion before looking for their neural basis. To try to go straight from religion to the brain, without mediation through cognitive psychology, has only a slim chance of paying off.

Very different conclusions have been drawn from the growing evidence linking particular parts of the brain and forms of religious activity. For some, knowing the role of the brain in religion permits reductionist conclusions. The assumption is that if religion can be explained in terms of neural activity, no other explanation is necessary. However, that conclusion can only be justified if Ockham's razor is applied in a simplistic way. The search for simple, elegant explanations seems to be a useful guide to the truth in the physical sciences. However, in the human sciences, where explanations are almost always complex and multi-faceted, Ockham's razor is decidedly unhelpful. There is a huge gulf between establishing the role of the brain in religion, and establishing that no other factors are relevant. The latter is, of course, impossible to establish. So, the neuropsychology of religion does nothing whatsoever to settle the question of whether and how God is involved.

Others have used research findings on the brain and religion to establish a new kind of religionism, and Andrew Newberg provides an example of this. He remarks that his data showed that his subject's mystical experiences were 'not the result of emotional mistakes or simple wishful thinking, but were associated with a series of observable neurological events, which, while unusual, are not outside the range of normal brain function. In other words, mystical experience is biologically, observably, and scientifically real' (Newberg, 2001, p. 7). Newberg seems to be getting rather carried away here, and it is not clear how neurological data shows that mystical experience is not a matter of emotional mistakes or wishful thinking. I suspect that William James, when he embarked on research for his *Varieties of Religious Experience*, imagined that he could provide scientific support for religion by studying religion scientifically. In the end, he seems to have recognized that he had not succeeded in doing so. Newberg and d'Aquili may have had similar aspirations. However, in reality, knowing the role of the brain in religion no more establishes the reality of religious experience than it proves the reductionist's claim that religious experience is nothing more than an epiphenomenon of neural activity.

The psychological study of religion has often offered a critical perspective on religion. I suggest that is something that religious people should welcome. Religious experience and activity is very mixed, some healthy and some unhealthy, some authentic but some inauthentic. Theology, as I have already said, is far from having an uncritical enthusiasm for religion. A discriminating approach is called for, and the critical perspective of psychology can help with that. For example, Freud suggested that people's concepts of God can be a human projection, and subsequent research has supported that view. I don't draw from that the reductionist conclusion that God is nothing more than a projection of the human mind, but I welcome having my attention drawn to how concepts of God can be constrained and distorted by psychological processes. If psychology can help us to become more properly discriminating about religion, as I believe it can, it can make a very important contribution in the contemporary world.

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