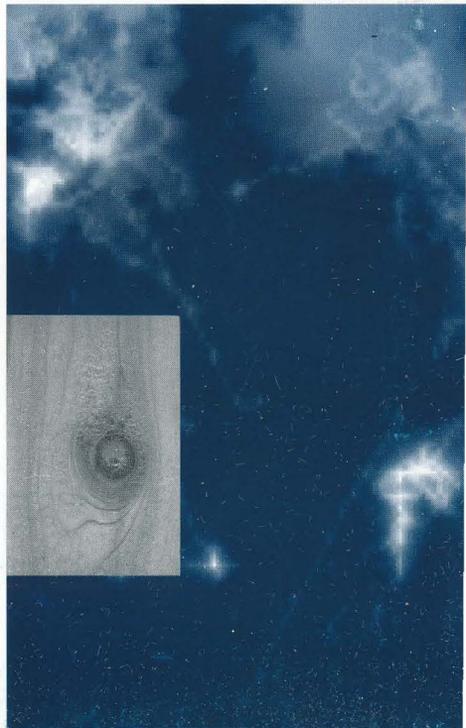




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B U L L E T I N



FAITH and THOUGHT

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Editorial

The major contribution to this issue of the journal concerns the early history of the Victoria Institute and the relationship of that outstanding scientist, John Clerk Maxwell towards it. The article first appeared in *Perspectives on Science and the Christian Faith* in September 2004. We are grateful to both the author, Professor Jerrold McNatt, and the American Scientific Affiliation for permission to reproduce it here. The author draws attention to the narrow defensive aims of the Institute at its inauguration but also points out the limitations of Maxwell's over tolerant attitude towards scientific naturalism and theological liberalism and draws lessons from the time that are relevant to our situation. Reviewing the early history of the Victoria Institute in 1950, E.J.G. Titterington observed that, "(T)he foundations of the Institute were well and truly laid, and the original principles have stood the test of time." But also noted that open attacks on the Christian faith had become unfashionable. Today we are seeing, once again, open attacks by atheist scientists, like Richard Dawkins, and so the aims of the Institute remain relevant. Titterington, like McNatt, acknowledged that the Institute "has had to adapt itself to the changing thought of the decades, and will doubtless do so again: but its foundation principles still stand secure, and we may rest in confidence that the Victoria Institute will still have a function to fulfil, *ad majorem Dei gloriam*." (JTVI 82 (1950)68, 69)

The two other articles are by members of the council, Dr. Robert Allaway and Professor Duncan Vere. The former seeks to 'adapt' the Biblical teaching on 'the mind' to contemporary scientific views and to draw out the implications of this for pastoral care. The latter shows how even minor discoveries can illuminate the Bible.

This issue contains a summary of two annual general meetings, because no report was previously given of the 2004 AGM. We would like to point out that the article in the last edition by Tom Hartman was not the prize-winning essay, but was, in fact, the runner-up. Also we apologise to Mr. T.C. Mitchell for publishing the Siloam Tunnel Inscription upside-down. I wonder how many of you noticed it!

New Members

Ron Bull	Aberdeen Park, London
(Dr.) Sydney Butchins D.Phil. (Oxon)	Swiss Cottage, London
John Cowing	London
(Dr) Josu de la Fuente	Cookham, Berkshire
(Dr.) Michael Ford..	St. Albans, Herts.
Ian Fox	Maidstone, Kent
(Rev) Neil Jefferyes B.Sc. B.D.	Alton, Stoke-on-Trent
(Rev. Dr.) Peter Lalleman	South Norwood, London
Claude Shepherd	Cheam, Surrey
Raymond Thomas B.Sc.(Econ.) P.G.C.F.Ed	Bridgend, Dyfed
(Rev.) Derrick Watson	Motherwell, Lanarkshire
Kieran Webster B.Sc. M.Sc. B.A. ASW	Morganstown, Cardiff

Annual General Meeting: May 24 2004

It had been decided that because the normal annual lecture this year has been replaced by a symposium on Biblical Archaeology to be held later in the year the AGM would take place alongside the spring meeting of the Council. This was held in the Quaker International Centre, 1-3, Byng Place, London WC1 at 3.30 p.m.

Although all members had been informed by letter only members of the Council and Mr. Brian Weller, the minute secretary, and Mr. Reg. Luhman, the Editor of the Journal were present.

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- (a) The minutes of the previous AGM were agreed.
- (b) The President, Vice-Presidents and Honorary Treasurer were elected for a further term of service.
- (c) Professor D.C.Lainé Ph.D, D.Sc, C Eng, FIEE, C Phys, FinstP and Professor John Warwick Montgomery Ph.D, D.Théol, LL.D as additional Vice-Presidents.
- (d) The Rev.Michael Collis B.A, B.Sc, MTh, Ph.D, John Kane B.A, PhD and Professor Colin Humphreys B.Sc, M.A, Ph.D, who formally retired, were elected for a further period of service on the Council.
- (e) The Rev. John Buxton presented the annual accounts, which are available upon application.

Annual General Meeting: April 25 2005

The meeting was held in Room 4 Methodist Church House, 25, Marylebone Road, London WC1E 7JH at 3.30 p.m.during the Meeting of the Council of the Victoria Institute.

- (a) Apologies were received from Messrs John Bland and Martyn Berry. No other members were present except the Council members and Mr. Brian Weller, the Minute Secretary and Mr.Reg Luhman, the Editor of the Journal.
- (b) The minutes of the previous AGM were agreed.
- (c) Dr.Weaver, due to pressure of work, was unable to continue as a member of the Council and reluctantly tendered his resignation last September. Also Dr.Kane had tended his resignation. Both resignations were accepted with regret and they were both thanked for their work.
- (d) The nominations put forward by the Council were duly passed without comment.
- (i) The President, Vice Presidents and Honorary Treasurer were elected to serve for another year.
- (ii) Terence C.Mitchell and Dr.A.B.Robins who formally retire, were re-elected to serve for a further three years.
- (d) The Rev.John Buxton presented the annual accounts, which are available upon application. The Chairman thanked the Hon. Treasurer for preparing these accounts, the acceptance of which was proposed by the Rev. Dr. Robert Allaway and seconded by Prof.. Colin Humphreys

James Clerk Maxwell's Refusal to Join the Victoria Institute

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Abstract

Thanks to his enduring theory of electricity and magnetism and his unique statistical approach to gases, as well as numerous other contributions in areas ranging from color vision to cartography, James Clerk Maxwell is generally regarded as the greatest physical scientist of the nineteenth century. Maxwell's personal correspondence and reflective writings clearly demonstrate that he was a serious evangelical Christian with a profound understanding of theology. Nevertheless, he turned down numerous invitations to join the Victoria Institute, which was founded in the 1860's to defend "the great truths revealed in Holy Scripture" against the flood of opposition coming from science and biblical criticism. This paper will explore the influences in Maxwell's life and the circumstances surrounding the formation of the Victoria Institute that combined to lead him to spurn the invitations to join the Institute.

Introduction

James Clerk Maxwell's lifetime (1831 to 1879) spanned the first two thirds of Queen Victoria's reign, during which time he established "his special place in the history of physics alongside Isaac Newton and Albert Einstein."¹ During this same era the growing influence of scientific naturalism outside the church and biblical criticism within it alarmed many evangelicals. In particular the widely discussed *Essays and Reviews* in 1860 and the early volumes of Bishop Colenso's *Pentateuch* in 1862 were cited as threats to confidence in the Bible by a group of evangelical clergy and laymen and a minority of university professors who united to form the Victoria Institute in 1866. Their purpose was "to defend the truth of Holy Scripture against oppositions arising, not from real science, but from pseudo-science."² They clearly spell out what they mean by pseudo-science: cosmological and geological theories which sincere scientists may believe to be true, but which contradict a literal reading of Holy Scripture "must be merely pseudo-science, that is, a false interpretation of nature."³

Maxwell's lifelong friend and biographer, Lewis Campbell, reports that Maxwell was frequently invited to join the Victoria Institute, and he records the formal invitation of March 1875, which reads in part:

Sir I have the honor to convey the special invitation of the President and Council to join this Society among whose members are His Grace the

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*Archbishop of Canterbury, and other prelates and leading ministers, several professors of Oxford and Cambridge and other universities, and many literary and scientific men.*⁴

The secretary, Francis Petrie, went on to say he had included “a short paper of the objects of the Society which now numbers 580 subscribing members and associates.”⁵ (This paper may have been the document “*Scientia Scientiarum*” referred to below.)

Maxwell sketched his negative reply in an incomplete rough draft penned on the initially blank last page of the invitation letter. There he indicated some reasons for his refusal that will be discussed in this paper. The record of his personal and scholarly writings suggests additional doubts and reservations he would have had about the early Victoria Institute. Three of the possible reasons for his refusal will be examined:

- 1) The militant tone of the early Victoria Institute documents
- 2) Maxwell’s broad evangelical views
- 3) Maxwell’s view of the relationship between science and theology.

The Militant Tone of the Early Victoria Institute Documents

In the first issue of the *Journal of the Transactions of the Victoria Institute*, the founding committee, which adopted the name Provisional Council of the Victoria Institute, described the four circulars and the two preliminary meetings of 1865 which laid the groundwork for the First General Meeting of the Victoria Institute on May 24, 1866. Also presented was a 25-page, unsigned, document called “*Scientia Scientiarum*” which provided a detailed rationale for the Institute.⁶

“*Scientia Scientiarum*” made clear that the founders of the Victoria Institute were reacting to two significant publications that appeared in the early 1860’s and which highlighted the impact and extent of theological liberalism in Great Britain. The first, *Essays and Reviews* (1860), contained papers by six liberal clergy-scholars (Frederick Temple, Rowland Williams, Henry Bristow Wilson, Benjamin Jowett, Baden Powell, and Mark Pattison) and one layman (Charles W. Goodwin).⁷ These authors cited the need to modify biblical interpretation in light of historical criticism and the current findings of science so that Christianity could remain a viable faith for contemporary educated people. They argued that the moral authority of the Bible could be maintained only if it could be scrutinized like any other book. Charles W. Goodwin, a distinguished Egyptologist, lawyer and judge was specifically condemned by the Victoria Institute founders for his paper “The Mosaic Cosmogony,” in which he argued that the nebular hypothesis as understood by current geologists was seriously at odds with the Genesis creation account.

The second alarming publication was by Bishop John Colenso of Natal in 1862 and consisted of three volumes of a critical examination of the *Pentateuch*⁸ that eventually extended to seven volumes. Bishop Colenso had served in Natal since 1853 and had produced a Zulu language grammar and dictionary as well as translating instructional books, and large parts of the Bible. Answering the questions of his "intelligent Zulus" led him to the conclusion that a large portion of the Pentateuch was not historical. To make their point, the Victoria Institute founders quote him directly as saying, "the elementary truths of geological science flatly contradict the accounts of the Creation and the Deluge."⁹

These challenges provoked a defiant response from the founders of the Victoria Institute in the "Scientia Scientiarum" document. In reaction they laid down a non-nonsense, black and white logic for the operation of their organization:

If science and Scripture are at issue, plainly one of them is wrong – untrue . . . it is perfectly clear that men must naturally range themselves either upon the side of Scripture or of science . . . They cannot believe equally in both. They must hold to one or the other . . . Those who rather distrust the deductions of science than the statements of Scripture are invited to join the new Society . . . it may obviously be objected . . . that [this] assumes science to be at fault . . . the assumption truly represents the state of mind of those who propose to pursue this course . . . they do distrust science and do not distrust the Scriptures.¹⁰

They go on to paint a simplistic picture of science that omits any sense of an exploratory process in which final judgment on theories is often delayed:

The nebular theory was adopted by the geologists from the astronomers while indifferent to whether it was true or false . . . Consider . . . how much valuable time has been lost for science . . . while this untenable theory has been blindly entertained.¹¹

The attitude of the Victoria Institute founders is in striking contrast to Maxwell's sophisticated approach to science. He saw it as a slow process requiring patience:

It is the particular function of physical science to lead us to the confines of the incomprehensible and to bid us to behold and receive it in faith, till such time as the mystery shall open.¹²

Such a view found little to resonate with in the strident tones struck in "Scientia Scientiarum."

Another feature of the "Scientia Scientiarum" document that would have disturbed Maxwell was its treatment of two of his scientific friends and guides who were confessing Christians. After making the charge that "the erroneous theories of the eminent have held their ground against the sounder views of less-reputed

individuals,"¹³ the author(s) cite a series of exchanges between one of the most eminent geologists of the era, Adam Sedgwick, professor of geology at Cambridge, and Sir William Cockburn, Dean of York, who is described as a "practical geologist." Cockburn began with a "straightforward attack upon the nebular theory" at the 1844 meeting of the British Association for the Advancement of Science. Professor Sedgwick replied to the effect that "these theories, if rightly understood, would confirm the truths of revelation."¹⁴ Cockburn was not satisfied with Sedgwick's reply and continued to prod him and the Geological Society, eventually making the following challenge:

*You say that there are geological facts which prove the long existence of the world through many ages. I say there are no such facts . . . Produce, then, some one or more of these facts; and if I cannot fairly account for them without supposing the very long duration of the earth, I am beaten! I am silenced! But if you do not produce such facts . . . confess, or let your silence confess, that the whole doctrine of a pre-Adamite world has been a mistake.*¹⁵

Because Sedgwick and the Geological Society leaders would not publish their letters to Dean Cochburn or enter into other forms of public debate, the "Scientia Scientiarum" author(s) depict them as faint-hearted and weak, too willing to adopt the scientific theories of the day and too timid to take on scripturally conservative challengers.

Maxwell's father, John, was an acquaintance of Sedgwick, and in a letter to his son soon after Maxwell began his undergraduate studies at Cambridge in 1850 he asked, "Have you called on Professor Sedgwick at Trinity . . . Sedgwick is a great Don in his line, and if you were entered into Geology would be a most valuable acquaintance; and, besides, not going to him would be uncivil . . ." ¹⁶ When Maxwell returned to Cambridge as Professor of Experimental Physics in 1871, Sedgwick was still a faculty member. He died in 1873 and was honored by burial in the chapel at Trinity College.

Even closer family ties existed between the Clerk Maxwells and another Scottish family, the Thomsons. The senior member of that family, James Thomson, had been Professor of Mathematics at Glasgow University since 1832. His oldest son, William, entered Peterhouse College at Cambridge in 1841 and graduated in 1845 second in his class. William Thomson was appointed to the chair of Natural Philosophy at Glasgow University in 1846 where he remained until his retirement in 1899. In 1892 he was made a peer of the realm and took his seat in the House of Lords as Baron Kelvin of Largs.

Before Maxwell enrolled at Cambridge in 1850, the younger Professor Thomson was one of a number of people his father consulted about the suitability of colleges

at Cambridge for his son.¹⁷ After graduating in 1854, Maxwell remained at Cambridge for another year coaching pupils and studying for his Fellowship exam. During this time his interest in electricity and magnetism grew in no small part as a result of correspondence with William Thomson. In his usual witty way he summarized his debt to Thomson in a letter to him.

*I do not know the Game laws and Patent laws of science...but I certainly intend to poach among your electrical images, and as for the hints you have dropped about the "higher electricity", I intend to take them. At the same time, if you happen to know where anything on this part of the subject is to be found it would be of great use to me.*¹⁸

Given this close personal and professional friendship between William Thomson and James Clerk Maxwell, the scorn heaped upon Thomson by the author(s) of "Scientia Scientiarum" would certainly have put Maxwell off. Referring to Thomson's papers on the thermal history of the sun and the earth, the author(s) asserted that

*recent theories put forward by Professor Thomson . . . assuming an intense heat in the sun are utterly irreconcilable with the Newtonian hypothesis . . . Professor Thomson's theory destroyed the possibility of the sun being the theoretical centre of the solar system, if universal gravitation be anything like a plausible foundation.*¹⁹

These criticisms of Thomson's papers by the "Scientia" author(s) seem to be based on a simplistic understanding of the state of matter in the sun. They first noted that Newton's theory of Universal Gravitation requires the sun to be about 350,000 times more massive than the earth and then that astronomical measurements indicate its volume is about 1,400,000 times that of the earth. "An intense heat in the sun" seems to be misinterpreted to mean the sun is in a high temperature gaseous state of density so low that within its measured size it can contain a mass only 1000 times that of the earth, only a small fraction of the mass required. It is ironic that Thomson's attempts to deduce the thermal history of the sun and earth showed that they were formed much more recently than assumed by some of the more prominent contemporary geologists,²⁰ a result that should have been welcomed by the Victoria Institute founders. A further irony is that Professor Thomson was invited to give the Annual Address to the Victoria Institute in 1897 and more or less restated the positions he took in his papers in 1862.²¹

Maxwell's Broad Evangelicalism

The mid-nineteenth century was an era of turmoil for the established churches of Great Britain. The Disruption of 1843 in one of the churches in which Maxwell

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was raised, the Church of Scotland, resulted in the departure of a significant number of laymen and clergy to form the Free Church. The immediate cause of the split was the unchecked authority exercised by aristocratic patrons in the selection of parish clergy; however, the evangelicals who withdrew had already been deeply distressed by the spread of theological liberalism within their national church. The other church dear to Maxwell's heart was the Church of England, which was also torn by theological discord. Maxwell's discussion of the situation in letters written while an undergraduate at Cambridge led his father to make the following complaint:

*Your dissertation on the parties in the Church of England goes far beyond any knowledge. I would need an explanatory lecture first, and before I can follow the High, Broad, and Low through their ramifications.*²²

A brief, simplified sketch of the parties his father listed will help to explain Maxwell's place in the theological spectrum.

To facilitate discussion of the religious outlook of sophisticated nineteenth century scientists, one scholar has distinguished between the "conservative" perspective of Cambridge Professors Adam Sedgwick and William Whewell (geology and moral philosophy) and the "liberal" outlook of the astronomer John Herschel and the mathematicians Charles Babbage and Baden Powell with respect to their views of the Bible, natural theology, and miracles.²³ Theological "conservatives" of the nineteenth century Church of England came in two very distinct varieties. High Churchmen (also referred to as Tractarians, Anglo-Catholics, or Puseyites) flourished as a consequence of the Oxford Movement of the 1830's. They sought authority for their rites and practices in the traditions and scriptural interpretations that evolved over the long history of the institutional church, and formulated their theology along Roman Catholic lines. The other "conservative" party was the Low Churchmen or Evangelicals, who traced their roots back through the Wesleys and Whitefield to the Protestant Reformation, the Church Fathers, and ultimately to the New Testament Church. They claimed the Bible as understood by the individual believer as the prime authority on which to base their beliefs and worship. The doctrine of the Atonement and the centrality of preaching in worship were particularly emphasized. These two "conservative" parties in the Church of England had leaders who usually publicly opposed scholarship that questioned the historical accuracy or inspiration of the Bible; however, they were often seriously at odds over the issues of ritual and the appointment of bishops. The evangelical social reformer and philanthropist Anthony Ashley-Cooper, the seventh Earl of Shaftesbury, who was the first president of the Victoria Institute, has been described as dedicated "to a constant battle against 'this frightful heresy, this leprous system' of Puseyism."²⁴

The “liberal” clerics who made up the Broad Church party pursued the goal of including a wide range of theological viewpoints within the Church of England. Having abandoned both Church and Bible as sources of authority, they appealed to concepts that ranged from intuition and internal assurance to patterns in the lives of saints past and present and even to forms of mysticism. Liberal clergy, in signing the Thirty-nine Articles (the official doctrinal statements of the Church of England) and in reciting the services of the church, were in effect subscribing to at least some doctrinal statements that were at odds with their personal beliefs. Their consciences gained a measure of relief when Parliament passed the Clerical Subscription Act of 1865 that seemed to modify the assent implied in clerical oaths.²⁵ As stated in the previous discussion of *Essays and Reviews*, liberals were particularly motivated by the desire to make their revised version of Christianity fit with the historical and scientific ideas that prevailed in mid-nineteenth century Britain.

In this paper Maxwell’s theological outlook has been called “broad evangelicalism” to try to capture two important aspects of his beliefs. First, his personal correspondence and the comments of his friends both testify that he maintained an unswerving trust in Christ’s atonement and love throughout his life and he continually identified himself with moderate evangelical thought. Second, the scope of his reading and correspondence and his circle of friends included not only pious evangelicals, but eagerly embraced what he judged to be fruitful thought by all manner of theologians and skeptics alike.

Maxwell’s letters, especially those to his wife, reveal his extensive knowledge and understanding of Scripture. In part these characteristics trace back to his mother’s encouragement to memorize long scripture passages in early childhood. While a pre-teenage student at Edinburgh Academy in the early 1840s, Maxwell usually attended both St Andrew’s Presbyterian and St John’s Scottish Episcopal churches on Sundays, where he was respectively under the teaching of Rev. Thomas Jackson Crawford and Dean Edward Bannerman Ramsey, both of whom were evangelicals. At Cambridge many of his close friends were committed evangelicals, many of whom later took leading places in the Church of England. For much of his adult life he was a ruling elder in the Corsock²⁶ and Parton²⁷ Presbyterian churches, which were near his family estate, Glenlair, in the Galloway district of southwest Scotland. Thus, it is clear that in nearly every stage of his life, James Clerk Maxwell was enfolded by the godly influences of friends and family.

However, Maxwell’s evangelicalism was more than cultural. During his Cambridge undergraduate studies he visited an evangelical rector, C. B. Tayler, and his family in the summer of 1853. Maxwell was suddenly taken seriously ill and during his recovery under the care of this pious family, he gained “a new perception of the Love of God.”²⁸ This event has been interpreted as a conversion experience by

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one historian.²⁹ In short passages in his personal correspondence Maxwell made clear the depth of his faith. In a later letter to Rev. Tayler he wrote of his personal moral situation:

I maintain that all the evil influences that I can trace have been internal and not external, you know what I mean - that I have the capacity of being more wicked than any example that man could set for me, and that if I escape, it is only by God's grace helping me to get rid of myself, partially in science, more completely in society, - but not perfectly except by committing myself to God as the instrument of His will, not doubtfully, but in the certain hope that that Will will be plain at the proper time.³⁰

He clearly understood his own sinfulness and his personal need of God's grace and guidance.

In a letter to Miss Katherine Dewar in May 1858 (just before their marriage in June 1858), he related his enthusiasm for an expository sermon by his friend Rev. Lewis Campbell delivered to the parish Campbell was serving in the south of England:

In the afternoon . . . Lewis preached on "Ye must be born again," showing how respectable a man it was addressed to, and how much he, and all the Jews, and all the world, and ourselves, needed to be born from above (for that is the most correct version of the word translated 'again'). Then he described the changes on a man new-born, and his state and privileges. I think he has got a good hold of the people, and will do them good and great good.³¹

His synopsis of the sermon leaves no doubt that his grasp of the doctrine of regeneration is in accord with mainstream evangelicalism.

The high regard Maxwell had for the Bible is indicated in the recollections of a Cambridge student of the 1870's:

At Clerk Maxwell's we did our papers in the dining-room and adjourned for lunch to an upper room, probably the drawing-room, where Clerk Maxwell himself presided. The conversation turned on Darwinian evolution; I can't say how it came about, but I spoke disrespectfully of Noah's flood. Clerk Maxwell was instantly aroused to the highest pitch of anger, reproving me for want of faith in the Bible! I had no idea at the time that he had retained the rigid faith of his childhood, and was, if possible, a firmer believer than Gladstone in the accuracy of Genesis.³²

It is clear that Maxwell did not accept the position common to many liberals of his day, namely, that exceptional and mysterious events in the Bible must be deleted to accommodate sophisticated Victorians.

Throughout his life Maxwell consciously developed the intellectual as well as devotional dimensions of his faith. Lewis Campbell, his friend and biographer, notes that after church he “loved to bury himself in works of the old divines.”³³ He also read extensively and critically works of contemporary theology, philosophy, and history. His many letters to his friends and family contain lists of books he was reading, with thoughtful comments about many of them. What is particularly noteworthy is the attention he gave to non-evangelical thought and his respect for serious challengers and the positive aspects of their work. For example, Lewis Campbell remembers discussing with him J. Macleod Campbell’s 1854 book on the Atonement, which contained ideas that had earlier been condemned by some evangelicals as heretical. Maxwell’s reaction was “we want light.”³⁴ In a letter to Lewis Campbell in 1857 he remarked upon reading Henry T. Buckle’s controversial *History of Civilization in England*, one of the first “scientific” histories, that it is “a bumptious book, strong positivism...but a great deal of actually original matter, the true result of fertile study”³⁵

Maxwell was also critical of some forms of evangelicalism. The Disruption of 1843 had split Maxwell’s own church, the Church of Scotland, when a large group of evangelicals departed to form the Free Church. A brief thought about this event appears in one of his letters.

*The ferment about the Free Church movement had one very bad effect. Quite a few young people were carried away by it; and when the natural reaction came, they ceased to think about religious matters and became unable to receive fresh impressions.*³⁶

This comment about the effects of Free Church enthusiasm reflects his uneasiness about excessive emotionalism in Christianity.

Another aspect of Maxwell’s theological outlook came from his close friendship with a number of theological scholars who did not fit the evangelical mold. His close friend from his days at Edinburgh Academy and his eventual biographer, Lewis Campbell, was an ordained minister in the Church of England but spent most of his life as a Greek scholar at St. Andrew’s University. In his undergraduate days at Oxford, Campbell was deeply influenced by the liberal theology of his tutor, Benjamin Jowett.³⁷ Jowett was one of the churchmen who contributed an article to the book *Essays and Reviews*, the work by theological liberals referred to previously as having helped to provoke the formation of the Victoria Institute.

As an undergraduate at Cambridge, Maxwell was closely connected with Fenton J. A. Hort, the theologian and Greek New Testament scholar. They met through their election to the Select Essay Club, also known as the “Apostles,” a club of twelve of the best minds among Cambridge students whose goal was to learn “from people of the most opposite opinions.”³⁸ When Maxwell returned to

Cambridge as a professor in 1871, he joined with Hort, B. F. Westcott, J. B. Lightfoot and other faculty to form another scholarly club to discuss speculative questions.³⁹ In addition to the compilation of an accurate New Testament text by Hort and Westcott, these three great Greek New Testament scholars were members of the committee that produced the Revised English Version of the New Testament of 1881 and wrote commentaries and textual criticism that was not always welcomed by contemporary conservatives.⁴⁰

However, the theologian who had the greatest influence on Maxwell was Frederick Dennison Maurice, known for his spiritual leadership of the Christian Socialist Movement and his Broad Church theological views. His teachings emphasized the centrality of a personal relationship between a Loving God and men. Maxwell made many references to Maurice in his letters to his family and close friends, some of which were critical of a number of Maurice's theological positions.⁴¹ Nevertheless, Hort observed that he thought that reacting to Maurice gave Maxwell "considerable aid in the adjustment and clearing up of his own beliefs on the highest subjects."⁴²

Maxwell's study of and eventual friendship with Maurice was significant for him in a number of ways. In 1854 Maurice founded in London a Workingmen's College to provide a university level education for clerks and artisans. Soon his followers began similar institutions in other cities. The Workingmen's Colleges were practical outcomes of Maurice's belief in the moral basis of education and the Church's obligation to serve all of society. Maxwell was inspired by Maurice's vision and gave considerable time to evening classes and derived much satisfaction from teaching for over ten years in the Workingmen's Colleges in Cambridge, Aberdeen and finally London.

Maxwell's spirit of toleration for differing theological views within the Church is traceable at least in part to Maurice and Julius Hare. Maurice's emphasis on the love of God led him to be "obsessive in his search for spiritual unity within society and a determined enemy of the traditional causes of dissention."⁴³ Maurice in turn was strongly influenced by Julius Hare, his most influential Cambridge teacher and later his brother-in-law. After leaving his post at Cambridge, Hare became Archdeacon of Lewes and in that role wrote numerous sermons addressed to the Anglican clergy in which he lamented the prevailing evangelical spirit that led so frequently to accusations of heresy.⁴⁴ In a letter to one of his aunts, Maxwell commented, "I have been reading Archdeacon Hare's sermons which are good."⁴⁵ Having imbibed Maurice's spirit of toleration, Maxwell would frequently remark to his friend Lewis Campbell, "I have no nose for heresy."⁴⁶

Another one of Maurice's principles which parallels Maxwell's philosophy was
a fearless regard for truth, . . . a protest against isolating the Christian

*faith from science and philosophy, and the necessity of meeting and dealing with all doubts and questions in a frank and honest way.*⁴⁷

Maxwell declared his personalized version of this principle in a letter to Lewis Campbell written just before he came to know Maurice well.

*The Rule . . . is to let nothing be wilfully left unexamined. Nothing is to be holy ground Now I am convinced that no one but a Christian can actually purge his land of these holy spots Christianity – that is, the religion of the Bible – is the only scheme or form of belief which disavows any possessions on such a tenure.*⁴⁸

Lewis Campbell often referred to Maxwell's evangelical worldview, but he also noted that Maxwell was never "completely identified with any particular school of religious opinion."⁴⁹ Maxwell himself identified with evangelical principles when he confessed to Campbell in a letter that "I believe with the Westminster Divines and their predecessors ad Infinitum that 'Man's chief end is to glorify God and to enjoy him forever.'"⁵⁰ Nevertheless, Maxwell was not dismayed by challenges to the traditional literal interpretations of Scripture, and he seems to prefer a Church where the tares and wheat grow together to one where charges of heresy enforce a strict orthodoxy. In contrast to Maxwell's view, the Victoria Institute seemed to be setting up a "holy ground" in their defense of prevailing literal interpretations of Scripture, particularly the Mosaic writings.

Maxwell's View of Relations between Science and Theology

The last sentence in Maxwell's draft of his reply to the Victoria Institute invitation is incomplete, but it seems to be starting a thought about the nature of scientific knowledge.

For it is the nature of Science, especially of those branches of Science which are continually spreading into unknown regions to be continually .

. . .⁵¹

A hint at how he might have continued these thoughts is found in his Inaugural Lecture given at Marishal College, Aberdeen, in 1856. He has a picturesque view of the ever increasing, ever changing, and ultimately limited nature of scientific knowledge.

*While we look down with awe into these unsearchable depths and treasure up with care what with our little line and plummet we can reach, we ought to admire the wisdom of Him who has so arranged these mysteries that we can first find that which we can understand at first and the rest in order so that it is possible for us to have an ever increasing stock of known truth concerning things whose nature is absolutely incomprehensible.*⁵²

Maxwell's references to the "unsearchable depths" of the natural world, the "little line and plummet" of the investigator, and the "truth concerning things whose nature is absolutely incomprehensible" reflect the fact that he recognized the conditional and provisional nature of most scientific knowledge. When he was a nineteen year old student at Cambridge, he reflected on human knowledge using an interesting mathematical perspective.

the true logic for this world is the Calculus of Probabilities Understanding, acting by the laws of right reason, will assign to different truths . . . different degrees of probability. Now, as the senses give new testimonies continually, . . . it follows that the probability and credibility of their testimony is increasing day by day, and the more man uses them the more he believes them When the probability . . . in a man's mind of a certain proposition being true is greater than that of its being false, he believes it with a proportion of faith corresponding to the probability When a man thinks he has enough of evidence for some notion of his he sometimes refuses to listen to any additional evidence pro or con, saying "It is a settled question."⁵³

Thus, according to Maxwell, scientific knowledge undergoes a continual process of refinement not only with respect to its form but also with respect to its certainty.

Maxwell's reluctance to link the particulars of shifting scientific thought with biblical interpretation is shown in letters he exchanged in 1876 with Anglican Bishop C. J. Ellicott (who was an accomplished New Testament scholar with whose writings Maxwell was acquainted.) The Bishop asked Maxwell whether he agrees with the theologians who claim that creation of light on the first day and the sun on the fourth day "involves no serious problem." Maxwell replied as follows:

If it were necessary to provide an interpretation of the text in accordance with the science of 1876 (which may not agree with that of 1896), it would be very tempting to say that the light of the first day means the all-embracing aether But I should be very sorry if an interpretation founded on a most conjectural scientific hypothesis were to get fastened to the text in Genesis The rate of change of scientific hypothesis is naturally so much more rapid than that of biblical interpretations, so that if an interpretation is founded on such an hypothesis, it may help to keep the hypothesis above ground long after it ought to be buried and forgotten.⁵⁴

But perhaps the most surprising part of Maxwell's views was expressed in his Victoria Institute reply in the sentence that immediately precedes the sentence fragment discussed above.

*But I think that the results which each man arrives at in his attempts to harmonize his science with his Christianity ought not to be regarded as having any significance except to the man himself and to him only for a time and should not receive the stamp of a society.*⁵⁵

Thus for Maxwell any man's reconciliation of the particulars employed in the current formulation of science with his religious beliefs is subjective and transitory and has little enduring value. Such efforts, when poorly done could even bring reproach. For example, Maxwell was especially scornful of the use of the aether concept in *The Unseen Universe*,⁵⁶ a book written by his friends and fellow evangelical scientists, Peter Guthrie Tait and Balfour Stewart. They speculated that the presence of a second aether would form the basis of an eternal, invisible universe where human souls receive their form and which provides "continuity" with the physical universe thus explaining the immortality of the soul. The immense popularity of *The Unseen Universe* did not deter Maxwell from ridiculing it in a review in *Nature*. He used an ironical reference to the anti-materialism in one of the dialogues of the idealist philosopher George Berkeley.

*We shall therefore make the most of our opportunity when two eminent men of science . . . have betaken themselves to those blissful country seats where Philonous long ago convinced Hylas that there can be no heat in the fire and no matter in the world.*⁵⁷

Maxwell's belief that "in physical speculation there can be nothing vague or indistinct"⁵⁸ led him to point out that the authors of *The Unseen Universe* were suggesting "a question far beyond the limits of physical speculation."⁵⁹

Although Maxwell expressed his considerable doubts about the objective value of linking biblical interpretations with contemporary scientific theories, he did not call for the divorce of theology from science or science from theology. As he said in the Aberdeen Inaugural Address:

*Those who intend to pursue the study of theology will also find the benefit of a careful and reverent study of the order of creation.*⁶⁰

Likewise in his reply to the Victoria Institute he commented:

*I think Christians whose minds are scientific are bound to study science that their view of the glory of God may be as extensive as their being is capable of.*⁶¹

He seems to call for continual interaction between the theologian and the scientist, but does not favor a detailed harmonization of their respective insights.

For Maxwell a more profound issue than harmonization was specialization. In contrast to the preponderance of non-specialists in the Victoria Institute, Maxwell acknowledged and welcomed the professionalization of science:

*as the boundaries of science are widened, its cultivators become less philosophers and more specialists This is the inevitable result of the development of science, which has made it impossible for any one man to acquire a thorough knowledge of the whole*⁶²

This view is in sharp contrast with viewpoint of the “Scientia Scientiarum” author(s) who lament the fact that “the sciences have been too much separated and the great majority have devoted their minds to the details of some narrow speciality.”⁶³ One aspect of this professionalization was the early 19th century struggle led by some of Maxwell’s older Cambridge faculty colleagues like Adam Sedgwick and William Whewell, who maintained their commitment to the Christian faith while arguing the right to develop scientific ideas free from restraints imposed by theologians or churches.⁶⁴

Maxwell also respected the professionalism developing in theology. Through their writings or in some cases by personal interaction, Maxwell knew the theologians of his day. He even expressed at times his preference for the company of those interested in theological matters to those whose exclusive focus was science.⁶⁵ Like Newton he dedicated a considerable portion of his intellectual efforts to matters of theology but unlike Newton he did “not wish to be set up as an authority on subjects (such as historical criticism) which, however interesting to him, he had not had leisure to study exhaustively.”⁶⁶

Furthermore, Maxwell’s perception of the independent value of both science and theology led him to a different conclusion than the founders of the Victoria Institute as to what was the crucial theological issue of the last half of the 19th century. For the Victoria Institute founders it was the fact that many prominent scientists and theologians were no longer conforming their scientific theories to traditional, more or less literal interpretations of the Bible. For Maxwell it was the rising influence of scientific naturalism, which implied a diminishing influence for theology and religion. Scientific naturalism was being skillfully mixed with scientific popularization by the masterful rhetoric and persuasive writing of scientists like John Tyndall, Thomas Huxley and a host of others both in and out of the “X Club.”⁶⁷ For these men Science was the only truth-seeker and problem-solver mankind needed. Religion and its theology were nothing but a source of obscurantism and obstruction. As historian Colin Russell has described their plan:

*Religion was not allowed to usurp the role of science but science (or scientific naturalism) was to take every opportunity to invade the territory of religion.*⁶⁸

Tyndall boldly asserted the strategy in his famous Belfast Address to the British Association for the Advancement of Science in 1874:

We claim and we shall wrest from theology the entire domain of cosmological theory. All schemes and systems which thus infringe upon the domain of science must . . . submit to its control and relinquish all thought of controlling it.⁶⁹

Maxwell answered Tyndall's outrageous claims for the supremacy of science indirectly through a humorous poem published under a pseudonym in a popular Scottish magazine in 1874. A few lines from the poem illustrate its tenor:

*From nothing comes nothing, they told us, nought happens by chance,
but by fate;
There is nothing but atoms and void, all else is mere whims out of date!
Then why should a man curry favour with beings who cannot exist,
To compass some petty promotion in nebulous kingdoms of mist?⁷⁰*

The founding committee of the Victoria Institute spelled out in "Scientia Scientiarum" that their primary concern was to promote an immediate and literal agreement between scientific theory and biblical theology. In contrast, Maxwell summed up his theological expectations concerning the process of doing science in a poem he wrote while a Cambridge undergraduate, which reads in part:

*Teach me so Thy works to read
That my faith, - new strength accruing, -
May from world to world proceed,
Wisdom's fruitful search pursuing;
Till, Thy truth my mind imbuing,
I proclaim the Eternal Creed,
Oft the glorious theme renewing
God our Lord is God indeed.⁷¹*

Maxwell's participation in the development of scientific understanding was for him an act of worship, part of a careful reading of God's revelation in nature.⁷²

Concluding Remarks

In summary, James Clerk Maxwell's refusal to join the Victoria Institute first of all stemmed from its narrow defensive aims and its inclination to turn on men who Maxwell saw as Christian comrades. Second, its theological banner was planted far to the right of Maxwell's broad evangelicalism. Finally, Maxwell's view of the growing professionalism of science and theology led him to oppose scientific naturalism without trying to reestablish the dominion of theology over science.

In a larger sense, James Clerk Maxwell's refusal to join the Victoria Institute can be interpreted as symptomatic of harmful flaws in the outlook of both the Victoria Institute and Maxwell himself. The Institute initially adopted a perspective that

proved to be too narrow and thus limited its effectiveness. On the other hand, the toleration that Maxwell typified was so broad that it nullified most attempts at church discipline in matters of theology.

“Scientia Scientiarum” and the other circulars used to promote the founding of the Victoria Institute were too narrow in several ways. First, they focused extensively on the issues involving contemporary geology and Genesis. The impact of Darwin’s *Origin of Species* (1859) is never mentioned. Furthermore, the author(s) supported an explanation of geological strata in terms of Flood Geology, a viewpoint that had few adherents in the Royal Geological Society in the 1860’s. Second, the view of biblical interpretation the author(s) adopted was strict literalism. They charged their opponents with being willing to “force upon” scripture new interpretations that are nothing but the “explaining away of plain language, which requires no interpretation in order to be understood.”⁷³ The existence of a number of distinct evangelical theological traditions each claiming to come directly from the Bible should have made the Victoria Institute founders a bit more cautious about claiming that any portion of Scripture “requires no interpretation.”

One consequence of a narrow outlook was a narrow membership. As the Secretary of the Victoria Institute pointed out in his invitation letter to Maxwell, numerous outstanding clerical figures and “many literary and scientific men” had joined. However, only a few prominent scientists who were professing evangelicals joined. In a recently published study, Historian Crosbie Smith identified three informal scientific-cultural groups that vied for credibility and prominence as the concept of energy was shaped into the controlling idea of physical science.⁷⁴ Besides the devotees of a theologically liberated, professionalized science inspired by Huxley, Tyndall, and their “X Club” colleagues and the Cambridge clerical dons led by Sedgwick and Whewell, Smith identified a third, hitherto generally unacknowledged, group he called the North British evangelicals. This group included many prominent physical scientists of the period: James Joule, William Thomson (Lord Kelvin), Peter Guthrie Tait, Fleeming Jenkin, Macquorn Rankine, Balfour Stewart, and James Clerk Maxwell. It is noteworthy that none of this group joined the Victoria Institute between the time of its founding (1865) and the formal invitation to Maxwell (1875). The failure to attract many prominent evangelical men of science clearly diminished its influence in the science-religion dialogue of the mid to late Victorian era. In a classic history of the Victorian Church, the Victoria Institute has received only a two sentence reference.⁷⁵

It should be noted that the views set forth in the founding documents of the Victoria Institute were modified as the organization matured. Cambridge University physicist George Gabriel Stokes, who was one of Maxwell’s undergraduate teachers and a friend and colleague in later life, succeeded the great social reformer Ashley-Cooper as President in 1886. He reflected a much changed perspective

in remarks recorded in the Institute Journal.

*We all admit that the book of Nature and the book of Revelation come alike from God, and that consequently there can be no real discrepancy between the two if rightly interpreted. The provinces of Science and of Revelation are, for the most part, so distinct that there is little chance of collision. But if an apparent discrepancy should arise, we have no right on principle, to exclude either in favour of the other. For however firmly convinced we may be of the truth of revelation, we must admit our liability to err as to the extent or interpretation of what is revealed; and however strong the scientific evidence in favour of a theory may be, we must remember that we are dealing with evidence which, in its nature, is probable only, and it is conceivable that wider scientific knowledge might lead us to alter our opinion.*⁷⁶

Had he lived to read these remarks by his mentor and friend Stokes, James Clerk Maxwell might have been more favorably disposed towards the Victoria Institute and its mission.

Turning to Maxwell's attitude of theological toleration, it should be noted that his willingness to take on the scientific naturalists, if only to a limited extent, is commendable. However, his failure to detect the perils of theological liberalism is lamentable. Heresy charges by more conservative evangelicals were probably too glibly raised in some instances, but there were a number of important cases in both the Church of Scotland and the Church of England in which the verdicts, in effect, tolerated views that were far from historic Christian orthodoxy. For instance, two of the contributors to *Essays and Reviews*, Rowland Williams and Henry B. Wilson, were tried in church courts for their views on inspiration, justification, and the future state of the dead. They were initially found guilty on some of the charges and sentenced to suspension for one year. On appeal, the verdict was overturned. This and other cases meant that "few clergymen, whatever they taught, were in danger of prosecution because their sermons or books contradicted the articles of religion."⁷⁷ Maxwell's tolerant approach was shared by far too many evangelicals, and his claim to have "no nose for heresy" proved to be no virtue in Victorian Britain as theological liberalism prospered. Maxwell's faith was basically too personal and his hesitation about speaking out concerning matters outside his area of expertise severely limited his influence at a critical time in church history.

- 1 P. M. Harman, *The Natural Philosophy of James Clerk Maxwell* (Cambridge: Cambridge University Press, 1998), 1.
- 2 "Scientia Scientiarum," *The Journal of the Transactions of the Victoria Institute*, 1 (1867): 5. Following the completion of this paper, a web site with the full text of "Scientia Scientiarum" has been discovered. The address is www.creationism.org/victoria/. The web site also attributes the authorship to James Reddie who was the founding Secretary of the Victoria Institute.

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- 3 Ibid., 1:7.
- 4 Letter from F. Petrie, 12 March 1875, University Library, Cambridge, Add. MSS 7655, II, 95. A shortened version of the letter also appears on pages 404-5 of the Campbell and Garnett biography cited in reference 16 below.
- 5 Ibid.
- 6 "Scientia Scientiarum," 1: 5-29.
- 7 Henry B. Wilson et al., *Essays and Reviews* (London: Parker and Son, 1860). An annotated critical edition has recently been published. *Essays and Reviews: The 1860 Text and Its Reading*, ed. Victor Shea and William Whitla (Charlottesville: University Press of Virginia, 2000).
- 8 John William Colenso, *The Pentateuch and Book of Joshua Critically Examined* (London: Longman, Green, Longman, Roberts and Green, 1862).
- 9 "Scientia Scientiarum," 1: 8.
- 10 Ibid., 1: 7-9.
- 11 Ibid., 1: 21,22.
- 12 Inaugural Lecture, Aberdeen, 3 November 1856, *The Scientific Letters and Papers of James Clerk Maxwell*, vol. 1, ed. P. M. Harman (Cambridge: Cambridge University Press, 1990), 1:427 (hereafter cited as *Scientific Letters and Papers*).
- 13 "Scientia Scientiarum," 1: 10-11.
- 14 Ibid., 1: 17.
- 15 Ibid., 1: 19.
- 16 Lewis Campbell and William Garnett, *The Life of James Clerk Maxwell* (Cambridge: MacMillan and Co., 1882), 150. A printable version of the entire biography is available on the web. James C. Rautio, the founder and president of Sonnet Software Inc., has made it available at the following web site: www.sonnetusa.com/bio/maxwell.asp.
- 17 Ibid., 146.
- 18 Maxwell to William Thomson, 13 September 1855, *Scientific Letters and Papers*, 1: 323.
- 19 "Scientia Scientiarum," 1: 28-29.
- 20 Silvanus P. Thompson, *The Life of William Thomson* (London: MacMillan and Co., 1910), 535.
- 21 Ibid., 997-998, 1095.
- 22 Campbell and Garnett, *Life of Maxwell*, 194.
- 23 Michael Ruse, "The Relationship Between Science and Religion in Britain, 1830-1870," *Church History*, 44 (1975): 505-523.
- 24 Georgina Battiscombe, *Shaftesbury, The Great Reformer, 1801-1885* (Boston: Houghton Mifflin Company, 1975), 199.
- 25 Owen Chadwick, *The Victorian Church* (New York: Oxford University Press, 1966), 2: 132-133.
- 26 Rev. George Sturrock, *Corsock Parish Church: Its Rise and Progress* (Castle-Douglas: Adam Rae, 1899), 11.
- 27 Campbell and Garnett, *Life of Maxwell*, 371.
- 28 Ibid., 170.

- 29 Paul Theerman, "James Clerk Maxwell and Religion," *American Journal of Physics* 54 (1986): 312-317.
- 30 Campbell and Garnett, *Life of Maxwell*, 188.
- 31 Campbell and Garnett, *Life of Maxwell*, 311.
- 32 Karl Pearson, "Old Tripos days at Cambridge," *Mathematical Gazette* 20 (1936): 27-36, quoted in Crosbie Smith, *The Science of Energy* (Chicago: The University of Chicago Press, 1998), 307.
- 33 Campbell and Garnett, *Life of Maxwell*., 321.
- 34 *Ibid.*, 431 n.
- 35 *Ibid.*, 295.
- 36 *Ibid.*, 420.
- 37 John Burnet, "Lewis Campbell," in *Dictionary of National Biography, Second Supplement*, vol. 1, ed. Sidney Lee (London: Smith, Elder and Co., 1901), 300-301.
- 38 Peter Allen, *The Cambridge Apostles* (Cambridge: Cambridge University Press, 1978), 4.
- 39 Campbell and Garnett, *Life of Maxwell*, 366, 418, 434.
- 40 Herbert Exon, "Fenton J. A. Hort," in *Dictionary of National Biography, First Supplement*, vol. 2, ed. Sidney Lee (London: Smith, Elder and Co., 1901), 443-447.
- 41 Campbell and Garnett, *Life of Maxwell*, 172, 191, 192, 194, 218.
- 42 *Ibid.*, 418.
- 43 Allen, *Cambridge Apostles*, 205.
- 44 Julius C. Hare, *Charges to the Clergy of the Archdeaconry of Lewes: 1840 to 1854* (Cambridge: 1856).
- 45 Campbell and Garnett, *Life of Maxwell*, 170 n., 184.
- 46 *Ibid.*, 322.
- 47 Torben Christensen, *The Divine Order: A Study in F. D. Maurice's Theology* (Leiden: E. J. Brill, 1973), 17.
- 48 Campbell and Garnett, *Life of Maxwell*, 178, 179.
- 49 *Ibid.*, 170 n.
- 50 *Ibid.*, 158.
- 51 *Ibid.*, 405.
- 52 Inaugural Lecture, Aberdeen, 3 November 1856, *Scientific Letters and Papers*, 1:427.
- 53 Campbell and Garnett, *Life of Maxwell*, 143-144.
- 54 *Ibid.*, 393-394.
- 55 *Ibid.*, 405.
- 56 Peter Guthrie Tait and Balfour Stewart, *The Unseen Universe or Physical Speculations on a Future State* (London: Macmillan and Co., 1875).
- 57 James Clerk Maxwell, "Paradoxical Philosophy," in *The Scientific Papers of James Clerk Maxwell*, 2 vols., ed. W. D. Niven (1890; reprint 2 vols. in 1, New York: Dover Publications, 1965), 2:756 (hereafter cited as *Scientific Papers*).
- 58 Inaugural Lecture, Aberdeen, 3 November 1856, *Scientific Letters and Papers*, 1:425.

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- 59 James Clerk Maxwell, "Ether," in *Scientific Papers*, 2:775.
- 60 Inaugural Lecture, Aberdeen, 3 November 1856, *Scientific Letters and Papers*, 1:430.
- 61 Campbell and Garnett, *Life of Maxwell*, 404-405.
- 62 James Clerk Maxwell, "Whewell's Writings and Correspondence," in *Scientific Papers*, 2:528.
- 63 "Scientia Scientiarum," 1: 24.
- 64 Ruse, "Science and Religion in Britain," 505-523.
- 65 Ivan Tolstoy, *James Clerk Maxwell* (Chicago: University of Chicago Press, 1981), 56-57.
- 66 Campbell and Garnett, *Life of Maxwell*, 433.
- 67 J. Vernon Jensen, "The X Club: Fraternity of Victorian Scientists," *British Journal for the History of Science*, 3 (1970): 63-72.
- 68 Colin A. Russell, "The Conflict Metaphor and its Social Origins," *Science and Christian Belief*, 1 (1989): 16-17.
- 69 John Tyndall, *Fragments of Science* (New York: D. Appleton, 1875), 196-197.
- 70 Campbell and Garnett, *Life of Maxwell*, 639.
- 71 *Ibid.*, 596.
- 72 Martin Goldman, *The Demon in the Ether* (Edinburgh: Paul Harris Publishing, 1983), 69.
- 73 "Scientia Scientiarum", 1: 10.
- 74 Crosbie Smith, *The Science of Energy* (Chicago: The University of Chicago, 1998).
- 75 Chadwick, *The Victorian Church*, 2: 25.
- 76 George Stokes, "Note by the President on the Origin of the Books of Revelation, and of Nature," *The Journal of the Transactions of the Victoria Institute*, 22 (1888-1889): 22.
- 77 Chadwick, *The Victorian Church*, 2: 133.

A Pastor's view of 'the Mind'

Bob Allaway

'I cannot face going to church and having to put on a "happy-clappy mask". I ought to be able to be honest about my feelings, but I fear people will treat me as lacking in faith and make me feel guilty and even more depressed.' 'My husband wants me to stop taking my medication. He thinks I am like a drug addict. He says a Christian should find her joy in the Lord.' Similar stories of such unsympathetic treatment came pouring out to me, when people learned what I was doing for my Sabbatical study in 2003. This grew out of the pastoral care to the clinically depressed that my wife and I have been led to provide, on many occasions, over the course of my ministry.

Why is it that caring people, who would think nothing of a fellow Christian having to take regular aspirin to prevent blood clotting, or insulin for diabetes, will treat it as a spiritual defeat if, say, a believer has to be on constant medication

for a mental condition? Could an over-spiritual view of what the mind is be one reason for this?

There are, of course, equal dangers for pastoral care in an over-physical view of the mind. Some believers are fearful, and rightly so, of a reductionism that would treat spiritual experiences as 'nothing but' symptoms of mental ill health, or a determinism that would enable people to claim they 'can't help' their actions.

In addition, some may wonder if such a view of the mind undermines fundamental Christian beliefs about our origin as human beings and eternal destiny as individuals.

In my Sabbatical study¹, I undertook to find a view of the mind that can accommodate the insights of modern neuroscience and clinical observation while retaining the outlook of the Bible. I had both an evangelistic and a pastoral purpose in this.

As an evangelist, or apologist, I wanted to show where supposed conflicts between science and Biblical Christian faith are false, to eliminate unnecessary stumbling blocks on the path to Christ. As a pastor, I wanted to help believers come to terms with their own, and others', mental conditions and any treatments they may need, while being able to discern where some therapies may be incompatible with our faith.

As a starting point, let us begin with a 'common sense' view of the mind, that many mistakenly imagine is the Christian one.

Mind as soul

We are conscious of ourselves as looking out from our bodies and controlling them - 'I' am my mind, and my body is something outside of me in which I live. It is natural to think that the mind is a function of some independent, spiritual entity - conventionally, a 'soul' - that works through the body.

This, as I said, seems to correspond with our experience, and gives Christians a way of defending humanity's unique status 'in the image of God' and their eternal destiny. 'We may share 99% of our DNA with chimpanzees,' we can say, 'but we have souls, that no genetic scanning can detect, and they haven't, and though the body may die, the soul can live on.' Yet both science and the Bible contradict this.

It is a sad fact that things that afflict the body can damage the mind. From time immemorial, alcohol has been known to hinder mental function. Perhaps it might be argued that this is only harming the 'mind/brain interface'. But there are conditions that can seemingly change the person, the conscious mind.

A familiar example is Alzheimer's Disease. This is so distressing for carers, not

only because of having to see dementia afflict a loved one, but because sometimes the personality seems to change as well. People will say things to me like, 'It is as if the person I knew and loved has already died, and I am living with a stranger.'

A better, but rarer, example is damage to a particular area near the front of the brain. Cases are known where this has transformed the personality, but without any loss of mental function, as in dementia.²

The Bible also contradicts this 'common sense' view of the mind as a function of 'soul'. In the Old Testament, '*nepheš*' (translated by *-psuchê*, 'soul', in the New) seems to mean 'life', or a creature having it, and applies to animals as well as humans. (eg Genesis 1:21,24; 2:7). It can die the same as the body (eg Ezekiel 18:4,20). Mental function is located in the *leb* (or *lebab*), translated 'heart'.

While there is an occasional vague hope of life with God beyond death, as in Psalm 73:24, the few places where this hope is more detailed speak of resurrection rather than immortality (Isaiah 26:19; Daniel 12:2,3).

By New Testament times, something like the 'common-sense' idea of the soul seems to be envisaged (e.g. Revelation 6:9?), to preserve the person between death and resurrection, but the latter is still the ultimate Christian hope. It is clearer that the believer's body will be raised in a new form, 'spiritual', where any damage to body and mind will be no more. By contrast, its present 'weak', 'perishable' form is said to be *-psuchikon*. (1 Cor 15:42-44) NIV translates this 'natural', but the literal sense is 'of the nature of the soul'!

Modern computing provides us with an improved version of the 'common-sense' model that overcomes many of these scientific and Biblical objections to it.

Mind is to brain as programme is to computer

The programme needs a computer to run; it exists as a pattern of electrical signals within the computer. Consequently, damage to the computer's circuitry is likely to damage the functioning of the programme. If the computer is destroyed, the programme will be destroyed with it. However, a smart operator will keep a backup copy of the programme on disc somewhere, up-dated with improvements. In the event of the computer being lost or stolen, a new and better machine can be bought and the same programme loaded up from backup, to run just as before or better.

In the same way, our minds are but a pattern of electrical signals in the brain, that can be destroyed along with it. However, God, who knows all, can keep a backup copy in his memory, retaining all that is worth preserving (and leaving out whatever is not). When this body has died, he can create a new and better body for me, that shall never die, and in which my mind can run for evermore. This model overcomes previously expressed objections, and rightly stresses the

Biblical view that our eternal life is contingent on God's eternal life (Romans 6:23; 1 Timothy 6:16), but it needs to be refined in the light of scientific and Biblical views of origin and development.

The programme and the computer are two independent systems. The programme cannot change the computer's circuitry, and the computer cannot change the program (except by some glitch disrupting its function). On the other hand, in the case of the mind and the brain (and the body of which it is part), there is a mutual interaction.

Mind as a function of body

If we think about what marks us off from other animals and has enabled human civilisation to develop to the extent that it has, one thing that immediately springs to mind is language. As is, I think, well known, Noam Chomsky has postulated the existence of an innate human 'language instinct' (or more correctly 'grammatical instinct'). This is something separate from ability to speak, as it has been demonstrated in deaf children learning to sign.³

Language is very much something that we see as a mental operation. Yet such an innate ability, emerging at a particular stage of development, suggests a product of a child's genetic code, just as much as the hormones that start to circulate his or her body at a later age, which will set off thinking about sex! On the computer analogy, we are 'hard-wired' for language.

It could be argued from anthropology and archaeology, that we also have a sort of 'God instinct'. Carl Jung noted this "collective idea" of God that is pervasive throughout human history' and is 'a force as real as hunger and the fear of death'.⁴ Does this mean that, to use the computer analogy again, we are also 'hard-wired' for worship?

For Christians, this can serve as a confirmation of our beliefs. One of the things that marks off the creation of Humanity in Genesis 1:26 is that for the first and only time, God says, not, 'Let there be ..', but 'Let **us** create .. in **our** image and **our** likeness ...' - an astounding statement to appear in one of the most monotheistic portions of the Old Testament. 'In the image of God created he him, male and female created he them.' It is not sex that is part of the image of God here, as the animals have that as well. One aspect of this statement is that the female is shown to have God's image as well as the male, which is good. But may not their being in relationship be part of that image, also? 'It is not good for the man to be alone' (Genesis 2:18).

Thus, what distinguishes us from other creatures is not that we are smarter than they are, but that we are made for fellowship with one another and with God, and since the latter is eternal, so is the fellowship. (Once it is restored through Christ.)

If bodily processes can shape mental ones, does this mean that mental functions are genetically predetermined? No, because mental processes can also shape bodily ones.

Mind is to brain as chicken is to egg

Sternberg and Gold have demonstrated how the mind can affect the immune system so that 'our state of mind can influence how well we resist or recover from infectious or inflammatory diseases'.⁵ Yes, as the body lives or dies, it preserves or kills the brain and with it the mind, but the mind can also keep alive or kill the body (and hence the brain).

Our minds can also determine the physical structure of our brains. Up until the age of sixteen, our brains are growing. They do not just do so in accordance with some preordained pattern recorded in our genes. Rather, connections between neurones increase to support those things on which the mind is concentrating. 'The key factor is stimulation of the brain. In [a] study with rats, it was found to be learning and memory ... that resulted in the greatest changes in the brain.'⁶

All the above are examples of what philosopher Nancy Murphy⁷ terms 'top-down causation'. She gives as an example 'a simple feedback system' described by 'neuropsychologist Donald MacKay' in which 'the brain becomes a self-modifying system, modifying its own neural structure'. This would seem to be the same sort of process as that mentioned above. Such 'top-down causation', she argues, saves a 'physicalist' explanation of the mind from determinism, leaving space for 'rationality, morality and free will'.

Pastoral Implications of this Model

I have sought to demonstrate that mental processes are the same things as brain processes, and thus are as much affected by physical illness and treatment as any other bodily process. If, as is generally reckoned, monopolar clinical depression is caused by chemical activity in the brain, it makes sense to treat it with other chemicals that inhibit that activity.⁸ Lithium treatment of Manic-Depressive illness (Bipolar Disorder) also seems to control the cause of that condition (even though it is unclear how!), since, for example, it prevents the manic phase rather than simply sedating it.⁹

Christians should not be afraid of such drugs. That some drugs can be used to manipulate the brain in evil ways does not mean that all drug treatment is wrong. Food can be used for gluttony, leading to obesity, but that does not mean that food is wrong.

This is not to say that we should be happy with **any** such treatment. It is one thing to use a chemical remedy for a condition with a (probable) chemical cause. It is another matter when dealing with a reactive condition, with an external

cause. (And even a clinical depression can have an external trigger.) Nevertheless, emergency treatment may be needed to overcome the immediate problem (and in the case of clinical depression, this may include ECT¹⁰). Once things have been stabilised, however, pastoral conversation and discernment may be more valuable, for reactive conditions, at any rate.

This is recognised in the popularity of much 'counselling' nowadays, but Christians should be as questioning about different forms of this as they often are of physical treatments. Over two decades ago, Oden¹¹ expressed concern that much pastoral care was taking its lead from modern psychotherapies. Many, if not all, of these, he claimed 'produce results which are no better than those which occur through spontaneous remission,' and 'some psycho-therapies may even induce injurious dependence on themselves'.

The Christian pastor has the advantage over the secular counsellor that he (or she) also recognizes that there can be spiritual triggers to mental conditions, such as a previous involvement with the occult.

Mention of the occult raises the question of spiritual experience. A Christian may claim that the Holy Spirit has spoken to her. (Similarly, a medium may claim to have a communication from the dead, though a Christian would say it was from a demon.) Now, a classic symptom of schizophrenia is 'dissociation'. Thoughts intrude themselves on the mind, and are perceived as coming from outside. A sceptic may ask, what is the difference between this and a claimed supernatural revelation?

Physically, there may be no difference. Both involve hearing, and hence activity in the same areas of the brain. Nevertheless, a Christian psychiatrist once remarked to me that he could certainly tell the difference. The psychotic spoke rubbish; the inspired Christian spoke sense. Thus an apparent similarity between a spiritual and a mental happening does not mean that one is 'nothing but' the other. We simply need to exercise discernment, as Christians have throughout history.

What about the argument that recognizing physical influences on the mind will enable people to excuse their actions, and avoid taking responsibility for them? It is certainly true that people can be predisposed towards certain behaviour, by nature (as with a genetic predisposition towards alcoholism) or nurture (as with experience of abuse within a family being perpetuated). Can those battling against such influences be held responsible for their actions?

Yes, for there is, of course, one inherent tendency that we all share, and that is Sin itself. Biblically, we are born sinners [Psalm 51:5]. Yet we can be held responsible for following that tendency (once we are old enough to know what we are doing), because there is One who did not do so.

When 'the Word of God became flesh' in Christ, the Second Adam, he took on himself the human nature with its inherent tendency to sin that we all have¹², otherwise, he could not have 'been tempted in every way - just as we are' [Hebrews 4:15]. 'Yet he was without sin', he never gave in, but stayed faithful to his Father's will even to death.

To one seeking to excuse his actions by his genes or his upbringing, I would argue that he still has a will, he still **chooses** to give in. To resist when his whole body cries out for a particular need, or memory seems inescapable, may involve great suffering. But Christ 'suffered when he was tempted' [Hebrews 2:18], yet **he** chose to resist for our sake. It is to him that each of us must answer on the day of judgement, not to some distant deity untouched by human suffering. He bore that suffering in our place, so he could offer us forgiveness. If we accept what he did for us, then, as the Holy Spirit helps us be made like him, we can find 'grace to help us in our time of need', to resist as he did.

An affective disorder, such as depression, might appear to excuse lack of will. Telling a clinically depressed person to 'buck up' is like telling a cripple to 'stand on your own two feet'! One first needs the 'crutches' of anti-depressants, or even ECT *in extremis*. Yet, even without such help, I would still appeal to the will: not to **do** anything, but to resist despair, especially the temptation to self-destruction.

Once again, it is to Christ we need to appeal. In Gethsemane and on the Cross, he knew anxiety and despair that we could never begin to imagine:

and none of the ransomed ever knew
how deep were the waters crossed,
or how **dark was the night** that the Lord went through
ere he found his sheep that was lost.¹³

He knows; he understands. He could have escaped all that, but he chose to endure it for our sake. And beyond the darkness was the light of his resurrection.

For his sake, he wants us to endure in the darkness, not take the easy way out and deny his love for us by self-destruction. The light will come.

- 1 The result of my study was read as a paper at the *Baptists Doing Theology in Context* Consultation held at Regent's Park College, Oxford in August 2003. It may be found on the college website.
- 2 Susan **Greenfield**, *The Human Brain: A Guided Tour*, London: Phoenix, 1998, p21f
- 3 Stephen **Pinker**, *The Language Instinct: The New Science of Language and Mind*, London: Penguin, 1994
- 4 James W. **Heisig**, *Imago Dei*, Associated University Press, 1979
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- 6 **Greenfield**, *ibid*, p150
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- 9 Mogens **Schou**, *Lithium treatment of Manic-Depressive Illness: A Practical Guide* (5th rev ed), London: Karger, 1993
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- 11 T.C. **Oden**, 'Recovering lost identity', the *Journal of Pastoral Care*, XXXIV (1), March 1980
- 12 R. H. **Allaway**, *Expository Times*, 97, 1986, 108-110; *Faith and Thought*, 113 (2), 1987, 125-130
- 13 Ira D. **Sankey**, *There were ninety and nine ...*

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9. Submission of an entry will indicate candidates' assent to all these conditions

Death and the outcast; a new discovery relevant to biblical studies?

Duncan Vere

A recent report in *New Scientist* describes a discovery of considerable interest to biblical scholarship. In 2000 tomb robbers raided a family grave in Akeldama, in the Hinnom Valley, south and west of Jerusalem. Most tombs had been raided already, but they found a burial with its entrance blocked by a stone cemented into place. The robbers were probably alarmed at finding a burial where the family of the deceased had failed to return to place the bones in an ossuary, but had seemingly sealed the grave, perhaps out of fear or superstition. The thieves left the grave as worthless. An archaeologist, Shimon Gibson, found the grave soon after the robbers “at the foot of Mount Zion in a priestly and aristocratic quarter” near the tomb of the Caiaphas family.

It seemed likely that the family had been afraid to collect the bones, but the reason for this is unclear. When the stone was removed with much difficulty, a fragment of shroud was found on a heap of decayed human remains with some scraps of bone and hair.

When experts on ancient DNA (Helen Donoghue and Mark Spigelman of University College, London) tested these remains they found unmistakably the DNA both of *Mycobacterium leprae* and *M.tuberculosis*. Neither was from the DNA of soil or other contaminant bacteria, but both were from pathogens. Carbon dating of the shroud put the man’s death into the first half century AD i.e. during or very soon after the death of Christ.

The discovery has several implications. It has been held and is stated in the references in many Bibles that the ‘leprosy’ of the AV was unlikely to have been that disease but could refer to any severe skin malady. The new facts show that it is very likely that the ‘lepers’ whom Jesus healed really did have that disease. Also tuberculosis tends to extinguish leprosy when it invades a new population; this is the probable reason for the near disappearance of leprosy from the British Isles when it was common throughout the Middle Ages. TB raises immunity against contracting leprosy, but kills a majority of lepers whom it effects. Leprosy makes people very vulnerable to TB, a weakness enhanced by the social exclusion and poverty of lepers. But the man at Akeldama was not deprived or shunned by his family. He seems to have had clean hair and to have been cared for by his wealthy relatives (cf. Matthew 26.6)

The cementing of the tomb stone may have some relevance to the ‘sealing’ of Jesus’ tomb to prevent tomb robbery (Matthew 27.66) There are interesting connections with the burial site to the ‘potter’s field’ (Zechariah 11.13; Jeremiah 19.1,6; Matthew 27. 9-10; Acts 1.18-19) .

- (1) Stephanie Pain. Histories: Death and the Outcast. *New Scientist* 2488 (26 February 2005) 52 - 53
- (2) J.A.Moyter Akeldama in C. Brown (ed) *New International Dictionary of New Testament Theology*. Vol.1. (1976) 93 - 94)
- (3) S. Gibson et.al. The Shroud Cave - A Unique Study Linking a Closed Loculus, a Shroud and Ancient Mycobacteria. *Ancient Biomolecules* 4 (2002) 134f..
- (4) H.D. Donoghue et.al. Co-infection of mycobacteria tuberculosis and micobacteria leprae in human archeological examples ... *Proc. Roy.Soc.B.* 272 (2005) 389 -394

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(after Vol. 90) as Faith and Thought. 1979 Vol. 106 to 1983 Vol. 110
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Abbreviations

Asterisk (*) - the first page of an article; **c** - correspondence; **d** - contribution to a discussion; **f** - and pages following; **r** - review; **rw** - writer of a review.

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