AUBREY MOORE AND THE ANGLO-CATHOLIC ASSIMILATION OF SCIENCE IN OXFORD

by

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A thesis submitted in conformity with the requirements for the degree of Ph. D., Graduate Department of the Institute for the History and Philosophy of Science and Technology, University of Toronto

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Aubrey Moore (1848-1890) "thoroughly accepted" Darwinism said his Marxist friend, the biologist E. Ray Lankester. Moore was a liberal Anglo-catholic priest, an Oxford don, and a contributor to Lux Mundi (1889). His assimilation of science into orthodox apologetics is studied here in its Oxford context. Moore’s epistemology can be seen to owe something to the more cautious attitude to science expressed by his Oxford Movement antecedents. Moore found support for the doctrine of divine immanence both in the Church fathers and in the views of the British Idealist T. H. Green. He gained insights into evolution from his neo-Darwinist friend Edward Poulton. Through the 1880’s Moore supported the side of science in debates over Genesis and geology, vivisection, and biblical criticism. His acceptance of Darwinism was part of his larger recasting of the history of ideas. I discuss Moore’s theory of the evolution of morality, his theodicy, and his unique appreciation of the “wider teleology” of Darwinian evolution. His views were well received, especially by Darwin’s disciple, George Romanes. I conclude with reflections on the significance of this contextualized history of Aubrey Moore for the historiography of Victorian science and religion.
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TABLE OF CONTENTS

Abstract.................................................................i

Acknowledgements.......................................................ii

Table of Contents.......................................................v

ONE: INTRODUCTION AND APOLOGY........................................1

TWO: THE OXFORD MOVEMENT AND OXFORD SCIENCE.....................26

THREE: AUBREY MOORE'S OXFORD........................................70

FOUR: THE POLITICS OF PAIN: "THE OXFORD PHYSIOLOGICAL
LABORATORY QUESTION, 1883-85".................................104

FIVE: "GIVING UP GENESIS"?: CRITICISM AND SCIENCE
APPLIED TO THE OLD TESTAMENT.............................142

SIX: AUBREY MOORE ON EVOLUTION.....................................198

SEVEN: CONCLUSION AND APOLOGY.....................................284

BIBLIOGRAPHY...........................................................302
INTRODUCTION AND APOLOGY

Science had pushed the deist's God further and further away, and at the moment when it seemed as if He would be thrust out altogether, Darwinism appeared, and, under the guise of a foe, did the work of a friend. It has conferred upon philosophy and religion an inestimable benefit, by showing us that we must choose between two alternatives. Either God is everywhere present in nature, or He is nowhere....In nature everything must be his work or nothing. We must frankly return to the Christian doctrine of direct Divine agency, the immanence of Divine power in nature from end to end, the belief in a God in Whom not only we, but all things have their being, or we must banish him altogether.

Aubrey Moore in Lux Mundi (1889)

Aubrey Moore was an Oxford don known for his strong defence of the catholic position within the Church of England, and his striking religious assimilation of Darwinism. Then as now, some people found this combination paradoxical. How could an heir to the reactionary Oxford movement tolerate, much less welcome, a scientific theory which was celebrated as "the Whitworth gun" of an aggressive and agnostic liberalim? Could this man really expect that it was possible to hold together the divergent orthodoxies of science and religion? Before Darwin the two had been allied in natural theology: the study of nature offered evidence of God's benevolence and wisdom in His Creation. But now it was said by liberal agnostics and conservative churchmen alike that natural selection rendered superfluous a designing Creator. If you insisted on introducing God into the picture, the waste and suffering involved in a Darwinian explanation of evolution beggared any belief in His benevolence. Atheists crowed and old archdeacons
warned that Darwinism made a materialistic cosmology respectable, and displaced the religious world view. A few apologists challenged this polarization of science and religion, but few with the success and "fearlessness" of Aubrey Moore.

Conservatives dismissed Moore and his friends of the Lux Mundi group as traitors to their Tractarian heritage. Liberals complained that he didn't go far enough, and that his adherence to Anglo-catholic tradition was illogical and perverse. Others claimed that his approach really worked, and that it proved that the much discussed animosity between evolutionists and parsons had no real intellectual foundation, but was the stuff of professional prejudice.

Moore died young, a few months after his first collection of essays was published, and was soon forgotten by all but his Lux Mundi friends and a few influential Oxford biologists. While historians of Anglican theology paused to praise or condemn Moore's work, it was not given much attention until quite recently, when another group of historians turned their attention to his part in Victorian debates on the religious impact of Darwinism.¹ Now recent reviews of Moore almost match in number and variety the published reactions of Moore's

peers.²

The study of the religious reaction to Darwinism has been dominated by the quest to overthrow or modify the still popular "warfare thesis" which presumes an essential conflict between the naturalism of science and the supernaturalism of religion. Now we may characterize the relationship between Victorian science and religion by following James Moore, who has described a harmony between the world views of orthodox Christianity and Darwinism; or Frank Turner, who has explored the "professional dimension" of the competition between a post-Darwinian generation of scientists and old-guard parson-naturalists; or Robert Young, who has pointed to the continuity of an elite social authority, passed on like a mantle from theologians to scientists. Whichever approach we favour - conflict, co-operation, competition or continuity, we agree with their proponents that none of them capture the character of the relationship between Victorian science and religion as well as that overworked label, "complexity".

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I will investigate aspects of such complexity by discussing the apologetic work of Aubrey Moore in its context. A study of Moore as an Oxford Anglo-catholic who apparently accepted Darwinism, and befriended several Darwinian biologists, will cast light on the approaches described above, and clarify some of the issues which make the relationship between science and religion complex. Others have asked whether Moore’s acceptance of Darwinism was real. I find this a problematic approach, as I will explain below, and prefer to explore the circumstances surrounding his religious assimilation of science, and to evaluate it on its own terms.

Moore was an Oxford don, and his views can best be understood as reflections of his location. Science at Oxford had long been allied with orthodox religion, although the early Anglo-catholics had an ambiguous view of the value of natural science. They were uninterested in natural theology as an apologetic strategy, and so did not care when Darwin destroyed it. However, they insisted on the primacy of theology among the sciences, and so objected to natural science trespassing on theology’s ground in giving an account of human origins, a subject which had been the uncontested preserve of religion. We will consider the epistemological inheritance Aubrey Moore's generation received from those involved in the Oxford movement in the next chapter. Moore and his colleagues were also much influenced by Oxford's greatest nineteenth century philosopher, Thomas Hill Green, the father
of British Idealism. In the third chapter I will discuss his place among the influences which shaped the Lux Mundi group’s view of science and nature.

Moore wrote on the relations between science and religion in the 1880’s: in the fourth and fifth chapters I deal with popular controversies of this period. At Oxford, controversy over the ethics of animal experimentation from 1883-5, revealed a division between older and younger Anglo-catholics’ views on the moral authority of science. At the same time, debates over the historical authority of Genesis compared to that of geology provided a backdrop for the publication of Lux Mundi (1889), in which the younger Anglo-catholics’ support for science and biblical criticism was made manifest, to the dismay of their mentors.

While these debates had a local effect, Moore was grappling with the larger issue of Darwinism. Moore’s Keble college colleague, Edward Poulton, introduced him to neo-Darwinism, the idea that the sole mechanism of evolution was natural selection. Moore’s discussions of the religious impact of evolution, therefore, address the implications of the neo-Darwinian theory that was developing at Oxford. His “wider teleology” allowed him to find religious meaning in evolution, without limiting natural selection by invoking a power external to nature. He believed that the theory of evolution was part of a larger intellectual journey which led from science, to metaphysics to religion: Moore’s self-conscious
reversal of Comtean intellectual history will be examined, as will his subtle reflections on human evolution, teleology and theodicy in the penultimate chapter.

I will conclude with a discussion of the wider historiographical relevance of Moore's work, and what it tells us about the science and religion "warfare" thesis, and about modern alternatives.

This study needs to be located among other histories which have covered similar ground, and some explanation of its main categories, Anglo-catholicism and Darwinism, must be provided.

EXPLORATIONS OF THE VICTORIAN RELIGIOUS RESPONSE TO DARWIN

As suggested above, there is no shortage of histories of religious reactions to Darwin. While James Moore's Post-Darwinian Controversies was far from the earliest work in the field, its range and comprehensiveness have made it a landmark. James Moore organized the diverse reactions of British and American protestants into pro-, anti-, and pseudo-Darwinian schools. Following the lead of earlier critics, he

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attacked the still popular and powerful "warfare model" of Victorian science and religion, and demonstrated that it was a historical myth. His work succeeded in convincing many where others had failed. Less successful was his main thesis, that those who were theologically orthodox accepted real Darwinism, whereas liberals constructed a progressivist pseudo-Darwinism, or "Darwinisticism". Aubrey Moore was one of the four exemplars of the orthodox school of Christian Darwinism which James Moore held up as a counter-argument to the "warfare model".

Critics of the idea of "Christian Darwinism" found James Moore's definition of religious "orthodoxy" vague, and questioned the extent to which his chosen theologians adhered to anything like "real" Darwinism. Surely they, like the so-called "Darwinisticists", diluted science with metaphysics to make it theologically palatable. A few historians, apparently happy with the apologetic value of the "Christian Darwinism" thesis, still cite the Post-Darwinian Controversies as proof that orthodox theologians can greet scientific discoveries with open arms. It is perhaps enough to say here that James Moore himself no longer defends the idea that there ever was (or ever can be) a school of "Christian Darwinism" in the sense that he originally suggested: he maintains that "Darwinism is naturalism."  

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4 Personal communication, 1994.

These studies treat a range of protestant reactions to Darwinism, either focusing on American examples or, like James Moore's work, surveying both British and American sources. Given their broad range, their examination of the

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relationship between ideas and their religious, political, and institutional contexts has been necessarily limited. Both Wells and Roberts nod to this as a problem, but play down the importance of social and political factors to their work. Indeed Roberts considers

the theological issues that arose in the wake of the theory of organic evolution sufficiently complex, significant, and compelling in their own right to justify systematic investigation and explication. ¹

I do not wish to attack the study of ideas, but any "investigation and explication" of issues which play down their local context will be at best partial. The consideration of social and political factors does not compete with but complements the study of cognitive factors in history: the best recent histories of science show that they are often interdependent rather than mutually exclusive. The theological or scientific issues may indeed be intrinsically "compelling", but no estimate of their importance or originality is possible without a glance up from the text.

While surveys provide an intellectual background to protestant religious views on evolution, some more limited studies in this area have paid close attention to local circumstances. Livingstone has shown how John Tyndall’s (in?)famous Belfast address of 1874 provoked a strikingly

hostile reaction to evolution among Belfast presbyterians compared with the conciliatory attitude of their American brethren. John Stenhouse, in a number of finely textured studies, has analyzed the religious response to Darwinism in New Zealand by considering the development of its scientific community and its alliance with the religious establishment.  

My study attempts to follow in the same vein. It is painted on a small canvas and focuses on Moore's Oxford context in some depth. The change in Anglo-catholic attitudes to science is documented through a consideration of Moore's Oxford movement elders, his own part in controversies of the 1880's, and the reactions to his essays in 1889. The issues described in the chapter on evolution—teleology and theodicy—also have an Oxford connection, since they were most important to Oxford biologists who were defending neo-Darwinism. In maintaining a narrow focus I will explore in depth some of the philosophical and political questions involved in Moore's religious assimilation of science. I will also broaden the theological and scientific spectrum of religious reactions to evolution by describing in detail an

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Anglo-catholic reaction to a particular Darwinian school of evolutionary theory.

**ANGLO-CATHOLICISM**

As well as being a detailed study of a centre of Anglicanism and Darwinism, a consideration of Aubrey Moore must take into account the fact that he was not a protestant but an Anglo-catholic. He would have had little pleasure in knowing that he was remembered as one of the "protestants" who accepted Darwinism according to James Moore. He and his colleagues were the theological heirs of the Oxford movement, and their combination of Tractarian dogmatism and the liberal acceptance of some advances in scientific and historical knowledge became an influential position in the early twentieth-century Church of England.

To make a distinction between protestant and catholic Anglicans may seem an oversensitivity to sectarian squabbles, but the importance of the division at the time was great. Aubrey Moore wrote more on the excesses of the reformation than he did on the impact of science, and his witty attacks on protestant causes in the *Guardian* won him praise from the old leaders of the Oxford movement. The differences between Anglo-catholics and Low Churchmen in the Church of England were not limited to controversial points of liturgical ritual, but sprung from disagreements about sources of religious authority, the relative importance of certain doctrines, and
the roles of reason and faith in Christian life. There were certainly similarities between the parties, but differences in biblical hermeneutics and ecclesiology produced different apologetic tactics which are reflected in their distinct responses to Darwinism. In short, religious parties have distinct epistemologies, which can divide them despite an apparently common creed.

In the 1830's the Oxford movement spent its energies in promoting the catholicity and divine authority of the reform-beleaguered Church of England. When its most famous leader, John Henry Newman, and many others, seceded to Rome in the early and middle 1840's, it may have lost its power as a movement, but there remained a large party of influential adherents to its principles within the university and the Anglican communion. Despite defections to Rome, and suspicions raised by its encouragement of Roman liturgical practices, this group, eventually dubbed the Anglo-catholic party, survived the political and religious struggles of the nineteenth century to enjoy popularity well into the twentieth. Members of the party often referred to themselves

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8 The founders of the Oxford Movement were known as Tractarians, after their controversial Tracts for the Times of the late 1830's. By the mid- to later nineteenth century they and their followers were generally known as Anglo-catholics, for their emphasis on the catholicity of the Church of England. I will use this name throughout, while recognizing that there were changes in the positions it represented from the 1830's to 1880's. Since all, however, viewed themselves as members of a "catholic" Church of England, the name "Anglo-catholic" captures the main character of the evolving movement. See P.
as simply "catholic". By the late nineteenth century the term was so common as to be used without any fear of its being misinterpreted as indicating membership in the Roman Catholic Church.

Of course Anglo-catholicism was not immune to change. As a party it evolved, even while it "disintegrated" after the 1840’s. From the outset it was not identical with the old High Church party, which represented more traditional Oxford conservatism, and feared the Movement’s "romanizing" tendency. Anglo-catholics were more vehement in their reactions to the apparent erastianism of government than High Churchmen, and strove to restore the Church to its pre-reformation importance in national life rather than resting content with High Church Toryism.

Anglo-catholics identified with the Tractarian position on the metaphysical reality of the Church, the authority of which extended not only to matters of personal holiness and orthodoxy, but to the work and idea of a university. At the

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height of its power in the 1830's, the Movement strongly opposed Liberal and Tory reforms which threatened to disestablish Church and university, and it struggled to impose its own vision of reform on Oxford.

This emphasis on orthodox ecclesiastical authority made early Anglo-catholics unsympathetic to apologetic tactics with an ecumenical appeal. They were never part of a pre-Darwinian "common context", or "truth-complex" in which science was united to religion by providing evidence of God's ingenious design of organic nature. They were hostile towards the ecumenical liberalism of the founders of the British Association for the Advancement of Science, and unconvinced by their use of natural theology as a religious apology for science. Tractarians maintained that natural science, like all study, was God's, and so had to be pursued with a consciousness of human limitations and duties, including loyalty to the Church of England.

The Lux Mundi (1889) essayists of the late nineteenth century had a greater respect for the intellectual independence and authority of science. They were "Anglo-catholics" but were also known as "liberal catholics" since they treated socialism, science, and biblical criticism sympathetically in their essays. Lux Mundi's editor, Charles

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Gore, described it as "an attempt to put the Catholic faith into its right relation with modern intellectual and moral problems". Some of the essays were controversial, especially Gore's, which admitted the conclusions of certain professional critics who read the Bible "like any other book": Moses had not written the Pentateuch, and Christ had spoken only with human knowledge when He had named Moses as the pentateuchal author. Henry Parry Liddon, Gore's teacher, and many other older Anglo-catholics, were shocked at the "rationalizing" of the younger generation.

But the Lux Mundi controversy was not the first evidence of a fracture between the older and younger generation of Oxford Anglo-catholics. The two generations had found themselves on opposite sides of Oxford's fierce debate over vivisection in the mid-1880's. As we shall see in chapter four their divergent views over the freedom and value of science came to the fore in this battle.

Although they seemed to differ from their teachers about the authority of science, the younger Anglo-catholics still shared with them an antipathy to natural theology, and the religion of "evidences" it had sprung from. Their faith was drawn from deeper, or at least more personal wells. Their belief in God's action and presence in the world as well as in the Church allowed them to accept some scientific knowledge which had been dismissed by their more conservative elders, but the gap between the Anglo-catholic generations was not as
great as it appeared. Both believed that science and all knowledge were given by God, though they differed in their view of its secular exponents.

It must be briefly noted that liberal catholicism within the Church of England was quite a different phenomenon than the movement that went by the same name in the Roman Catholic Church. The theological modernism associated with Roman liberal catholicism inspired some interest within the Church of England, but Charles Gore, as bishop of Oxford in the first decades of this century, strongly attacked modernism. The Church of England liberal catholics were after all "catholics" and believed in the dogma and miracles which modernists deprecated. Under Gore's leadership liberal catholicism became an influential and popular apology for orthodox Anglicanism in the first part of our century, and its champions attacked modernism on one hand and Romanism on the other. The question of whether the Lux Mundi group successfully balanced Tractarian orthodoxy with Broad Church sympathy toward secular knowledge ("freedom with authority") is still debated. ¹³

**DARWINISM**

When Charles Darwin published the *Origin of Species* in 1859 his views became known as Darwinism. In the 1860's and

70's, however, "Darwinism" was often used merely to indicate the idea of biological evolution, without particular reference to Darwin's idea of natural selection. Darwin himself incorporated different evolutionary mechanisms in successive editions of the Origin, including the Lamarckian inheritance of acquired characteristics. After Darwin's death in 1882, August Weismann claimed that traits acquired during an individual's lifetime could not be inherited by its offspring, and that natural selection was the only mechanism of evolution. His work, supplemented by Alfred Russel Wallace's, precipitated the formation of a school of neo-Darwinism, whose adherents dismissed other mechanisms of evolution. They were well represented at Oxford, where Edward Poulton, Moore's friend, helped to translate Weismann's work into English.

The wider effect of Weismann's dogmatic insistence on "hard" heredity, however, was a backlash against natural selection. Other schools of evolutionism - Lamarckian and otherwise, became popular in the decades around 1900. Even those sympathetic to natural selection, like Darwin's disciple George Romanes, dismissed the neo-Darwinists as narrow-minded "ultra-Darwinists" who would not consider the possibility of other mechanisms of evolution. Darwinism as we know it, with natural selection as the sole and central mode of evolution, only came into existence with the "new synthesis" of the 1930's and 40's.
Aubrey Moore was friends with both Romanes and Poulton, but favoured Poulton's neo-Darwinism, and addressed its implications in his religious assimilation of evolution. The question most often asked of Aubrey Moore's work is whether it represents a real Christian acceptance of Darwinism, as suggested in James Moore's *Post-Darwinian Controversies* (1979). While some have agreed with James Moore, most historians assume that any reconciliation between Darwinism and Christianity has involved some metaphysical watering down of a fully naturalistic theory. In the 1950's, Morse Peckham distinguished between nineteenth century "Darwinism and Darwinisticism", the former being based on the science found in the *Origin of Species*, and the latter having more to do with a popular metaphysical doctrine of progressive evolutionism. The distinction is useful and has taken root in most modern studies, though Peckham's rather awkward term "Darwinisticism" is commonly referred to now as "pseudo-Darwinism".¹⁴

I think that the attempt to divide "real", naturalistic science from science with a non-naturalistic metaphysic is historically problematic. To distinguish "real" from "pseudo-Darwinism" seems to be an imposition of an ahistorical

category on historical actors and ideas. It misdirects attention from historical changes and nuances in the meaning of "Darwinism" and falsely separates Darwin's science from his metaphysics. Some recent studies of Darwin and his coterie have addressed these interesting problems, but considerations of religious reactions to Darwinism too often remain locked in the embrace of a definition of what Darwinism is, a definition which is read back onto history to exclude certain schools of thought from the category of "Darwinian", to try to limit what Darwinism was. 15

The term is notoriously difficult to pin down and has been given a wide variety of interpretations, as anything from the theory as held by Charles Darwin to the theory of evolution in general. Of course the most commonly accepted definition of Darwinism remains "evolution by natural selection". The phrase needs unpacking however. It means evolution by natural selection (or sexual selection) alone, and the natural selection of small, random (or undirected) variations. Darwinian evolution, then, is not progressive, and neither requires nor allows a role for a supernatural being. Ernst Mayr, an influential modern biologist and historian of biology, has pronounced this the best definition of

This definition of Darwinism is widely held today. It is, however, the eventual result of earlier debates, and its emphases on naturalism and non-progressiveness, have been forged in reaction to competing views of evolution. It is anachronistic to take this end-point of a historical process and to use it in analysing the rather chaotic history from which it resulted. As recent studies have shown, Darwinism itself evolved, both in its scientific content and in the politics of its use.\(^{17}\)

This is why I will avoid considering Aubrey Moore's response to Darwin and his followers as a religious reconciliation with either "real" or "pseudo-" Darwinism. In a letter to Poulton, Romanes referred to Moore's early death as "a loss to Darwinism on the popular side." There was no question of whether Moore was a real or a pseudo-Darwinist among Moore's scientific friends - only the recognition of his role as an important popularizer of a controversial scientific theory, and an appreciation of his work. The service Moore performed for science shall be discussed fully, along with the details of his views on the Darwinism of his day, in the fifth


chapter. One term Moore popularized however, the "wider teleology", should be mentioned here to suggest how it related to the neo-Darwinism of 1880's Oxford.

Those who view religious defenders of Darwin as pseudo-Darwinists often take pains to show that religious evolutionism was teleological, while scientific evolutionism was not. For instance, evolutionists with strong religious views often supported neo-Lamarckian or other progressive mechanisms of development, which pointed to progress as evidence of God's beneficent plan. Indeed, many religious evolutionists tried to maintain some version of Paley's natural theology, inasmuch as they still worked to find evidence of God's action and beneficence in nature. Their views of evolution were often explicitly teleological: they believed that nature was unfolding along a divinely preordained path, according to the purpose of God.

Of course, the proposal that God's directive action could be detected lead them into conflict with Darwin, who defended the explanatory sufficiency of natural causes. The Duke of Argyll, for example, supposed that the presence of beauty in organisms could not be adequately explained by Darwin's theory, and so must be adduced as evidence of the generosity and keen aesthetic eye of God. Darwin pointed to sexual selection, and insisted that a natural explanation of beauty was possible and sufficient. Asa Gray suggested, more subtly, that variations were not random, but directed by God: Darwin
noted sourly that this view would render natural selection "superfluous".

Peter Bowler has described Gray's suggestion as a pseudo-Darwinian search for a divine plan in nature - a relic of pre-Darwinian idealism. Here idealism refers to the biological idea that there is a divine plan or pattern beyond nature which nature follows. This kind of teleological recasting of biological evolution was steadfastly opposed by Darwin and most men of science who were working without Christian apologetic in mind. It obtruded an external agency into nature which limited the scope of science, and so was not acceptable to this young, professionalizing community.

However, there was another kind of idealism and another kind of teleology which did not raise such opposition from men of science, and which has gone largely unnoticed in this period. The idealism in question was not that of biologists, but that of philosophers. Under the leadership of Oxford's Thomas Hill Green, the British idealists introduced a perception of nature in which its internal order and complexity took on a new significance. Aubrey Moore saw affinities between this idealism and the teleological language of neo-Darwinism. He claimed that there was a "wider teleology" which could confirm, but not be held as evidence for, Christian belief.

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Darwin insisted that every organ and organism had come into existence through a process of selection: all organs had a purpose, which was the survival of the organism they belonged to. Moore held that the omnipresence of natural order and proximate purpose which Darwinism revealed, could be interpreted by Christians as the constant, immanent presence of God. God did not "design" life, and exist outside of it. God's creative action was ongoing and immanent in nature. It was impossible to prove that the universal reign of law reflected divine action, but Christians convinced of their faith on other grounds, could read this religious meaning into an otherwise naturalistic scientific theory.

The difference between the two kinds of teleology lies in the relationship between God and Nature implied in each. For those like Gray and Argyll who sought evidence of God's work in Nature, God and the pattern He imposed on nature were thought to be detectable elements external to Nature. It was the progressive or aesthetic character of the divine plan which differentiated it from the utilitarian and godless action of natural selection, and which allowed for some reworking of the old natural theologians' argument from design.

By contrast, Aubrey Moore suggested that the omnipresence of utility revealed by natural selection was order or pattern enough for Christians to ascribe it to the Creator's working within nature. No natural theology proving God's existence
could be raised on this foundation, and Moore cheerfully abandoned it. The apologetic value of his position lay in the fact that he could agree with his scientific friends on how evolution acted, but offer an alternative explanation of its meaning to that understood by positivists and scientific naturalists.

It can not be argued that Moore really was a Christian Darwinist while others were Christian pseudo-Darwinists. His "wider teleology" was developed in the 1880's while the very definition of "Darwinism" was being hotly debated by his biologist colleagues at Oxford, and he was careful not to commit himself or his fellow Christians to any one interpretation of the history of life. He tended towards neo-Darwinism because of his close contact with its champions and because its constant emphasis on utility best accorded with the omnipresence of natural order suggested by British idealism. The neo-Darwinism of the late nineteenth-century is not identical with the Darwinism of today, and I do not wish to suggest that there is anything ultimately "better" about Moore's views on evolution than those of the Duke of Argyll or Asa Gray. However, Moore's abandonment of an external teleology and his consequent acceptance of natural selection did win him respect from his neo-Darwinian friends, and made him a valuable ally in their attempt to convince the public that their view of nature was respectable and correct.
I will conclude with reflections on the changing nature of apologetic and the importance of local politics, academic and popular, for our understanding of the complexity of the "science and religion" debates. Historians have attempted to find other models to replace the inadequate warfare model, and not surprisingly, have failed to capture in a single model the diversity of opinions held. Given that the practices of science and religion are in themselves diverse, this failure is a sign of success. We are escaping from a historiography of titanic forces and overarching patterns, and reintegrating intellectual history with the local situations which produced it. Those who still speak of the relationships between science and religion as if they were phenomena describable in purely philosophical language, might do well to look at the power of local circumstances to shape ideas.
TWO: THE OXFORD MOVEMENT AND OXFORD SCIENCE

Acland told my tutor that it was a mistake to suppose that Science and Medicine in Oxford were opposed in the '50's by the theologians. On the contrary, they were supported by them, most of all by Dr. Pusey. There were some advocates of Natural Science whose private characters would not bear investigation. These men were disapproved of, not their subject.¹

H. C. Harley, M.D. 1969

In August 1894, the Marquis of Salisbury, Chancellor of Oxford, looked back with a mixture of indignation and chagrin at the hostile reaction of Oxford Movement leaders to science. As president of the British Association for the Advancement of Science, he recalled its first meeting in Oxford in 1832, and told how John Keble had complained to his friend Edward Pusey that "The Oxford Doctors have truckled sadly to the spirit of the times in receiving the hodge-podge of philosophers as they did."² Salisbury described Keble's comments as representative of "a deep-seated sentiment in this place of learning...which has only died out in our time."³

As we see in Harley's more recent report however, there was a much different view of Tractarians within Oxford's scientific community. Harley's tutor, the biologist Frank


² Salisbury was citing H.P. Liddon's Life of Edward Bouverie Pusey vol. 1, (London:, 1893-97), p. 219. The "hodge-podge" are discussed below.

Dixey, spoke with H. W. Acland, the retired Regius Professor of Medicine, shortly after Salisbury made his slighting reference to Tractarians: Acland insisted that the Tractarians had helped the cause of science at Oxford, and Dixey, an Anglo-catholic layman, apparently tried to advance this view.\footnote{Harley's recollection (note 1) is confirmed in the diaries of F.A. Dixey, Dec. 17, 1894, MS. Eng. misc. d. 879, ff. 66-67.}

By the close of the nineteenth century, there were different opinions in Oxford on how the Tractarians had regarded and influenced the course of science.

This difference of opinion about the attitude of the Oxford Movement to Oxford science is re-echoed in current historiography. Nicholas Rupke claims that their "anti-scientific attitude" slowed the development of geology at Oxford; Pietro Corsi implies that the leaders of the Oxford Movement simply couldn't imagine that science was very important; while Peter Nockles reports that their "attitude to actual scientific discovery was both positive and detached", though they were critical of such institutions as the British Association.\footnote{N. Rupke, The Great Chain of History: William Buckland and the English School of Geology (Oxford: Clarendon, 1983) p. 267; P. Corsi, Science and Religion: Baden Powell and the Anglican Debates, 1800-1860 (Cambridge: Cambridge U.P., 1988) p. 136; P. B. Nockles "An Academic Counter-Revolution: Newman and Tractarian Oxford's Idea of a University" History of Universities, 10 (1991), 137-97, p. 161.} Of course members of the Oxford Movement differed on this as on other issues, and their views changed.
as the movement disintegrated and changed into Victorian Anglo-catholicism. Only a comprehensive and contextualized reading of the wide variety of Tractarian statements on science could determine properly their meaning and their significance for the development of Oxford science.¹

Unfortunately this kind of reading is beyond my purview. I can only draw attention to some results of the fact that Tractarians had a greater respect for the epistemological value of theology than that of the natural sciences. I will consider four statements by Tractarians on science, and show that while all held that theological concerns should be paramount in the pursuit of any study, the views of Richard William Church on the *Vestiges of the Natural History of Creation* (1844) foreshadowed the emphasis on divine immanence which allowed the Aubrey Moore and later Anglo-catholics to welcome Darwin: all evolution needed to become orthodox was the right religious metaphysic. I will show also, that even the less apparently sympathetic view of science held by Edward Pusey, was not one of outright hostility: Acland was Oxford’s most successful champion of science education, partly because he gained Pusey’s support by integrating it with the unique religious ethos of the university. The alliance of science and Anglo-catholicism is commemorated in the architecture of the

¹ Such a reading now seems possible given the historiographical resources supplied in P. Nockles *Oxford Movement in Context* (Oxford: Oxford U.P., 1994).
Oxford Museum. I will close the chapter by considering the breakdown of that alliance after the rise of Darwinism. Pusey considered Darwinism so speculative as to be "unscience", and prayed that future naturalists would disprove the belief in human "apedom". Shortly after Pusey's death in 1882, however, it was the metaphysical approach of Aubrey Moore, rather than the work of a scientist, which allowed the findings of natural science to be assimilated by Anglo-catholics.

TRACTARIANS ON SCIENCE

Tractarians were concerned about science because they feared it would be perverted by those opposed to the interests of the English catholic Church: latitudinarians, infidels, and materialists. While evangelicals or protestant High Churchmen objected to geological theories which contradicted the Bible, and liberal Anglicans defended the ground of natural theology from attack by evolutionary theorists, the Tractarians viewed the results of both fields of study with considerable equanimity until 1859, though they were concerned about their theological interpretations. They had the Church as the ground of their religious authority and the seat of their faith, and so had no need to fear discoveries which undermined

the arguments of their religious enemies. However, they believed that science, like all fields of knowledge, should be part of a wider, orthodox Christian circle of truths.

Their emphasis on the certainty of theological knowledge granted them a certain detachment when considering scientific facts or theories, although this detachment occasionally shaded into doubt about the possibility of physical sciences attaining anything like certain knowledge. Four texts by Tractarians suffice to show what they held in common in their views on science, and where they differed.

John Bowden’s 1839 attack on the British Association demonstrates the social basis of Tractarian suspicion of scientists. Richard William Church, in an essay on the scientific community’s response to The Vestiges of the Natural History of Creation (1844), also attacks scientists, although he explicitly defends science. Edward Bouverie Pusey’s polemic on Collegiate and Professorial Teaching (1854) contains brief but telling remarks about the predominance of theological concerns and the limits of science. Finally John Henry Newman’s Idea of a University (1872, based on discourses delivered in the 1850’s), while composed after he became a Roman Catholic, shows how he thought science fit in with an Oxford-style liberal education dominated and united by theology. Pusey corresponded with Newman on the subject of geology in the late 1850’s, and Newman’s Idea was an important resource for his later statements on science. While omitting
many more explicitly theological and homiletic texts, this brief survey shows that Anglo-catholic opinion about the epistemological value of science was coloured by ambivalence about its ultimate significance and suspicion of the latitudinarian creeds of its practitioners.

In 1839 John Bowden wrote an article for the *British Critic*, at the urging of its editor, his old college friend, Newman. Although by title it was a review of the first six reports of the meetings of the British Association, in substance Bowden’s work is a far ranging critique of the social, intellectual, and religious practices of the "gentlemen of science", which Bowden considered to be manifestations of the utilitarianism he so hated. Bowden was not criticizing science in general, but the particular errors of the new and popular British Association. His antipathy was widely shared by Tractarians.

Bowden opened by arguing against the "march-of-mind" ideology of the leaders of the Association; he believed that

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the current generation knew and saw less than their ancestors had, since they had narrowed the focus of their ideas to the realm of the earthly. For instance, modern thinkers had come to think of the monarchy as a worldly, political institution and had forgotten the reality of its priestly and divine character. Likewise they had come to see the Church as an outgrowth of the nation, forgetting its eternal and metaphysical ties. Given this narrowing of views to focus on the tangible and earthly, Bowden claimed that "it is not surprising that physical science is popular."\(^{10}\)

Having located science among political and ecclesiastical views opposed to Tractarian ideals, Bowden disclaimed any intention of attacking it: he was not one of those who feared that men of science "might discover too much, might carry their researches too far, and were ever on the verge of abysses in which the faith and peace of the Christian world might be irrevocably engulfed..."\(^{11}\) Apparent discrepancies between revealed and human knowledge were the unsurprising result of the limitations of human thought before divine mysteries. Rather Bowden rounded on the members of the British Association, and the moral dangers that ensnared them. These were apparent in their flashy, popular experiments, their entertainment of ladies, and their mingling of humour and

\(^{10}\) Bowden, "British Association", p. 8.

\(^{11}\) Ibid., p. 14.
scholarship: Bowden characterized their migratory meetings as something between a mock royal progress and a travelling fair. Such behaviour could only distract their attention from their professed object, the advancement of science, which was better done in the quiet anonymity of a metropolitan society.\textsuperscript{12}

More serious than these social distractions, though not unrelated, was the problem of the Association's religion. Bowden noted that the men of science ignored their religious differences in their meetings, and feared that they would be "...tempted...to put scientific fellowship...into the place of the communion of the Church."\textsuperscript{13} When latitudinarian patrons of the Association claimed that "Love one another" contained the essence of Christian faith, Bowden could only warn that this idea

...when brought forward alone as the single dogma of a religion [is] the symbol not of the faith of the Gospel, but of that anti-christian pseudo-philanthropy which characterizes the fashionable infidelity of our own generation, as it did the blood-stained jacobinism of our fathers.\textsuperscript{14}

Their Association not only encouraged latitudinarianism by example, it was also the vehicle by which it had entered Oxford in 1832, when honorary degrees were given to four famous men of science who were also Dissenters. This move, the university's nod of recognition to the wider reforms passed by

\textsuperscript{12} Ibid., pp. 20-30.

\textsuperscript{13} Ibid., p. 19.

\textsuperscript{14} Ibid., p. 36.
parliament (1828-1832), provoked Keble's complaint about the "spirit of the times" and the "hodge-podge of philosophers", and made Tractarians suspicious of the liberals who backed the British Association and undermined the historical relationship between the Church and the university. Bowden lamented that they wanted to advance science by putting "the Church and her faith in the back ground"; this approach was to be resisted especially in the university, where Tractarians were struggling to maintain and revitalize Oxford's ecclesiastical and monastic heritage.\footnote{Ibid., 43. See also Morrell & Thackray, Gentlemen of Science, pp. 232, 390-91, and Orange "Idols of the theatre", p. 282. The four Dissenters admitted were Michael Faraday (Sandemanian), David Brewster (Presbyterian), John Dalton (Quaker), and Robert Brown (Quaker).}

Bowden advised the Anglican man of science against such fraternizing with Dissenters as went on in the British Association:

Even though his knowledge of nature would, as it appears to him, be most efficaciously promoted by his entwining himself in links of fraternal union with the heretic, the sectarian, and the infidel, he is to remember that he has higher duties than the promotion of such knowledge, as the earth has higher needs than its advancement.\footnote{Ibid., p. 48.}

Bowden did not discount the epistemological value of science, though he did cast doubt on its ultimate significance. He describes it as a "glorious path to knowledge which the universe of material nature opens to our footsteps".\footnote{Ibid., p. 8.}
attack is focused on its students who he considers responsible for "riveting" upon "the pursuit of natural science...the chain of rationalism - the latitudinarianism - the anti-Church, and therefore anti-Christian, theology of our time.""

Science then, for Bowden, like all other forms of intellectual activity, ought to be pursued by gentlemen of orthodox religious views, in societies which recognized that the fundamental bond of union between men was provided by the Church. That the British Association was not such a society was apparent, and the fruit of its error was visible in the unscholarly and worldly character of its wanderings. But this idealized vision of science practiced in an orthodox Anglo-catholic setting would never come true, and as a consequence, its claims to epistemological authority would continually be held suspect.

Bowden's article was the strongest condemnation of the British Association issued by the Tractarians, but their antipathy to the new gentlemen of science, and to their neglect of orthodox theology, was continued into the 1840's. This is clear in the work of Richard William Church, later Dean of St. Paul's, who was an Anglo-catholic of a rather more liberal stripe than most of his generation. He is best remembered now for his history of the Oxford Movement, but might also be recalled for his strong influence on later

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18 Ibid., p. 46.
Anglo-catholics. He was among the first reviewers for the 
Guardian, a new weekly for Churchmen, which would become the 
voice of liberal catholicism.19

In 1846, Church, who had an amateur interest in science, 
reviewed Robert Chambers' Explanations (1846) of his Vestiges 
of the Natural History of Creation (1844).20 The latter work 
was notorious at the time for its popular presentation of a 
cosmic evolution from the formation of the planets to the 
natural development of man. It met with strong criticism from 
the leading men of science, who wanted to distance their 
science from the materialistic implications of this popular 
work. They were also anxious to answer its attack on natural 
theology, their own popular religious apology for science.21 
Church paid less attention to the theory and argument of the 
Vestiges than he did to the inadequate response to its

19 W. R. Ward, "Oxford and the Origins of Liberal 
Catholicism in the Church of England", Studies in Church 

81, mentions his friendship with the American botanist Asa Gray 
and his small chemical laboratory in a shed behind his 
parsonage. He also attended the chemical lectures of Charles 
Daubeny in 1843, the only Tractarian to do so after 1832. R. 
Günther, A History of the Daubeny Laboratory: Magdalen College, 
Oxford (London: Henry Frowde, 1904), Appendix E.

21 See J. Secord, "Introduction" to R. Chambers Vestiges of 
the Natural History of Creation, and other evolutionary 
"Science and Intellectual Authority in mid-nineteenth century 
Britain: Robert Chambers and Vestiges of the Natural History of 
Creation", Victorian Studies 28(1) (1984), pp. 5-31: Morrell & 
Thackray, Gentlemen of Science, pp. 224-29.
evolutionary theory from men of science, as exemplified by the savagery of Adam Sedgwick's attack in the Edinburgh Review. Church believed that, for all his "rashness and ignorance", the author of the Vestiges had come up with a theory "in the direction to which modern science is pointing and may go." He defended the anonymous "vestiginarian's" emphasis on natural law and his attempt to cast the facts of natural history into a systematic theory. These were, to Church's mind, reasonable and fair pursuits in natural science. While he referred to the "writer's dreary Epicureanism" and erroneous theology, he felt that the book itself posed little moral danger to the public. His treatment of the Vestiges is sympathetic, and his attack on its critics is perceptive and merciless.

Church thought that the author of the Vestiges had the advantage of his critics in "tone and style":

His opponents...have forgotten not merely the much-vaulted philosophic virtue of indifference to consequences, but very frequently the humbler one of courtesy...they...have exhibited some of those weaknesses and inconsistencies which they are wont to charge on politicians and theologians. With the British Association and its jokes in our mind, we scarcely expected the Edinburgh Reviewer to be shocked at the indelicacy of the


21 Church, "Explanations", p.55.
Vestiges, or to protest against bringing the details of science before the public."24

With this dig against the British Association - Church shares Bowden's distaste for its social indelicacies - he turned to the inadequate line of criticism its supporters offered up against the Vestiges.

This he complained, was based on scientific "...details, about which our knowledge shifts from day to day."25 The firm ground of theology, not the shifting sands of science would provide the basis for a proper judgement of the theory of the Vestiges. The author of the Vestiges believed that if God acted by natural law this excluded God's "special and personal acting", and his scientific critics, in their vehement condemnation of creation by natural law "practically admit the infidel premise."26 Church suggested that

If a man really thinks that there is any more "special exertion or fiat" of divine power in creation than in providence, - if he thinks that God is not as really present whenever rain is falling or fire ascending, as in the beginning of the world, we should tremble for his faith. But if the two notions are thought compatible... the true answer to [the Vestiges'] mischief is not a heap of apparent exceptions to the "natural order," which further knowledge may and is likely to resolve, but an account of what "natural order" means. And it is not in physics or in history that we must seek for that account.27

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24 Ibid., p. 54.
25 Ibid., p. 56.
26 Ibid., pp. 57-58.
27 Ibid., p. 59. Emphasis in the original.
He saw in the *Vestiges*,

the revenge of moral and metaphysical science on physical. We can remember great men in the latter sporting with the fears of orthodoxy, and sneering at the dreams of scholasticism. They may want a little of both perhaps now, to help them out of some disagreeable conclusions.  

Church sees a theological solution as the only possible response to the religious difficulties suggested by the evolutionary theory of the *Vestiges*, which as he correctly foresaw, would eventually be confirmed, in essence, by modern science. He urged readers to

Keep in view the great principle that belief in God does not depend upon the natural: that nature is not the real basis of religion, and we can safely afford full and free scope to science....[I]t is not by repeating in its old shape the starveling argument of Paley's *Natural Theology* that we shall keep out the infidel spirit that threatens to make use of science. The *Vestiges* warns us...of the vanity of those boasts which great men used to make that science naturally led on to religion.  

He called on the metaphysician, not the man of physical science, to "meet the march of that science which openly threatens to be infidel, because no one will help it to be Christian."  

His reaction to the troubles of men of science over the *Vestiges* was not mere *schadenfreude*, but a strong statement of the importance of orthodox religious beliefs in the proper interpretation and setting of science. Like Bowden, Church

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28 Ibid., p. 56.
29 Ibid., p. 65.
30 Ibid.
attacks men of science not because of the nature of their
studies but because of their neglect of theology. Church
questioned the ultimate value of objections based on changing
details, but believed that further research could and would
prove an evolutionary picture of the "natural order". He
called for the free development of scientific study, and
challenged its practitioners to cultivate it "freely" and
"philosophically". ¹¹

Church's reaction not only suggests a dimension to the
religious reaction to the Vestiges as yet little noticed, but
also demonstrates that even those who, to modern eyes, seem
remarkably perceptive in their appreciation of evolutionary
theory, may have based their support on assumptions remarkably
different from those usually made today. ¹² While Church would
prove more supportive of evolutionary theory than other
Tractarians of his generation, his grounds for being
supportive were rooted in their common belief in the close
relationship between the natural and the divine, and therefore
in the importance of religious orthodoxy for the proper
interpretation of natural philosophy.

For example, Edward Bouverie Pusey was, as we shall see
later in this chapter, strongly hostile to Darwin's

¹¹ Ibid., p. 64.

¹² See for example A. Desmond & J. Moore, Darwin (London:
account of the religious reaction to Vestiges.
evolutionary theory, but his underlying views about science were similar to Church's. Pusey was the leader of what was left of the Oxford Movement after Newman (and others) converted to Roman Catholicism in the 1840's. As the Regius Professor of Hebrew he battled the tide of liberalism which was pushing the university into line with larger parliamentary reforms. He also worked to keep the liberal study of biblical criticism out of Oxford, and while his conservatism wavered in some of the battles he engaged in, he seems to have deserved his reputation for strict, dogmatic severity of opinion on a wide range of fronts." Pusey was both the spiritual leader of the Anglo-catholics at Oxford, and their vocal defender on the governing Hebdomadyal Council of the university. Following the recommendations of the report of the Royal Commission on University Reform (1852) and the controversy that followed, Pusey wrote the most significant criticism of its findings, Collegiate and Professorial Education (1854), in answer to one of its liberal defenders, Henry Halford Vaughan." 

While liberals agitated for a strong researching university on the German model and the curbing of collegiate

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powers, Pusey argued that the colleges were necessary to the true function of the university, which was to create fully formed minds, and not books. Gradual reform of the colleges, by God’s providence, and not revolutionary change, was the only way to ensure that the pastoral function of the collegiate tutor, who helped to form the undergraduate’s moral and intellectual character, would not be swept away by the advancement of learning, the function of the lecturing university professor.

Pusey also emphasized the importance of keeping theology in mind in all branches of study, since only religion could grant learning any meaning:

All things must speak of God, or they are atheistic. History, without God, is a chaos without design... Political economy, without God, would be a selfish teaching about the acquisition of wealth...Physics, without God, would be but a dull enquiry into certain meaningless phenomena...All sciences may do good service, if those who cultivate them know their place, and carry them not beyond their sphere....But all will...tend to exclude God if they are not cultivated with reference to Him. History will become an account of Man’s passions...Physics will materialize man, and Metaphysics God."

Pusey knew that enemies of the Church could make use of academic subjects, and so he was anxious to preserve a system of education, and an ideology, which would preserve them for orthodoxy. His call for an orthodox interpretation of science, like Church’s, does not call into question the epistemological

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value of science, though a subsequent comment seems to suggest that Pusey and Church differed on this point.

In answering Vaughan's charge that religious teachers disliked physical science, Pusey revealed a certain distrust about the validity of the historical sciences. Vaughan claimed that some feared that science would challenge "the absolute authority or traditional interpretation of ancient writings."

Pusey replied,

"Ancient writings" is a strange title for "God's word." I hope that Prof. Vaughan means that the persons of whom he thus speaks are wrongly anxious, if they think that "the absolute authority" of God's word can be shaken by any discoveries in physical sciences. "Traditional interpretation" is quite another matter. It was a mistake when words of Holy Scripture were urged against the Newtonian theory. We still use the words, "the sun rises, the sun sets" as before. But "the absolute authority of God's word" is certain; any deductions as to natural history or geology must be uncertain, since we know not what the act of creation is. Natural interpretations of God's word, required by "physical sciences," no reasonable person would question or fear. He would only fear unnatural explanations, invented in order to adapt Holy Scripture to unauthenticated theories, whether in physics, ethnology, history, or chronology. 36

Pusey refused to accept the role of enemy of science in which Vaughan had cast him. For Pusey, science and science teaching were not part of this battle." He distanced himself from the old High Church Hutchinsonians of the previous century who had

36 Ibid., pp. 212-213.

37 For instance he agrees with Vaughan that lectures are necessary in the teaching of the physical sciences, and effectively removes the discussion of science from the rest of his essay. Ibid., p. 8.
challenged Newtonian theory as unscriptural." He maintained 
the independence of theological and physical knowledge, though 
in doing so, he apparently emphasized the authority of the 
former and questioned that of the latter. His suggestion that 
geology and natural history must be uncertain "since we know 
not what the act of creation is" discounts the possibility 
that these sciences could contribute to the knowledge of the 
history of creation. Pusey's distinction between natural and 
unnatural interpretations of scripture is somewhat ambiguous, 
but he seems to have a much greater doubt about the 
possibility of knowledge in the historical sciences than is 
evidenced by either Bowden or Church.

This doubt is also revealed in a correspondence between 
Pusey and Newman in 1858, when Pusey asked for Newman's 
opinion about the place of geology in relation to religious 
knowledge. Newman referred to the controversies which had 
swirled around Buckland's diluvialist geology in the 1820's 
and 30's, a theory long dead, and to Pusey's own past views:

I quite feel what you say about Buckland's Reliquiae. It 
has made me distrust every theory of geology since; and I 
have used your words: "Why take the trouble to square 
Scripture with facts and theories, which will be all 
changed tomorrow, and be obliged to begin all over

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"On Hutchinson see M. Jacob "Christianity and the 
Newtonian Worldview", pp. 238-55 in D. Lindberg and R. Numbers, 
p. 249-53; C. Wilde, "Hutchinsonianism, Natural Philosophy, 
and Religious Controversy in Eighteenth Century Britain,"
History of Science, 18 (1980) 1-24; & A.J. Kuhn, "Hutchinson 
vs. Newton", Journal of the History of Ideas, 22 (1961) 303-
322."
Science changed quickly. They had seen the fierce controversies between Buckland and Scriptural geologists give way to larger changes in geology, and the whole enterprise of seeking reconciliations seemed futile. The changeability of science cast doubt on the usefulness of comparing it with established, unchanging, revealed truth.

Through the 1850's Newman had given addresses at the new Roman Catholic University of Dublin which were later collected as the *Idea of a University* (1872). While Pusey had been fighting to defend the religious basis of education against liberal advances, Newman had been explaining the nature of an Oxford liberal education to a religious audience. Newman's discourses, while apparently influenced by his secession to Rome, are the fullest expression of the peculiar view of the relationship between science and theology which developed from the Oxford Movement.\(^{39}\) Newman's views were sympathetically received by Pusey, who drew extensively on the *Idea* in his later sermon on Darwin.

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\(^{39}\) Newman to Pusey, April 21, 1858. Cited in J. Kent "Newman and Science" *Louvain Studies, 15* (1990), 267-81, p. 275. Buckland had supported the idea of a recent, universal flood (the flood described in the book of Genesis) in his *Reliquiae Diluvianae* (1823), but had soon after rejected this idea.

Passages on science and theology in the *Idea of a University* have been the subject of considerable study. They can't be discussed in their full complexity here, although the issue we we have followed, the epistemological value of physical science compared with that of theology, is central to Newman's concerns.

The first discourses of the *Idea* are an argument for the inclusion of theology within the "circle of sciences" taught at the university, since it is a branch of knowledge. Using the popular etymology of the word "university" Newman argues that it must include all knowledge. His language here seems to grant secular sciences epistemological parity with theology, and to divide up knowledge into independent realms. Newman indeed views the intersection of the human and divine spheres of knowledge as minimal. Like his Oxford colleagues, he is unconcerned about apparent inconsistencies between Genesis and geology, and positively hostile to the connection between science and religion suggested by natural theology. It is apparent from other parts of the *Idea* however, that while he minimizes the impact of physical science on theology, he is anxious to assert the importance of theology for the "legitimate application" of physical science.

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1 The best studies are Culler's *The Imperial Intellect*, pp. 244-70 and J. Kent "Newman and Science".


3 Ibid., pp. 402-3, 407-12.
Newman notes the uniqueness of theology. Since God exists in all things, he argues that theology must "exert a powerful influence on...every intellectual creation or discovery whatever." He posits that it must inform other parts of knowledge, including physics, metaphysics, and political science: "religious truth is not only a portion but a condition of general knowledge." Claiming that theology is indeed a branch of knowledge, Newman posits that Revealed religion furnishes facts to the other sciences, which those sciences, left to themselves, would never reach; and it invalidates apparent facts, which, left to themselves, they would imagine.

He instances the historicity of Noah's ark as a fact furnished to, and the progress of humanity as an apparent fact dispelled from, the other sciences. That students of sciences touching on such "facts" tended to ignore them, Newman attributed to the specialist's error of pursuing his particular study "to the neglect of theology, the centre of all truth", and he warned that this was the basis of "a form of infidelity of the day."

Newman's portrayal of theology alternates between placing it as one member of a circle of sciences, and as an important

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4 Ibid., p. 100.
45 Ibid., p. 103.
46 Ibid., p. 105.
and predominating factor in knowledge generally. The debate over his attitude to science continues in Newman scholarship, but I think it might be best characterized as embodying the tension inherent in Tractarian views of science. Granted the strong belief in religious truths they shared, and the strong interest in the promotion and maintenance of orthodox views in all departments of life, it is not surprising that Tractarians little feared the actual discoveries of science, though they deprecated their misuse either by latitudinarians or atheists.

God was present and active in all nature, though some naturalists might ignore this to their own peril. They considered scientific and theological studies as largely independent of one another, and in principle granted men of science complete freedom of research, unafraid of apparent conflicts which might arise between historical discoveries and the Bible. All this was possible because their religious belief was not based on the evidence of certain readings of nature or Scripture.

The depth of their religious convictions, however, led some Tractarians to limit, if not belittle, the importance and value of studies in physical science. Bowden urged men of science to remember that religious orthodoxy was more important than scientific knowledge. Church enjoyed telling men of science to turn to metaphysics for help with their interpretation of nature. Pusey seemed to doubt that historical sciences could supply knowledge of the "act of
creation", and Newman similarly, appeared unaware of the possibility that the study of geology and natural history could have any power to alter religious "facts" like the historicity of Noah's ark.

Compared with the certainty of revealed religion could the ever-changing faces of sciences like geology be taken seriously? Church, in his prediction that an evolutionary order of nature would be "resolved" by science, seemed to think so. Pusey and Newman, united in their distrust of geology, seem less certain. If the findings of natural science were to be trusted, Church's comments suggested the way they could be interpreted by Anglo-catholics. Since God is present in all natural phenomena, then any theory of biological evolution could be explained as the work of direct divine action: God is as immanent in evolution as He is in rain or fire (see note 27). This view, while recognizing the truth of scientific claims, still found their ultimate explanation and significance in theology. This was the path which Aubrey Moore and the Lux Mundi group explored in the last decades of the century. While the basic attitudes of Tractarians remained the same, the division between those who were skeptical of science's epistemological authority, and those who sought to assimilate it into a wider orthodox truth, widened in the years following the publication of Darwin's Origin of Species (1859).
TRACTARIANS ON OXFORD SCIENCE

Tractarian doubts about the character of scientists and their struggle to determine the place of science in an orthodox, liberal education are reflected in the founding of the Oxford Museum. Ultimately the development of science in Oxford's classical and theological atmosphere was due largely to the character of the man who did the most to advance and shape it, Henry Acland, an Anglo-catholic physician. He promoted science as a contributing part of the Anglican-dominated system of liberal education; this gave Oxford science a different aspect from the more specialized, research-driven models which were developing elsewhere in England, in imitation of continental models. His friendship with Pusey brought about a rapprochement between science and Anglo-catholicism at Oxford, which is commemorated in the unique architecture and iconography of the Oxford Museum.

In the 1830's and early 1840's attendance at science lectures dropped dramatically: some have attributed this to the increasing strictness of classical examination statutes (there were no examinations in science until 1852). Others have blamed the Tractarians for focusing the interest of the university on theological and ecclesiastical controversy, and

actively discouraging the study of science." The Tractarians were a powerful force in the university before the secession of Newman, and their suspicion of the disrespectful and latitudinarian characters of men of science may have been fuelled by the behaviour of some Oxford examples.

Baden Powell, a mathematician and churchman of very liberal views, argued fiercely for the advancement of science at Oxford, warning the complacent university that if the higher classes didn’t learn science they would be displaced by those classes who did." This kind of warning, emphasizing as it did the idea of science as power, met with no tangible result in the university. Powell’s views and religious opinions were anathema to the Oxford Movement’s leaders, and his liberal campaign did nothing for the cause of science at Oxford.

William Buckland, the flamboyant reader in geology, had less radical opinions of the place and importance of his field, which he saw as contributing to the breadth of a

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50 Morrell and Thackray, Gentlemen of Science, pp. 392-3. T.H. Warren recalled that Daubeny, "uniting simple piety with liberal views, like Acland a little later, was able to conciliate opposition and gradually to introduce Natural Science into his College and university in a way which might have been difficult for a more forceful but less acceptable advocate." in R. Günther, History of the Daubeny Laboratory, p. iii.
classical education.\textsuperscript{51} These moderate views however didn’t help him to gain the support of the Tractarians, some of whom were appalled by his jocular, and somewhat irreverent manner.\textsuperscript{52} Acland himself later recalled Buckland’s lecturing style in the days when he had attended his lectures as an undergraduate:

He had in his hand a huge hyena’s skull. He suddenly dashed down the steps – rushed, skull in hand, at the first undergraduate on the front bench – and shouted "What rules the world?" The youth, terrified, threw himself against the next seat and answered not a word. He rushed then on me, pointing the hyena full in my face – "What rules the world?" "Haven’t an idea," I said. "The stomach, sir," he cried (again mounting his rostrum, "rules the world. The great ones eat the less, and the less the lesser still."\textsuperscript{53}

While such theatrics may have impressed undergraduates, they could not have been less likely to impress their Tractarian tutors and professors, who would not have seen the humour in Buckland’s performance, and would likely have expected some reference to a ruler of quite another kind. The politics of Baden Powell, and the antics of Buckland, would have fed their suspicion that the study of science begat heterodoxy.

To gain the blessing of the powerful Oxford Movement, science had to meet two desiderata: it had to fit into the particular ethos of Oxford education, and its champions had to


\textsuperscript{52} Rupke, \textit{Great Chain of History}, p. 270.

be men of moral and religiously orthodox character. The Tractarian philosophy of education was a theological elaboration of the Oxford ethos articulated by Edward Copleston in 1809. Responding to utilitarian attacks, Copleston defended Oxford as an institution which gave undergraduates a "mental culture"; his apology was the type of most later descriptions of a liberal education. The Tractarians added to this a profound moral and theological dimension, apparent in their emphasis on the importance of religion to all other kinds of knowledge.

Acland and other successful reformers strove to portray Oxford science as a contribution to such orthodox and "liberal" education. Rather than treating science as a specialized study, they viewed it as a complement to the study of classics. This is apparent in their statements on the subject, and in their own wide range of classical interests. Charles Daubeny, Professor of Chemistry, William Buckland, Reader in Geology, and Acland all defended the university study of science in terms of its contribution to a liberal education."

Of these Acland led the campaign for the development of

science, and his success owed something to his alliance with the leader of what remained of the Oxford Movement. Certainly liberal reformers supported the development of science and their influence in the parliamentary commission of 1850-52 is reflected in its recommendations for increased funding for science at Oxford. Without the support of Pusey however, the struggle for science would not have succeeded as it did in the government of the University.

Acland was a scion of a wealthy west country family who had come up to Christ Church in 1837, when the Oxford Movement was at its height. His biographer tells us that "like all the more thoughtful of his contemporaries Acland was deeply influenced by the Oxford religious revival": he was acquainted with both Newman and Pusey by family connections, and came to know both of them well." Though he toyed with the idea of taking orders, he pursued his early interest in medicine, studying in London and Edinburgh before returning to Oxford as Lee's Reader in Medicine in 1845. He would eventually become Regius Professor of Medicine and prove the most effective promoter of Oxford science in his time.

On taking up the Lee's Readership, Acland's ambition was to advance the teaching of science at the university, which he believed would improve "the health, usefulness, peace and

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" J. B. Atlay, Acland, p. 42. Evidence of Acland's interest in Anglo-catholicism is also evidenced in his views on fasting, p. 87 and his defence of "Puseyism", p. 106."
happiness of the place." 56 His sanguine hopes were somewhat shaken when he discovered that he was not the first soldier in this cause, and that more experienced and influential men than himself had failed. He recalled that science at the university was almost extinct, despite

the efforts of Buckland, Kidd, and Daubeny...I felt the work before me desperate or hopeless. The intellect of the University was wholly given to ecclesiastical and theological questions. All physical science was disdained. 57

Acland was further discouraged to hear that Pusey, one of the Trustees of the Readership, had "spoken strongly of the evils and dangers of scientific studies". Emboldened by his old friendship and family ties, he went to speak with the Tractarian leader shortly after taking up his post. Acland described the two questions he asked Pusey for an Anglo-catholic leader of a later generation, Charles Gore:

"First, is it true, that you, Mr. Keble and your friends seriously discourage the study of Natural Science?...." After a little pause: - "It is so. We notice that it often engenders in those we know a temper of irreverence and often of arrogance inconsistent with a truly Christian character. You must allow that... this is so with A. and B. and C. and others." ....

"Then am I to understand that in proportion as I devote my life with earnestness to discharge the duties to which you, under Providence, have appointed me, I am to be held up as a dangerous and mischievous member of Society?"

Dr. Pusey...had a certain, even keen, sense of humour. He threw himself back in his chair in a fit of laughter: soon he recovered himself and...slowly said in the solemn and almost stern way which to many seemed his

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56 Ibid., p. 131.

57 Ibid., p. 133.
chief expression: - "The desire to possess such knowledge and the power to attain it are alike the gift of God. They are to be used as such. While you discharge your duties in that spirit you may count on my assistance whenever you need it." 58

The personal and social bases of the Tractarians' suspicion of science are demonstrated here, and Pusey's frank admission that they discouraged its study seems to support the view that Tractarians were the enemies of Oxford science. Yet he made good on his promise to Acland, and his attitude toward science seemed to undergo a remarkable change.

Pusey allowed Acland the use of his stables for preparing anatomical specimens, and, as he was out of Oxford at the time, the use of his house for the accommodation of British Association visitors. 59 While Newman grumbled from afar about the Association's second visit to Oxford in 1847, several eminent men of science were enjoying the hospitality of the man who had assumed the leadership of the party he had abandoned. This turn of events shows the remarkable power of this personal connection in bringing Pusey around to accepting the scientific Association which Tractarians had reviled in the 1830's.

But the most important outcome of this alliance was


59 Atlay, Acland, pp. 145-6, 149.
Pusey’s support for the Oxford museum. Following the Association meeting in 1847, Acland led a push for the founding of a new museum at Oxford which would bring under one roof the men of science and natural history collections scattered across the colleges. The Museum was opposed by enemies of science who thought it either irreligious or extraneous to Oxford’s strengths in classics, and by purse-watchers who were aghast at the potential cost of the building planned.\(^6\) One pamphlet against the museum described it as a "gigantic Babylon" for a study which had no students in Oxford.

Before a decisive vote in December of 1854, when the anti-museum forces were gaining strength, Pusey let it be known that he was in favour of the vote for the museum. Acland’s influence with Pusey proved decisive as the vote was very close - sixty-eight in favour to sixty-four against.\(^6\) The museum was built and it remains as an architectural witness to the alliance of Anglo-catholic Oxford’s "ethos" and orthodox science.

The design chosen, with Acland’s support, was a neo-Gothic structure from a plan submitted under the motto *Nisi*
Dominus aedificaverit domum [Unless God had built this house]. The museum was one of the finest non-ecclesiastical neo-Gothic buildings of its day: the style had been introduced by August Pugin in Roman Catholic churches, and taken up with great interest by Anglo-catholic ecclesiologists. Perhaps some of Acland’s support for the Nisi Dominus plan can be attributed to his own Anglo-catholic sympathies. The Oxford Architectural Society, an offshoot of the Oxford Movement, listened to addresses by the innovative craftsmen working on the museum.  

Gothic had natural as well as religious associations: John Ruskin, Acland’s friend and ally in the building of the museum, oversaw the decoration of the museum with motifs and forms drawn from botany and zoology. In 1859 the completed museum demonstrated to Tractarian ecclesiologists and Oxford scientists alike the execution of a historic style with the most modern structural material available: iron.

This combination of iron and Gothic is the most remarkable feature of the museum. The outer quadrangle, built in stone, houses lecture rooms, laboratories, and offices which are connected by an inner cloistered walk. The courtyard, holding the displays, is dominated by the ornate columns and stencilled arches of iron which support the glass

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roof, the great ribs repeating the pattern of the many skeletons on display. A contemporary observer called it "Crystal Palace—architecture Gothecised" and a later critic has noted the "embedding of the iron structure, an icon of industrial progress, within the massive stone and brick cloistered walk, with its reassuring overtones of faith". The building itself speaks of the mid-Victorian alliance of modern science with Anglo-catholic religion.

Acland described the building as a home for "new sciences" with "old associations", and defended the lavish style of the new home for Oxford science. Students of science deserved lodgings equal in beauty to those who studied in the Bodleian or any of the Oxford colleges. Scientists seventy years later would not be so aware of the prestige that aesthetically pleasing architecture conveyed, and would demand buildings which were better suited to laboratory purposes, and which reflected a more utilitarian ideology.

The iconography of the building too reflected the pious character of Oxford science. Acland described the bas relief carving on the keystone of the entrance arch of the museum as an angel bearing in his right hand an open book and in his left hand three living cells. He signifies the intentions of the founders of the Museum, whose desire it was to bring future generations of men to the study of

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64 Atlay, Acland, pp. 221-22.
the open book of Nature, and of the mysteries of life under the guidance of a higher Power, which alone could enable them to read the pages of that book with a right understanding.\(^5\)

Pusey's trust in Acland's orthodoxy was not betrayed. The museum was home to a kind of science which was shaped, by men like Acland, to complement the classical and theological interests of the university, and its success in this regard may underlie the outsiders' view that nineteenth century Oxford science was a failure.\(^6\)

On June 20th, 1855, the foundation stone of the museum was laid, and Acland composed a special collect for the occasion, which concluded with these petitions:

Dispense the teachers in this house to seek thy glory and not their own, in making known the wonders of thy works. Grant that their knowledge of them may not instil pride, but generate humility, both in the teachers and in the learners.\(^7\)

His prayer embodied all the old Tractarians' ideals about how science should be carried out. But the museum would be the site of the first important clash over an issue which would reveal once again, their latent doubts and fears about the value of science.

\(^5\) Atlay, Acland, p. 219.


\(^7\) Vernon & Vernon, History of the Oxford Museum, p. 59.
OXFORD ANGLO-CATHOLICS ON DARWINISM

In June of 1860, the British Association revisited Oxford and many meetings were held in the new museum, including that of section D, where Thomas Henry Huxley and the Bishop of Oxford, Samuel Wilberforce, joined in their famous "debate". The gist of Huxley's response to the bishop's jokes about his simian ancestry was that he would be happier with an ape for an ancestor than with a religious obscurantist like Wilberforce. Their meeting, even when stripped of the layer of legend which it gained in later decades, was important for the supporters of Darwin's theory: it was the first public scientific forum in which they defended Darwin, and they did so by clearly marking the grounds of debate as belonging to a new class of professional scientist.68

Wilberforce's opinions should not be taken as representative of Oxford's. Many clergymen congratulated Huxley, and the broad churchman Frederick Temple preached a sermon favourable to "creation by law" the next day at St. Mary's. Oxford's men of science were divided on the development theory. A few of the old school were resolutely opposed, though Daubeny, professor of botany, and George Rolleston, professor of comparative anatomy, both supported

Darwin. Rolleston was an ally of Huxley in his fierce "hippocampus" debates with Richard Owen (1860-63), and was an early member of the X-club until he renounced his membership because of the apparent heterodoxy and anti-ecclesiasticism of its leaders. Acland himself took a sympathetic interest in evolutionary theory and undertook to make peace between Huxley and Owen when their fight descended to the level of personalities.

There were some Anglo-catholic clergymen who also accepted evolution. Richard Church, who had defended the reasonableness of the Vestiges, was impressed by the work of his friend, Asa Gray, on the bearing of Darwin's theory on

69 John Phillips (Reader in Geology) and J. O. Westwood (Hope Professor of Zoology) were both opposed to evolution. In 1870 Westwood proposed that the university should establish a chair of natural theology. However, he was a Non-conformist, and not a member of the university until his appointment as Hope professor as a condition of the university getting Hope's entomological collection. Vernon & Vernon History of the Oxford Museum, pp. 62, 99. C. Daubeny "Remarks on the Final Causes of the Sexuality of Plants, with particular reference to Mr. Darwin's work On the Origin of Species by natural selection", Report of the BAAS (1860) 109-110. On Rolleston's support see A. Desmond, Huxley: the Devil's Disciple (London: Michael Joseph, 1994).

70 The "hippocampus" debates between Huxley and Owen focused on the anatomical differences and similarities between ape and human brains. The X-club was a small group of leading reformers of science. See R. Barton "'An Influential Set of Chaps': The X-Club and Royal Society Politics 1864-85" British Journal for the History of Science, 23 (1990), pp. 53-81. In distancing himself from the radicalism of the X-club Rolleston again demonstrated the irenic and orthodox character of Oxford men of science.

theology. He agreed with the line taken by the American botanist, that "it is wonderful "shortness of thought" to treat the theory itself as incompatible with the ideas of a higher and spiritual order". The Guardian, which Church edited, also gave the Origin a fairly positive review.

But Oxford's most influential Anglo-Catholic, Pusey, was suspicious and hostile to the Origin from the outset. He feared that some liberal committee might assign this dangerous book as a text for undergraduates, and when Lord Salisbury proposed its author and its popular defender (Huxley) for honorary D.C.L.s in 1870, Pusey was furious. He justified his objections to Acland, sending him a German article which listed the scientific and religious demerits of Darwinism. When a German Protestant writer speaks of it being a "gross inconsistency" to introduce the word "Creator" in connection with Darwinism, it need not be thought that we are hostile to science, if we object to the highest honour in the University being assigned to Darwinism.

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72 Church to Gray, March 12, 1860 M. Church, ed., Life and Letters of Dean Church, (London: Macmillan, 1894), p. 184. It has been suggested that Church wrote the detailed and respectful Guardian review (Feb 8, 1860) of the Origin: Smith Dean Church, p. 136 and J. Moore Post-Darwinian Controversies (Cambridge: Cambridge U.P., pp. 91-92. But in the above letter to Gray, Church claims to have done no "more than glance at the book itself".

73 L. Huxley, Life and Letters of Thomas Henry Huxley. 3 vols. (London: MacMillan, 1913), vol 2, pp. 13-14. Pusey reluctantly gave his assent to Darwin's nomination, but Darwin begged to be excused from receiving the honorary degree, as his health would not permit his attendance.

74 Pusey to Acland, n.d., MS Acland d. 60, f. 36.
In 1878, Pusey wrote a lengthy scholarly sermon on the connection between evolutionary theory and religious beliefs, titled *Unscience, not Science, Adverse to Faith*. This sermon has occasionally been cited to demonstrate the openness of Anglo-catholics to evolutionary theory, but beneath a very thin layer of rhetoric, Pusey's views are quite plainly hostile to evolution. The sermon reveals again the old tension between a recognition of the distinctness of theological and scientific knowledge and a profound scepticism about the epistemological status of historical sciences.

Pusey begins by defining science as "certain knowledge based on certain facts." and insists that science and theology are essentially distinct spheres of knowledge. Theology, he claims, can watch with indifference as geology demands millions of years of past ages, and say to her sister science, "With any pre-historic period I have nothing to do. I will receive whatever you establish, but I cannot receive these conjectures as matters of faith." Theology, Pusey claims, says nothing about the interpretation of Genesis as a historical account, "lest she should seem to invest any

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"75 J. Moore *Post-Darwinian Controversies*, p. 90.


77 Ibid., p. 9."
physical theory with the sacredness of divine truth.""78

Having effectively discounted the investigation of the physical world as having any interest for religion, Pusey turns to evolution:

To our unimaginative minds, the unity of types in creation...seems more explicable by the unity of its Author than by transformist theories....But while we think the transformist theories a mere imagination, Theology does not hold them excluded by Holy Scripture, so that they spare the soul of man."79

Pusey here distinguishes between his own doubts about Darwinism and what was allowed by theology, though the limit he extends, the human soul, forms the basis of his main accusation against Darwinism - that it invades the ground of theology.

Like Bowden, Church, and Newman before him, Pusey warned that men of science, in their enthusiasm for their study, tended to forget about God and theology.80 This led, he believed, to their promotion of erroneous metaphysical claims in the name of science where they should have observed the territorial boundaries of theology: "Natural science is welcome to its conjectures so long as it does not lay them as the foundation of unbelief in a province not its own."81

78 Ibid., p. 11.

79 Ibid., p. 14


81 Ibid., p. 32.
In describing as natural the development of human intellect and morality evolutionists invaded theological territory, and were engaged in "unscience" rather than "science":

It is, of course, an invasion of a foreign province, when Darwinism speculates upon man's development of religion and morals. For physical science has obviously nothing to do with either. 82

Borrowing a criticism from an article in the Roman Catholic Rambler Pusey described Darwin's theory as "mythological". 83 He could accept as scientific the development of varieties from a common ancestor - for example the development of all dogs from one common stock - but not Darwin's attempt to "overthrow the dogma of separate creations". 84 Pusey found this aim "quasi-Theological". The common ancestry and evolution of all species could not be proven from problematic historical evidence, and so could not be advanced as a scientific fact, but only as a heretical dogma. He denied that Darwinism "can become scientific truth" given the unknowableness of the remote history with which it dealt. 85

Responding, in a footnote, to undergraduates who wished to know whether the evolution of the human body was ruled out by theology, Pusey explained that

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82 Ibid., p. 57.

83 Ibid.

84 Ibid., pp. 52-54.

85 Ibid., p. 54.
since all science must rest on a basis of ascertained facts, and the question as to the 'mythological' part of Darwinism relates altogether not to facts, but to the mode of production of creatures many thousands of years ago, of which mode of production there is absolutely no record...that 'mythological' part of Darwinism, not resting on certain facts cannot become matter of science, and we need not entertain the question, whether theology would repudiate it, if it were science..."66

Pusey's implicit dismissal of the historical evidence of Darwinism indicates that he did not believe in evolution, though he may have recognized that there was no theological reason for opposing strictly scientific claims. His accusation that Darwinists invaded theological territory in their explanations of human morality and religion, suggests that the boundary between scientific and theological spheres was not as uncontested as Pusey would have liked.

The sermon offended some Oxford men of science. H. N. Ridley, a young Natural Science School graduate and botanist, wrote to Darwin with some questions about his theological views so that he could defend him against Pusey. Darwin replied that "Dr. Pusey's attack will be as powerless to retard...the belief in Evolution, as were the virulent attacks...of the Catholic Church against Galileo."67 Ridley never did publish a criticism of Pusey's sermon.

George Rolleston followed Acland in his attempt to temper his science with Christian orthodoxy. He complained to Pusey

66 Ibid., 58.

that not all evolutionists believed in the natural development of the soul, and that he had misrepresented the claims of evolutionists. Pusey, in his reply, recognized that Rolleston, like Acland, was orthodox and therefore trustworthy, and went on to give his motives for writing the sermon. He wrote to Rolleston that,

> You do not believe that our souls and minds are from the 'pithecoids'. I thought and hoped that the terribleness of the expression, or rather of the fact implied, might open the eyes of some, and scare back others.

> The theory of Evolution seems to me one of the threatening clouds of the day. I fear that it will wreck the faith of many. It is very fascinating to a certain class of minds, and seems already to be a sort of gospel ....I can only hope that, in days which I shall not see, God may raise up some naturalists who may, in His hands, destroy the belief in our apedom."

Pusey was convinced of the orthodoxy of Oxford's men of science, but the earlier fears expressed by Anglo-catholic critics seemed to be realized in science beyond the pale of the dreaming spires. Having forgotten God, evolutionists trespassed on theology's ground. There were two divergent responses to this problem however. Pusey believed that historical science was speculative and therefore "unscience", and so deserved nothing but reproach when it presumed to trespass on the ground of theology. Church believed that the metaphysician must take the field to teach men of science the true implications of their work, but did not question the

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epistemological authority of historical sciences. Both positions emphasize the ultimate authority of theology, though they differ in their appreciation of the authority of science. This division remained within the Anglo-catholic party, though Church's theological heirs would rise to preeminence in the 1880's as they addressed the fact that naturalists were far from abandoning Darwin. The shift in thinking represented by the *Lux Mundi* essayists was an attempt to assimilate the epistemological authority of scientific thought into Anglo-catholic apologetics, rather than to reject it. Of this group, none was so influential or creative in his approach to science than Aubrey Moore.
THREE: AUBREY MOORE'S OXFORD

How the old war-cries ring again in one's ears as one looks back! Those who have only known the Oxford of the last twenty years can never...feel towards that 'august place' as we did, in the seventies of the last century: we who were still within sight and hearing of the great fighting years of an earlier generation, and still scorched by their dying fires: Balliol, Christ Church, Lincoln: - the Liberal and utilitarian camp, the Church camp, the researching and pure scholarship camp - with Science and the Museum hovering in the background, as the growing aggressive powers of the future, seeking whom they might devour: - they were the signs of mighty hosts, of great forces still visibly incarnate, and in marching array.

Mrs. Humphrey Ward, A Writer's Recollections (1918)

Aubrey Moore remains a source of contention among students of the relationships between nineteenth century science and religion. While James Moore holds him up as a leading Christian Darwinian who reconciled the claims of biological and theological orthodoxy, several others have criticized his acceptance of evolution as little more than a theological reworking of a Hegelian concept of development. Both views capture something of the character and significance of Aubrey Moore's work, but they do not come to terms with the claim he himself made for it. The Christian apologist, Moore wrote in his last essay, should assimilate all new truths into the "One Truth".¹

Reading Moore's work as an assimilation of scientific truths to religious truth, rather than a reconciliation of

science and religion raises a new set of questions. In what did this assimilation consist? What kind of scientific truths were assimilated, and into what kind of theology? What philosophical assumptions underlay Moore's project of assimilation? What environment encouraged this approach? To answer we must follow Frank Turner's instruction: "Historians must recapture that world of concrete social reference that informed both religious and non-religious intellectual life."\(^2\)

Moore was very much one of Oxford's sons. From his undergraduate days until his death he was connected with the University in some capacity, and the connection told in the shaping of his thought. As a theologian Moore was among the more liberal branch of the heirs to the Oxford Movement, whose politics tended towards Christian socialism. As a philosopher he was a student of Professor Thomas Hill Green's neo-Hegelian idealism, which had its seat in Oxford in the forty years of its predominance in England. As a commentator on science Moore owed much to his friendships with the young biologists whose struggles to find a place in Oxford eventually made it home to the only neo-Darwinian school in Britain at the turn of the century.

David Livingstone has recently demonstrated the importance of understanding the historical geography of the

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encounters between science and religion. In order to understand how Aubrey Moore and his fellow liberal Anglo-catholics assimilated science into a broader religious vision of truth we must familiarize ourselves with the "camps", characters and debates of his Oxford. As we have seen the university had undergone major reforms in the 1850's. It continued to become a less Anglican and a more liberal body, and the study of science at Oxford advanced in the late nineteenth century. Anglo-catholics could either rail against the changes and recall earlier, better times, or attempt to adapt their apologetic to the changed circumstances. This division was apparent in the readership of Lux Mundi (1889). The success and limitations of Moore's work owe much to the particular Oxford culture in which it developed.

When Moore came up to Oxford, various parties were still struggling for ascendancy in university politics, though the fires of the 1850's were indeed "dying" by the 1870's. While the Puseyites were still influential, their hope for an educational ideal serving revealed religion was destroyed by the reforms of the university commission of 1851-54.

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3 D. Livingstone, "Science and Religion: Foreword to a Historical Geography of an Encounter", Journal of Historical Geography, 20 (1994) 367-83. Livingstone's case study contrasts the heightened defensiveness of Belfast Presbyterians following John Tyndall's infamous British Association address in 1874 with the sanguine conciliatory tone adopted by their Princeton counterparts in the same period.

Laudian Oxford came to an end in 1854", Henry Parry Liddon, Pusey's disciple, mourned. The reforms outlined in the "Blue Book" increased the power of the professors and the University at the expense of the Colleges (1855), removed religious tests for undergraduates (1855), and introduced new schools of examination (including the Natural Science School, 1851). While Pusey's influence on the commission maintained the confessional character of Oxford for a time, later commissions led to the removal of both religious tests (1877) and celibacy requirements (1881) for college fellows. In the 1880's the number of college fellowships reserved for clergymen was reduced, at most colleges, from nearly all, to one.

This effective disestablishment of the Church in Oxford University left older Anglo-catholics like Pusey and Liddon defensive and despairing. However, a set of their younger students, who had not known the bitter disappointment of the catholic idea of a university, were more optimistic. Aware that the secular thought of Oxford could threaten religious

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belief, they attempted to assimilate it into a revised apologetic for Anglo-catholic Christianity. Their more welcoming attitude towards scientific knowledge sprang from their enthusiasm for the liberal catholicism of R. W. Church, and their appreciation of the philosophical teaching of the father of British Idealism, Thomas Hill Green. The essays they published in Lux Mundi (1889) best exemplify their optimistic, immanentist apology for what they held as the truth of the catholic faith. Aubrey Moore’s contribution to this volume summarized his thought on the religious bearing of philosophy and science. It was the last essay he wrote.

**AUBREY MOORE: EARLY LIFE**

Moore’s tombstone lies deep beneath an impenetrable thicket of blackberry which bears witness to the success of the planned "ecological regeneration" of Holywell cemetery. His former residence, 2 Keble Road, has been absorbed by the Science Park, and is now Oxford University’s Institute of Theoretical Physics. As a keen amateur botanist, and as a man well read in the science of his day, Aubrey Moore would have appreciated such accidental memorials, but the fact remains that his name is now as forgotten as his grave.

However, when he died in 1890, his untimely passing was mourned by his religious, scientific, and philosophical colleagues. A committee was struck to raise funds for his memorial. It included not only Dean Church of St. Paul’s and
the bishop of Oxford (the historian William Stubbs), but the biblical critic Professor Samuel Rolles Driver, professors of physiology (J. S. Burdon-Sanderson) and botany (S. H. Vines), and professor W. H. Flower, head of the Natural History museum. Two of Moore’s closest scientific friends, both leading voices in the debates over mechanisms of evolution, also belonged to his memorial committee. Edward B. Poulton, the neo-Darwinist, had sparred with Moore in friendly common room debate at Keble college. George J. Romanes, Darwin’s disciple, admired Moore’s contributions at meetings of the Aristotelian Society of London. Men of such diverse interests were brought together by his death as they had been by his work. He was remembered both as "an able Anglo-catholic philosopher" and as a champion of "Darwinism on its popular side".

Moore’s essays on science (particularly evolution) and the faith, all written between 1883 and 1889, exemplify the irenic and synthetic spirit of a new generation of Anglo-catholics, and the resetting of their apologetic in light of contemporary biological science.

Aubrey Lackington Moore was born in Camberwell, London, in 1848, the second son of the Reverend Daniel Moore (1809-1900) and Fanny Henrietta (née Lackington). His father was the presiding curate of Camden church, and the son of George Moore, MS. Eng. misc. e. 77, pp. 3-4. The memorial provided funds for a posthumous portrait of Moore which hangs in the Keble College Dining Hall, and a Theology Studentship in his name which was awarded annually from 1891 to 1914.
a Coventry ribbon manufacturer. Daniel Moore had perhaps worked in his father's business before deciding on a career in the Anglican church. He matriculated at St. Catherine's College, Cambridge in 1836, aged twenty-seven. He distinguished himself as a religious apologist in essays which won him the Norrisian prize in 1837 and 1839, and the Hulsean prize in theology in 1838. After graduation (B.A. 1840, M.A. 1843) he married and pursued his ecclesiastical calling in London.

Daniel Moore lived up to his undergraduate promise, becoming a well-known preacher and religious author. As an apologist he was described by a rather hostile commentator as an "intensely orthodox evangelical", though he does not seem to have been a conspicuous champion of any particular party within the Church of England. Much of his attention was devoted to the particular needs of the age. He preached to the British

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9 The essays were issued together as Cambridge Prize Essays: being the I. Norrisian Prize Essay for 1837. (The State of Christianity from its promulgation to the present time not inconsistent with the belief that it is a revelation from God.) II. Hulsean Prize Dissertation for 1838. (The Mysteries of Revelation no solid argument Against its Truth.) III. Norrisian Prize Essay for 1839. (The Divine Origin of the Holy Scriptures inferred from their adaptation to the circumstances of human nature.) (Cambridge: Cambridge U.P., 1840).

10 The British Library General Catalogue (1984) lists 34 individually published sermons by Daniel Moore, as well as 19 collections of sermons, meditations, prayers, or lectures, spanning the years 1832 - 1890.

Association about the speculative nature of Darwinism, and to the atheists in the Hall of Science about their accountability for their lack of religious belief. He defended the power of prayer against skeptics and the divine authority of the Pentateuch against the notorious Bishop Colenso.\(^\text{12}\)

Daniel Moore was evidently a man who felt obliged to address the chief difficulties which secularists flung in the face of Christian orthodoxy. He was certainly successful in convincing his sons. The three who survived to adulthood all became clergymen and all wrote, although only Aubrey entered the field of apologetic.\(^\text{13}\) While Aubrey Moore’s devotion to Anglo-catholicism and apparent sympathy towards Darwinism might have caused division between father and son, there was apparently no trace of disagreement between them.\(^\text{14}\)

Aubrey Moore and his brothers went to St. Paul’s, a small grammar school connected with the the cathedral. Aubrey’s elder


\(^\text{13}\) Aubrey Moore’s brothers were George (1847-1863?), Cecil (1851-1885), and Herbert Augustine (1861-1937).

\(^\text{14}\) E. S. Talbot’s "Memoir", in A. Moore’s Essays Scientific and Philosophical. (London, Kegan Paul, 1890), p. xiii. D. Moore also edited two volumes of his son’s sermons for posthumous publication.
brother George was a classmate of Edwin Ray Lankester, who would become Britain's most eminent biologist by the turn of the century. Aubrey Moore followed two years after (attending from 1860-1867), and he may have known Lankester from this time: they would meet again in Oxford twenty years later.

Moore had a physical disability which his contemporaries referred to in their recollections, but do not describe in any detail. It is not apparent in his portraits, and it doesn't seem to have kept him from cricket, but it can't have made school life easy. Perhaps the physical difficulties stemming from this disability encouraged him to take up botany as a relatively sedentary hobby; his interest in natural history certainly dates from this early period.

Moore came second in his class, overshadowed by his close friend John Richardson Illingworth. Illingworth came from an Anglo-Catholic family, and Moore may have joined Illingworth and a few others, who dubbed themselves members of the "Association of Bigoted Catholics". Both Moore and Illingworth would remain friends at Oxford and there develop very similar theological and philosophical positions: both became "academic"

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16 "In Memoriam: the Late Canon Aubrey Moore" Oxford Times, Saturday, January 25, 1890, p. 6.

clergymen with an interest in the doctrine of divine immanence, and both contributed to *Lux Mundi* (1889).

Moore gained a Pauline exhibition but could not get a scholarship to Oxford, and so entered as a commoner at Exeter college. His father was already a member of the university, having been admitted *ad eundem* in 1856. Moore gained first class honours in classical moderations and *literæ humaniores* and graduated B.A. in 1871 (M.A. 1874). He remained at Oxford as a fellow of St. John’s College (1872-76).

In 1869, Moore became a member of the Brotherhood of the Holy Trinity: this is the first real evidence we have of his interest in Anglo-catholicism. This brotherhood, little noticed by historians, was founded in 1844 as the Brotherhood of St. Mary the Virgin, an offshoot of the Oxford Architectural Society. Its original purpose, the study of ecclesiastical art, gave way to the more directly religious goal of providing pious undergraduates with a community for the sustenance of their faith; the colleges, it seems, were not considered sufficient for this. The Brotherhood admitted laity and clergy, and enjoined rules of daily prayer, confession, and fasting, though they rejected the more extreme forms of monastic practice suggested by the leader of the Oxford Anglo-catholics, Pusey. The Brotherhood had an annually elected Master (always a priest) and it is likely that the position was filled by some of the more eminent Anglo-Catholics of the society, like Henry Parry Liddon (Pusey’s right hand man) and Edward King.
(Professor of Pastoral Theology, but more famous as the "ritualist" Bishop of Lincoln). Aubrey Moore was Master of the Brotherhood in 1881.\textsuperscript{18}

By 1886 the Brotherhood had 301 members, and it remained an effective vehicle for the propagation and maintenance of the Oxford Movement's ideals among a certain class of undergraduates, functioning as an invisible college for the Anglo-Catholics. The Tractarians had lost much of their influence in Oxford during the 1840's, but they remained a strong party within the Church. Their emphasis on catholic faith and practice is apparent in a quasi-monastic group like the Brotherhood, a mystical community encouraging its members to a life of personal orthodoxy and holiness. Like the many religious communities founded by the Tractarians, the Brotherhood provided a basis for shared religious belief in what many Anglo-catholics feared was an increasingly secular and spiritually dangerous world.

OXFORD ANGLO-CATHOLICISM (1869-1889)

Aubrey Moore's interest in Anglo-catholic theology placed him in a minority among Oxford undergraduates, who for the most part had no particular interest in religion, or were part of the more liberal climate of thought fostered by Benjamin Jowett of Balliol, or Mark Pattison of Lincoln. The Anglo-catholic undergraduates entering Oxford in the late 1860's felt that many in the university were hostile to their faith.

Some professors felt the same way, and encouraged their more pious students to fight the irreligious tide. When Moore received a first class in his examinations, he received a congratulatory letter from Montagu Burrows, Chichele Professor of Modern History, and a conservative High Churchman. His detractors claimed that Burrows had been appointed only because he was religiously orthodox. He was a naval officer and the author of a popular university guide book before he gained his post. Burrows offered Moore

...warmest congratulations and...wishes that you may use your mind to the Glory of God and good of Man. It is something to have sounded even thus far the depths and shallows of thought and then to have prepared like some Greatheart in the Pilgrim's Progress to help other pilgrims on their way. You must get a Fellowship here and try to stem the torrent of irreverent audacity."

Moore was invited to join the battle between secular liberal and religious conservative which had been shaking the

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"Letter to A. Moore from R. M. Burrows, Dec. 24th, 1871, E. M. Moore Autograph Collection, American Philosophical Society (APS). Burrows was Professor of Modern History, and a founder of the English Church Union."
university since the 1830's. The mission of the younger Anglo-catholics was both academic and religious, while Oxford was becoming more "academic", in its modern sense, and less directly religious.

Edward Stuart Talbot, an Anglo-Catholic of Moore's generation recalled the tension he felt in 1860's Oxford:

...[the younger generation] were fairly represented by the benches, in S. Mary's, of the B.A.'s who, in those days, attended the more important sermons. Those faces impressed me; they were not docile; nor sympathetic; very critical; perhaps some of them not a little cynical or even contemptuous. They chilled me.... I was conscious, of course, that the intellectual "swim" was against the things which I had been taught to value....

Talbot ascribed this to "one definite cause in the philosophy of the day....the influence of John Stuart Mill swept all before it." Henry Scott Holland, another of Moore's Anglo-Catholic friends, described the consequences of Mill's predominance in stark terms:

Oxford lay abjectly imprisoned within the rigid limitations of Mill's Logic. Individualistic sensationalism held the field, Life was to be reduced to mechanical terms. Scientific Analysis held the key to the universe. Under this intellectual dominion we had lost all touch with the Ideals of Life in Community. There was a dryness in the Oxford air....We were frightened; we saw everything passing into the tyranny of rational abstract mechanism.

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20 E.S. Talbot, Memories of Early Life (London: Murray, 1924) pp. 41-42.

21 Ibid., p. 42.

Talbot described the consistency of Mill's programme, meeting Churchmen in logic, metaphysics, politics, economics and religion,

...everywhere hammering in upon us the same inductive lines of thought. In this his influence was almost one with that of the science of the day, which was then shaping men's thoughts on almost purely "naturalist" lines..., and was fighting for its splendid biological and other discoveries uphill against much naturally frightened resistance, and some bigotry."

To these young men, science seemed allied with positivism, and it seemed as if the naturalism of this combined programme was destined to destroy the supernatural beliefs that bound Anglo-catholics together.

Neither Mill nor popular scientistic philosophies like Herbert Spencer's had any formal place in the undergraduate curriculum of course, but increasingly familiarity with such contemporary philosophy was looked on as a prerequisite for a first in the exams for the *literae humaniores*. If one's examiners were sympathetic to Mill, then one needed to answer their questions on Aristotle in terms which would satisfy them.24 Given the necessity of "getting up Mill", young Churchmen had no choice but to consider the apparent disjunction between modern philosophy and traditional religion. One group of such students formed a reading group to discuss

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23 E. S. Talbot, *Memories*, p.43.

what they should think, believe, and say. They called themselves, with self-conscious humour, the "Holy Party". Two paths were open to them if they were to hold to their youthful beliefs. They could fight to discredit and distance themselves from the new ways of thinking, following Pusey's example, or they could attempt to reinterpret and assimilate them. They chose the latter course.

University reform created the tension and eventual division between old and new generations of Anglo-catholics. Pusey and Liddon fought reforms which would destroy the confessional nature of the university, and the clerical character of its collegiate appointments. When they felt that they were losing these battles on committees and councils, they would attempt to create separate enclaves where men of faith could be trained without being tainted by liberal innovation at Oxford. Keble college is perhaps the most apparent fruit of the older Tractarians' fortress mentality. Keble was a new college built across from the museum in 1871 as a memorial to one of the Oxford Movement's original triumvirate, and intended to provide affordable education for undergraduates. Pusey had long wanted a college which would make a university education more accessible for poor scholars, who, he hoped, would go on to be ordained and serve the Church. When Pusey died in 1882 a similar memorial was built for him. Pusey House was intended not only as a home for his library, but as a spiritual centre from which Anglo-catholic priest-librarians could extend
pastoral care to, and wield influence over, undergraduates from all colleges. The intentions of the founders of both Keble College and Pusey House were somewhat altered however, when younger Anglo-catholics with more liberal vision, assumed the leadership of both of these institutions, as we shall see below.

It was not just in these "concrete" gestures that the older Anglo-catholics struggled to maintain pockets of ecclesiastical purity at Oxford. Nor were they frozen in their conservatism. When they realized the strength of liberal forces at Oxford they were capable of making radical proposals. For instance, when collegiate positions were to be opened to non-Anglicans, Pusey suggested a division of the university - government and property - between Anglicans and outsiders. He was determined to keep at least some of Oxford for the Church of England. Similarly, when it became clear that the study of the ancient philosophers was becoming a vehicle for the consideration of modern philosophers like Mill, Liddon proposed that the study of philosophy be dropped from the literae humaniores requirements. When faced with inevitable change, the old guard of Anglo-catholics, despairing, were ready to fall back and burn their bridges.

Their younger students were well aware of these

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struggles, but they had grown up in a world in which scientific and critical thought had gained popular admiration and respect. They could not, like Pusey, battle to limit the advance of liberalism in university government and lecture hall, nor would they attempt to restore the university to an imagined medieval ideal. They strove to find a way to assimilate and neutralize the threats which their mentors and enemies alike saw as fatal to faith. Their "Holy Party" formed in the 1870s, was Anglo-catholic in character - they modelled their group on Roman Catholic Oratorian communities introduced to England by Newman - but liberal in intellect. They aimed to reconstruct Christian apologetic by connecting it with contemporary knowledge.

The group began meeting in summer holidays in the early 1870's, and continued meeting annually until 1914. Its early members included Moore, his friend J. R. Illingworth, and men who would become the most famous churchmen of their day: Edward Stuart Talbot, the first warden of Keble College, and eventually bishop of Lincoln; Henry Scott Holland, a canon of St. Paul's and a leader of the Christian socialist revival; and Charles Gore, the first librarian of Pusey House, whose friendship with Liddon was shattered by his controversial contribution to *Lux Mundi*, an essay in which he accepted the "higher criticism" of the Old Testament. Gore would become bishop of Oxford, and the most influential Anglican apologist of the early part of this century. Others included Walter Lock, a later warden of Keble, Wilfrid Richmond, a Canon of
Winchester Cathedral, and Arthur Lyttelton, the only Cambridge man of the group. There was some age difference between them. The eldest, Talbot, matriculated in 1862, the youngest, Gore, in 1871. Gore, despite his youth, was to become the leader of the party, and the editor of the essays which eventually resulted from their summers of optimistic discussion, camaraderie, and prayer. In their meetings they joined in seeking a catholic theology which would offer dogmatic truth while "ever yielding up new meanings even from its central depths in the light of other knowledge and human development." These were Talbot's words in 1873, when most of the Holy party's members were just taking up their first fellowships or tutorial positions. They were ambitious from the start.

Their inspiration for such an approach came not from men like Pusey and Liddon of course, but from more liberal Anglo-catholics, from broad churchmen, and from the idealist philosophy of Thomas Hill Green. Certainly they owed much to Pusey and Liddon inasmuch as they took religious orthodoxy, and its historical roots in dogma, liturgy, and patristic writings very seriously. They called themselves catholic, and engaged in disputes with various protestant and "broad" sects within and without the Church of England with an energy which warmed Liddon's heart. However, they sought ways in which catholic orthodoxy could be brought into contact with current

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intellectual and social concerns. They looked at the contemporary situation as a source of religious "opportunities" rather than "difficulties".

Broad church connections have been noticed in Charles Gore's personal relationships with such men as Brooke Foss Westcott and Benjamin Jowett. Westcott, a friend of F. D. Maurice and Charles Kingsley, was among the original mid-century Christian socialists, and was Gore's master at Harrow. Jowett, master of Balliol College when Gore was an undergraduate there, had contributed a paper on Old Testament criticism to Essays and Reviews (1860). He refused to identify himself with any party, but his attachment to Christian orthodoxy was widely thought to be only slightly less tenuous than that of the cynical and disillusioned Mark Pattison of Lincoln. Various historians have traced Gore's intellectual liberalism and interest in socialism back to these personal connections. While it may well be true that these influences were important to Gore, there seem to be few corresponding connections between broad churchmen and other members of the holy party. As a whole, however, the group may have indirectly felt the value of certain strands of broad church thinking

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through Gore's example and leadership.

Moore cites the work of Charles Kingsley in some of his essays, though there is no evidence of any personal contact. Similarly, several of the holy party members sympathized with the theology of Frederick Denison Maurice, though there is no record of how they learned of his views. Scott Holland, in particular, records the difference between the older and younger generations of Anglo-catholics, as one left over from the battles between Maurice and H. L. Mansel. While Mansel argued against, Maurice argued for, the ability of human reason to attain real knowledge of God. Liddon and Pusey seemed closer to Mansel's position, while the younger men sought an active role for reason in religious understanding. In this quest they found support also in the works of Bishop Butler.

Another source of inspiration, less generally noted, but perhaps more generally felt by the young Anglo-catholics, was that of Richard William Church, Dean of St. Paul's. While not an Oxford mentor, his example at least suggested that it was possible for an Anglo-catholic to look on the developments of contemporary culture and to refer to them as the Gifts of Civilization (the title of a volume of his sermons), rather

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than to draw back in suspicion. Scott Holland recalled that Church's "sympathies were ready for the hopes of the younger men...", and acknowledged his debt to him. Talbot too bore witness to the power of Church's example: "Never was an influence quieter; seldom was one more genuine, potent and enduring....(M)ore than any other, I think of [him] as my master." While the holy party members would also recall Liddon and Edward King with a certain amount of fondness, only Church among older Anglo-catholics was in such ready sympathy with their openness to scientific ideas. Church felt, with his friend, the American botanist Asa Gray, that Darwinism was far from incompatible with Christian belief, and he had regretted the uproar over Essays and Reviews which had silenced rational discussion of the findings of biblical criticism. He maintained through his life an openness to the possibility that scientific explorations could contribute to a Christian's understanding of truth, from the 1840's, when he wrote on the Vestiges of the Natural History of Creation, to the 1880's, in his eloquent sermons at St. Paul's. While he wrote little directly on the apologetic issues which the future Lux Mundi essayists would address, his example as an older Anglo-catholic


31 E. S. Talbot, Memories, pp. 51-52.

32 B. A. Smith, Dean Church, p. 136.
who had been involved with the movement as early as the 1840's, yet did not shrink from Darwin as Pusey did, was likely important."

But the most important intellectual influence on Aubrey Moore and on many of the Holy Party was that of Thomas Hill Green, the Balliol philosopher who founded the school of British idealism. While it must be admitted that there were great differences between the earnest and orthodox students and their unorthodox teacher, Lux Mundi could not have been written had the essayists not been inspired by Green's idealist epistemology.

Green sought a philosophy which would fully explain the possibility of human knowledge, social responsibility, and morality. The empiricism and naturalism of such philosophers as Mill and Herbert Spencer encouraged philosophers to apply a "scientific" method of breaking down experience into discrete facts, and inductively collecting them to form generalizations. Green claimed that this tendency in philosophy was retrogressive in that it ignored the problem of knowledge: how could humans separate the process of observing "facts" from the existence of facts themselves? The weakness of this approach was most apparent, Green complained, in the extension of such methods to social or ethical philosophy, where it reduced the

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33 R. Kenyon suggested that Church "carried over the wider view from the Tractarian to the later Oxford [Lux Mundi] movement." in her "The Lux Mundi School as Continuators of the Tractarian Sociology", Theology, 26 (1933) 16-25, p. 17.
phenomena of social virtues in human communities to questions of mere utilitarian self-interest. It could not properly explain the truths which were contained in religious formulae of love of neighbour and duty to a wider community.

Empiricists implicitly assumed an organizing principle which made possible a connection between human thought and the real world, yet they didn't acknowledge this assumption. Green argued that "It is not that there is first nature, and then there comes to be an experience and knowledge of it. Intelligence, experience, knowledge are no more a result of nature than nature of them." Green claimed that nature and human understanding of nature shared in a common organizing, spiritual principle. Knowledge was not possible given the old division between subject and object: it could only be explained by referring to a relationship between thinker and reality, since reality itself was one vast network of relationships bound together by the pervading consciousness of the whole."

Green's interest in philosophy was religious: he followed the well-travelled Victorian path from an evangelical childhood to an adult quest for a secular, rational set of moral precepts: "He believed that he had found in Philosophical

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Idealism a profound method which enabled him to translate the language of Christianity without losing its true meaning. "The epistemology he developed allowed him to replace the idea of a transcendent and historically localized God with an immanent spirit which bound together all knowledge, and all human society. Human reason and human ethical development were a participation in this immanent spiritual principle."

Green was a strong critic of philosophical naturalism, and the materialistic version of science it presented, and an influential champion of social action and responsibility. While he was certainly unorthodox, his subtle pantheism was a refreshing and inspiring change from Mill, in the eyes of the young Anglo-catholics. Their studies with Green in graduate seminars at Balliol college revealed to them a much needed alternative to the threatening tide of more unremittingly materialistic and naturalistic philosophy. While Green translated certain Christian truths into philosophical language, his students did not find it difficult to translate them back into Christian truths of an Anglo-catholic character.

Several members of the Holy Party studied with Green, and they likely spread the word of his teaching to their fellows:

Illingworth, Aubrey Moore, Scott Holland and Gore - What a company to have been in the same university class, and together under the same master mind! And though Nettleship and Ritchie of the left wing were with them,


37 Ibid., pp. 104-5.
it is not strange that Mark Pattison said "Green's honey goes to the ritualistic hive.""

Pattison's suspicion of Green's influence, recorded in his candid Memoir, was well founded. While philosophers like R. L. Nettleship and D. G. Ritchie developed secular forms of idealism, the Anglo-catholics, as "Greenites of the right" used their teacher's work for their own ends. Wilfrid Richmond recalled Green as a "deliverer" from the prevalent school of Mill's philosophy." Scott Holland recalled the rescue from Mill in still more heightened language:

Then, at last, the walls began to break. A world of novel influences began to open upon us. Philosophically the change in Oxford thought and temper came about mainly through the overpowering influence of T. H. Green. He broke for us the sway of individualistic Sensationalism. He released us from the fear of agnostic mechanism....He taught us...how we belonged to one another in the one life of organic humanity."

The members of the Holy Party differed from Green in their acceptance of the historical and dogmatic content of Christianity, but they found his philosophical position applicable to their own Anglo-catholic goals of Christian social action and of the religious assimilation of all knowledge.

James Moore has claimed that there is "little evidence that [Aubrey] Moore was among those most influenced" by Green:

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38 A. L. Illingworth, Life of John Richardson Illingworth, p. 84.
39 In H. S. Holland, Philosophy of Faith, p. 6.
40 Ibid., pp. 9-10.
to admit such an influence might complicate James Moore's thesis that the religiously orthodox accepted Darwinism. But Aubrey Moore was strongly influenced by Green, and his orthodoxy differed therefore from that of his Tractarian mentors, Liddon and Pusey. Green is often admiringly cited and praised in Aubrey Moore's work, and his treatment of ethics apparently owes much to Green's seminars. Moore was also strongly interested in the work of Hermann Lotze, whose work Green began translating in the early 1880s. This is not to suggest that Moore accepted the whole of Green's philosophy: but, like his peers, he felt that it set the relationship between scientific and religious thought on a new footing. If Green's influence is not considered, then many of the *Lux Mundi* studies of the "Religion of the Incarnation", seem merely idiosyncratic, if not perverse.

By interpreting human knowledge of nature and nature itself as related in one over-riding unity Green laid the ground for the revival of an immanentist Anglo-catholic apologetic. Biblical critics might suggest that the pentateuch was not written by Moses: by referring to the course of history itself as something which God participated in, men like Gore

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and Holland could accept such conclusions with equanimity. Whoever had written the books of the Old Testament, God was working through them, and was involved in what might otherwise seem an accidental development. There was no need to rely on a particular human author since the divine author was present in the historical processes and local circumstances which had made the Bible. Its validity was no longer threatened by critics who focused on questions of authorship. In conjunction with such moderate biblical critics as Samuel Rolles Driver, the Lux Mundi group did much to remove biblical criticism as a source of anxiety for Christians.

The same sense of ultimate unity underlay Aubrey Moore’s work in the apologetic program of the holy party: showing that Darwinism was capable of a more religious interpretation than it was given by Spencer and likeminded thinkers. Wilfred Richmond recalled that alongside rationalism and biblical criticism,

"...Science was also regarded as a threatening foe, threatening the belief in human freedom, in the fundamental reality of the spiritual life. And the idea of Development, which was making its presence felt in so many different quarters, had taken definite shape in "Darwinism," and in the comprehensive cosmology which grew out of Darwinism, and seemed to leave religion out of the world."

Moore suggested that if Christians could recover the idea that God was constantly present and working through nature, they could see Him in the universality of law and proximate purpose.

" In H. S. Holland, Philosophy of Faith, p. 4."
which Darwinism demonstrated. The unity and rationality of nature could be explained, along Green’s lines, as the result of an immanent organizing spirit." Moore suggested that this spirit was the second person of the Trinity, the "Logos”.

Green’s work was crucial to the holy party and their project, as was their Tractarian heritage. They defended their orthodoxy and catholicism vigorously, and always sought, as we shall see, examples from the Church fathers, Latin and Greek, to give a traditional foundation to their idealist defence of Christianity. Broad church and liberal catholic exemplars pointed them in the direction of facing contemporary intellectual and social thought. Green gave them the philosophical method which allowed them to assimilate these ideas by claiming that they were part of an over-riding unity, and that that unity was God’s.

AUBREY MOORE AND OXFORD SCIENCE 1881-89

Moore had an early interest in natural history, but his first real contact with "Darwinism" came several years after the first meetings of the holy party had begun to forge the Lux Mundi approach. He had been part of the younger Anglo-catholic set of undergraduates since 1869 (at the latest), and he was one of the holy party in the early 1870s, as a fellow of St. John’s college. He married Catherine Hunt in 1876, and took a

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45 See also M. Richter, Politics of Conscience, p. 125.
St. John's living in Frenchay, Gloucestershire. He served there as parish priest, while visiting his friends at Oxford as often as possible. The parochial sermons he wrote there show no sign of any great interest in science, though perhaps such a subject would have been of little use to his provincial congregation."

He returned to Oxford in 1880, when his old friend Talbot, as Warden of Keble college, offered him a position as tutor. Moore eagerly accepted the opportunity to return to Oxford, and also obtained a position as tutor at Magdalen college at this time. He settled into 2 Keble terrace, across from the gaudy brickwork of Oxford's newest college, and just around the corner from the museum, and set to work. He lectured on Aristotle's Ethics and on the history of the reformation, drawing large classes under the new system of combined college lectures.

It was in the common room of Keble college that Moore first encountered "Darwinism" in the person of Edward Bagnall Poulton. Poulton, the son of a Quaker architect, had gained a first class in the honours school of zoology, and had worked as a demonstrator for Rolleston. Poulton was appointed science lecturer at Keble college in 1880, and found himself outnumbered by Anglo-catholics. He was not afraid to speak about the controversial aspects of science, however. Talbot

"Aubrey Moore, God is Love, and other sermons (London: J. Nisbet, 1893)."
recalled his part in the social life of the Keble common room:

When Poulton brought us in his strong, clear, scientific outlook, and Arthur Lyttelton his character, experience, and literary gifts, there was room for plenty of friendly swordplay, and the opportunities were not missed. Moore in particular, who brought keen understanding of the scientific point of view, along with his central interests in Philosophy, and Theology, his incisive humour, and delightful social gifts, never failed to keep us alive; and the exchanges between him and Poulton (the pure scientist) were a constant and amusing interest."

Moore's "happy friendship" with Poulton exposed him to the latest thought about evolution." Poulton was working on geology and vertebrate morphology through the early 1880's, but his attention was turning to problems central to evolutionary debates, mimicry and heredity. The exchange was not one sided however. Poulton, far from being repelled by the religious conservatism of his common room colleagues, converted to Anglicanism during the 1880's."

The other science lecturer at Keble, Sir John Conroy, was keenly interested in these debates. Conroy was the grandson of young Queen Victoria's controversial "secretary", a physicist, and a leading member of the English Churchman's Union (a lay High Church organization). In the early months of 1883, he began organizing a session on "Recent Advances in Natural

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47 E. S. Talbot, *Memories*, pp. 72-3.


49 On Poulton's scientific work see W. Kimler "Edward Bagnall Poulton", *Dictionary of Scientific Biography, Supplement*, pp. 721-27. Michael Ruse has learned of Poulton's conversion from his reading of his letters at the Oxford Museum (pers. comm.).
Science in their Relation to the Christian Faith" for the Church Congress at Reading that autumn. Conroy arranged for contributions from four speakers: Moore, Professor William Flower of the British Museum, Oxford's Savilian Professor of Astronomy, Charles Pritchard, and the zoologist F. Le Gros Clark.

All four addressed the compatibility between Christian faith and evolutionary theory: no other "recent advances in natural science" were mentioned. Moore spoke of the philosophical and metaphysical implications of evolution, introducing the themes he was to develop in subsequent reviews and essays. Evolution revealed the unity of nature, the omnipresence of function and purpose in every structure. It revealed and renewed thereby the Christian belief in the immanence of God in His Creation, and His constant action in the world. There were difficulties in this view that Moore didn't address at Reading, questions of the apologetic status of natural theology after Darwin, of the nature of teleology, and of theodicy, which would be considered in his later work.

Moore saw science moving on a historical path course parallel to religion and philosophy, from a healthy medieval period with an emphasis on continuities and organicism, through

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a mechanistic, atomistic phase (like that which gave rise to protestant individualism) and back to a new appreciation of organismism, and the unity of all things." Moore believed that all true knowledge came about by God's participation in human reason, and so insisted that scientists should be given complete freedom in their researches. He shared with older Tractarians however, a suspicion of materialistic or atheistic philosophical "accretions" on the truths scientists discovered.

Moore's beliefs lead him and his Anglo-catholic colleagues to support the cause of science at Oxford, even when the morally controversial territory of vivisection was being debated. The younger Anglo-catholic apologists felt that religion couldn't be seen to be hostile to science, and so some of them who were uncertain about the extent to which vivisection might be permissible, decided to support its defenders when it became the central issue in university battles over the new physiology laboratory. Moore trusted the morality of men of science, and believed their claim that they needed freedom to experiment on living animals. Science could produce beneficial results in this way. Older Anglo-catholics like Liddon could not extend this trust in the epistemological and moral authority of science.

Moore also was quite willing to "give up Genesis", or at least a literal interpretation thereof, as he recognized the

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right of science to decide on questions of history. This was no unusual step, though Moore, unlike older Anglo-catholics (e.g. W. E. Gladstone) was quite ready to surrender the attempt to reconcile Genesis and geology. The meaning of Genesis was to be found only in allegory. Here the holy party turned to the moderate old testament criticism of Samuel Rolles Driver, the successor of Pusey as Regius Professor of Hebrew. The study of scripture must be finally divorced from attempts to read into it any information about geology or paleontology. Such attempts lead at worst to ridicule, and at best to magazine battles embarrassing to the church, like that between Huxley and Gladstone (1885-6).

In accepting evolutionary theory Moore was also quite willing to come to terms with attempts to "naturalize" the evolution of human intellect and morality. He attacked Alfred Russel Wallace's view that the human mind could not have a natural origin. Moore was able to do this since he insisted that the "facts of nature are the acts of God." To claim that human mental and moral faculties were specially created by God was to imply that the rest of nature, having naturally evolved, was not. By refusing to recognize the distinction between natural and supernatural Moore could read religious meaning into those scientific theories which suggested that human thought was the result of a natural process of development.

Finally, Moore approached the theory of evolution by natural selection in such a way that it could be easily
"assimilated" into Anglo-catholic belief. His view of a "wider teleology" was praised by several Darwinian scientists at Oxford, and gained a place in Anglo-catholic apologetic of the next four decades. The way he approached teleology and theodicy allowed him to popularize "Darwinism" for a religious audience which had previously regarded it with suspicion or hostility.

The following chapters will explore these events, considering not only Moore's texts, but the circumstances in which they were written and read. It is difficult to reconstruct relationships between people who lived so close to one another: their letters are likely an imperfect reflection of some part of what must have passed in their daily conversation. Nonetheless I will offer what information I can on how Moore’s work was read, especially by his scientific friends. In such an attempt I hope to demonstrate how and why Moore felt that religious apologists had to "assimilate" the discoveries of science.
The bigots and blockheads of "Convocation" at ignorant old Oxford are knocked, and by a goodly majority! Hurra! Even the narrow minded mass of country parsons could not upset its proposal. The Canon, no great gun, although his sermons are admired by "Mashers", effeminate men, & superstitious spinsters has proved himself to be a poor creature, by his feeble opposition to vivisection, illogical, inconsistent, and opposed to the good of his fellow men. Vivisection shall go on & prosper, in spite of canting humbugs and hypocrites.

Liddon was a slavering parasite of that enormous empiric known as "Soapy Sam" (S. Oxon. whose successor, a very poor stick, has committed himself seriously by his late speech at Oxford).

Pay ye postman and clear the mind of cant. We represent the opinions of intellectual clergymen as well as laymen. Lent is a stupid farce & obsolete.

Unsigned letter to Canon H. P. Liddon, March 11 [1885]

When Henry Parry Liddon read this anonymous attack, he can only have been further convinced of the fact that something had gone seriously wrong at Oxford. The physiological laboratory was to be built and established, with no guarantees that painful vivisection would not be carried out. He had argued against vivisection at Convocation's third and final vote on the matter, in an attempt to "lift the discussion...out of the region of personalities", but had failed. The same bellicose rowdiness apparent in the poison pen letter had

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1 Keble College, Liddon papers, letter 62. Emphasis in original. The successor of "Soapy Sam" (Samuel Wilberforce, bishop of Oxford), was J. P. Mackarness, who joined the antivivisectionists in their protest against the physiology laboratory.

2 Liddon to H. Acland March 13, 1885, Bodleian MS. Acland, d. 98, f. 24.
possessed the undergraduates and M.A.s in the Sheldonian theatre, and his contribution had been all but drowned out by jeers and catcalls. The March 10th meeting had set the issue of the moral and intellectual authority of science against that of "scientific" cruelty to animals: the result had been an emotional and frustrating tumult.

What came clearly out of the chaos to Liddon was that he found himself opposed to those he felt closest to among Oxford's young clergymen. It was natural enough to expect disagreement with old friends like Acland, who were professionally connected with the study of biology, but why should his young Anglo-catholic students and friends so readily join the side of the scientists? Was there something in the anonymous letter's boast about representing the opinions of "intellectual clergymen"? Letters from Liddon's sympathizers trickled into the columns of the Times, Spectator, and Guardian. They agreed sadly that Oxford had changed.

The story of the fight over the Oxford Physiological laboratory in the mid-1880's has been briefly told in Richard French's analysis of Victorian antivivisectionism and in Terrie Romano's study of John Burdon Sanderson, who took up Oxford's new physiology professorship.¹ Neither author spares it much

attention, since they regard it as a temporary interruption of the development of medical education at Oxford. However, this brief, violent struggle offers important insight into the development of different religious attitudes to scientific authority. Attention to the details of the controversy is repaid by information about the way in which Anglo-catholics divided over the contentious issue of vivisection, and the character of its practitioners.

It is well known that Liddon felt betrayed and saddened by Charles Gore's essay in Lux Mundi (1889). Gore accepted the moderate critical position that the first books of the Old Testament were not written by Moses, and he claimed that such a position was consistent with a catholic faith. Criticism offered historical truth which could not be ignored. Liddon refused to accept the truth of such criticism, and saw it as destructive to faith. He was horrified by the views of the young man he had appointed to keep Pusey's library. We will explore this conflict in the next chapter: here we will see its shape foreshadowed in the debates over physiology at Oxford. Just as the Lux Mundi contributors accepted the authority of "scientific" biblical criticism to pronounce on the authorship of Old Testament books, so they accepted the authority of the science of physiology to pronounce on its own requirement of vivisection. Liddon was suspicious of both criticism and laboratory in her consideration of the reform of Oxford medical education.
physiology: they were at risk, as sciences, of overstepping the limits of their authority. The issues involved in the two conflicts were very different of course, but in both the relationship between the authority of science and of religion was central. Just as Aubrey Moore trusted Darwinists in their accounts of the history of life, so he trusted physiologists to act morally and wisely in their laboratories. Through the debate over the physiology laboratory at Oxford I will show that the epistemological tension in Anglo-catholic attitudes to science resulted in a division which was apparent four years before Lux Mundi was published.

**PHYSIOLOGY AT OXFORD**

The death of George Rolleston, Linacre Professor of Anatomy and Physiology, in 1881, left an opening for the advancement of biological science and medical education at Oxford. Rolleston had taught not only anatomy and physiology, but also anthropology: on his death, three separate appointments were made so that each of the three fields could receive the undivided attention of a specialist. Oxford got the best men available. Henry Nottidge Moseley, Challenger expedition naturalist, was made Linacre professor of Human and Comparative Anatomy in 1881. Edward Burnett Tylor, Britain’s leading anthropologist, was appointed Keeper of the University Museum and Reader in Anthropology in 1882. A new chair, the Waynflete Professorship of Physiology, had been founded in 1877
by the University Commission, but it was only filled in
November of 1882, when John Burdon Sanderson, one of England's
most eminent physiologists, was elected."

Burdon Sanderson was Professor of Human Physiology at
University College, London, when he was offered the Oxford
position. He liked the prospect of the greater status and time
available for research that Oxford would give him, but he had
to think carefully before accepting the post. Many of his
colleagues warned him that the task of organizing a school of
physiology at Oxford would involve a "long, hard grind" in a
place inhospitable to science. Burdon Sanderson sought
reassurances from the Oxford men of science who had been
courting him for the job. Henry Acland and Benjamin Price
(professor of Natural Philosophy) assured Burdon Sanderson that
there would be no such difficulty as his London friends feared.
The university's Hebdomadal Council and Convocation would have
to be applied to for the necessary funds for the establishment
of a proper laboratory, but given Burdon Sanderson's fame, and
the great need of such a laboratory for the development of
Oxford medical education, Acland and Price were quite certain

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Atlay, Sir Henry Wentworth Acland (London: Smith, Elder & Co.,
1903), p. 420. Burdon Sanderson was generally regarded as
second in rank among physiologists only to Michael Foster of
Cambridge.

Romano, "Making Medicine Scientific", pp. 286-7. She
cites E. R. Lankester, who had experienced Oxford's academic
culture as a science tutor at St. John's college, speaking of
the "immense dead-weight of inertia" to be overcome at Oxford.
that he would not encounter any problems.6

There was one other aspect of Burdon Sanderson's fame which neither his reassuring sponsors at Oxford, nor his nay-saying scientific colleagues considered important, but which was unfortunately central to the controversy which marred his first years at Oxford, and very nearly derailed the study of physiology there. In 1873 Burdon Sanderson had been editor of a two volume *Handbook for the Physiological Laboratory*, the first such book published in English, and a foundation text for the field in England. It contained step-by-step instructions for the repetition and illustration of many classical experiments of physiology. Many of the experiments were to be done on living animals. In his preface, Burdon Sanderson had suggested that the *Handbook* was for "beginners in physiological work".7

Such language was at least impolitic given public suspicion of vivisection which had been simmering in England since the late 1860's. The *Handbook*, as read by antivivisectionists, was a "how to" torture manual which proved that the horrors of continental laboratories had found a home in Britain. The *Handbook* proved to be the catalyst for widespread public debate over the ethics of animal experimentation, which by May of 1874, led to a Royal Commission being called to investigate the matter and to

6 Ibid., pp. 287-9.

recommend legal regulation of the practice. The Handbook was the focus of many of the Commission’s questions.

In 1876 Parliament passed an act governing experiments on living animals. It was based on the Commission’s recommendations, but was much amended. The Home Office was given power to grant licenses for certain kinds of experiments, and the Association for the Advancement of Medicine by Research, a pro-physiology lobby group, effectively gained control of the licensing procedure a few years after the act was passed. As far as the physiologists were concerned the battle was over, and they had won. The remaining antivivisectionists had little real influence on wider public opinion, and they were disownned as extremists. However, the Handbook remained an important source for antivivisectionist literature, and its editor, Burdon Sanderson, who had lead the physiological party through the controversy of the mid-1870’s, likewise remained the target of their suspicion and hatred.

OXFORD ANTVIVISECTION

The first manifestation of antivivisectionism at Oxford came in June of 1883, when Convocation was asked to decree that the Curators of the University Chest should

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* See French, Antivivisection, pp. 112-218 for a detailed account of how the powerful medical lobby out-maneuvered the antivivisectionists in making amendments to the bill, and in administering the act.
expend a sum not exceeding £10,000 in the erection of a Laboratory, Working-rooms, and Lecture-room for the Waynflete Professor of Physiology, and in providing fixtures, warming apparatus, and gas for the same.

The vote was proposed, as all votes were, by the Hebdomadal Council, twenty-two leading figures of the University, including the Chancellor, Vice Chancellor, two Proctors, and three equal parties of representatives elected by the Heads of Houses, the Professors, and the Members of Convocation. This executive group had the power to frame decrees which the wider university community, Convocation, was invited to vote on. Members of convocation included all Oxford M.A.s.¹⁰

Most members of the Hebdomadal Council were supportive of the new Professorship of Physiology. The chancellor, Robert Talbot, Marquis of Salisbury, favoured the advance of science education at Oxford. Other powerful liberal members of the council included Benjamin Price, Henry George Liddell (Dean of Christ Church), and the vice-chancellor, Benjamin Jowett (Master of Balliol). These men strongly supported the physiology laboratory. Jowett had been among the signatories of the first major antivivisection memorial in the 1870's, but had been persuaded by T. H. Huxley that antivivisectionists had

¹⁰ There were no formal study requirements for the M.A. at this time - it was awarded to B.A. graduates after a short period of residence in Oxford had elapsed. Convocation therefore represented a large number of Oxford graduates.
invented the horrors of the physiology laboratory."

The only active antivivisectionist on the Hebdomadal council was Dr. Edward Moore, Master of St. Edmund’s Hall, who could do little on his own except report back to meetings of antivivisectionists as to the proposals and plans of their enemies on the Council."

While antivivisectionists had no power on the Council, they could seek support from the many members of Convocation. Edward Nicholson was the leading figure in the campaign against vivisection at Oxford, only recently arrived to take up the job as librarian of the Bodleian. He did the essential job of organizing the antivivisectionist vote. He had been active in London antivivisectionist societies before he came to Oxford, and he had learned with them the power of petitions and printed circulars. He was joined in his efforts by Edward Freeman,

11 R. French lists Jowett among the signatories of an 1875 memorial to the R.S.P.C.A. drawn up by Frances Power Cobbe calling for restrictions on vivisection, Antivivisection, p. 65. In an October 1883 letter to E. W. B. Nicholson, the leader of Oxford antivivisectionists, Cobbe reported that "Mr. Jowett who was formerly my ally and helped me to get signatures from all the heads of Colleges in Oxford for my moderate petition to Parlt" now believed "that all the reports of the horrors of vivisection were false and exaggerated - there were no horrors at all. He had it from a friend on whom he could entirely rely. My friend pressed him to name this...person - and it proved to be - Huxley". Emphasis in the original. Bodleian MS. Top. Oxon. c. 182, ff. 146-7. Huxley was a member of the Royal Commission of 1874-6, and as a leading man of science and supporter of animal experimentation, would have no credibility with antivivisectionists.

Regius Professor of History (and an Anglo-catholic layman), Henry Parry Liddon, Pusey's disciple and biographer, and several other professors and heads of houses.

The Council's agenda for the June 5th meeting, proposing a £10,000 grant for the physiology laboratory, was published on May 29th. On June 1st Liddon wrote to Nicholson, asking for a meeting, and by June 4th Nicholson had hurriedly prepared a printed circular soliciting the support of members of Convocation for the antivivisectionist cause.¹¹ The warnings of Burdon Sanderson's London friends about the "long, hard grind" he faced, were to be justified in the course of the next two years.

THE ARGUMENTS AGAINST VIVISECTION

The proposed grant of £10,000 for the physiology laboratory was nearly defeated. The antivivisectionists organized quickly, and played on a powerful prejudice: the idea that science was simply too expensive. The same objection had been put to the champions of the University museum in the 1850's, and the economic circumstances of the early 1880's lent the argument force. The country had fallen into an agricultural depression, and since the university and colleges generated

¹¹ Letter from H. P. Liddon to E. W. B. Nicholson June 1, 1883, MS. Top. Oxon. c. 182, f. 12. This is from a collection of letters, notes, pamphlets and cuttings assembled by Nicholson in a guard-book titled "The Oxford Physiological Laboratory Question, 1883-5".
much of their revenue from the rent of land, their incomes suffered a steep decline. The University Commission appointed by parliament in 1877 had made many recommendations for further expenditures on new studies, including new branches of natural sciences, but the universities were hard pressed to act on those recommendations, given their changed economic circumstances.14

Nicholson began his circular by referring to this difficulty, claiming that,

There is no-one in Oxford more anxious for the promotion and endowment of all branches of science than I, and...some separate accommodation is needed for physiological teachers and students here, but our funds are so straitened....15

He went on to question whether such a large amount was really needed. The same sentiment was voiced at the meeting on June 5th, when it was observed that "the University had already largely borrowed, and in common honesty it must learn to do without the things it would like to have."16

Economic concern was especially keen when expenditures on natural sciences were at issue, since there were relatively few science undergraduates at Oxford at this time. Oxford was


15 M.S. Top. Oxon. c. 182, f. 29.

16 "University Intelligence", Times, June 6, 1883, p. 10.
beginning to fall behind Cambridge in this regard, and there were those who felt that it was too expensive to bother competing with the sister university: "Oxford for arts, Cambridge for science" let it be. There were those who felt that champions of the physical sciences were winning special treatment for their fields, evidenced in the large expenditure per student: further requests for large grants for another new science building seemed unreasonable to some classical and historical scholars. After all, as Freeman argued, the University would not spend £10,000 on the British Historical School at Athens! Jealousy likely played a part in economic arguments against the physiology laboratory grant.

It is difficult to separate motives, and ungenerous feelings about the grant were likely promoted by the morally suspect nature of the science in question. Physiology had faced the court of public opinion within the last decade and that opinion remained divided. Nicholson's circular outlined the desire of those who wanted the University to take a definite position on vivisection. He did not attack Burdon Sanderson


18 Times, February 6, 1884, p. 5. The same feeling of envy is discernible in an anonymous report on the physiology laboratory proposal in the Guardian, February 4, 1885, p. 180.
directly, but insisted that

...the University can and ought to reserve its power of control over the use of buildings to be specially erected for him, and a proviso "that in such buildings vivisection shall not be performed, or the results or products of vivisection exhibited, without leave of the University" would have left the University uncommitted till the principle can be discussed apart from a large general money grant and would have left the Waynflete Professor free to take the opinion of the University on that principle as soon as he chose." 

In the absence of such a proviso, Nicholson argued, the members of Convocation had no choice but to oppose the grant. The moral question ought to be decided in a separate debate.

Late Victorian arguments for and against vivisection have been well surveyed in recent literature: on one side they centred on the injustice of inflicting pain on animals, and on the other, the necessity of sacrificing animals in order to learn how to alleviate the natural sufferings of humans.20 The debate in Oxford followed similar lines, though with two other arguments on the part of antivivisectionists which deserve further attention. The first deprecated the influence of physiological research on Oxford's educational culture, while the second demanded that such research conform to what, for lack of a better term, I shall call a theodicy of science.

19 MS. Top. Oxon. c. 182, f.30.

It has been assumed in recent works that science was held back in late-nineteenth century Oxford by a religiously dominated Oxford "culture", though this assumption has been challenged.\footnote{G. Geison, Michael Foster, pp. 89-92: J. Howarth shows that there was little clerical opposition to science in her "Science Education in late nineteenth century Oxford".} One of the arguments used against the establishment of the physiology laboratory did depend on the traditional vision of Oxford as a place where students received an intellectual and moral culture (as discussed in chapter two). Was vivisection the sort of thing which ought to be practised in the shadow of Oxford's dreaming spires? Might it not harm the characters of students exposed to it? Did not such a practice somehow contradict all the character-building nature of an Oxford education? The old battle between the "research" and "mental culture" educators was not dead, and the old rhetoric resurfaced in the physiology laboratory debates.

Frances Power Cobbe, the leader of the largest party of London antivivisectionists, rehearsed the horrors of Burdon Sanderson's Handbook, and then decried as a national calamity that he "...should be authorized to introduce vivisection into the heart of Oxford, where boys and girls who never see the worst experiments will certainly hear of them, and know that they are sanctioned by the full authority of the University."\footnote{Zoophilist, July 2, 1883, p. 1.} An anonymous columnist in the Guardian expanded this argument:
And when there is a question...of putting young men in the way, and accustoming them to the practice, of inflicting what may be needless pain - when moreover, it is a question of doing this under the official sanction of the University...and when, further, the University as such has not previously had an opportunity of pronouncing fairly upon the question whether vivisection shall or shall not be tolerated in her schools, it seems to us that those who have promoted the opposition...have acted strictly within their reasonable rights.  

The author demanded the right of any Oxford M.A. whose son was engaged in science study at Oxford "to protest against the inclusion in that training of methods...which he believes will harden his boy's heart, and make him callous to inflicting pain...".  

Burdon Sanderson repeatedly declared that he had no intention of performing experiments on live animals for the purposes of instruction, but this was not enough to placate his enemies. While Burdon Sanderson's sympathizers at Oxford declared the necessity of vivisection for the advancement of physiological knowledge, their opponents could not be brought to appreciate the value of this research. To them, Oxford was a place for the proper forming of character, and they thought vivisection would corrupt students.  

Even those who were not actively opposed to the laboratory felt that vivisection somehow didn't belong in Oxford. In a letter to the Guardian, one M.A. insisted that

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23 Guardian, February 6, 1884, p. 197.

24 Ibid.

scientists had the right to decide on the necessity of vivisection, but lamented that Oxford's "internal arrangements have undergone the most thorough and complete change in the last thirty years."²⁶ In 1885, those who had united to oppose the laboratory signed a memorial which declared that to build a "centre of vivisection" at Oxford University would be "opposed to all its best traditions."²⁷ The attack on vivisection was partly based on a conception of Oxford as a place where characters were built: morally suspect research simply had no place in the University. Oxford's traditional culture was not "anti-scientific" per se. Its champions simply had no use for research, especially research perceived as dangerous to its primary, moral mission.

The second argument prominent in the Oxford debates was that to do experiments on live animals was not only morally wrong, but that it could not be justified as part of God's plan for the advancement of human knowledge. The science of physiology, like all other sciences, had to be pursued in a way which conformed with moral norms; it could not be exempted from the code of conduct which governed any other study. For some this moral rule was supported by a religious sensibility: if one believed in a beneficent God one could not imagine that He intended the advancement of human knowledge at the price of

²⁶ Guardian, February 20, 1884.

²⁷ Times, March 9, 1885, p. 8.
animal suffering.

The historian Edward Freeman was not associated with any antivivisection groups, and he believed that vivisection was justifiable when some immediate benefit was promised as a result of an experiment. However, he challenged vivisection as a method of research, claiming that it could not be considered "lawful and honourable". In a speech before Convocation in 1884 Freeman claimed that all branches of knowledge were sciences: "The historian or philologer is as much a man of science as any man who has ever grabbled in the guts of a writhing rabbit." It followed then, that all sciences were bound by the same moral rules. Freeman mused that a professor of history

would make the history of the eleventh century or the sixteenth far clearer if he might reproduce the bear and six dogs which the city of Norwich paid yearly for the amusement of the sainted Confessor, or if he might set forth the princely pleasures of Kenilworth as they were actually performed for the delight of the virgin queen. But the professor of history is cut off from this kind of illustration both by the law of the land and by his own sense of right. That is to say, history and all other branches of science are content to seek for knowledge by lawful means only.

Freeman refused to recognize that the subject matter of physiology was essentially different in kind from that of

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29 Guardian, February 13, 1884.

30 Ibid.
history, and so applied the moral standard applicable to historical research to physiology's different path to knowledge.

Freeman did not appeal directly to religion, but to the common set of moral values. Others based their attacks on physiologists' method on more overtly religious ground. John Mackarness, bishop of Oxford, gave a sermon on "Man's duty to man" in which he addressed the impropriety of vivisection. God could not want knowledge to be gained at the cost of animal life and of human compassion. He addressed physiologists thus:

> Depend upon it, other avenues will open to you for the discoveries you desire to make. God in his good time will give you these avenues. But... I would rather they should not be discovered at all, than they should be brought about by the sacrifice altogether of the finer feeling of compassion... which should be treasured as a priceless jewel.  

The pursuit of knowledge had to be bounded by those limits established by Christian life and practice. Mackarness concluded by instructing men of science to "Discharge that duty which is in harmony with the feelings of your own heart, which is the voice of conscience and the voice of God."  

An anonymous letter to the Guardian put the religious argument against vivisection still more directly. Its author argued that the clergymen who supported the physiology

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12 Ibid.
laboratory were in effect atheists, since vivisection could only be justifiable to those who did not believe in God. If one believed in a Creator, the argument ran,

is not the new doctrine that animal torture is necessary to the advancement of science, a terrible slander on Almighty Love? I see misery enough and pain enough in God’s world to make me shudder, but it all springs from deliberate infraction of Divine laws, and it is a libellous denial of God’s sovereignty to hold that, in order to lessen the consequences of man’s disobedience to physical law, the nervous system of innocent animals should be subjected to unheard of cruelties. If these experiments are made in the interests of unapplied knowledge, the case is more indefensible."

In the eyes of such critics, the support of vivisection could not be reconciled with a belief in the divine order."

These were the main arguments ranged against those who supported the building of a physiological laboratory in Oxford. The arguments of the pro-physiology camp ran along the lines established in the 1870’s: anaesthetics were used in most experiments, and when it was necessary to cause pain, the benefits to humanity far outweighed the unpleasant, but necessary, infliction of suffering on the animal. The debate was not, however, ever really joined, and the two parties often skirted the issues raised by the other’s arguments. The physiological laboratory at Oxford does not owe its existence to the force of argument, but to the tactics and politics of the university’s decision-making process.

"Guardian, February 27, 1884, p. 325.

WHAT HAPPENED

There were three meetings of Convocation in which votes for grants for the physiology laboratory were strongly opposed by antivivisectionists. The first grant (£1500 for laboratory equipment in February of 1883) was not opposed, perhaps because those with antivivisectionist sympathies were unprepared to organize opposition, but on June 5th 1883, when the full £10,000 for the building of the laboratory was requested, the antivivisectionists were out in force. The question, as has been suggested above, perhaps focused on economics as much as vivisection during this first debate, and the combination of these concerns brought the antivivisectionists as close as they would come to achieving their goal of defeating the grant for the physiological laboratory.

The meeting at the Sheldonian Theatre was a fairly large one, with 173 M.A.s voting. The speeches followed the lines outlined above, with Burdon Sanderson declaring that he would not be using experiments for instruction. The only leading Anglo-catholic to speak was one of the younger generation, Edward Stuart Talbot. He was the Warden of Keble College, a member of the "Holy Party", and would be a Lux Mundi essayist. He opposed the grant for the laboratory, though he "regretted giving the appearance of offering an opposition to scientific
studies, to which he nevertheless bore goodwill."35 Still, he agreed with Nicholson, that the University should have an opportunity to pronounce on the principles governing the practice of vivisection in a separate debate, before granting the new professor facilities for his instruction and research.

The vote was very close, with 88 supporting the grant, and 85 against it. The money for the laboratory was granted. Some in the antivivisectionist party, like Talbot, did not feel the opposition had been in vain. He wrote to Nicholson with a copy of exactly what Burdon Sanderson had said during the debate about not using vivisection for the purposes of instruction: "If, as I am told, some of the scientific people are angry with him for it, & if...he thereby gives up things for which under the act he cd. get leave the concession is material."36

Nicholson was not so sanguine about the antivivisectionists' defeat. He organized a committee to draw up and distribute a memorial to be signed by resident Oxford M.A.s (members of Congregation), which would be presented as a petition to the Hebdomadal Council. It would demand that Convocation be allowed to vote on the principle of vivisection. Nicholson assumed Talbot would support this step, but Talbot found himself unable to agree with it. On July 11, 1883, he

35 Times, Wednesday, June 6, 1883, p. 10.

36 MS. Top. Oxon. c. 182, f. 37.
wrote to Nicholson:

I am afraid I have kept your note discourteously unanswered: but it has perplexed me. Now I think I had better acknowledge it, and no more.

I feel in great difficulties. I hardly know how I shall act. Your proposal seems to me to be Total Anti Vivisection in rather 'ultra' form."

The young leader of the Anglo-catholics had begun his defection to the side of the scientists, but Nicholson and a small committee of clerical Oxford men, pressed on with their memorial."

From July until September copies of the memorial were sent out in small batches to Oxford residents. Some declined to sign because they believed that there was nothing wrong with vivisection. Others had more complex reasons for not signing. Frederick York Powell, a Christ Church historian, wrote to Nicholson, telling him he supported the memorial but would not sign it because

I am anticlerical to the backbone....I don't want to be mixed up with the religious people who hate Darwin and think science an abomination to be crushed by any weapon. My grounds are yours, that animals have rights...."

A radical like York Powell feared that Oxford antivivisection had a clerical, anti-scientific character: those who opposed

37 MS. Top. Oxon. c. 182, f. 82. Emphasis in the original.

38 The committee consisted of Canon William Bright (Professor of Ecclesiastical History), Edward Moore, D.D. (Principal of St. Edmund Hall), the Rev. C. F. C. West, and the Rev. Richard St. John Tyrwhitt, a Student of Christ Church. Bright, the only Anglo-catholic among them, was on the council of Keble College.

39 MS. Top. Oxon. c. 182, ff. 139-40. No date.
Darwin would also oppose the laboratory. Certainly some of Oxford's older clergymen fit York Powell's caricature, but the younger clergy of the Holy Party were attempting to come to terms with the authority and claims of science, and so supported the physiology laboratory, as we shall see.

By mid November 119 signatures (more than a quarter of the M.A.s resident in Oxford) had been gathered, and the antivivisectionists' memorial was submitted to the Hebdomadal Council. The memorial asked that the Council issue the following decree which could be voted on by Convocation:

That, without further order of the University, buildings and appliances provided by the University be not used for the performance or exhibition of experiments involving pain to animals, or any operations on domestic animals.

Most of the Councillors were unwilling to issue this kind of decree, especially when it was apparent that Burdon Sanderson would demand more freedom than it granted. Liddell, Dean of Christ Church, sent him the Memorial and asked for his opinion. Burdon Sanderson replied that he "should make no objection to a Decree in such a form suggested by the Memorialists with omission of the words "performance or" and of the words "or any operations on domestic animals". He claimed that he had never intended to exhibit experiments on live animals for educational purposes, but that to promise not to perform such experiments

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40 Copy of the memorial in MS. Top. Oxon. c. 182, f. 119.
41 MS. Acland d. 98, f.38. Burdon Sanderson to H. Liddell, November 14 [1883].
would make further work impossible. He concluded his reply by expressing "the hope that Council may see fit to leave things as they are." 42

The Council agreed with Burdon Sanderson that no vote on the principle of vivisection should be held. The Vice-Chancellor, Jowett, replied to Nicholson on behalf of the Council that they would not

frame a decree prohibiting experiments to living animals. The Council sincerely respect the feeling by which the Memorialists are animated: But they do not think that any regulations which go beyond the law are likely to be effectual: and they have entire confidence in the discretion and humanity of the distinguished person to whom the care of the Physiological Laboratory is entrusted. 43

The Council refused to be party to any antivivisectionist tactic. To issue the decree would be to threaten the advancement of medical education at Oxford, and to show mistrust of a professor whom they had invited to teach physiology. Nicholson, however disappointed by this, was not about to give up. He wrote to Acland, warning him that although the Council had refused to grant a vote on the principle of vivisection, resistance to the laboratory would continue. 44

The next opportunity for that resistance came two months later, when, on February 5th, 1884, Convocation was asked to

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42 Ibid., f. 42


authorize the sale of stock to raise the money already granted for the physiology laboratory. Circulars were sent round asking Oxford M.A's to come and vote against the proposal. Nicholson hoped that such opposition might force the Council to grant a vote on the vivisection issue alone. A few days before the vote Burdon Sanderson's sympathizers learned of the antivivisectionists' attempt to draw on non-resident supporters, and they issued their own plea to non-residents. In a letter to the Times Henry Acland called on them to come and vote on the side of physiology, and to "defeat so unusual a proceeding...." The result of the publicity was a well attended meeting, with speeches from Liddell, Acland, Edward Freeman, and Talbot. This time however, Talbot spoke for the cause of the laboratory. The Times reported,

The Warden of Keble College, while wishing that vivisection had never been invented or practised...yet thought Convocation would do wisely to let the decree pass....Students were not to practice nor to be instructed by such experiments. The Professor had modified his manual on purpose for use in Oxford. There would be ample precautions....On the other hand, the rejection of the decree would be a great blow dealt, or thought to be dealt, to science and its supporters and teachers.

There is evidence however, that whichever way the vote went, the Council would have found a way to get money released for the laboratory. See E. Moore to Nicholson, February 4 [1884], MS. Top. Oxon. c. 182, ff. 339-40.

Times, February 4, 1884. See also H.N. Oxenham's reply in the Times, February 5, 1884.

Times, February 6, 1884, p. 5. See also British Medical Journal, Feb. 9, 1884, p. 290.
Talbot concluded (according to the Guardian) that the "rejection [of the decree] would be regarded as a blow not against vivisection but against science." It is clear from Talbot's address that he was far from being a supporter of vivisection, but he was concerned that the rejection of the decree would make Oxford look anti-scientific in the public eye.

The meeting was raucous and, for the antivivisectionists, unsuccessful. The decree was carried by 188 votes to 147. In the letters which addressed the debate in the Anglo-catholic paper, the Guardian, there was widespread sentiment that the clergy had been remiss in not lending their voices to the antivivisectionist cause. One clergyman mourned that

Canons Bright, Liddon and King never spoke - what were we poor country clergy to think?" What unwritten law of Convocation, or system of University clanship, sealed the lips of those to whom we looked for guidance...?"

Why hadn't the leading Anglo-catholic clergymen spoken out on the matter? King was nowhere to be seen, and Bright and Liddon had not addressed Convocation on February 5th. This commentator expressed still more surprise at Talbot, whose "argument seemed to be that we were not to oppose the grant on

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48 Guardian, February 6, 1884, p. 178.


50 King wrote to Nicholson on February 1, 1884, regretting that he could not attend the meeting. MS. Top.Oxon. c. 182., f. 319.
account of the fear of results - i.e., what public opinion
would say if the Church seemed to be opposed to science."51 Such
a position seemed too much concerned with appearances, and too
little with Christian duty.

The cry for clerical involvement appeared to have come
too late. The vote against the laboratory had been defeated by
a fairly large margin, and the Council seemed to be fully
behind the project. Many must have felt that this was the last
stand to be taken against it. Nicholson was not about to give
up however, and he felt that despite the second loss, there was
enough support in Oxford and among its non-resident graduates
to secure the antivivisection cause. The Vice Chancellor,
Jowett, tried to convince Nicholson that he should drop his
opposition to the laboratory, and that if he didn't "the
interests of the library may suffer." Nicholson replied to the
implied threat by defending his view of the moral principle
involved, and of the necessity of further opposition. He
disavowed any "hostility to science or the pursuit of science
in Oxford....we should be as liberal to the Museum as we can
possibly afford to be."52 Vivisection, however, must be stopped.

51 Guardian, February 13, 1884, p. 244.

52 MS. Top. Oxon. c. 182, Nicholson to Jowett, nd. This is a
copy of a letter which Nicholson annotated as follows: "Whether
I did send the V.C. (Jowett) any copy of the above I cannot
remember. He had told me that morning, when I had gone to see
him about something else, that if I went on in the
Physiological Laboratory movement I should injure the
Bodleian....He also said I cd. not think it possible to reverse
the decision of Feb. 5."
True to his word, Nicholson and his committee kept watch for their next opportunity in Convocation to challenge grants to the physiology laboratory.

This came on March 10th, 1885, when Convocation was asked to approve an annual sum of £500 for the expenses of running the newly completed laboratory, which included the salary of Burdon Sanderson's Demonstrator of Histology. The antivivisectionists issued a circular titled "Vivisection in Oxford" which explained the grounds and history of their opposition to the physiology laboratory, and asked its readers "Will you...allow it to go forth to the world that Oxford sanctions the doctrine of physiologists that knowledge may justly be acquired at the cost of torturing God's creatures?"

It claimed that the "non placet" vote would be a blow against only the practice of vivisection, and not physiology or science in general. The Memorial was by signed thirty-one Oxford men—four heads of houses, seven professors, and a number of well known fellows. John Ruskin's, C. L. Dodgson's, Nicholson's and Freeman's names appeared with those of the leading Anglo-catholic professors, Bright and King.

The antivivisectionists' memorial gave rise to a "very remarkable counterblast": a notice by the supporters of the laboratory titled "The Physiological Laboratory and Oxford Medical Teaching". This memorial explained the importance of

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"Times, March 9, 1885, p. 8."
the laboratory to the future of medical education at Oxford, and reported that "the purpose for which the expenditure is required is instruction not research, and no experiments upon the living animal will be used for demonstration to students or instruction, with or without anaesthetics." These those who supported medical education at Oxford were invited to attend the March 10th meeting. This memorial was signed by thirty-six Oxford men, including fifteen heads of houses and eight professors. The Times commented "Without disrespect to the anti-physiological party, we are bound to say that their list of names cannot for a moment compare to that of their opponents."

Among the signatories were younger Anglo-catholics who would go on to contribute to Lux Mundi: Edward Talbot, Walter Lock, Robert Ottley, and Aubrey Moore. Most other members of the Lux Mundi group were not in Oxford at the time. One exception was Charles Gore, librarian of Pusey House, who may have thought it prudent not to speak out on behalf of the physiologists, given the antivivisectionist leanings of his superior, Liddon. The division between older and younger Anglo-catholics is apparent however, in the lists of names given in the two memorials.

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54 Ibid. This memorial was also printed in Nature, March 5, 1883, p. 414.

55 Times, March 9, 1885, p. 9.
The meeting of convocation at which the question was finally settled was one of the best attended in decades. Six-hundred-and-fifty-six members of Convocation crowded the floor of the Sheldonian theatre, while hundreds of undergraduates looked on from the gallery. The issue was an emotional one on both sides, and there was so much heckling and general uproar that several of the speakers were inaudible. One speaker who captured the attention of the assembly was Canon Liddon, whose famous eloquence even won grudging admiration from an otherwise hostile reporter for Nature. He hoped that physiology and vivisection might be "divorced" and that the University might decree that anaesthetics should be used in all experiments on living animals. Liddon's plea was the only one fully heard from the antivivisectionist side. Freeman was interrupted, and the Bishop of Oxford, when attempting to relate the tale of "a little dog" was shouted into silence.

The Proctors took the vote: 412 supported the grant, 244 were opposed. Nicholson and the antivivisectionist party recognized that they could not hope to overcome the laboratory

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56 Times, March 9, 1885, p. 9 reports that the debate over vivisection in February 1884 attracted 335 voters, a number exceeded "only some three occasions in the last dozen years" (excluding parliamentary meetings). The debate on March 10th of 1885 attracted nearly twice this number!

57 The clamour is alluded to in letters to the Guardian, March 25, 1885, p. 453, the Spectator, March 14, 1885, p. 355, and in the report of the Times, March 11, 1885.

58 Nature, March 19, 1885, p. 453. In this account Liddon's arguments are reported and extensively criticized.
by further resistance. Burdon Sanderson had won his battle, and could begin the difficult job of reforming medical education at Oxford. Nicholson later turned his attention to the reform of the Hebdomadal Council, which he believed had unjustly refused the petition for a vote on the principle of vivisection."

RECOMMENDATIONS OF OXFORD ANTVIVISECTION

People who cannot agree upon the existence of a future state, or upon the value of Christianity, and upon what therefore is desirable for keeping society together by the higher kind of morality, in fact people who do not know what their aims are with regard to this life or the next, are not very likely to come to an agreement as to the precise relations of man to the sufferings of the animals placed in the world with him.\(^5\)

Henry Acland, before the Royal Commission, 1875.

In modern studies the roots of Victorian antivivisectionism have been identified as evangelicalism, anxiety about the increasing authority of science, and mere "Englishness".\(^6\) Religious opposition is typically characterized as ecumenical, though Richard French has noted that the High Church "was conspicuous by its absence."\(^6\) At Oxford the


\(^{62}\) French, p. 346.
opposition to vivisection was carried out in a complex environment of ecclesiastical and academic political alliances. This ultimately split the religious vote in a way which prefigured a larger division in the Anglo-catholic community.

As I have suggested above, two central arguments used against vivisection at Oxford were derived from positions taken in earlier debates on educational philosophy. The idea that vivisection would be morally harmful to students reflected the collegiate ideal of education which Pusey defended in the 1850's. The view of vivisection as a morally and theologically improper method of gaining knowledge gained strength from a pre-existing set of convictions that the pursuit of any study must be done in a religiously orthodox manner.

These positions are substantially those developed by members of the Oxford movement in the 1830's and 40's (see chapter two), and so it is no surprise that those members of the Anglo-catholic community with personal experience of that period could not support vivisection. Edward King, William Bright, and Henry Parry Liddon, the older representatives of the Anglo-catholic party at Oxford, opposed the laboratory because they could not find a way to reconcile vivisection with their educational ideals.

To more extreme antivivisectionists, like Nicholson and Francis Power Cobbe, the reticence of these Churchmen in entering the debate - none identified themselves as against the laboratory until the third meeting - was interpreted as
reluctance or cowardice. Yet it might as easily have been an unwillingness to throw themselves into such a public conflict with their friends among Oxford's scientific men. Liddon was unhappy to have found himself opposed to his old friend Acland on this issue, and both worked to ensure that there was no permanent harm done to their friendship.  

Ultimately however, Liddon and his allies did reject the authority of science to pursue research by a method which the voice of conscience objected to. While recognizing the medical benefits which might arise from vivisection, they did not think that God could have intended knowledge to be gained at such cost to the animal creation and, as they thought, to human character. Physiology, while offering utilitarian benefits, seemed to be at odds with any theodicy which assumed a beneficent creator. To imagine that God had made the infliction of pain a prerequisite of knowledge seemed indeed "a terrible slander on Almighty Love" (see note 33 above).  

There is some evidence that attackers of vivisection also rejected Darwinism. This is certainly true of Frances Power Cobbe. Liddon was also distrustful of the thorough-going naturalism of some Darwinists. The same kind of focus on pain may have been behind the rejection of this kind of evolution. A creative process which involved much suffering, pain and destruction also appeared to make a mockery of God's goodness.

63 MS. Acland d. 98, ff. 24-5. Liddon to Acland, 13 March, 1885. Liddon thanks Acland for his "kind note".
Indeed one anonymous correspondent to the *Spectator* argued that vivisection was difficult because it put humans in the position of repeating an unpleasant part of the "Divine economy". The younger Anglo-catholics' views on theodicy will be discussed in chapter five.

For all these religious objections to vivisection, antivivisectionists were anxious to minimize them, and to cast the issue as a purely "moral" question. Clergymen and lay-believers were anxious to avoid the accusation that there was clerical prejudice against science. Liddon carefully attempted to divorce his dislike of vivisection from any opposition to physiology. Edward Freeman, in his 1884 speech to Convocation referred to the "usual talk, very easy to make, but not very convincing...about whipping up country clergymen at the bidding of prejudice." He noted that he was not a clergymen, and that he came because the "question is distinctly a moral one."

Freeman also rejected the charge that vivisection was opposed at Oxford because of an *odium theologicum*. He summarized the argument as ""Biology" is overthrowing religion: therefore religious people dislike "biology." But they cannot disprove "biology;" therefore, to set people against it, they call it cruel." This position he dismissed on the grounds that

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" *Spectator*, January 17, 1885, p. 81.

" *Guardian*, February 13, 1884, p. 248.

" *Spectator*, February 21, 1885, p. 246."
many antivivisectionists were not religious people, and that biology would likely prove as harmless to religion as geology and astronomy had been. Still, some, like York Powell, suspected that the antivivisection movement of Oxford was a science-hating cabal of clerics, and so religious antivivisectionists had to be careful to avoid fuelling this suspicion.

**ANGLO-CATHOLIC SUPPORTERS OF ANIMAL EXPERIMENTATION**

As we have seen in the account of the debates given above, younger Anglo-catholics supported the physiology laboratory. Talbot, the Warden of Keble, and an influential university figure, opposed the grant in 1883, though he regretted that in so doing he might appear to oppose science. By 1884 he had joined the side of Burdon Sanderson: Talbot emphasized that the amount of pain inflicted in the laboratory would be minimal, and argued that the future of science education at Oxford would be jeopardized by opposing the grant. Other members of the "Holy party" agreed, as the memorial of 1885 witnesses.

On March 10th, 1885, we can only presume that they voted in support of the £500 annual grant for the laboratory. Why? Personal and conceptual causes might be adduced from the available evidence. That evening Frederick Dixey, a biologist and an Anglo-catholic layman, went to Burdon Sanderson's house
for a victory party where he met Aubrey Moore and his wife. Dixey had good reason to celebrate. He was Burdon Sanderson's Demonstrator of Histology. His salary had just been approved by the vote in Convocation. It is apparent that many of the young Anglo-catholic clergy of Keble had close ties with men of science. Moore was friends with Poulton and Dixey, and Dixey was a regular participant in discussion groups at Pusey House. He was also an enthusiastic supporter of Moore's religious commentary on Darwinism. Moore was a tutor at Magdalen College, which was Burdon Sanderson's college as Waynflete professor of physiology. There may have been some association between them before the 1885 vote. Personal connections with these men of science may have given young Anglo-catholics a different view of the necessity and morality of experiments on live animals than that held by their elders.

There is no direct evidence of how the "Holy Party" members felt about vivisection except for one letter, written by Walter Lock, then subwarden of Keble, to Liddon. He thanked Liddon for the speech he made against the laboratory, though he voted on the other side.

I felt so much the moral elevation of the speeches on your side that it was with a great feeling of pain that I voted placet....Still, I do feel that in the ultimate resort vivisection is justifiable....The Church certainly held her own in power of speech & championship of moral sentiment, & I only regret that what was to be said on the Christian side for the decree did not find expression. But by the end of the debate it wd have been

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67 Bodleian MS. Eng. misc. d. 878, f. 73.
impossible to say it." There is no further explanation of what, on the Christian side, the argument for vivisection would have been. We can only imagine that it would have referred to the benefits brought by the advance of knowledge to suffering humanity and perhaps to animals as well. It is apparent that granting men of science the authority to perform painful experiments was not an easy step for Lock to take, but he and his colleagues felt that they had to support the laboratory.

The fear of "appearing" to be clergymen opposed to science likely played a role in their support, but the very reference to a Christian argument in favour of vivisection suggests a more positive factor behind their involvement. Given the paucity of hard evidence it is impossible to know the details of that argument, but it is clear that it gave them confidence to recognize the freedom to research which scientists demanded. While Liddon and his colleagues demanded that science conform to the ideals of education formed by the Oxford movement in the earlier part of the century, Aubrey Moore and the younger Anglo-catholics were developing a religious epistemology which granted science freedom. Just as Richard Church had argued the necessity of a proper theological interpretation of the Vestiges of the Natural History of Creation (1844), rather than a rejection of its evolutionary

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68 Keble Coll., Liddon papers, letter 60. Lock to Liddon, March 10, 1885. Emphasis in original.
theory, so the younger Anglo-catholics were convinced that "all truth was part of One Truth", and that even in the controversial matter of vivisection, there was a way in which Christians could overcome the challenges it posed to theodicy.

This division over the relationship between scientific and religious authority divided Anglo-catholics not only here, but much more profoundly a few years later, when Lux Mundi was published. When the science of biblical criticism pronounced more damningly on the veracity of the Old Testament than ever geology had, the Anglo-catholic positions outlined above were bound to come into direct conflict.
FIVE: "GIVING UP GENESIS"?: CRITICISM AND SCIENCE APPLIED TO THE OLD TESTAMENT

But, while the fabric reared by Mr. Gladstone had been thus undermined by Huxley on the scientific side, another opponent began an attack from the biblical side. The Rev. Canon Driver, professor at Gladstone's own University of Oxford, took up the question in the light of scriptural interpretation.¹


Thus Andrew Dickson White, in his now infamous history of science and religion, describes the alliance of men of science and biblical critics against popular attempts to reconcile the orders of creation offered by Genesis and geology. When William Ewart Gladstone made his attempt at reconciliation in 1885, Thomas Henry Huxley attacked his reading of science, while Samuel Driver, Regius Professor of Hebrew at Oxford, attacked his reading of the Bible. White saw this as yet another example of the inevitable triumph of truth-seekers over obscurantists.

His vision has been reworked by his modern nemesis, James Moore, who writes of "professional scientists and professionalizing Old Testament interpreters... supporting, nay, embracing one another at the time."² This is not a triumph of science over superstition in Moore's history, but a


triumph of united professional groups in denying amateur reconcilers any right to pronounce on the historical (or pre-historical) content of the Bible. Although the argument is in a different key, Moore seems to be agreeing with White here: men of science and critics worked together against a common enemy.

In this chapter I will examine the apparent alliance which existed in the 1880's between certain students of religion and men of science, and show that it was not as united as White or Moore suppose. While there was a shared antipathy toward amateur reconcilers, there were fundamental differences in the apologetic uses of new scientific and critical knowledge. The rift between certain scientists and critics, and its origin in religious differences, is clearly visible in Huxley's reaction to Driver's work, and to the work of Driver's Anglo-catholic supporters in Oxford, the Lux Mundi essayists.

The Genesis and geology debates of the late nineteenth century were tied to the higher criticism's challenge to the common religious interpretation of the Bible's divine origin.

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and authority. 'Both criticism and geology introduced a different kind of evidence about Genesis than that traditionally drawn from the text of the Bible itself. Critics and geologists could cite sources of information which were independent of orthodox bias, and so could give a truer picture of the history of the world and the Bible. Those who wished to answer claims that the Old Testament narrative was not historically true also had to seek independent sources of evidence to prove its inspiration. Research parties supported by the Palestine Exploration Fund studied the archaeology and natural history of the holy land, and found correspondences between their observations and the details of the Bible. Such expeditions were intended to establish empirical proof of the veracity of the Old Testament - proof that the higher critics had perversely misinterpreted the texts. Similarly, some tried to show that the creation narrative in Genesis corresponded with the findings of modern geology. How could Moses have had such accurate knowledge, if it weren't for divine inspiration?

The "lower" criticism usually refers to the comparison of textual variants in their original languages to establish an authoritative biblical text. This relatively unthreatening exercise was well-established in England. The "higher" criticism, which is what I mean by "criticism" here, is the application of philological and textual techniques established for the analysis of secular literature to the Bible - "reading the Bible like any other book". This involved questions of authorship, historicity, and the comparison of biblical narratives with independent sources of historical evidence. See J. Rogerson, Old Testament Criticism in the Nineteenth Century: England and Germany (London: SPCK, 1984).
While there were many members of the Church of England who supported this line of defence against biblical criticism there were others who felt that it discredited religion. "Successful" reconciliations of Genesis and geology generally twisted the available evidence: couldn’t believers find a better way to address the rise of new knowledge than by misusing it? A strictly allegorical reading of Genesis was the only possible response to the apparent disparity between the Bible and science. While no-one now argued that Genesis had been meant to give a literal account of how the world began, those sympathetic to science and criticism insisted that it was not intended to give any scientific or historical information about the creation. It simply spoke of man’s place in nature, and the relationship between humanity and God. This approach was expanded by those "orthodox" members of the Church of England who wanted to admit a greater place for biblical criticism in their reading of other books of the Old Testament. The value of the Old Testament was not in the authorship of its books, or in its historicity, but in its witness to a gradual, progressive revelation made by God. This view, pioneered by those Christians who accepted the authority of the physical sciences on the prehistory of the earth, was extended in their effort to assimilate the authority of the rising science of historical criticism.

I will examine the relationship between men of science, Churchmen sympathetic to science, and biblical critics in
three historical cases of the 1880s. Each case has a connection to Oxford, and helps show how certain Oxonians attempted to change public perceptions of the relationship between Genesis and geology: the first two cases establish the context for the *Lux Mundi* approach to the problem described in the third. In the first case, I will consider the attempts of men of science (led by Acland) and some Anglican bishops to discredit an amateur reconciler of Genesis and geology, Dr. Samuel Kinns. In the second, I will examine the way that the respective authorities of science and religion are presented in the debate between Oxford’s M.P., Gladstone, and Huxley, both in the public arena of the Nineteenth Century, and in private letters. I will also consider the contribution of one of Britain’s foremost biblical critics, Driver, to this debate. Finally, I will describe how two *Lux Mundi* essayists, Charles Gore and Aubrey Moore, felt driven to assimilate the truths given by biblical criticism into the defence of an orthodox, catholic creed. Historical criticism was a science and was true: if the Church rejected it it fell into the same error that it had with Galileo.

The result of this survey, though, will modify the claim of A. D. White as reinterpreted by James Moore. While certain scientists and biblical critics were in sympathy with one another, biblical criticism and physical science were being used by young Anglo-catholics and their allies to support orthodox religious views. Huxley could not countenance their
approach, and, like their more conservative Anglo-catholic elders, argued against them.

"POISONED MILK, FALSE SCIENCE": SCIENTISTS & BISHOPS ON KINNS

In 1882 Samuel Kinns published Moses and Geology; or, the Harmony of the Bible with Science. Kinns, doctor of divinity, and schoolmaster of a preparatory college, was a man who had a great deal of interest in science, if no particular scientific attainments. He was adept at gaining introductions to men of science, and he gathered as much as he could in the way of professional opinion about his attempt to show how science proved that the Bible was inspired. His book was six-hundred pages long, profusely illustrated, and introduced by the signatures of the many subscribers who had made its publication possible. It was dedicated to the most eminent of these, Bishop Piers Claughton, chaplain-general of the army and navy. Fourteen other bishops and sixty-two clergymen had also subscribed to the work.

Kinns' central argument was that the Genesis account written by Moses accorded exactly with the discoveries of physicists, paleontologists and geologists as to the order of the creation. A Times summary of one of his lectures captures the essence of his argument:

The lecturer then dealt with the order of fifteen creative events and compared each one, as narrated in the Bible, with the latest developments of geological science, contending that the argument was mathematically exact, and that the theories of the opponents of
revelation were thereby swept away. The number of changes that could be made in the order of fifteen things was more than a billion, and, therefore, if Moses placed fifteen important creative events in their proper order without the possibility of traditional help, which he could not have possessed, as most of them happened millions of years before man was created, it was a very strong proof of his having received his information direct from the Creator."

Kinns rounded out his defence of the Bible with arguments for the scientific possibility of various Old Testament miracles and with archaeological findings that bore witness to the accuracy of various pentateuchal passages.

*Moses and Geology* had a few positive reviews in the popular press and sold well (it reached a seventh edition by 1884), but the work received more critical attention when the *Times* announced "A New Mission in Defence of the Scientific and Historical Accuracy of the Bible" in December of 1883. The innocuous report briefly described the dignitaries who were to act as patrons to the mission (Bishop Cloughton presided, and was joined by his episcopal brothers of London, Winchester, Bath and Wells, and Worcester), and noted that it would consist of a series of talks by Dr. Kinns based on his book, to be given in Canterbury, Exeter, and Wells, on January 3rd, 8th, and 30th, 1884. While these details were not enough to provoke public comment, some men of science had taken notice, and were watching the columns of the *Times* carefully for its next report on Kinns.

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"*Times*, January 4th, 1884, p. 10."
When it came, on January 4th, 1884, it confirmed their fears that Kinns was trying to trade on their scientific authority. The newspaper reported Kinns as saying that "Some of the most eminent men upon the various staffs of the Royal Observatory, the Geological Survey, and the British Museum had testified to the accuracy of his facts." Here was an amateur science popularizer with a false view of prehistory for which he claimed professional sanction. Officers of the scientific institutions Kinns had mentioned immediately wrote to the *Times* to explain that they did not support Kinns.

Letters from Henry Woodward and William Carruthers, British Museum Keepers of the Departments of Geology and Botany respectively, offered the first line of resistance to Kinns' claims of scientific respectability. Woodward denied that the Geological department had been consulted by Kinns, and noted that "every careful reader of "Moses and Geology" is sufficiently guarded against the claim set up by its author to be a light in science." Carruthers went further. He noted that Kinns had consulted him, but that he had never "testified to the accuracy of any of [Kinns'] facts." Carruthers also attacked Kinns on the scientific possibility of some of his forced reconciliations of science and scripture: for example,

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7 H. Woodward to the *Times*, January 5th, 1885, p. 7.

8 W. Carruthers to the *Times*, January 5, 1884, p. 7.
no amount of atmospheric refraction could account for the sun standing still while Joshua wrought vengeance on the Amorites. It was only too apparent that Kinns lacked not only scientific qualifications, but also any scientific understanding. Such an ignorant man could only harm the relations between science and religion, Carruthers lamented: "...I can testify that scientific men have been driven into an attitude hostile to religion by the work of such sciolists." He desired that eminent bishops "should not lend their countenance to one who can only bring discredit on the cause they have at heart...." Kinns was harming religion because he linked it with bad science, and the bishops on the mission committee should withdraw their support. This was not the last time that this charge would be directed at Kinns and the backers of his "mission". It would be the chorus of all further scientific criticisms in the debate.

Kinns replied, naming the men he had consulted at metropolitan scientific institutions (he had consulted experts on oriental antiquities at the British Museum) and asserting that his argument had been misunderstood by Carruthers. Kinns was anxious to protect his reputation, on which the success of his mission depended. The accusations of Carruthers and Woodward made Kinns look at best like an opportunist, and at

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9 Ibid.

10 Times, January 8, 1884, p. 7.
worst, like a liar - who claimed scientific and social connections which did not exist. If he were considered untrustworthy in his account of his sources, the evidence and content of his argument would seem similarly unreliable. The controversy began to affect his "mission" lectures: at his presentation in Exeter (on January 8th) members of the audience requested that the letters of Carruthers and Woodward be read. But Kinns' reply in the Times only led to the continuation of the controversy.

Having been named in Kinns' letter as authorities he consulted at the Royal Observatory, William Lynn (F.R.A.S.) and Edwin Dunkin (F.R.S.) immediately wrote to distance themselves from his work. Lynn wrote that while he had checked the facts in Moses and Geology, the inferences which Kinns drew from those facts were his own responsibility. Dunkin, in a separate letter, claimed that he had read through Kinns' book, but he had not closely examined all of its facts. He was "...not responsible for Dr. Kinns' interpretations, which in many points are totally opposed to my own ideas." He closed his letter by making public his request that Kinns and his mission committee remove his name from any future prospectus or report. Kinns' claim that his evidence had been corroborated by experts was breaking down.

11 Times, January 9, 1884, p. 7.
12 Times, January 9th, 1884, p. 7.
Meanwhile Carruthers attempted to explain how he had been misled into signing a proposal for Kinns' election to the Geological Society. Kinns' application was later withdrawn, when it became clear that he had no qualifications which would secure his suitability for membership. This part of the correspondence, which turned on matters of etiquette, became a strong subsidiary theme: perhaps Kinns couldn't claim to be a gentleman of science if it were proved that his behaviour wasn't gentlemanly. Kinns was not only unfit for membership in a particular scientific society; he was apparently unfit for scientific "society" in general!\(^\text{13}\)

A more eminent representative of science, Charles Pritchard, Savilian Professor of Astronomy at Oxford, entered the fray. His letter to the *Times* lamented that Kinns' *Moses and Geology* "...is a product of the year of grace 1884." He too found Kinns lacking in "rudimentary knowledge" of the fields he treated, and mentioned some of the deficiencies of the astronomical part of the book. More serious, to Pritchard, was the support the mission had from religious leaders:

Surely now that the affair is ventilated, the amiable gentlemen who, from the best of motives, have formed themselves into a committee for the dissemination of this inverted knowledge, or, as the late Dr. Pusey called it, unscience, will make the necessary inquiries from responsible representatives of learning, before they

\(^{13}\) Letters touching on this subject from Carruthers, Kinns, Jabez Hogg (part of Kinns's committee), and Robert Etheridge (past president of the Geological Society) can be found in the issues of the *Times* of January 1884: on the 5th, p. 7: 8th, p. 7: 9th, p. 7: 10th, p. 7: 15th, p. 7: 18th, p. 7.
continue to direct a series of lectures...calculated to set theologians and scientific men once more by the ears."14

Pritchard, himself a doctor of divinity, and an evangelical Anglican clergyman, was anxious to defend religion by having it properly represented by professional men of science. He likely felt that his own staid reinterpretation of natural theology was a good model for such responsible utterances by men of science on religious topics.15

Meanwhile Kinns and Carruthers continued their public debate over the evidence presented in Moses and Geology: Carruthers wisely steered the debate onto his own area of expertise, botany, where he could most effectively point out Kinns' lack of knowledge. This was not a difficult task. In one letter Kinns cited his own work to prove that he knew that the "genus" lepidodendron belonged to the "species" lycopod. Carruthers accused him of being unable to handle the most basic of scientific terminology.16

Another leading astronomer's name soon appeared among the

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14 *Times*, January 11th, 1884, p. 7. Pritchard's comment on Pusey's "unscience" seems particularly ironic since Pusey would have equally applied the term to the work of mainstream geologists and evolutionists, given his doubts about the epistemological value of historical sciences (see chapter two).


16 Species, of course, belong to genera. Kinns' error is in the *Times* January 15th, 1884, p. 7. Carruthers' rebuke in the *Times* January 18th, 1884, p. 12. Kinns later claimed that this was merely an oversight: *Times* January 23, 1884, p. 10.
storm of scientific and personal accusations which were filling the letters column of the Times. William Huggins, F.R.S., a pioneer in astrophysics, asked why no biologist had raised the matter of evolution, which Kinns denied in his book. In this matter Kinns' argument "is as far removed from modern science as would be the discussion of astronomy on the system of Ptolemy...." He went on to repeat Pritchard's lament that Kinns' mission had found such eminent religious patrons: "Could any plan be suggested more adapted to spread a want of interest in religion among the more educated part of the rising generation?...Can there be any truth which is not Divine, or any ignorance which is?"\(^{17}\) Huggins considered himself a "Dissenter of Dissenters" and, like a growing number of Victorian intellectuals, he had a deep religious sensibility though he held no particular creed.\(^{18}\) Nonetheless, he, like the other men of science ranged against Kinns, believed that his work was harmful to religion.

Kinns was shaken by this further attack, to which he replied by publishing an earlier letter he had received from Huggins, in which the astronomer acknowledged "the general accuracy" of Kinns' facts, though he demurred at his conclusions. Kinns considered Huggins' attack "unprovoked and

\(^{17}\) *Times*, January 19th, 1884, p. 8.

inconsistent", and complained that "the present persecution must be regarded as a conspiracy to destroy myself and my work."19 Whatever the inaccuracy of Kinns' science, this last claim was remarkably close to the truth, as I shall show below.

Huggins immediately replied, and focused his attack on the claim implicit in the title of Kinns' mission, that it would prove the "scientific accuracy" of the Bible. Since Kinns was no scientific authority, Huggins claimed that the committee overseeing Kinns' mission, "as honourable men", could only retain the term "scientific" in their title if they took

...the opinions of eminent scientific men whose verdict would be considered final....let them apply to Sir George Airy K.C.B....or to Professor Tyndall on the physical side. For an opinion on geology let them apply to the Rev. T. Bonney, Professor of Geology, University College. On the subject of biology, let them apply to Professor Michael Foster, or Professor Flower, or, if they dare, to the President of the Royal Society. If the opinions of these men are favourable, the committee can go forward with a clear conscience. But if the opinions are unfavourable, then let the committee as honourable men...honestly publish the opinions in The Times and confess that they have meddled with matters of which they know nothing.20

Huggins closed his strongly worded attack by rejecting the claim of Kinns, and his sponsor, Jabez Hogg, that his comments

19 Times, January 21, 1884, p. 10.

20 Times, January 22, p. 7. The "President of the Royal Society" in 1884 was Thomas Henry Huxley, whose scorn for reconcilers and their lack of scientific knowledge, was vented not on the insignificant Kinns, but a little later on Gladstone.
were "unprovoked" or "uncalled for". He wrote:

I will try to make the matter clear. If a philanthropic committee were to open a store for giving away milk to the poor, but in their utter ignorance of the milk trade were giving out milk from a farm where typhoid existed, would Dr. Kinns or Mr. Hogg, if they knew of this fact, consider any interference on their part as "unprovoked" and "uncalled for," and pass by on the other side? It is not, indeed poisoned milk, but a false science, which, as such, is deadly, which the amiable gentlemen of this committee have banded themselves together to diffuse among the people.\

The difference between the amateurish attempts of men like Kinns and the professional knowledge of men like Huggins was the difference between poisoned milk and pure. The deadly effect of Kinns' work was its harm to religion, and having implicitly abandoned Kinns as someone to whom an appeal to honour could be made, Huggins turned to the committee of "amiable gentlemen" and begged them to re-examine the claim of their mission to reflect real "scientific" knowledge.

On the last day of the controversy in the columns of the Times, Kinns' reply was almost pathetic: "I have simply endeavoured to write a book upon science in a popular style, and to combine with it what seems a very remarkable harmony between scientific facts and Biblical statements." He insisted that his facts had been verified "by not a few eminent men in every department of knowledge upon which I treat". He was apparently unaware that the accuracy of his

\[21\] Ibid.

\[22\] Times, January 23rd, 1884, p. 10.
facts was not the main concern of his critics, who had condemned him for the false inferences which he had drawn and used in a botched and damaging attempt to defend religion. Kinns defended his honesty and appealed to the "Press of England" to clear his name from the accusations heaped up against him.

Yet in the same column appeared two more letters, applying biblical criticism to the scheme of the hapless Kinns. W. H. Fremantle, a liberal Oxford theologian, claimed that the question of the scientific accuracy of Genesis had nothing to do with its religious value, and that controversy over the matter only distracted readers from its important statements about God and the human condition. However, Fremantle bore Kinns no enmity: he concluded by noting that attempts at reconciliation, however misdirected, at least showed that religious laymen were anxious to acquaint themselves with science.23

The other correspondent, the theist, Charles Voysey, was more hostile in tone. Voysey had been a Church of England minister, but was defrocked in 1869 following his public criticisms of the traditional interpretation of the Bible and orthodox doctrines (such as the divinity of Christ) drawn from it. By the 1880's, Voysey was a popular theist minister who was very interested in promoting the higher criticism in

23 Ibid.
Britain. He noted that

When Dr. Kinns has run the gauntlet of the scientific critics, he will then have to face the Biblical critics, for it is conceived by them that he has done quite as much violence to the words of scripture as to the acknowledged facts of science."

The letters of Fremantle and Voysey suggest that biblical critics were as interested as men of science in the Kinns case. Biblical critics, like scientists, required that evidence, natural or scriptural, be handled by professionals. While neither letter writer was a professional critic, both were anxious to popularize critical views of scripture, and to adapt them for their respective religious projects. Like the men of science, those interested in a truer reading of the Bible believed that attempts at reconciling Genesis and geology by men who knew nothing of either were worse than useless to religion. As far as they were concerned, it was a mercy for the gauntlets of professional science and of criticism to crush the likes of the honest, but amateur, Dr. Kinns.

The public controversy in the Times was complemented by a private campaign against Kinns by men of science who appealed directly to the leaders of the Church of England. The coordinator of this campaign was the well-connected Regius Professor of Medicine at Oxford, Henry Acland. The letters preserved among Acland's papers show how the public and

"Ibid."
private campaigns against Kinns were connected.

In early January Acland apparently wrote to Edward Benson, archbishop of Canterbury, and Frederick Temple, bishop of Exeter, seeking their support against the arguments of Kinns. The Primate of all England replied on January 9th, 1884:

These forced reconciliations of Science & Religion, even if they are dexterously done, are I am persuaded, most dangerous....What we have grounds to object to is when scientific men take to prophesying of what they...are "going to" shew & comparing these "coming results" with Scripture. But the Scientific men who have [sinned?] in this are not one thousandth part of the clergy who have shrieked to the same effect. And more to be blamed than either are all these reconcilers."

Benson objected to reconcilers as a whole, but proposed no direct action against Kinns or his committee. Acland pressed his case, noting that the real harm of Kinns' mission was that it was supported by "spiritual leaders", and so could do harm to the Church. He spoke from his own long experience in Oxford, and expressed his belief "that the study of the Material Universe must go forward without reference to the nature of the Spiritual Life." The result of the advance of science over the past forty years was

a much more widely spread critical spirit. This is quite unavoidable. It will apply to Christianity as to all else. No false arguments or loose statements will stand a chance. This is what a man like Kinns and his friends do not see."

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25 Edw. Cantuar. to Dr. Acland, January 9th, 1884, Bodleian MS. Acland d. 83. Emphasis in original.

However, Acland was not so forward as to suggest how the Archbishop might exercise his influence in the matter, and there is no evidence that the Archbishop actually did anything other than write the letter of support cited above.

The influential bishop of Exeter (he would succeed Benson) was more supportive. A broad churchman who had contributed to Essays and Reviews (1860), Temple had been appointed to give the Bampton lectures at Oxford in 1884. He was preparing these lectures, On the Relations between Religion and Science, in which he gave his own more philosophical "reconciliation" between science and religion, while the Kinns affair developed. 27 He wrote to Acland agreeing that it was

very vexatious that so many Bishops have patronized Dr. Kinns. They are often very incautious on this side and are ready to welcome any help of any kind. But in this case my brethren seem to have been particularly unfortunate. 28

He promised that he too would write to the Archbishop of Canterbury, since he had seen the letters of Carruthers and Woodward in the January 5th Times which suggested that Kinns

27 F. Temple, The Relations Between Religion and Science: Eight Lectures Preached before the University of Oxford (London: Macmillan, 1885). For a modern examination of Temple’s thought on this matter see G. Elder Chronic Vigour: Darwin, Anglicans, Catholics and the Development of a Doctrine of Providential Evolution (University Press of America: Lanham, Maryland, 1996), pp. 143-78. See also Aubrey Moore’s reaction to Temple’s Kantian approach in the next chapter.

28 From F. Exon. to Dr. Acland, January 8, 1884, Bodleian MS. Acland d. 60, f. 156.
had lied about his scientific connections. Temple wrote that "These letters touch Dr. Kinns' moral position no less than his scientific. He appears to be knave as well as fool."³⁹

While Acland was corresponding with the princes of the Church, he was also in contact with leading scientists concerned about Kinns. William Huggins, who had contributed to the Times debate on January 19th and 23rd, had already written to Acland on the 7th in an effort to stop Kinns from speaking.

I have just received a most earnest request from a clergyman unknown to me personally...to do all I can to prevent the approaching meeting at which the Bishop of Bath and Wells presides...Would it be well to send the prospectus to the Archbishop and leave it his [sic] hands as the Head of the Church. Such harm to Religion must be put a [sic] stop....Is religion to be jeopardized by men little better than fools?³⁹

When it became clear that the Archbishop was not going to act promptly Huggins wrote his crushing letters to the Times. In private letters to Acland following his public utterances Huggins continued to worry about and plot against Kinns. So on January the 20th:

A lady who has access to some influential members of Kinns' Committee thinks it might be of great service if she might show copies of the Archbish's letter and the letter of the B of Exeter privately to these gentlemen....I know on good authority that Bradlaugh is preparing some crushing articles on the Church (I suppose

³⁹ Ibid.

³⁰ William Huggins to Acland, January 7th, 1884, Bodleian MS. Acland d. 83, ff. 60-61. While the Archbishop did not act to prevent the meeting, Temple wrote to the Bishop of Bath & Wells on the matter but found that "he is too far committed to withdraw". Temple to Acland, January 20th [?] 1884. MS. Acland d. 83, f. 72.
of all sects) to be based on Kinns' Book. It is really necessary that something should be said on the part of religion before he begins his attack."

After his January 22nd letter to the Times Huggins was pleased to hear from a friend that Kinns

was in a state of terrible fear of what I might say next - wringing his hands. This is so far well, but nothing can be done as long as Mission Committee exists. They are the people to get at, not Kinns... The multitudes are dying for lack of true knowledge & these misguided ignorant men are giving them serpents for fishes and stones for bread? Has the archbishop no power over his clergy?"

Huggins was not alone in his anxiety to have Kinns lose his clerical support. Also in the Acland collection is an undated copy of a letter which Charles Pritchard (Professor of Astronomy) sent to Bishop Claughton, and the bishops of London, Winchester, Bath and Wells, Lichfield and Worcester, begging them to reconsider their patronage of Kinns. Pritchard cited the opinion of Britain's "greatest living scientist", Sir George Airy, on Kinns' work: "utter nonsense".

The final meeting of the "Mission in Defence of the Historical and Scientific Accuracy of the Bible" went ahead,

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31 Huggins to Acland, January 20, 1884, Bodleian MS. Acland d. 83, ff. 56-58. It is not recorded whether the letters of Acland's episcopal supporters were used in this manner (etiquette surely would have demanded that permission be obtained from the authors of these private letters). Charles Bradlaugh, the infamous atheist Member of Parliament, did not write any attacks based on Kinns's book.


33 MS. Acland d. 83, f. 70.
despite the attempts of men of science to derail it. But their action, public and private, made it clear to the public and the clergy, that there were good reasons not to attempt the kind of reconciliation that Kinns did. Kinns certainly must have had his personal and scientific reputation damaged by the letters in the Times. Acland remained actively concerned with the matter for some time thereafter, as evidenced by letters on the subject he received from Joseph Prestwich, Professor of Geology at Oxford, and William Thomson, the Archbishop of York. Prestwich, who had never thought Kinns a problem worth much attention, wrote on February 20th, "I am sorry to hear that Dr. Huggins is still troubled about Kinns & the Bishops. After the letters in the Times I do not think that he can do any more harm." In March of 1884, the Archbishop of York wrote and echoed the opinions of his brother in Canterbury, disapproving of such reconcilers as Kinns, and claiming that apparent contradictions between science and religion would be resolved in the long run.

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*Prestwich to Acland, February 20th, [1884] MS. Acland d. 83, f. 68. Prestwich felt that work like Kinns's would at least promote public interest in science, and thought it natural that the religious public to try to reconcile science and religion. See also Prestwich to Acland, n.d., MS. Acland d.83, f. 62-66.

*Thomson to Acland, March 14, 1884. Manuscript letter attached to a copy of the pamphlet Science and Religion: A Sermon preached before the members of the [British] Association in the Parish Church, Sheffield, on Sunday August 24th, 1879 by William Thomson, Archbishop of York contained in a bound collection of 18 pamphlets in theology in the Bodleian library (shelfmark 92 e. 60).
The episode shows that the debate over "Genesis and Geology" was still alive in the popular press in the 1880's. The efforts of men like Kinns were supported by a minority of Anglican clergy: the most influential bishops and the archbishops were in sympathy with men of science who believed that amateur attempts to force science into a particular mould for a religious purpose would only harm religion. These church leaders certainly believed that science and religion were compatible, but they were anxious to distance themselves from attempts at reconciliation which travestied professional knowledge. The contribution of those sympathetic to biblical criticism (Fremantle and Voysey) shows the rise of another kind of "science" falling in with the physical sciences to mark and defend the territory of professional knowledge. The relationship between science and religion should not be nursed on the "poisoned milk" of amateur and "false science"!

The Kinns case might have been used by A. D. White in his history of the inevitable rise of science or by James Moore in describing the growing hegemony of professionals. However, it must be remembered that the men of science and biblical critics in this case, orthodox (Pritchard, Fremantle, Acland) or not (Huggins, Voysey), were all interested in defending religion: they attacked Kinns only because his defence of religion was based on bad science, and so was no real defence at all. This motive is not considered by either White or Moore, but is important to understanding the pattern of
enmities and alliances in similar controversies. When the same "Genesis and geology" debate was revisited with much more public attention and rhetorical aplomb in 1885, that motive was lacking and so was the alliance between critics and scientists.

THE ACCURACY OF GENESIS REVISITED: GLADSTONE, HUXLEY AND DRIVER

William Gladstone resigned as prime minister in June 1885, after leading his second administration through controversies over the Irish question, the extension of the franchise, and the death of General Gordon in Khartoum. In January 1886, he resumed office as premier and proposed the ill-fated Home Rule bill. Given Gladstone's intense political activity, it is remarkable that in his seven months out of power he could devote time and energy to a public cause in quite another sphere: defending the inspiration of the Old Testament.36

Gladstone was a Liberal, the parliamentary representative of Oxford, and a High Churchman who had long attracted Anglo-catholic support.37 He had written extensively on Homer and on


37 See W. R. Ward "Oxford and the Origins of Liberal
religious subjects, and his fame made him a favourite target for scholars who disliked the kind of orthodox opinion Gladstone defended in his work. In November, 1885 Gladstone wrote an article in the *Nineteenth Century* on the "Dawn of Creation and of Worship" in which he defended himself against an attack by Dr. Albert Réville. In his *Prolegomena to the History of Religions*, Réville had mentioned Gladstone as a representative of those who believed that the Old Testament held a "primitive revelation". Gladstone noted that Réville dismissed the divine inspiration of Genesis on the grounds that it contained scientific errors. The statesman answered his French critic's charges against Genesis, and argued that the book had not been written "to rear cosmic philosophers but to furnish ordinary men with some idea of what their Creator had done in the way of...giving them a place in nature."\(^3\)

While Gladstone was not about to defend a literal reading of Genesis, or to deny that God could have created by way of evolution, he did believe that Genesis contained correct historical information about the order of creation. Gladstone described a great "fourfold" order in the Genesis account which was identical to the order found by natural science. Although Gladstone's scheme was simpler than that of Kinns,

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Catholicism in the Church of England" *Studies in Church History*, 1 (1964) 233-52 on the connection between Gladstone and the evolution of Anglo-catholicism.

\(^3\) Gladstone "Dawn of Creation and of Worship", *Nineteenth Century* November, 1885, pp. 689-91.
like Kinns he believed that this coincidence could only be explained by the fact that the author of Genesis must have had divine information."

Gladstone looked at Genesis 1:20-26 and read there of the successive creations of the "water-population", the "air-population", the "land-population of animals", and the "land-population consummated in man." He asserted that "this same fourfold order is understood to have been as affirmed in our time by natural science, that it may be taken as a demonstrated conclusion and established fact." He cited no authorities by name. This was the extent of Gladstone's argument on this head. He went on to discuss the nebular hypothesis and how it seemed to be affirmed by Genesis, to attack Réville's analysis of Homeric religion, and to lament the unbelief of authors like him.

His paper closed with a comment on evolution. He noted that physical evolution might be true,

but are we really to understand that...natural selection and the survival of the fittest, all in the physical order, exhibit to us the great arcanum of creation, the sum and centre of life, so that mind and spirit are dethroned from their old supremacy, are no longer sovereign by right, but may find somewhere by charity a place assigned to them, as appendages, perhaps only as excrescences of the material creation?"

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19 Ibid., p. 696-7.
20 Ibid.
21 Ibid., p. 706.
Evolution "in its highest form" was known to St. Paul, Eusebius, and Augustine, Gladstone wrote, all of whom wrote of the progressive revelation of God through human history. To cling to another kind of evolution which substituted "a blind mechanism for the hand of God", as authors like Réville did, was evidence of "some deep judicial darkness." Gladstone found this kind of disbelief incredible.

It is not surprising that Gladstone's article, with its attack on agnosticism and its supernatural interpretation of evolution, caught the attention of Thomas Henry Huxley. Huxley had recently retired and was suffering from a spell of depression, but Gladstone's article provided him with a "lively fillip" - a false argument by an influential statesman which he could gleefully demolish." Although Huxley had forsworn controversy of this kind, he could not leave Gladstone's defence of orthodoxy unanswered. The obvious point to refute was that which had so exercised the opponents of Kinns not long before: the claim that Genesis had predicted the results of geology. Huxley sent his response, "The Interpreters of Genesis and the Interpreters of Nature", to the Nineteenth Century where it was published in December, 1885."

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42 Ibid.
44 " Reprinted in T. H. Huxley, Science and Hebrew Tradition
Huxley's arguments turned on the right interpretation of scientific evidence. While not wishing to interpose between Réville and Gladstone, Huxley wrote as a "science proctor" who would present the true facts about the paleontological record to the public. Huxley named some of the creatures that must belong to the various groups in Gladstone's terminology of air, water, and land population. For example, birds, bats, and perhaps flying insects must belong to the air population. This demonstrated, Gladstone's fourfold order is negatived by the fossil record. Huxley drove the point home by detailing the first known geological appearances of representative species of Gladstone's groups: the order was not that of Gladstone's Genesis.45

Huxley also noted that in Genesis it is implied that all of the species of a given group are created at once. Using the example of the bat (air population), and the whale (water population), both of which apparently evolved from terrestrial ancestors (land population), he showed that, in the fossil record, representatives of each group appeared at different times: some "water population" species were much older than the first "land population" species, while others were much

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45 Ibid., 146.
Having argued from evidence that Gladstone's order was not found in nature, Huxley turned to theory. Gladstone had suggested that the progression from air to land population was "from the lower to the higher". Huxley claimed that this was ridiculous, especially since the organization of the members of the "air population" (birds and bats for example) "presupposes that of a terrestrial quadruped". In short birds had evolved from land animals. And as if to emphasize Gladstone's ignorance of the subject and to answer his claim that real evolution was somehow religious, Huxley noted that it was common knowledge that ancient Greek and Indian philosophers had some version of an evolutionary theory well before the Christian fathers."

Huxley concluded by saying that there must be some points of information in Genesis which "reconcilers" would not abandon, even though they were willing to talk of "days" representing "ages", and "creation" as "gradual evolution". He supposed that Gladstone's fourfold order, or some broadly interpreted version thereof, was one such point: "But even this sublimated essence of pentateuchal doctrine (if it be such) remains as discordant with natural science as ever."48

46 Ibid., pp. 147, 152.
48 Ibid., 156-7.
Gladstone, like Kinns, did not know his science, and if he had known it, he would not have attempted the Sisyphean project of reconciling it with Genesis, an entirely mythical account.

Gladstone replied to Huxley’s article in the January 1886 issue of the *Nineteenth Century*, but not before he had sought advice from some people with expert knowledge. He turned to his friends in his constituency, Oxford, and firstly to Oxford’s longest-serving man of science, Henry Acland. Acland, who two years before had helped to orchestrate an attack on the amateurish reconciliation of Genesis and geology, was now being asked for help by an old friend and revered statesman engaged in the same project.

Acland did his best to steer Gladstone away from the "uncertain and slippery task" of comparing the Bible with geology. He sent him proofs of Prestwich’s new *Manual of Geology* (1885) and asked him to consider

\[\text{the multitude of kinds that have come and gone. I wish you would spend a couple of hours in the Museum here one day looking over the series which show clearly some of these changes....All these biological questions are becoming too intricate and extensive for any but those who devote their lives to a part of them....}^4\]

Acland is clearly claiming here, with all the politeness due to a friend of Gladstone’s stature, that questions touching on the prehistory of life, are answerable only by those who have professional knowledge of the subject. In addition to

\[^4\text{Acland to Gladstone, December 13th, 1885 (Copy) MS. Acland. d. 68, ff. 127-28.}\]
emphasizing the complexity of the history of life, and the impossible difficulty it presented to a non-specialist, Acland encouraged Gladstone to think about the implications of something mentioned in his first paper, that Genesis was not meant to communicate scientific knowledge. Acland wrote that

...these "scientific" facts are so complex, so interlaced, that they could not be expressed in the splendid terseness of the Bible addressed to all men, all races, all time. What the Bible could not do, we must not attempt, if one may dare to write these words without irreverence.

I am so glad you have been able to interest yourself in these wonderful material things, in the midst of all your work and care....

While Acland may have been sincere in greeting Gladstone’s entry into the world of science, the tone of his letters is otherwise one of apprehension. He apparently did not wish to offend the Grand Old Man, but he also was anxious to limit the amount of public embarrassment which Gladstone (and with him the case for religious orthodoxy) was likely to suffer at the hands of Huxley. So he emphasized the complexity of nature, and the non-scientific purpose of the Bible, hoping that he could somehow modify Gladstone’s argument.

Gladstone also wrote to William Palmer, a classical scholar, for information about Huxley’s claim that the ancient Greek philosophers had understood evolution. His inquiry was passed on to Aubrey Moore who wrote two lengthy letters for Gladstone. Moore described passages in Empedocles and

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50 Acland to Gladstone, December 17th, 1884 (copy), MS. Acland d. 68, f. 73.
Aristotle susceptible to an evolutionary reading, and commented on the teleological character of evolution. Huxley exaggerated the evolutionary views of the ancients, but, Moore claimed, there was much to be learned from their views on the order of life. However, these letters only convinced Gladstone that this was a complex realm that he had best avoid in his polemic, and he apologized to Moore for not touching on the subject in his reply to Huxley.

Despite the advice he received from Acland and the detailed information from Aubrey Moore, Gladstone's next article, the "Proem to Genesis: A Plea for a Fair Trial" was, in essence, a restatement of his argument. He abandoned his "population" terminology which he had used before in favour of a more narrowly defined order of creation: vegetables, fishes, birds, beasts, man. This "fivefold" order which he found in Genesis was also found in the rocks, and Gladstone presented evidence from various authorities: John Phillips' Manual of Geology, Richard Owen's Paleontology, and the just published

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52 Gladstone to A. Moore, December 27th, 1885, E.M. Moore Autograph Collection, American Philosophical Society Library. Gladstone encouraged Moore to take up the subject - and, in his writings on teleology and evolution, Moore did (see next chapter).

Manual of Geology of Professor Joseph Prestwich. The exceptional cases Huxley had raised were excused, Gladstone suggested, by the fact that the "Mosaic author" was not referring to creatures "outside the use and the dominion of man." Besides, as Gladstone emphasized repeatedly, he read Genesis as a "sermon", and not as a "lecture": it was intended to give moral and not scientific instruction to its readers, and so could not be expected to reproduce the myriad details of scientific discovery in its verses. It was not after all, as Huxley seemed to think "a lawyer's parchment, or a sum in arithmetic, wherein a flaw discovered at a particular point is *ipso facto* fatal to the whole." The High Church Gladstone was not such a stickler for the literal word of the Bible as was the evangelically-raised Huxley.

Concluding his reply Gladstone claimed that evolution strengthened the argument from design and defended theology as the science that explained the phenomena of religion." All Gladstone had changed of his argument was its outward appearance: terminology, sources, and tone had all been altered, but he had maintained his stand on the harmony

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54 Ibid.
55 Ibid., 14.
56 Ibid., pp. 5, 8, 15.
between Genesis and geology.

Huxley was pleased - not with Gladstone's article, but to have the chance of destroying him again. He wrote up a "smashing" response, which shocked James Knowles, the editor of the Nineteenth Century. He sent it back to Huxley asking that its violent tone be expunged. Huxley obliged, and in a letter to Knowles accompanying his second draft, wrote that "I spent three mortal hours this morning taming my wild cat. He is now castrated; his teeth are filed; his claws are cut; he is taught to swear like a 'mieu'; and to spit like a cough..."\(^5\)

For all his editing, the article, as he boasted, was still a "smash". He refuted Gladstone's order by insisting that Genesis, when it mentioned "creeping things" must have included reptiles, which "beasts", appear in the fossil record well before "birds".\(^6\) Gladstone had tried to evade Huxley's argument that bats and whales had developed from land animals by refining his categories. But Huxley pointed out that the shift from "air" and "sea" "population" to "fowl" and "fish" did not help Gladstone in the least. Huxley referred to later books of the pentateuch in which bats and whales were clearly referred to by the Hebrew terms for "fowl" and "fish",


respectively. Gladstone did violence both to the language of scripture and to the facts of science in his attempt to force the two into harmony.

Huxley did not reply to Gladstone's assertions about the religious value of evolution, but contented himself by commenting on the state of the "science" of theology. He defined science as any serious attempt to order knowledge by inductive and deductive logic:

So I think astrology is a science, in so far as it professes to reason logically from principles established by just inductive methods....however I do not believe one whit in astrology....Among the physical sciences, I do not know that any could claim more than that it is true within certain limits....If such is the case, I do not see where the line is to be drawn between exactly true, partially true, and mainly untrue forms of science. And what I have said about current theology...leaves, I think, no doubt as to the category in which I rank it. For all that...it would be...unjust...to refuse the name of science to the "Summa" of St. Thomas or to the "Institutes" of Calvin.60

Theology was bound by the same rules of evidence as any other science, according to Huxley. Miracles, or the power of prayer, ought to be subject to the same processes of observation and verification as any other phenomena.61 It is perhaps not surprising then, that he found its late nineteenth-century form sadly lacking, especially when it was represented by amateur exegetes like Gladstone. However, as I

60 Ibid., p. 194.

shall show, Huxley held to a vision of Genesis which prevented him from feeling sympathy even with those orthodox biblical critics who conceded that it contained no scientific information.

Gladstone did not reply. In late January he became prime minister once more, and was deeply involved in the difficult and ultimately unsuccessful promotion of his Home Rule bill. In July, 1886, on the eve of his next general election defeat, he sent a letter from James Dana, the American geologist, to the Nineteenth Century. Dana declared that he believed that "the first chapters of Genesis and Science are in accord". Gladstone could show that at least one man of science was on his side.

No professional biblical critic, however, took up a similar position. The only critic to comment on Gladstone's Nineteenth Century Article took a decidedly negative view. Samuel Driver, Regius Professor of Hebrew at Oxford, had succeeded Pusey on his death in 1882. Driver had been a Quaker, but had converted to Anglicanism and been ordained; this was still part of the requirement for the professorship. He had written an article on "The Cosmogony of Genesis" for the Expositor (a journal which printed English language essays on biblical criticism) in January, 1886. It was not intended

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62 Nineteenth Century, August, 1886. p. 328. See also Gladstone's letter to the Nineteenth Century, January, 1886, p. 176.
as a comment on the Huxley-Gladstone controversy - indeed it seems to be directed more against Kinns - but Driver did include a footnote commenting on Gladstone's position.

Driver compared a table of fossil organisms drawn from Archibald Geikie's *Text-book of Geology* (1885) with the order given in Genesis, and concluded that "The two series are evidently at variance." Point by point he discussed "harmonists'" methods of removing the discrepancies between science and the Bible and showed how their strategies were unjustifiable given the common meaning of the Hebrew in each case. Driver described Kinns' work thus: "The key [Genesis], it is evident, only fits the fifteen-warded lock [geology] after both have been subjected to arbitrary alteration and adjustment." Driver insisted that the work of reconcilers did violence to the scientific and biblical evidence: "Every proposed scheme either combines what is separate in one series, or divides what is united in the other....Including, it must be reluctantly added, the one advocated by an illustrious statesman in the Nineteenth Century for November, 1885." While Driver admired Gladstone's eloquence, his argument was "open to the same objections" as Kinns'. To Driver, while efforts at reconciling biblical with scientific...
chronology were well meant, they reinforced the erroneous popular view that the cosmogony of Genesis was "an integral element of the Christian faith". Driver called on critics to recognize that

It is our duty to eradicate popular illusions and to teach both that the cosmogony of Genesis does not accord with the results established by science, and that the recognition of this fact in no degree imperils the Christian revelation....We should show that it is [the Biblical narrative’s] office neither to anticipate scientific discovery nor to define the lines of scientific research....it is to present...a truthful representative picture of the relation of the world to God."

From such a quote it would seem that Voysey was right in warning Kinns that he would have to run a gauntlet of critics as well as men of science, and it would seem that the co-operation noted by White and James Moore is again vindicated. Huxley’s reaction to Driver’s view, however, reveals a significant point of contention between the agnostic man of science, and the religiously orthodox critic.

Edward Poulton, the Keble College science tutor, had been turning his attention from geology to evolutionary topics in the early 1880’s, when he had also become an Anglican (abandoning, like Driver, his Quaker roots). It is not surprising therefore that he should have taken an interest in the Huxley-Gladstone controversy, and have found Driver’s

**“Ibid., p. 45.**

**7 Ibid. See also S. Driver’s sermon on "The First Chapter of Genesis" (preached on November 29, 1885), in Sermons on the Old Testament (London: Methuen, 1892), pp. 163-178.**
response to the issue satisfactory. He sent a copy of Driver's paper to Huxley, and must have been somewhat dismayed at the older scientist's response. Huxley returned the article to Poulton, with a note that dismissed Driver's attempt to hold a middle ground:

Practically, Canon Driver, as a theologian and as a Hebrew scholar, gives up the physical truth of the Pentateuchal cosmogony altogether. All the more wonderful to me, therefore, is the way in which he holds on to it as embodying theological truth....on all points which can be tested, the Pentateuchal writer states that which is not true. What, therefore, is his authority on the matter - creation by a Deity - which cannot be tested? What sort of "inspiration" is that which leads to the promulgation of a fable as divine truth, which forces those who believe in that inspiration to hold on, like grim death, to the literal truth of the fable, which demoralises them in seeking for all sorts of sophistical shifts to bolster up their fable, and which finally is discredited and repudiated when the fable is finally proved to be a fable? If Satan had wished to devise the best means of discrediting "Revelation" he could not have done better."

Certainly Huxley and Driver agreed that Genesis and geology did not present the same order of creation, but the conclusions they drew from this were radically different. Huxley saw the failed efforts at reconciliation as evidence that the Bible was the product of myth, and not divine "inspiration". Driver saw the same failure as evidence that Genesis was not intended to predict modern science, but to present humanity with spiritual information.

How far then did the professional alliance between men of

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science and biblical critics go? Certainly the two groups were united by the common bond of "serious" study, and common methods, and so they must have made common cause in certain controversies and campaigns. But in some cases, this bond could not transcend the fundamental epistemological division between the "orthodox" and the agnostic. The interpretation of scientific and biblical evidence must prove to be a source of conflict between those who did not share similar presuppositions about the existence of God. The reality of this division is seen again in Huxley's private and public reactions to the acceptance of both evolutionary sciences and biblical criticism by the rising generation of Anglo-catholics who wrote *Lux Mundi*.

**THE LUX MUNDI CONTROVERSY**

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Allowing for the hyperbole endemic to advertising, Lux Mundi (1889) was a "sensation". A. D. White, writing in the 1890's, saw it as evidence of the inevitable march of scientific thought which had infiltrated even Keble College. He characterized Keble as a fortress built to bring the old opinion with crushing force against new thought....As if to strike the keynote of the thought to be fostered in the new institution, one of the most beautiful of the pseudo-medieval pictures was given the place of honour in its hall.  

He, like many, marvelled that such a fortress, built by conservative Anglo-catholics, should prove to have religious liberals among its fellows. Of course they had made a leap from the old Tractarian to the newer "liberal catholic" position, but there were continuities between the two which belie the standard conservative vs. liberal distinction. After all, the "pseudo-medieval" picture was William Holman-Hunt's "Light of the World". It may have inspired Keble's young tutors to look to the same gospel verse (John 8:12) for the title of their collection of essays - Lux Mundi.

We have seen the state of the popular battle over the historical content of Genesis in the 1880's. What would Anglo-catholics have made of this? While Pusey had had no time for schemes of reconciling Genesis and geology (see chapter 2), he

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Gazette, January 19th, 1890.

70 A. D. White, History of the Warfare of Science with Theology, vol 2, pp. 358-59.
had defended the historical and literal truth of other parts of the Old Testament narrative against the claims of "Germanizing" biblical critics. His deputy and biographer, H. P. Liddon, had followed Pusey's line on criticism, though he was more favourably disposed to evolution. He certainly would not have pursued a reconciliation between Genesis and geology, but he was not happy with the way biblical critics like Driver dealt with the Old Testament in general.

But the younger Anglo-catholics whom Liddon made the leaders of Keble College and Pusey House had a rather different view of biblical criticism and science. They had learned from T. H. Green's idealism the power of an immanentist view of God's action (see chapter three) and this could be applied not only to the history of creation, but to the historical aspect of revelation. They also drew inspiration from Churchmen with both liberal and Tractarian connections like Richard Church and James Mozley. These men, both past editors of the Guardian, had observed the controversies over the Origin of Species and Essays and Reviews at a cautious distance. They certainly hadn't publicly defended either work, but they were dismayed at the hostile reactions they received, if only because they realized that the questions they raised were being dismissed, rather than being answered from a serious (Anglo-catholic) religious
Mozley was particularly influential in communicating the orthodoxy of a moderate critical attitude to the future Lux Mundi essayists. He was Regius Professor of divinity in the 1870's, and had been persuaded by Henry Scott Holland and a few other new graduates to offer a reading course on the Old Testament. The lectures were given in 1874-75, and published as Ruling Ideas in Early Ages and their Relation to Old Testament Faith (1877). While Mozley did not consider questions of authorship or provenance, he read the Bible as the historical record of a gradual and progressive revelation given to the Israelites. His lectures dealt largely with those aspects of the narrative which seemed immoral to its nineteenth century audience: God's demand that Abraham kill his son Isaac, the genocidal wars of the Israelites, or Jael's gruesome murder of a sleeping guest. Mozley's basic thesis was that "a progressive revelation may make use of an imperfect moral standard." In order to lead the Israelites out of barbarism and towards a more perfect moral standard, God had worked within the limits of "natural" morality of the


72 J. W. Rogerson, Old Testament Criticism, pp. 245-7. The names of some of Mozley's graduate students are given in [A. Mozley, ed.], Life and Letters of J. B. Mozley, p. 343. They include six of the eleven Lux Mundi essayists.

73 See Genesis 22, Joshua 9-11, and Judges 4 respectively.
This position could be adapted to deal with the "scientific" difficulty presented by the early chapters of Genesis. Just as God had worked with an "imperfect moral standard" so had He worked with an imperfect level of knowledge in his early revelation to the Israelites. Revelation was gradual and progressive, and so the earliest parts were adapted to the primitive thinking of simple people. This might also answer to some of the more problematic miracles of the Old Testament like Noah's flood or Jonah and the whale. The value of the biblical narrative did not consist in its literal truth, but in what it had told a primitive people about their relationship to God.

Mozley's Holy Party students were absorbing Green's immanent idealism at the same time, and it was easy for them to then synthesize the biblical and philosophical teaching they received. God's revelation in human history had undergone a gradual development. God's inspiration had been given to ordinary men, and had been limited by the ordinary moral and intellectual understanding of the age. God, both transcending and immanent in human nature, had gradually directed the spiritual evolution of the Israelites towards Christianity.

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J. B. Mozley, *Ruling Ideas in Early Ages* (New York: E. P. Dutton, 1877), pp. 222-53. Of course revelation was only subject to these limitations because of "the fundamental difficulty of reconciling God's power with man's free will."
This vision must have been complemented by the arrival of Pusey's successor, S. R. Driver in 1883. Henry Scott Holland recalls him as an influence in one of his collections of memoirs, and there is some evidence that he was friendly with Aubrey Moore.\textsuperscript{75} In October of 1883 both Moore and Driver had commented on the relations between evolution and faith. Moore had spoken to the Reading Church Congress on the implications of "Recent Advances of Natural Science in their Relation to Christian Faith", and Driver had given his first university sermon at the University Church of St. Mary the Virgin: "Evolution not Incompatible with Faith."\textsuperscript{76} The two agreed that evolution was quite compatible with faith, that "special creation" was not the only theory allowed by the text of Genesis, and that God worked constantly throughout Nature. It would seem likely that the two men would have met and talked after promoting such similar views (if they had not done so before this).

The first positive evidence of their interaction comes rather later. In late May of 1889, Moore invited "Driver to read a paper on Old Testament criticism to a number of clergy

\textsuperscript{75} H. Scott Holland, "Canon Driver" in A Bundle of Memories (London: Gardner, 1915).

in the Keble College common room." The paper was apparently well-received, though it was not from the "Catholic standpoint". There must have been openness to biblical criticism among the younger Anglo-catholics before this however, since by the time they published their views on the subject in the late 1880's, they showed no hesitation about accepting its results. The views of Aubrey Moore and Charles Gore are particularly revealing here.

In "Darwinism and the Christian Faith", published in the Guardian in January and February of 1888, Moore claimed that the "doctrine of special creations" had no basis in the Bible or in the writings of the foremost early and medieval Church fathers." This faulty scientific theory had not gained popularity because of biblical authority, but because of its promotion by the seventeenth century puritan poet, John Milton:

    In the Bible we have, "And God said, 'Let the earth bring forth,'" etc., words which are at least consistent with gradual development. But Milton says:

    The grassy clods now calved; now half-appeared
    The tawny lion, pawing to get free
    His hinder parts, then springs as broke from bonds
    And rampant shakes his brindled mane; the ounce,
    The libbard, and the tiger, as the mole
    Rising, the crumbled earth above them threw
    In hillocks: the swift stag from under ground

The event was mentioned by V. S. S. Coles in a letter to F. A. Dixey. June 2nd [1889]. (Dated by mention of Moore's Science and the Faith, published in April, 1889) Pusey House, Dixey papers, vol 1., f. 2.

Bore up his branching head;" etc., etc.

This is literalism and realism with a vengeance!" A literal, "creationist" reading of Genesis was then only a puritan innovation, which, when supported by the near contemporary work of John Ray, lead to the advancement of a theory of the fixity of species. Aubrey Moore claimed that

if the theory of "special creation" existed either in the Bible or in Christian antiquity, we might bravely try and do battle for it. But it came to us some two centuries ago with the imprimatur of a Puritan poet. And, though scientific men are now glad to palm off upon theologians their own mistakes, religion is not bound to wear, still less to be proud of, the cast-off clothes of physical science."

Moore thought that Christians should neither read Genesis literally, nor feel obliged to adopt a belief in special creationism, since such an approach was a recent, protestant innovation. Like a good Anglo-catholic, Moore turned to more ancient authorities, the medieval and early Church fathers, and found that they had not ruled out the possibility that God could create life gradually.

At the close of his essay, after having shown how evolution might benefit Christian thought, Moore addressed the question of biblical hermeneutics in a post-script.

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79 Ibid., pp. 178-9. The passage is from Paradise Lost, Book, VII, lines 414-421. Moore cites another passage which seems to describe creation in a more "evolutionary" light, and claims that Milton's ideas in this regard are derived from "scholastic" theology. Moore also refers to T. H. Huxley's American Addresses (London: Macmillan, 1877) in which the same topic is discussed.

80 A. Moore, Science and the Faith, p. 184.
It may be said, "Then you are prepared to give up Genesis?" to which it may be answered, "Yes," if by "giving up Genesis" you mean refusing to claim for it what it never claims for itself - that it is a prophetic anticipation of nineteenth-century science, and a revealed short cut to Darwinism. We cannot sympathise with those "reconcilers" who would read between the lines of the Mosaic history a meaning which...would have put an infinitely greater strain on the faith of those for whom it was written than would be put on ours in the present day if we were compelled to accept as de fide a theory of verbal inspiration."

To seek the inspiration of Genesis in its scientific accuracy, like Kinns or Gladstone, was to misread it. Moore banished science from Genesis since it had not been there in the first place.82

Moore clearly felt that the physical sciences must be accepted as sources of authority independent of a literal reading of the Bible. This sympathy towards science was of a piece with his views on criticism. In his Lux Mundi (1889) essay on "The Christian Doctrine of God", Moore set out the relationship between the authority of the Bible and that of the secular sciences:

But an intelligent Christian will not ask, "Does this new truth agree with or contradict the letter of the Bible?" but "How does it interpret and help us to understand the Bible?" And so with regard to all truth, whether it comes from the side of science, or history, or criticism, he adopts neither the method of protest nor the method of surrender, but the method of assimilation. In the face of

81 Ibid., pp. 220-21.

82 It is interesting to note that the "verbal inspiration" of the Bible is also dismissed in the above quote. By the late nineteenth century there were many British clerics who accepted the method and claims of the higher criticism, and so could not hold this traditional theory of inspiration.
new discoveries, the only question he is anxious to answer is this: "What old truth will they enlighten, or explain, or make real to us?...."Truth is an ever flowing river, into which streams flow in from many sides." What is this new stream which is about to empty itself, as all knowledge must, into the great flood of Divine truth...?"

Neither criticism nor science were threats to religion, but sources of new knowledge which would increase Christian understanding of revelation. Just as geology and biology should be given priority over any naive reading of Genesis as a scientific text, so biblical criticism was to be given priority over traditional interpretations of the historicity or authorship of the Old Testament. Both science and criticism contributed truth to religion, and could be assimilated into the "great flood of Divine truth."

Moore's view of the value of criticism was similar to Charles Gore's. Gore, the editor of Lux Mundi and the librarian of Pusey House, wrote the volume's most controversial essay, on "The Holy Spirit and Inspiration". Gore accepted that Moses was not the author of certain Old Testament books. The traditional defence of Mosaic authorship was that Christ Himself described Moses as the author of these books. But Gore claimed that in the incarnation God had "emptied" Himself of divine knowledge (a process known by its Greek name, "kenosis"), and was speaking on the matter with

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the knowledge and beliefs of an ordinary mortal at the time.\textsuperscript{44}
His adoption of this view shocked H. P. Liddon, who had appointed Gore the Pusey House librarian, and drew fire from conservatives within and outside the Church of England.\textsuperscript{45}

Why did Gore take up such a controversial position? Of course he believed that criticism was true, but what is more, he believed that it gave results as true and valuable as those uncovered by the natural sciences. To maintain a hostile attitude towards biblical criticism then, would ultimately be harmful to religion, just as religious hostility to science had damaged the Church:

The present writer, believing that the modern development of historical criticism is reaching results as sure, where it is fairly used, as scientific inquiry, and feeling, therefore, that the warning which the name of Galileo must ever bring before the memory of Churchmen, is not unneeded now, believes also that the Church is in no way restrained from admitting the modifications just hinted at, in what has latterly been the current idea of inspiration.\textsuperscript{46}

Criticism should be treated by Churchmen with the same kind of\textsuperscript{84}


\textsuperscript{45}This controversy has been much examined. Recent studies include P. Avis, \textit{Gore: Construction and Conflict} (Worthing: W. Sussex, 1988) and P. Hinchliff "A Separate Spiritual Truth", pp. 99-121 in his \textit{God and History: Aspects of British Theology, 1875-1914} (Oxford: Clarendon, 1992).

\textsuperscript{46}C. Gore "The Holy Spirit and Inspiration", pp. 263-302 in Gore, ed., \textit{Lux Mundi}, p. 298. See also p. 297, where Gore implies that the acceptance of criticism would require no more adjustment of Christian doctrine than was required by the acceptance of "heliocentric astronomy".
respect and humility as science. History testified to the embarrassment which might otherwise result. Besides, Gore claimed, like science, criticism could help Christians learn about their faith:

...just as truly as physiology, in telling us more and more about the human body is telling us more and more about the body which the Son of God assumed, so with the growth of our knowledge about the kinds and sequences of human literature shall we know more and more about the literature of the Jews which the Holy Spirit inspired...."  

Like Aubrey Moore, Gore believed that science and criticism were effectively interchangeable in this regard. They were secular sources of truth which, since they were true, could contribute to a better understanding of divine truth. In accepting that the book of Genesis was not written by Moses, and that it did not necessarily contain historical or scientific truth, the younger Anglo-catholics believed that they could come closer to understanding its spiritual meaning.

Not surprisingly, Gore's acceptance of biblical criticism and "kenosis" drew fire from conservative critics. But how were the efforts of Gore and Aubrey Moore received by men of science? James Moore claims that there was an alliance between "professional men of science and professionalizing biblical critics", though as I have shown, in Huxley's comments on Driver, this claim needs to be reconsidered. Was there any friendship between professional men of science and the Lux

87 Ibid., p. 287.
Mundi essayists who popularized biblical criticism in the Church of England?

Certainly not. While some men of science were very keen on the work of Aubrey Moore in particular, and in Lux Mundi in general, they supported it not out of a professional alliance but because they were orthodox Christians and also Darwinian evolutionists: their view of Moore's work will be examined in the next chapter." But if we return to the opinion of science's most outspoken representative of the day, T. H. Huxley, we see that he was quite astounded at the kind of compromise the Lux Mundi essayists were trying to make. He reacted to their essays just as he had reacted to S. R. Driver's discussion of Genesis.

In 1888 William Flower, director of the Natural History Museum, and a Christian, sent Aubrey Moore Huxley's London address. Flower praised Moore's articles on "Darwinism and the Christian Faith": they contained "all that is necessary to show how the difficulties may be removed"." Sending a copy to Huxley would not "change his views" but would "at least show him the attitude of a large, influential, and daily increasing number of the clergy and the church towards the doctrine of

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" These Christian biologists include F. A. Dixey, Sir W. F. Flower, and E. Poulton. G. J. Romanes, though an agnostic in the late 1880s, was also keen on Aubrey Moore's work for spiritual reasons as shall be shown in the next chapter.

Flower was right. Huxley's views were unchanged, and in a note of thanks to Moore, he addressed at length the one aspect of Moore's approach which he thought indefensible. Although Moore's articles were mainly concerned with questions of teleology and theodicy, Huxley zeroed in on the inconsistency between evolution and the Bible. Evolution - Darwinian or otherwise - had been proven, Huxley wrote, and

It is incredible to me that anyone should say that this account of the origin of animals and plants is anything other than contradictory, in spirit or substance, of the account given in Genesis.

It is further demonstrable that no deluge of the Noachian sort ever happened.

Under these circumstances the account of the Fall which bears myth stamped on every feature - & is included between these two great falsities is shaken to its foundation.

It seems to me then no unreasoning hostility to theological dogma but simple common sense that when the pretensions of a professed revelation break down utterly, on those points which can be subjected to a test, its claims to authority respecting matters which are not susceptible of such tests should be put aside.

It is a wilful assumption (to my mind) to say that the Bible was not meant to teach science - to me as it goes its science is taught as solemnly and expressly as anything else.

It is merely a more easy than edifying way of evading difficulties, to say that [this asserted?] infallible book was not meant to teach those things in which it happens to be demonstrably wrong.\textsuperscript{91}

Huxley clearly had no time for the kind of compromise between

\textsuperscript{90} Flower to Moore, February 27th, 1888. E. M. Moore autograph collection, A.P.S. Library.

\textsuperscript{91} Huxley to Moore, March 15, 1888. Words in brackets, [], are nearly illegible, and guessed at. E. M. Moore Autograph collection, A.P.S. Library.
faith and knowledge which orthodox Christians like Aubrey Moore were trying to engineer. Their reading of the Bible was simply self-serving, and ignored its apparent meaning.

Huxley's public reaction to *Lux Mundi* was identical in argument to the private letter he sent to Moore. He harkened back to the Christian apologists of thirty years before who argued that there was no error in the Scriptures. He quoted at length from Liddon's reaction to Gore's essay. Liddon had claimed that, since Christ mentioned Old Testament events in his teaching, "The trustworthiness of the Old Testament is, in fact, inseparable, from the trustworthiness of our Lord Jesus Christ...."  

But the trustworthiness of the Old Testament, Huxley claimed, had been undermined by the application of the "scientific method" in history, philology, and archaeology no less than in physical science." Huxley, like Gore and Moore, believed that historical criticism, in its field, came to results as certain as those of physical sciences. However, he had no patience for the language of types and allegories which Charles Gore used in his *Lux Mundi* essay. Huxley wasn't interested in the question of inspiration, or of spiritual meaning: he asked if the claims of the Old Testament were true or false. Since those which could be tested were false, he had

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93 Ibid., p. 212.
no further interest in its untestable claims."

Huxley's interest in biblical criticism arose from his belief that it supplemented the work of physical science in proving that not only Genesis, but the Old Testament and the Christian religion generally, were mythical. The *Lux Mundi* essayists, like the moderate critic S. R. Driver, believed that criticism and physical science would better Christians' understanding of their faith.

If we take Huxley's position as representative of a wider agnostic or positivist view (albeit not representative of the views of most scientists) then it would seem that the promoters of professional science and professional biblical criticism did not necessarily work together. Rather, the camps might be defined by their interest in the ultimate conclusions given by science and criticism. Those like Huxley, who wished the evidential basis and popular authority of orthodox religion undermined, welcomed criticism and physical science as approaches conducive to this end. Those like Aubrey Moore, who wished to reform the evidences of orthodox faith, and to strengthen it against attack, attempted to assimilate the authority of science and criticism by welcoming the "truths" each branch of knowledge offered.

Aubrey Moore had no time for reconcilers of Genesis and geology, though he had a different set of objections than

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"Ibid., pp. 233-34."
Huxley had presented in his battle with Gladstone. Huxley thought that geology was true and Genesis was false. Aubrey Moore thought that both were true. Where they seemed to contradict one another it was because Genesis was not being read properly. It was not a book intended to give the same kind of knowledge that modern science did; rather it described spiritual truths. The study of rocks gave the true history of the earth's geology, while the study of the Bible gave the true history of humanity's relationship with God. The assimilation of science and criticism typical of Lux Mundi was made possible by the separation of scientific and theological meaning.

While some professionals in the camps of science and biblical criticism may have been on good terms, I suspect that the foundation of their alliance was not their "professionalism" but their common religious outlook. Poulton, the professional biologist, for instance, evidently appreciated the work of S. R. Driver, and Aubrey Moore. Huxley did not. Poulton was an Anglican, Huxley an agnostic. It may be that Poulton was not a "professional" of the same stamp as Huxley, but this points to the need to sharply define "professionalism" if James Moore's thesis is to be properly defended.
Aubrey Moore and the other Lux Mundi essayists were quite willing to accept the authority of the higher biblical criticism. They believed that criticism gave results as sure as natural science, and tried to prove that the new interpretations of the Bible which it required were compatible with orthodox, catholic theology. The new truth about the Bible could be "assimilated" into the One Truth.

Their approach to evolution was similar. The new religious interpretation of nature necessitated by Darwinism could also be proven to be compatible with the faith. Again, the model followed was one of assimilation. We have seen how the young Anglo-catholics defended the authority and importance of natural science in their support of the controversial physiological laboratory at Oxford, when they directly opposed their older religious mentors. In the same way they defended the authority of biological science when it pronounced on matters which some believers thought were the preserve of religion: nature's prehistory, the economy and history of life, and the origins of humanity. The controversial discoveries of biology could be assimilated also: what had to be done was to disentangle the facts of science from the materialistic and pantheistic conclusions which many drew from them. Among the Christian apologists of the day, none pursued this line of apologetic with such skill and originality as Aubrey Moore.
As I have mentioned in the first chapter, modern discussion of Moore’s work on evolution has been cast in the form of answers to the question: "Did Aubrey Moore accept Darwinism?" Passages from his work which bear most nearly on this question are then quoted, and the historian’s view of their relationship to real Darwinism is presented. The question is mostly asked in the context of the debate over the real relationship between science and religion in the nineteenth century. If Moore really did accept Darwinism, then the old warfare thesis must be revised. However, if his acceptance of evolution was based on a misunderstanding of its meaning, or on a metaphysical elaboration of the general idea of development, then we can continue to support a model which posits an unbridgeable chasm between science and religion.

The approach here will be different. Certainly Aubrey Moore’s ideas on evolution will be closely examined, and their relationship with Darwinism will be explored. However there will be no attempt to judge whether Moore accepted an ahistorical "real" Darwinism; when Darwinism is discussed it will be the Darwinism of the day. More important to this account is the wider context of Moore’s views. Too often a paragraph or two of his writing is taken to stand for his reconciliation between science and religion. In the numerous essays and sermons in which Aubrey Moore addressed the subject, a complex and far-reaching revision of the religious treatment of science is attempted. This has been missed in modern,
"Darwin"-centred accounts of his work. Even the quite detailed description in James Moore's *Post-Darwinian Controversies* (1979) fails to note important aspects of Aubrey Moore's view of the history and nature of science. The first level of "wider context" then must be to situate Aubrey Moore's statements on the problems raised by Darwinism as part of his own vision of the history of thought, and of the unique character of his apologetic. He saw science moving from a mechanistic to an organic phase in the nineteenth century, and he hoped that a science of morality would further transform knowledge.

Aubrey Moore also announced that the positivist scheme of history - from religion to metaphysics to science - actually ran in reverse thanks to evolution. His view was not merely personal and eccentric. He drew on various resources which allowed him to make this claim, which must also be considered in any description of a wider context. As we have seen in chapter three, Moore lectured on Aristotle's *Nichomachean Ethics* and the history of the reformation. As an Anglo-catholic he had accepted the authority of the Church and Church fathers, early and medieval, and their defences of orthodox doctrines. He had studied with T. H. Green and knew the value of idealist critiques of the positivism so often associated with science and unbelief. His friendships with men of science allowed him

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to thoroughly acquaint himself with evolutionary theory, a subject known only vaguely by many apologists. All of these aspects of his life are reflected in his unique interpretation of evolution.

If we are to address the question of whether this meant that Moore accepted Darwinism we must describe what the term meant to him and to his contemporaries. Among Moore’s friends and readers were the neo-Darwinian biologists E. B. Poulton and F. A. Dixey, as well as Darwin’s disciple, G. J. Romanes. They all appreciated Moore’s work, not just intellectually, but as a good popularization of Darwinism. Moore’s idea of a "wider teleology" found its way into Anglican religious apologetic of the 1890’s and early 1900’s. Moore’s approach was greeted by his scientific colleagues because it did not attempt to alter the content of their Darwinism, but rather attempted to give it a different interpretation than it received from agnostics like Herbert Spencer or Leslie Stephen. Moore thought he could claim the truth of evolution for Christianity, and the success of his attempt must be judged from the success of his apologetic. Perhaps the strongest evidence of Moore’s success is his impact on Romanes, who accepted Moore’s view of teleology, and so began a journey back to the faith he had abandoned when he had felt that it was incompatible with a Darwinian view of nature.

Below I will consider Moore’s interpretations of those aspects of evolution which were most challenging to Christians: the evolution of humans (including the development of
intelligence and morality); the impact of Darwinism on the argument from design (teleology); and the problem of a "Nature red in tooth and claw" (theodicy). These aspects of Moore's work will be considered in light of their wider context, including his system of thought, his sources, and his contemporaries' reactions. His views on evolution are more than an acceptance or avoidance of "real" Darwinism, but the logical outcome of Moore's revision of the history of thought and of God's place in nature. Before I discuss the particular evolutionary problems he addressed I must consider Moore's method of introducing secular knowledge into an Anglo-catholic religious worldview.

**ASSIMILATING SCIENCE**

What is the right relationship between science and religion? Faith and reason? How should a Christian react to men who say that humans were not created but evolved? Why was it thought that science led to unbelief?

These were the kinds of questions any Christian apologist had to face in late nineteenth century Britain. The time has been studied as an age of secularization, of the break-up of a common context, of the demise of the "truth-complex", or of a Victorian crisis of faith.\(^2\) Darwinism is usually cast among the

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causes of the crisis. A view popular among some reformers of the time is that they were living at the dawn of a "new reformation": the phrase was uttered first by Huxley as he defended the *Origin of Species* before the Royal Institution in 1860.¹

There is no doubt that religious opinions were multiplying in the 1870’s and 80’s, and that the growing authority of science was connected with their multiplication. Huxley, the public’s "science proctor", coined the word which would henceforth describe the religious doubt which he and many others felt, "agnostic". Herbert Spencer preached evolution and, as God-substitute, the "Unknowable". Positivists denied the existence of God and moved on to better things. For example, the eugenicist Cotter Morison cast aside concerns of the next world, and revised his moral system so that it encouraged progress in this. Henry Drummond tried to update theology by making it more scientific in his *Natural Law in the Spiritual World* (1885). There was no sign of science stopping to allow religious apologists time to take stock of the changed terrain. George Romanes was undertaking his pioneering studies of comparative psychology, and promoting the most radical of Darwin’s claims: that the human mind and human morality had


developed naturally. How could the religiously orthodox respond?

In general they responded poorly. The most effective public defenders of theism were not members of the Church of England at all. James Martineau, a Unitarian theologian and philosopher, was the most effective critic of Spencer. T.H. Green, whose philosophy was considered pantheistic, attacked positivism, empiricism and reductionistic science from the vantage point of idealism. Controversialists who were Christians did not seem to be able to come to proper terms with the science which animated so much religious heterodoxy. George Douglas Campbell, eighth Duke of Argyll, held out against Darwinian evolution until his death in 1900, and was regarded with increasing disdain by men of science as the years went by. H. P. Liddon, the silver-tongued preacher at St. Paul’s, could not bring himself to agree with Darwin either. On the occasion of Darwin’s death Liddon gave a sermon in which he claimed that an evolutionary cosmology could not explain three breaks in the course of creation: the origin of organic life, sentient life, and self-conscious (human) life. At these points the direct action of God must be invoked. If this convinced his congregation it did not convince those who felt that evolutionary theory could and would close such gaps in human knowledge of natural causation. Views like Liddon’s were apparently the views of a Church in retreat.
A year later, Liddon offered advice to his young friend Aubrey Moore, who was going to speak on evolution and religion at a Church Congress. He should not deny special creations, he should be cautious. Moore's approach to evolution gave Liddon no cause for alarm, even though it marked a much more thorough-going acceptance of Darwinism than Liddon had been willing to countenance. In Moore's address on the subject, and in his subsequent reviews of books on science and religion, he recognized that the new knowledge given by science would have to be assimilated by the Church. Science was a source of truth which religious leaders could no longer dismiss or question, as Pusey had done.

Moore, just like the positivists and agnostics, saw the age as one of a "new reformation": of course, since he considered himself a "catholic", the historical reference had a different meaning for him and his branch of the Church. But he saw the matter of evolution in the light of another age of controversy:

We may learn a lesson from a little-read page of medieval history. When in the thirteenth century the Arabian heretics brought the Aristotelian logic and metaphysics to bear against the faith of Christendom, the Church wisely removed the prohibition which rested on the works of the great pagan; S. Thomas Aquinas fought the Mahometans with their own weapon, and Aristotle appeared as the Christian philosopher. Is it too much to believe that the time will come when we shall see in evolution...conditioned certainly by truths drawn from another sphere, a fuller revelation in nature than now

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'Liddon to Moore, September 3, 1883. Bodleian MS. Eng. lett. e. 128, ff. 23-4.'
possible to man, of the wonderful works of God? Moore thought it possible to answer the heretics who used evolution against orthodoxy by showing that their views were anything but hostile to the faith. The last sentence of the above quote recalls Richard Church's comment on evolution in 1847: it seemed heretical only "because no one will help it to be Christian" (see chapter two, note 29).

Aubrey Moore's assimilation of evolution into his Anglo-catholic faith is best understood in light of his perception of the respective situations of religion and science. Religion, he claimed, was perfected in the Christian doctrine of the Trinity - any other form of theism tended toward deism or pantheism. The Trinity was the only conception of God which could satisfy both religious and philosophical demands. Christianity was in crisis because it was popularly identified with Calvinism, an amoral, individualistic doctrine which had given birth, by reaction, to agnosticism.

Science, Moore said, was moving from a mechanistic, atomistic understanding of nature, to an organic, rational understanding. Just as seventeenth century mechanists had erred when they tried to reduce biological phenomena to the laws of physics, so modern biologists erred when they tried to reduce

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moral phenomena to biological laws. Moore looked ahead for the next phase of science, moral science, which would prove that the laws of nature were not merely uniform but also part of a moral purpose. So in a self-conscious reversal of Comte's intellectual history, Moore claimed that the sciences advanced from the positive, to the metaphysical, and ultimately would lead to a confirmation of theological truths. I will briefly explore these historical and philosophical conceptions of religion and science before considering Moore's unique response to evolutionary theory.

Theism was defended from many philosophical and theological vantage points in the 1880's. As suggested above, while most of these positions were not entirely acceptable to Christians, they were useful strongholds against the attacks of positivists and agnostics. At the beginning of his Science and the Faith, Moore acknowledged "the debt...which our generation owes to Prof. T. H. Green and Dr. Martineau" and also to the work of various Calvinist apologists. However, Moore insisted that it was

impossible to defend Christianity on the basis of anything less than the whole of the Church's Creed. A rational defence of theism which shall maintain the Unity and Personality of God, apart from that which for eighteen centuries has been its intellectual safeguard, is no easy matter. Nor is it easier to defend the essentially social character of Christian morals and religion on the basis of a theory of the Church, which, in its most logical expression, formulates division and rests on individualism...[T]heism itself...is

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' Moore, Science and the Faith, p. xi.
tremblingly conscious of the fact that it must perfect itself in Christianity or be swept away by the rising flood of pantheism.'

The Christian doctrine of the Trinity, Moore claimed, was not only essential to a rational defence of religion, but it was also the only religious doctrine which could satisfy both the demands of religion and of philosophy (a category in which he included science). Moore's essays on Science and the Faith (1889) aim to prove that non-Christian theism must lead to pantheism or deism, religious views which "explain away", but do not explain the central phenomena of human existence, personality and freedom.

Moore viewed the crisis in the religion of his day as a consequence of the Calvinism which had dominated English religious thought for two centuries. Calvinism claimed that God was unknowable, and this made His actions (particularly in predestining some to salvation and others to damnation) seem capricious and arbitrary. Moore cited J. S. Mill's famous denunciation of such a God: "I will call no being good who is not what I mean when I apply that epithet to my fellow creatures." An incomprehensible, unknowable God could not be

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7 Ibid., p. xii. The theory of the Church Moore deprecates is Calvinism.


worshipped by thinking men. Criticisms of Christianity by atheists like Bradlaugh, and positivists like Morison were really criticisms of Calvinism, Moore claimed.10 Worse still Calvinism was responsible for Agnosticism since it dismissed and distrusted reason: "Calvinism and Agnosticism represent respectively the devout and the despairing expression of the belief that God is unknowable to natural reason".11 Agnostic critics of Calvinistic Christianity required a more moral God, a God who could be investigated by reason.

Moore felt that Anglo-catholic tradition could answer this challenge. He called for a "Christian philosophy, to do for us in our own age what scholasticism did in the Middle Age, and bring the unchanging Faith, once for all delivered to our saints, into rational connection with our modern knowledge, and our modern ways of thinking."12 Divine truth was investigable by reason: Christians should recall that reason was a gift from God, and should not fear its application to religious matters.13

His Lux Mundi essay offered an example of the kind of Christian philosophy needed. Moore considered "The Christian Doctrine of God" to be the only religious position which could

10 Moore, Holy Week Addresses, p. viii.
11 Ibid., p. xii. See also ibid., p. 37.
12 Ibid., p. xv.
13 Moore, "Christian Doctrine" in Lux Mundi, pp. 74-5, 85. See also the introduction to H. S. Holland's Philosophy of Faith (London: Murray, 1920) for evidence that Moore was expressing a view common to other members of the Holy party.
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\textsuperscript{10} Moore, \textit{Holy Week Addresses}, p. viii.

\textsuperscript{11} Ibid., p. xii. See also ibid., p. 37.

\textsuperscript{12} Ibid., p. xv.

\textsuperscript{13} Moore, "Christian Doctrine" in \textit{Lux Mundi}, pp. 74-5, 85. See also the introduction to H. S. Holland's \textit{Philosophy of Faith} (London: Murray, 1920) for evidence that Moore was expressing a view common to other members of the Holy party.
meet the demands of philosophy and religion. Far from being an awkward superaddition to "theism", the doctrine of the Trinity was "the only safeguard in reason for a permanent theistic belief."\textsuperscript{14} Moore saw the apparent conflict between science and religion as the result of the fact that "the God of Religion is not the God of Philosophy".\textsuperscript{15} However Moore believed that in the doctrine of the Trinity, the fathers of the early Church had overcome this difficulty. Religion was characterized as assuming "a moral relationship, the relationship of personal beings, as existing between man and the Object of his worship."\textsuperscript{16} Philosophy, and science, on the other hand, required that nature be uniform and rational. Moore considered Aristotle's conception of nature, with intelligence working within nature, to be a doctrine of "immanent reason" as opposed to one of "transcendent intelligence".\textsuperscript{17} This was the situation when early Christian religion came in contact with Greek philosophy, and the response had been the elaboration of the Christian doctrine of God:

\begin{quote}
The earlier Apologists concern themselves first with the vindication of the Divine attributes, God's separateness of the world as against Greek Pantheism, His omnipresence in it as against a Judaising deism. But the union of God's transcendence with His immanence, and with it the fusion of the religious with the philosophic idea of God
\end{quote}

\textsuperscript{14} Moore, "Christian Doctrine" in \textit{Lux Mundi}, p. 81.

\textsuperscript{15} Ibid., p. 49.

\textsuperscript{16} Ibid., p. 54.

\textsuperscript{17} Ibid., p. 77.
is only consciously completed by the Doctrine of the Trinity.\textsuperscript{18}

The personality of God is clearly involved in any description of the relationships between the Father, Son and Holy Spirit. The idea that the LOGOS, or Spirit of God, was present in the world at all times also provided for the demands of philosophy:

The unity of nature is, thus, no longer the abstract motionless simplicity of Being, which had been so powerless to explain the metaphysical problems of ancient Greece. It is the living, Omnipresent Word, co-eternal and consubstantial with the Father, and the philosophical truth becomes an integral part of that Christian doctrine of God, which, while it safeguarded religion and satisfied reason, had won its first and greatest victories in the field of morals.\textsuperscript{19}

The early Christian understanding of God as both immanent in and transcendent over the world had been lost as Christianity developed. Calvinism in particular emphasized the transcendent unknowableness of God, and the West lost a sense of divine immanence in nature. God became distant from nature, and a practical deism arose. It is from this argument that Moore’s most quoted words follow:

Science had pushed the deist’s God farther and farther away, and at the moment when it seemed as if He would be thrust out altogether, Darwinism appeared, and in the guise of a foe, did the work of a friend. It has conferred upon religion and philosophy an inestimable benefit, by shewing us that we must choose between two alternatives. Either God is everywhere present in nature, or He is nowhere....We must return to the Christian view of direct Divine agency, the immanence of Divine power in nature from end to end, the belief in a God in whom not only we, but all things have their being, or we must

\textsuperscript{18} Ibid., p. 78.

\textsuperscript{19} Ibid., p. 79.
Moore, like Richard Church before him, could accept evolution by emphasizing the immanence of God in nature. Darwinism was a useful corrective for deistic corruptions which had rendered the Christian doctrine of God unrecognizable. A Christian philosopher must work in the same way that the Church fathers had, demonstrating the correspondence between religious and philosophical (or scientific) truth. Such a correspondence must exist if the Christian religion were true and investigable by reason. Moore was convinced it was both.

The religious necessity of a personal, moral relationship between man and God also influenced Moore's view of the development of scientific thought. Behind the reformation and the rise of physical science he saw the same cause - mechanism. The mechanical conception of nature certainly assisted the development of the physical sciences, since it "idealized" mathematics, but it also had implications for other regions of thought - theology, epistemology, social theory, and ethics.

As mentioned above, Moore dismissed the deistic conception of God as a corollary of Calvinism, rather than a tenet of Christianity. He also considered deism a result of the success of mechanistic science. If nature were a machine, then God must be its designer: "The real crux of the theology of what was afterwards called Deism was the question of miracles.

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20 Ibid., p. 82.
Did the maker of the machine sometimes alter the works?" The result of a universe bound by mechanical law was a God also bound by mechanical law, and there were fierce debates between Christians and deists about God's ability to "interfere" with nature. To Moore of course, the existence of such pointless debates showed that the truth of divine immanence in nature had been lost. God could not interfere with Himself.

Mechanism in epistemology had lead to sensationalism - the theory that ideas are derived only from sensation. But the accumulation of disconnected simple ideas had no guaranteed relation with the "external world," that order of nature," of which it was supposed to be the copy, and which it was the object of knowledge to know. "All events seem entirely loose and separate," said Hume, fasten them together as you will."22

English empiricism made knowledge impossible. Locke's sensationalism ended in Hume's scepticism, scepticism which applied to both epistemology and theology. Moore was not surprised by the coincidence of religious and philosophical doubt that resulted from "the mechanical conception of nature transformed into a theory of knowledge.": "For in spite of the supposed antagonism between faith and reason, a theory which destroys either, is ultimately fatal to both."23 As I shall show, Moore believed that an idealist epistemology could

22 Ibid., p. xxi
23 Ibid., p. xxii.
sustain belief in a natural order, as well as in a God.

The social expression of mechanism was similarly destructive. An atomistic metaphysic applied to ethics and politics resulted in an "individualism" fatal, alike, when logically developed, to morality and the State.24 Hobbes's remedy to the "war of all against all" was an absolute monarchy, an "external force" which brought order to an otherwise unruly concourse of social atoms. There was no sense, Moore lamented, of society as the result of an organic process of development.

The same problem arose in religion with the rise of Calvinism, "which believed in absolute decrees, and "positive" morality, and a mechanical discipline of which the spirit was derived from the Old Testament and the letter from the New." Calvin's Church, like Hobbes' state, enforced "a purely mechanical uniformity which it mistook for unity."25 Again in ethics, an emphasis on the individual (the social atom), rather than on an organic community, lead to utilitarianism. Altruism was defended as being in one's own best interest, and even the "ordinary theological moralist" appealed to the self: "The "two sovereign masters," which Bentham afterwards found in pleasure and pain, were heaven and hell, and he proceeded to justify a life of virtue as a reasonably promising speculation in this

24 Ibid.

25 Ibid., p. xxiv.
life, and a safe investment for the next."\textsuperscript{26}

Moore saw in all this the damaging effects of a misapplied atomism. However, the nineteenth century had witnessed the development of a new organic understanding of nature, knowledge, society, and religion which was sweeping aside the reduction of these to mechanism. Evolution marked "the transition from the mechanical to the organic view of the universe."\textsuperscript{27} Darwinism had shown that the unity of life was not "the pseudo-unity of external arrangement, but the inward arrangement of a living whole. The power which holds all things together must be immanent and omnipresent."\textsuperscript{28} The idea that Darwin had destroyed the argument from design was not quite true: Darwin had destroyed Paley's deistic setting of that argument, but had shown that purpose existed throughout nature. What evolution meant for the religious understanding of nature, was "a return to Aristotelianism from the poverty stricken philosophy of the deistic epoch."\textsuperscript{29}

So in other realms a new organicism now reigned. In epistemology, T. H. Green's idealist metaphysic stressed the rational relationships between the knower and the known. In politics the concept of a social organism gained popularity,

\textsuperscript{26} Ibid., p. xxvi
\textsuperscript{27} Ibid., p. xxxi.
\textsuperscript{28} Ibid., p. xxix.
\textsuperscript{29} Ibid., p. xxxii.
and the old laissez faire individualism fell away: we must recall here that Moore and the Holy party were pioneers of a revived Christian socialism. In the Church of England, Calvinistic individualism had been eclipsed by the ideal of catholic brotherhood advanced by the Oxford movement.

It was clear to Moore's Oxford contemporaries that he made "the advance from the mechanical to the organic conception of nature account for nearly every difficulty known to the faithful." Indeed he considered this a "distinction of supreme importance in the history of science." By identifying the less defensible aspects of Christian thought with a dead or dying Calvinism, Moore fended off one set of criticisms: that the Christian God was incomprehensible, that Churchmen were afraid of reason, and that ecclesiastical morality was essentially selfish.

But the idea of a shift in the history of social and scientific thought also allowed Moore to predict a similar shift in the future, which would be crucial to a rather different defence of orthodoxy. Evolution, and an organic conception of nature were an advance on mechanical theories, as

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12 Moore, "Christian Doctrine" in Lux Mundi, p. 77. Moore's views on organicism and mechanism will be analyzed in the section on teleology below.
far as Christians were concerned. But Christians were committed to a belief which evolution, as at present understood, is unwilling or rather unable to justify, the belief, viz., that God is a personal Being, and in His innermost nature a God of Love, that the world is a moral world, and that the goal of its movement is the triumph of righteousness....But if evolution were the last word of human reason, the Christian must either give up this belief...and substitute a pantheistic theory for religion, or he must abandon the rational struggle and admit a hopeless antagonism between faith and reason."

However, Moore looked to the past shift from a mechanical to an organic view of nature, and claimed that the history of progress justified the view that "evolution cannot be the last word." The personality of man and God, essential tenets of orthodox Christianity, were threatened by the determinism suggested by biological science, but Moore believed that a new, moral conception of nature would eventually arise and uphold the reality of personal freedom. Certainly it was better to think of morals and religion as organic developments than externally imposed forces, but there were difficulties with the biological understanding of nature:

to this fruitful conception of growth, which has performed such wonders in biology, and thrown back its light on the inorganic sciences, we are asked to sacrifice that which we fondly imagined was man’s greatness, his free will, his personal responsibility, his moral relation with a personal God. Free will, we are told, is a venerable illusion, responsibility the privilege of being punished, the idea of a personal God anthropomorphism. We do not find these things in nature, therefore they cannot be real in man. We turn to Mr. Herbert Spencer’s "Data of Ethics," or to the far stronger and more vigorous "Science of Ethics" by Mr. Leslie Stephen, and we put them down with the feeling

33 Moore, Science and the Faith, p. xli.
that ethical science forced into biological moulds is strangely like biology treated as a department of physics. Moore saw biological determinism's threat to the values cherished by religion as a familiar case of what is now called reductionism. Biological accounts "explained away" but could not explain moral phenomena, just as mechanical theories had failed to explain biological phenomena. Just as mechanism had given way to an organic conception of nature in biology, so biology would give way to a moral science in ethics.

Then we may hope to see the mechanical, the organic, and the moral views of the world and man in their reciprocal relations. And just as when biology threw back its light on the inorganic sciences, it rendered the atomistic view impossible, by showing that "law" was a rational conception, so a true moral science will perhaps some day throw back its light on biology, and show that its laws are moral too."

Darwinism may have been a corrective to certain deistic and Calvinistic heresies, but in itself it was not enough to fully explain personality and human freedom. Moore looked beyond the late-nineteenth century state of science to an age in which moral science had shown that the apparent purposelessness of natural law had a moral purpose, as Christians were bound to believe. This approach was to prove central to Moore's theodicy and to his understanding of human evolution, as I shall show below.

"Ibid., p. xlvi.

"Ibid., pp. xlvi-xlvii.
Much of Moore's general philosophy would seem to confirm that which modern critics of James Moore's "Christian Darwinism" suspect: reconcilers of evolution and religion add metaphysical conceptions to science, and see in evolution a progressive unfolding or growth of a divinely ordered plan. This is not what Darwin meant at all. "Historians sympathetic to the idea of a "Christian Darwinism" might suggest that Moore's metaphysical views did not prevent him from accepting evolution by natural selection, and that some form of progressionism might be found even among the non-religious Darwinists of the day." However, I will reserve my discussion of the success of Moore's assimilation of Darwinism into a religious world view for the section on the reactions to his work. The brief sketch of Moore's thought shows that his acceptance of Darwinism must be considered as one part (albeit an important one) of a comprehensive and fundamental re-interpretation of the modern history of science and religion. He saw Darwinism as a symptom of a wider change from an atomistic, mechanical phase of thought to an organic, biological one. The particular difficulties that evolution posed for Christians - in human evolution, the argument from design, and teleology - could be answered by Moore because he

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\(^{36}\) See for example D. Cupitt, "Darwinism and English Religious Thought" Theology, 78 (1975) 125-31.

\(^{37}\) Progressionism can also be found among Darwinists of our own day. See M. Ruse From Monad to Man (Cambridge, Mass.: Harvard U.P., 1996)
believed that science and social thought would eventually arrive at discoveries which would confirm the values and assumptions inherent in Christian orthodoxy.

HUMAN EVOLUTION

The idea that humans were genetically related to animals was in many ways the most difficult aspect of evolutionary theory for its religious audience. As suggested above, Bishop Wilberforce was not alone in Oxford in objecting to evolution on this ground. Pusey had publicly denounced the "unscience" of evolution invading the provinces of intellect and morality. In private he had written to the university's leading biologist and prayed that "God may raise up some naturalists who may, in His hands, destroy the belief in our apedom." (chapter two, note 89). His disciple, Liddon, had voiced similar hesitation about evolution in a sermon given in 1882: evolution could not explain the origin of human intelligence. The fear of human evolution was not limited to the Anglo-catholics within the Church of England. In 1870, Henry Baker Tristram, an evangelical clergyman and naturalist, spoke for many when he warmly welcomed Alfred Russel Wallace's claim that natural selection could not explain the human mind.38

Many clergymen could accept that the human body might

have evolved from a common ancestor with the apes, but the human mind, human morals, and of course, the human soul, were assumed to have a unique character. They might admit that God worked through evolution, but some distinct break between man and animals was needed to preserve the special relationship between God and man on which Christianity was based.

Moore accepted the evolution of the human mind, and even of human morality, although he repudiated the utilitarian, selfish premises of evolutionary ethics. Darwinists claimed that altruistic behaviour arose out of essentially selfish, animal instincts: the desire to gain praise and avoid blame from other members of the community, and the desire to appear attractive to potential mates. Communities whose members exhibited unselfish traits would likely fare better in intertribal conflicts, and ultimately be naturally selected for survival. Moore however saw this kind of positivist treatment of moral evolution as a reduction of the higher (human) to the lower (animal), a technique which he felt was a misapplication of biological categories to a realm which demanded a different level of explanation.

As to the human soul, Moore claimed that since it was not measurable, it was beyond the province of science, and that the theory of evolution therefore added nothing to the old theological debates over its origin in the individual. Moore’s treatment of this subject matter allowed him to respect the attempts of such comparative psychologists as George Romanes to
find out how human mind and morals had evolved, without 
surrendering his religious understanding of the uniqueness of 
humanity.

Typical of Moore's view of the subject is his review of 
Alfred Russel Wallace's *Darwinism* (1889). Moore admired 
Wallace's defence of "pure Darwinism" and his criticism of neo-
Lamarckism, but had to demur when Wallace turned to human 
evolution. Wallace departed from Darwin in denying that natural 
selection could explain human intellect or morality. He 
believed that these qualities arose from "a spiritual nature 
superadded to the animal nature of man." Many clergymen had 
delighted in Wallace's words, thinking of course that God had 
added the spiritual nature to man. Not so Aubrey Moore:

...this idea of "superaddition" is full of difficulties. It destroys the unity of man. Instead of the "reasonable 
soul and flesh" being "one man" we have a highly 
organized animal with a "superadded spiritual nature." Moore 
would have no truck with the metaphysical dualism which 
Wallace's position implied. In his essay on "Darwinism and the 
Christian Faith" of 1888 he even considered Wallace's position 
less religiously acceptable than Darwin's. Wallace had 
suggested that a "higher intelligence" had used the laws of 
natural selection just as humans used artificial selection, to 
produce man. Moore was suspicious.

Whether from the scientific side, this is rightly called 
a heresy or not, it is not necessary to decide; but,

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A. Moore, *Essays Scientific and Philosophical* (London: 
certainly, from the religious side, it has a strangely unorthodox look. If, as a Christian believes, the "higher intelligence" Who used these laws for the creation of man was the same God Who worked in and by these same laws in creating the lower forms of life, Mr. Wallace's distinction, as a distinction of cause, disappears; and if it was not the same God, we contradict the first article of the Creed. Whatever be the line which Christianity draws between man and the rest of visible creation, it certainly does not claim man as the work of God and leave the rest to "unaided nature." 40

For all that Darwin's theory was used by positivists and atheists to undermine the Christian conception of humanity, it was more orthodox than Wallace's dualistic theory about the evolution of man.

If Christians were to accept Darwin's view of the descent of man, how could they defend themselves against the claim that man and animals were not different in kind, but only in degree? This is the way George Romanes described the distinction between the human and animal mind in his work on Mental Evolution in Man (1888)." This was clearly problematic for the religiously orthodox, given the special status of humanity in Christian cosmology. In his review of Romanes' book, Aubrey Moore disagreed with the terminology Romanes used:

If a cat and a dog are different in kind, so are a man and a monkey, whatever view we may take of the genetic relations of the pairs....The question of origin has nothing to do with it. Only apparently Mr. Romanes is


fighting against someone who explains the difference in kind between human and brute psychology by a difference of origin. If this is the view of Mr. Wallace, or Mr. Mivart, or Professor Quatrefages, we must leave them to defend it. And if Mr. Romanes is defending the unity of origin for man and brute, he need not be afraid of theological opposition. Christianity knows of only one origin for all things, however widely they differ in kind. 

Moore's immanental theology allowed him to see God at work in the evolution of all life, and there was no reason why human intelligence could not have evolved from a lower form as far as he was concerned. But this evolution did not signify that humans were any the less human for their connection with animals. Romanes himself had shown this in his volume, claimed Moore:

Aristotle, and those who follow him, say man is different in kind from the brute because man has reason, which brutes have not; speech, which brutes have not; morality, which brutes have not. Mr. Romanes has not yet dealt with the question of morality, but on the other two points he endorses the old distinction. 

Human mental faculties, like the human body, may well have evolved, but humans had developed unique and advanced powers which separated them from the rest of the animals.

Moore's views on the moral faculties of humans were similar, if complicated by his disagreement with the utilitarian basis of evolutionary ethics. Darwin, and most later evolutionists, believed that the moral behaviour of humans could be explained by its indirect utility to the

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"Moore, Essays, p. 46.

"Ibid., p. 59."
individual, since it would increase the chances of survival of the group that individual belonged to. Groups with moral individuals who could trust one another would be more coherent, and so would outcompete groups whose members had no moral characteristics. Natural selection acting at a group level would ensure that the useful characteristic of morality survived, and developed.

Evolutionary ethics was commonly seen then, as a historicized utilitarianism. Utilitarianism, and the attempt to reduce ethics to a biological science were resisted in the late nineteenth century by theists, idealists, and Christians alike. Moore, as a Christian apologist, and a lecturer on Aristotle’s *Nichomachean Ethics*, was a keen observer of the debate, anxious to see utilitarianism overthrown. Moore praised the unitarian philosopher Martineau and the idealist Green for their criticisms of evolutionary ethics in their respective studies, *Types of Ethical Theory* (1885) and *Prolegomena to Ethics* (1883).“ While Moore criticized their non-Christian bases for moral theory, and noted the deficiencies of their purely metaphysical approach, he applauded their work in fighting positivists’ interpretations:

> Supposing...for the sake of argument, that dogmatic theology has something still to say in the present as it has had in the past, we find that ethics becomes the

battle-ground of the three great tendencies of the human mind - the positive, the metaphysical, and the theological....Still we should be quite wrong in supposing that the controversy...could be represented as a triangular duel....For metaphysics and theology fight side by side against any attempt to make ethics a part of natural science."

With Martineau, Moore believed that "we cannot identify the greatest happiness of self with the greatest happiness of all, nor get duty out of prudence, nor virtue from self-love."46 Although he could not agree with the basic premise of evolutionary ethics, Moore did believe that morals could have evolved.

Moore cited Martineau’s analogy between the origin of the moral sense and that of the eye to clarify the way that he thought that ethics had evolved:

The question is not, What did the eye come from? but, Does it really see? Has it life-relations with reality? Similarly the real question at issue about conscience is not, Did it ultimately come from something non-moral?, but, Is it a moral faculty corresponding to a moral environment? If we are to accept evolution, we must believe that everything is that which it may become, not that which it has been."

Just as the eye had evolved from a non-seeing organ, so the moral sense may have evolved from something non-moral. The eye could see, and had evolved to make use of the phenomenon of light, which had a real existence independent of seeing creatures. Likewise the moral sense in humans could judge

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45 Moore, Essays, p. 113.

46 Ibid., p. 99.

truly, and had evolved to make use of the phenomenon of a moral law, which had a real existence independent of moral creatures like man. If the human moral sense had evolved from the non-moral behaviours we see in animals this did not mean that the human moral sense was any less truly "moral" or unique, or that moral law was in any way dependent on animal (or human) nature. Neither the eye, nor the moral sense, can be reduced to what they "have been" in the past.

Implicit in this analogy are Moore’s beliefs that morality could be studied in an evolutionary light and that at the same time morality was a phenomenon unique to humans. Elsewhere he states these beliefs quite clearly. Evolution can’t be expected to stop at a consideration of the human body: "the comparative method must be applied faithfully, and rigorously, and patiently to the reason, and the conscience, and the will, as well as to bodily structure." 48 Although some naturalists, like Romanes, attempted to prove that humans were just like animals through such studies, Moore claimed that humans presented phenomena which were unique:

The great metaphysical problem of the day is personality implying (a) self-consciousness, (β) freedom. Can these be put on one side as illusory or reduced to the unconscious and the necessary? Is man a thing of nature, or is he, as he thinks he is, greater than nature? If so, is not conscious personal life, on which ethics, religion, and law depend, as much a new departure with regard to nature as the living is to the not living?" 49

48 Moore, Science and the Faith, p. xxxix.

49 Moore, Essays, p. 147.
For Moore this last question was rhetorical. Humanity was distinctly different from the rest of the organic creation. Whether man had evolved through the struggle for existence or whether there was some extra process involved, "man is still man, "the glory and the scandal of the universe.""50 In a passage reminiscent of Newman’s idea that there was a circle of sciences, Moore claimed that for the Christian

visible nature is the segment of a circle "we see but in part."...the ultimate explanation of "the things which are seen" is to be sought in "the things which are not seen." There are forces which refuse to be measured by "foot-pounds," facts which for ever must escape the microscope, realities which cast no bands upon the spectrum field, a Life which the scalpel can neither discover nor destroy."

Moore’s argument is like Newman’s, that theology was a part of the community of knowledge-producing sciences, and that it explained phenomena which science could not (see chapter two, note 47). Like Newman, Moore sought the ultimate explanations of natural phenomena from the "higher", invisible phenomena with which theology deals.

Although Moore admits the possibility that humans have evolved by natural selection, he believes that the standard of morality has an independent, empirical existence, and that human evolution has been influenced by a real, absolute, moral environment. A suggestion of Moore’s method here is shown in a

50 Moore, Science and the Faith, p. 212.
51 Ibid., p. 213.
Lux Mundi passage on the "natural history of religion", which he believes has developed through "evolution by antagonism":

For among religions too there is a struggle for existence, in which the fittest survive. And the test of fitness is the power to assimilate and promote moral and intellectual truth, and so to satisfy the whole man."

Moral truth, like intellectual truth, is real, and it is the standard of "fitness" by which human morality must evolve.

In many ways Moore's acceptance of human evolution was quite different from the reaction of older Anglo-catholics to the same problem. There were a few who, on reading Moore's 1888 essays on "Darwinism and the Christian Faith" in the Guardian, could not imagine how their anonymous author could hold such opinions, and who maintained that human evolution was unscientific and unscriptural. They had little sympathy with Moore's views, and, as will be explained in more detail below, less understanding of his argument. But others, like the Anglo-catholic leader Liddon, did not object to Moore's views on humans, and in a way Moore seems to have maintained Pusey's position against the idea of human "apedom". But while Pusey had called for naturalists to destroy this belief, Moore had explained that the uniqueness of humanity was not threatened by an evolutionary account of human origins. Long before Darwin's

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52 Moore, "Christian Doctrine" in Lux Mundi, pp. 55-6.

Origin, Richard Church, in his comment on the Vestiges of the Natural History of Creation had called on the metaphysician rather than the man of science to help an evolutionary science to become Christian (chapter two, note 30). In defending morality as an ontological sphere independent of nature, Moore answered Church's call, and maintained the distinction between humans and animals which Pusey had been so anxious to defend.

Of course, in so doing, Moore had taken a different path from the leading scientists of the day. An exchange in the Guardian letters column following Moore's review of Bishop Temple's Relations between Science and Religion (1885) suggests that the root of the difference was not one of science, but of philosophical presuppositions. A letter from "F.R.S." noted that Temple had not addressed theory of evolution's claim that "the moral sense...has been developed by natural causes and therefore we have no right to assume its cosmic validity." The anonymous author saw this as a weakness in Temple's lectures which he hoped to see addressed in an appendix to future editions of the work. Aubrey Moore replied, as "The Reviewer", pointing out that Temple had touched on the evolution of the human moral sense, and maintaining that he had taken the right line:

viz., that though moral conceptions are evolved and developed in the growth of experience and the context of the moral law extended, there is through all the stages of the evolution of morality a constant element - the

Guardian, April 15, 1885, p. 558.
conception of duty - i.e. the conception of man as under obligation, under the authority of a moral law of absolute validity, irrespective of consequences in the way of pleasure and pain.... Conscience...developed or undeveloped, is always conscience, and to speak of developing conscience out of the selfish desires and appetites, which it has its constant function in restraining, is to maintain what cannot be made to look probable. A thing cannot be developed out of its antithesis."

"F.R.S." responded to these claims, and at the same time dropped his anonymity at the request of the editor of the Guardian. It was Darwin's disciple, George Romanes, who objected to Moore's statements of fact and of theory. Romanes cited various anthropological works to discredit the idea of a universal conception of duty, and denied that any evolutionist had claimed that morality had developed from selfish desires. Rather conscience developed out of sympathetic social instincts which helped communities in their struggle for existence."

Moore did not reply, and Romanes engaged in a debate with other clergymen who attempted, in various ways, to prove that the moral sense was somehow a primary human faculty, and therefore universally authoritative." The last letter in the

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"Guardian, April 22, 1885, p. 602. The letter, by "The Reviewer" is identified by Moore's authorship of the review of Temple's Relations between Religion and Science. Moore wrote two reviews of this book. One appeared in the Quarterly Review and was reprinted in his Science and the Faith. The Guardian review, published anonymously, was also written by Moore. He mentions his authorship in a letter to Gladstone, December 13, 1885. British Library MS. Add. 44493, f. 219. Moore expresses the same view as that cited above in his Essays, p. 126."

"Guardian, May 6, 1885, pp. 694-5."

"Letters on the subject are to be found in the 1885
correspondence was written by Charles Gore, Moore's friend and a like-minded holy party member. Gore referred those interested in a defence of the authority of moral law to Martineau's *Types of Ethical Theory* (1885) and Green's *Prolegomena to Ethics* (1883). He repeated Martineau's analogy between the eye and the moral sense, noting that each represented a new relation to reality, and that in each case the "higher" (the eye or moral sense), could not be interpreted by the "lower" (the non-seeing precursor of the eye, or the non-moral, instinctive precursor of the moral sense). Gore concluded that "Conscience is nothing...but the witness in us that we are men "under authority" - that the force which moves the universe is not only physical energy but moral will."^5^8

Moore wrote a *Quarterly Review* essay on Temple's work after this controversy, and in it he took much the same line as Gore. It seems likely that Gore and Moore discussed the issue, which had apparently touched a nerve in the clerical community. Moore's second review focused on Temple's separation of the realms of nature and morality, and suggested an alternative to this "Kantian dualism". Moore's emphasis on Divine immanence in nature provided a way of bringing the natural and moral

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^5^ Guardian, May 27, 1885, p. 795.

spheres together.

The problem before the world is to bring together into a unity that which is now separated into a dualism, without destroying the real distinction which exists between the separated parts....All through the Bampton lectures we yearn for a fuller recognition of the truth which underlies Pantheism, the unity of God's purpose throughout the physical and moral world, and the immediateness of His action in both. And yet every discovery that is made in science is bringing out more perfectly the unity of man with nature, tracing in ever clearer outline the steps which lead upward from inorganic matter to the creature which can think, and will, and worship. 

...Bishop Temple might fearlessly have claimed all this, which is so often claimed for Materialism and Pantheism. He might have dared to say that the physical and moral are different only in degree, because the regularity of physical nature is itself part of a moral purpose, is so claimed and appealed to again and again in the Bible. The physical and moral world would then have been represented, not as two opposing spheres of which one dominates the other, but as the less perfect, and more perfect revelation of the moral nature of God, of which the lower leads on to and prepares for the higher, without the tremendous gap which Kant created.\(^{60}\)

Rather than admitting that human morality was produced by a godless nature, Moore insists that nature and morality alike are produced by a beneficent God. Just as Mozley had taught his Holy party students that the Old Testament contained a gradual moral progress, which was a preparation for the significantly different New Testament, so Moore saw the natural sphere as a gradual preparation for the moral sphere. Evolution could explain much, but ultimately the lower sphere (nature) did not explain the higher (morality). Just as Christians saw New Testament typology in the Old, so the moral sphere was to be

\(^{60}\) Ibid., pp. 79-81.
taken as the ultimate explanation of nature. Moore shared the old Tractarian emphasis on the primary importance of theology. Of course this way of viewing nature has important consequences for Moore's interpretation of the other aspects of evolution which were felt to be a challenge to Christianity, teleology and theodicy, aspects to which I shall now turn.

TELEOLOGY

The relationship between Darwin's theory of natural selection and the question of teleology has been extensively studied, and remains important for modern debates about the interpretation of "goal-directed" processes in nature. In nineteenth-century Britain teleology was most discussed in evaluations of the impact of Darwinism on the religious argument from design. The originality of Aubrey Moore's contribution to these discussions can be understood only when we have considered a distinction between two kinds of teleological argument, external and internal. I follow below James Lennox's description of these kinds of teleology, and his ascription of them to their original proponents, Plato and Aristotle, respectively.61

In the Timaeus Plato envisions the natural world as the work of a divine craftsman who built it to correspond with his

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own vision of the good. This can be considered a model of external teleology since the purposes of nature originate from an agent external to the natural world and correspond with that external agent’s values. Such an external teleology can apply to living and non-living aspects of nature.

In the *Physics* Aristotle’s conception of teleology is restricted to biological examples. He noted that organic structures usually existed to fulfil the purpose of preserving the life of the organism they belonged to. This does not imply the existence of a ""quasi-conscious"" agent inside natural objects." Lennox calls this a naturalistic, internal teleology since "the goal or function involved is a goal or function of the individual organism... rather than of an "external" designer." ⁶²

Nineteenth century debates over the argument from design can be seen to correspond with this kind of division. The popular thesis of William Paley’s *Natural Theology* and the later *Bridgewater Treatises* finds evidence for an external, rational Designer in the apparent "design" of organic structures for useful purposes. Darwin’s theory of natural selection proposed a wholly naturalistic account of why organic structures should be adapted to serve ends useful to the organism which possessed them. In this sense, Darwin destroyed the argument from design, but, as Lennox rightly points out, he

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⁶² Ibid., pp. 325-6.
also believed that natural selection was compatible with a
teleology which did not involve an external Creator. Lennox
refers to Asa Gray’s arguments with Darwin over the
compatibility of natural selection with “divine predestination”
(Darwin would have none of this) and concludes that “Darwin’s
Calvinist followers insisted on interpreting teleology along
Platonic, natural theological lines. The idea of a natural
teleology of a more Aristotelian variety was not what they had
in mind.” 63

This perception of post-Darwinian religious responses to
Darwin is common, but not entirely true. Certainly many
religious commentators on evolution sought to make it
compatible with natural theology, and to retain the external
teleology which had been the foundation of a detente between
Anglo-American science and religion earlier in the century.
However, while there was a tendency, particularly among certain
Protestant thinkers, to try to explain and modify evolutionary
theory along this line, Aubrey Moore attempted to come to terms
with the internal teleology of Darwinism in a different way.

Moore recognized that Darwinism meant that the argument
from design would never again have the apologetic power that
its proponents had once claimed for it. As an Anglo-catholic
however, Moore had never felt that the argument from design was
particularly important - indeed he felt that it had been

63 Ibid., p. 329.
effectively discredited in the eighteenth century by Hume and Kant. As an Oxford first in the "Greats" school, Moore recognized the affinities between Aristotle's and Darwin's conceptions of nature, and he sought to assimilate the idea of an internal teleology with religion by referring to the orthodox doctrine of divine immanence in nature. As a Christian, Moore of course could not abandon the idea of a Creator who was also external to (or transcendent over) nature, but he could, and did abandon the idea that such a Creator was discoverable by the study of nature. Moore argued that the omnipresence of natural law which Darwinism revealed, could be interpreted by one who was already a Christian as a confirmation of the doctrine of divine immanence in nature. He recognized that this was something a believer would have to read into nature, and so had no apologetic appeal to one who doubted Christianity's claims.

In this respect, Moore's approach to the question of teleology was quite different from that of some other Christians who addressed the question of evolution and design. Moore could accept Darwinism without insisting that the mechanism be somehow modified, or be judged insufficient to account for all phenomena. However, in doing so, he claimed that Darwinism eliminated chance, which seems strange to modern readers. Below, I will briefly consider the context of Moore's discussion of teleology, and then discuss in detail his claims. The success of his approach with Darwinists of the 1880's
should be clarified by this discussion.

In 1874, Asa Gray commented on Darwin's teleology in Nature:

Let us recognise Darwin's great service to natural science in bringing back to it teleology: so that instead of morphology versus teleology, we shall have morphology wedded to teleology.

Darwin replied to Gray, "What you say about teleology pleases me especially, and I do not think any one else ever noticed the point."64 Darwin's son Francis, and his friend Huxley, also emphasize Darwin's revival of teleology in the Life and Letters of Charles Darwin. This of course did not mean that Darwin, or his followers, were in agreement with Gray or other religious commentators about the relationship between evolutionary theory and the argument from design. This aspect of the religious reaction to Darwinism has been emphasized in most modern studies of the history of evolutionary thought. We meet, for example, St. George Mivart, the Duke of Argyll, and Asa Gray as typical representatives of religious, teleological, and "non-Darwinian" evolutionism.65


65 F. Darwin, Life and Letters of Charles Darwin (New York: Appleton, 1897), v. 1, pp. 555-7 (Huxley's comments on teleology), and v. 2, p. 430 (F. Darwin's comments).

St. George Mivart, the Roman catholic biologist, insisted in his *Genesis of Species* (1871) that natural selection alone was not enough to explain the larger patterns of natural order observable in the fossil record. Mivart believed that evolution was directed along paths of certain general types under the power of directive, or teleological, forces. These forces of course, were instituted and maintained by God. Mivart considered the eye of the squid and that of the higher mammals too similar to be explained by the randomness of Darwinism. Such convergent trends must be produced by preordained forces. 67 Mivart was attacked for his apostasy of naturalism by those in Darwin’s camp: they could not countenance the divine interference with evolution implicit in Mivart’s brand of external teleology. George Romanes later debated with Mivart over the possibility of the natural evolution of mind. Again, Mivart insisted that some external, directive power must be involved. 68 Romanes, Darwin’s loyal disciple, of course felt that a purely natural explanation was sufficient.

George Douglas Campbell, the Duke of Argyll, long criticized Darwin for the inability of his naturalistic theory to explain the origin of natural beauty. He accepted evolution, or as he called it, "Creation by Law", but felt that it was nothing but the "reign of Creative Force directed by Creative


Knowledge, worked under control of Creative Power and in fulfilment of Creative Purpose." The repetitive use of the capitalized "creative" leaves the reader little room to doubt Argyll's religious intent. In a typical passage, he referred to the variety of beautiful plumage patterns in hummingbirds, which offered no apparent help to them in their struggle for existence: "It has relation, however, to a Purpose, which stands in close analogy with our own knowledge of Purpose in the works of Man." The Duke thought that the divine purpose here was simply the creation of beauty, and he attempted to restore Paleyan natural theology by showing that natural phenomena could best be explained by reference to a transcendant God imposing His goals on nature.

Darwinists answered this particular argument for an external teleology by referring to sexual selection as the cause of "beauty" - the Duke of Argyll, however remained unconvinced, and contended that Mind must be responsible for exquisite adaptations and the general order of nature. In letters to Nature in 1881, Romanes tried to show Argyll that his "metaphysical teleology" could not be applied to science, but Argyll insisted that some power beyond the natural must be

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invoked as an explanation for natural goal-directed processes."

Even Darwin's close friend, and American champion, Asa Gray, could not reconcile the natural selection mechanism with his religious, teleological vision of evolution. While Darwin felt that variation occurred in many directions, Gray believed that it must be led along certain beneficial lines. If God willed certain variations, then natural selection was only a mechanism for bringing the pattern of God's will to the fore. Although Gray accepted natural selection, and the idea of God acting through natural laws, he clearly held to an external teleology, in that variation was directed by an external agent towards goals established by that agent's foreknowledge and will.

Darwin saw that Gray's position made natural selection "superfluous", and he knew from his studies of variation in domestic animals that there was "an enormous field of undesigned variability...ready for natural selection to appropriate for any purpose useful to each creature." In his book On the Variation of Animals and Plants under Domestication (1863) Darwin refuted Gray's view by what has become known as

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the "stone-house" argument. In this elegant analogy, Darwin imagines an architect selecting various fragments of stone that have fallen from a cliff, and carefully assembling them to build a beautiful stone house at its foot. Darwin likened natural selection to the architect, and variations to the fragments of stone. Of course an omniscient God would know the "shapes" of variations (or stones) which would result from the natural laws which he had established: "But can it be reasonably maintained that the Creator intentionally ordered, if we use the words in any ordinary sense, that certain fragments of rock should assume certain shapes so that the builder might erect his edifice?" 

Darwin argued that God could no more be supposed to have done this than to have directed the curious and bizarre variations in pigeons for the benefit of pigeon fanciers.

This argument between Gray and Darwin did not close here, and the issue suggested above was never successfully resolved between them. In 1883, the year after his old friend died, Gray debated with Romanes on the same point. In a courteous correspondence in Nature, Gray insisted that "omnifarious variation" was assumed but had not been observed in nature. He maintained his old view that variation was directed along beneficial lines." Romanes replied by citing at length Darwin's

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73 Cited in ibid., p. 275.

74 Asa Gray "Natural Selection and Natural Theology", Nature, May 24, 1883, p.78.
stone house argument, and contended that the scientific evidence did indeed suggest that variation was not directed. He concluded that,

if there is any evidence of variations being determined in special and beneficial lines, it now lies with the teleologist to adduce such evidence. If this could be done it would be a matter of immense importance, both from a scientific and a speculative point of view, seeing that on the scientific side it would be subversive of the whole theory of natural selection, and on the speculative side would therefore leave us where we were before the publication of the "Origin of Species."

Gray did not answer this challenge.

Thus post-Darwinian religious commentators on teleology are often represented, as anxious to reintroduce a supernatural cause into a science which Darwin had "naturalized". Romanes and other biologists were not interested in countenancing this kind of external teleology, since it introduced, either directly or covertly, an agent whose actions and values were not amenable to the kind of scientific study they were engaged in. As we shall see, this led Romanes to doubt the necessity, and so the existence of a supernatural creator. However, as noted above, Darwin himself appreciated the teleological character of his theory. How was Darwin’s work interpreted from the point of view of an internal teleology?

Darwin had thanked Gray for noting that natural selection had brought morphology and teleology back into contact. Aubrey Moore noted this in his 1888 essays on

"Darwinism and the Christian Faith". Moore also turned to another section of Darwin's recently published *Life and Letters* and cited Huxley's discussion of teleology in evolutionism. In the early 1860's Rudolf von Kölliker had accused Darwin of being "in the fullest sense of the word a teleologist."

Darwin's bulldog, Huxley, had hastened to distinguish between Paleyan and Darwinian teleology. Similarly Huxley had tempered Ernst Haeckel's claim that Darwinism had done away with teleology entirely:

But perhaps the most remarkable service to the philosophy of biology rendered by Mr. Darwin is the reconciliation of teleology and morphology, and the explanation of the facts of both, which his views offer. The teleology which supposes that the eye such as we see it in man, or one of the higher vertebrata, was made with the precise structure it exhibits, for the purpose of enabling the animal which possesses it to see, has undoubtedly received its death-blow. Nevertheless, it is necessary to remember that there is a wider teleology which is not touched by the doctrine of evolution, but is actually based upon the fundamental proposition of evolution."

This was the source of the "wider teleology" on which Moore drew. Wherever Darwinism referred to the usefulness of an organic structure to an organism, it implied that purpose existed in nature. As Asa Gray later said in his *Darwiniana* (1876), Darwinism emphasized "usefulness and purpose...as working principles of the first order; upon them, indeed, the whole system rests." Moore also noted that this tendency to

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find purpose throughout nature had not diminished in the most recent publications of neo-Darwinians in the 1880's. A. R. Wallace, in his "ultra-Darwinian" Darwinism (1889), had insisted that there were no really "useless" characteristics in nature, only characteristics which naturalists did not yet fully understand." Moore interpreted the emphasis on utility in evolutionism along the lines suggested by Aristotelian, internal teleology.

When Gladstone sought advice on evolutionary theory in antiquity in 1885, Moore drew a distinction between the materialistic view of Empedocles, and the rational, teleological view of Aristotle. Aristotle "is the champion of a rational and metaphysical, as against a materialistic and atomistic, evolution and has much more in common than Empedocles had, with the modern view." Moore's interpretation of the connection between Aristotelian and modern evolutionism is crucial for our understanding of his view of teleology, so I cite at length his views, which he draws from his reading of Aristotle's Physics and De Generatione and his understanding of modern science:

Aristotle, whether in his metaphysics, or his natural history, or his Psychology, or his Ethics has got these points clear.
   i. that the perfect is evolved from the less perfect.
   ii. that this is an orderly and rational progress, which

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7 Moore, Essays, pp. 32-3.

79 Moore to Archdeacon Palmer, British Library, Add. MS. 44493, f. 204. Palmer passed this letter on to Gladstone.
is so far serial that the higher subsumes the generic properties of the lower.

iii. that nature is a great unity, which has a rational coherence or purpose.

iv. that in the graduated scale of being, each thing is divine as it approximates to the end.

All these points (if we read 'perfect' for divine) might, I think, be accepted of modern science.  

In this reading of Aristotle's consonance with Darwin, Moore's organismism is apparent. Evolution is progressive and orderly (or bound by law). Nature is a unity, or as Darwin would put it, all life has a common origin. Moore's letter continues:

But α) we have learned more than Aristotle knew of the interaction of higher and lower. In the great unity of nature it is true that the bee lives for the plant as well as that the plant grows for the bee. Β) We should criticize the details of his suggested order...In fact we should say of Aristotle what Haeckel says of Moses (Hist. of Creation p. 38, vol I) that whatever his scientific "errors" he has seized "the great and fundamental idea of progressive development."

Γ) We shrink away from using the term 'purpose' in explaining the rational coherence lest we should be tempted to explain nature 'ex analogia hominis', and so fail to interpret it aright.

While Aristotle's interpretation must naturally be updated Moore seems to appreciate the complex ecological implications of Darwinism), he has seized on the idea of a "progressive development". The mention of the atheistic Haeckel is a reminder that the idea of progress was no preserve of Christian interpreters of evolution at this time. Also, it is clear that Moore is anxious to avoid anthropocentric interpretations of

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81 Ibid.
"purpose" in nature: the evolutionary history of life can only be described as having a general "coherence". Moore concluded:

On the general question modern science seems, against its will, to be moving in the Aristotelian direction, which is so far Christian. The great triumph of science is the elimination of chance as a cause. But the elimination of chance means the omnipresence of law, and this, combined with what we can know of the interaction of all the parts of nature, means teleology, or at least "immanent" reason. From teleology to Theology is no great step, especially if Personality is the last term in natural development."

The most important connection between modern evolutionism and Aristotle's view of nature was the elimination of chance as a cause. Natural selection extended the reign of law over all organic nature: it united the wide variety of organic life by describing the mechanism and history of its development. While Empedocles had proposed that all sorts of organisms had come into existence "at random" and that some had happened to survive, Aristotle, and modern evolutionists, saw in every structure of organisms, utility, and so, purpose. All organs had a purpose, and a meaning, since all came into existence through natural selection. Organs which seemed useless were not, or had not been so, and nothing was simply created for the sake of "symmetry" or because of the arbitrary requirements of a "supernatural plan". Of course, natural purpose was "immanent" -it belonged to the organism itself, and so was a kind of internal teleology.

Ibid.
Moore realized of course, that this kind of teleology could not be used to revive Paley's argument from design: "To a thinking man its death-knell was sounded by Kant long before the death-blow was given by Darwin." Rather, he saw in the omnipresence of natural law a religious meaning:

There is nothing useless, nothing meaningless in nature, nothing due to caprice or chance, nothing irrational or without a cause, nothing outside the reign of law. This belief in the universality of law and order is the scientific analogue of the Christian's belief in Providence."

In this Moore was again following Huxley, who had noted that the "theological equivalent of the scientific conception of order is Providence."  

We now consider randomness a central part of Darwinian evolution: variations are "random", and chance plays a part in the struggle for existence. But Moore considered chance eliminated in nature because all of nature was under the reign of law. No tree grew without a seed first landing in the proper soil, and no organ came into existence without it having a purpose for the organism it belonged to. There was a proximate cause for every natural phenomenon whether or not scientists

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could discover it. Nothing happened by chance, but everything resulted from natural law. The scientific assumption that order was universal left no place for "chance", but reflected the Christian doctrine of the universal immanence of God.

Moore saw the presence of regularities of nature as evidence for the presence of God. Where science is possible "nature must be intelligible, and if intelligible, then rational. And we are...carried on...to the conclusion, that its explanation must be spiritual not material." Moore believed that "theological laws are continuous throughout the natural world, though, without theology, we cannot see their full meaning, but must stop at the barren conception of 'observed uniformities.'" It is in this sense that science, for the Christian, is "the attempt to discover the workings of God's providence in nature, and the expression of His Will...."

It was Darwinism "in the guise of a foe" which did the "work of a friend" for religion, by showing that law acted throughout nature, and that no "chance", special creation, or supernatural "interference" with nature was required to explain the origin of complex, perfectly adapted organic beings. An immanent God could not "interfere" with nature! The deistic

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"Moore, Science and the Faith, p. 91. In this quote Moore shares Green's idealist explanation for the intelligibility of nature.


*Ibid., p. 8.*
assumptions of Paleyan natural theologians were banished, and the truth of God's immanence in nature was recalled. Huxley had claimed that given a completely mechanistic account of cosmic history, a teleologist could claim that the initial "primordial molecular arrangement was...intended to evolve the phenomena of the universe." But such a view implied a Creator external to the Creation, and operating like a Paleyan watch-maker. Moore felt that the omnipresence of natural law could be read by Christians as a confirmation of divine immanence in nature. Moore realized that the religious argument from design had been destroyed, but he still held that religious meaning could be found in nature, by those who sought it:

No doubt the evolution which was at first supposed to have destroyed teleology is found to be more saturated with teleology than the view which it superseded. And Christianity can take up the new as it did the old, and find in it a confirmation of its own belief. But it is a confirmation, and not a proof... God was everywhere in nature, or He was nowhere - one could choose as one believed. The evidence of nature neither supported not undermined religious belief. Order could be interpreted by Christians as evidence of God's immanent presence in nature, by pantheists, as God Himself, or by materialists or agnostics, simply as natural order. Moore distanced himself from heretical pantheism by showing that the

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90 Moore, "Christian Doctrine" in Lux Mundi, p. 87.
doctrine of divine immanence was a corollary of the doctrine of the Trinity as worked out by the Church fathers. He recognized that scientists must insist on the universality of natural causes, but he reserved the right of Christians to read the book of nature with a Trinitarian, immanentist gloss.

As I will describe below, Moore's religious approach to Darwinism was appreciated by men of science who followed Darwin. This was because he used a strategy which made use of the internal teleology of Darwinism, and did not introduce a "supernatural" agency to interfere with the course of nature. Of course, Moore felt that the distinction between the supernatural and the natural was ultimately deistic and outmoded, and that the Christian had to believe, with St. Athanasius, that the facts of nature were the acts of God, and with the Psalmist, that God worked and was present throughout nature.

Moore was not alone in assimilating this idea of divine immanence for Christianity. Tennyson in his "Higher Pantheism" (1869) had written, "God is law, say the wise; O Soul, and let us rejoice/For if He thunder by law the thunder is yet His voice." Liddon, in an 1865 sermon, had spoken of the power and strength of natural law as springing from an invisible, ever-present divine force.¹ But Aubrey Moore developed this immanence, which may also have been inspired by the vaguely

pantheistic idealism of T. H. Green, as a way of thinking about science. With a sympathy towards Darwin's ideas, and an unwillingness to surrender any catholic doctrine, Moore avoided the dangers of external teleologists, and found a Christian way to read a Darwinian nature.

But did he? Surely his claim that nature is rational and that chance has no place in it shows that he did not have a Darwinian understanding of nature? While to a modern reader this seems one of the most significant difficulties with Moore's claims, no man of science of the day contended against him on this point. Perhaps the most apparent evidence to a modern critic that there is much which is apparently "random" in nature, is that many organisms are born with variations which condemn them to an early and sometimes painful death. Moore's theodicy offers us insight to his understanding of evolutionary theory, and to his conception of the relationship between nature and God.
THEODICY

...the tiny animalculi that you dismiss as insentient, when shewn in the screen, show themselves furnished with torture-weapons that beat the Inquisition's. I have watched wounded animalculi quivering for an hour (an age in their brief lives) and indicating acute suffering.

Rev. Dr. A. B. Grosart to F. A. Dixey, 1894.

The assertion that God is immediately at work in nature is not only not evident in nature, but is also contradicted by much that occurs. If God is so careful of the sparrow that falls, why is nature so organized that a great superfluity of them are inevitably annihilated? VD and AIDS, cancer and myxomatosis, death by starvation and violence, all these and much else of a painful and repulsive character are part of 'nature'.

Peter Addinall on Aubrey Moore's immanence in 1991. 92

Darwin brought struggle back to nature, and so the problem of pain back to religious apologetic. How should Christians address the difficulty of "Nature red in tooth and claw"? It was no new issue, but if, like Aubrey Moore, one was to believe that God was present in every process of nature, and if, at the same time, Darwinian evolution seemed to be true, then a religious explanation for the struggle for existence, and the suffering it inflicted, was more necessary than ever.

There were many attempts to answer this question. Moore's friend John Illingworth suggested that animal pain was largely

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a matter of conjecture, and that since humans could only speculate on its nature, it could not be urged as an insuperable difficulty for Christian religious belief." This weak dismissal of the problem might be supplemented by the work of another of Moore's Anglo-catholic friends, Frederick Dixey. Dixey, a histologist who would go on to do important Darwinian work on insect mimicry, wrote a pamphlet on "The Necessity of Pain". He drew on the work of an earlier Oxford man of science, George Rowell, who had explained the sense of pain as "evidence of merciful and benevolent design." Rowell considered the distribution of pain sensors through certain external and vulnerable tissues a great gift, and emphasized the necessity of a sense of pain for the survival and well-being of any organism. Dixey, being a good evolutionist, translated this Paleyan theodicy into a Darwinian one, by explaining that the process of natural selection would create this beneficent distribution of pain sensors. Dixey could then describe the whole process as one which was worthy of God, since the sense of pain existed only because it was useful to the organism in question, as shown by the fact that pain sensors evolved only

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in those tissues where they would help the organism survive."

Aubrey Moore was not entirely convinced by Dixey's approach, and felt that some further explanation of pain in nature was required beyond its utility to an organism."

Rather than looking to a traditional religious response, Moore turned to a religious interpretation of evolutionary theory.

Evolution is not responsible for the problem. Can it help us with the solution? The old teleology was destroyed by the new facts, and Darwin offers us a deeper and wider view of purpose based upon these facts....[O]ur teleological inquiries would sometimes take the unsubmissive form of Pourquoi Dieu fait-il tant de mouches? a question which was popularly supposed to merge itself in that of the origin of evil. The new teleology proceeds differently. It seeks to give a reason for the existence of each species, by fitting it into its place in the genealogical tree, and relating all species to one another in the unity of the whole."

All things, even the pain of an individual, had a place in a larger scheme of things. But what was that scheme?

Here Moore turned to science as a model of the relationship between basic assumptions about nature and apparent challenges to these assumptions. The man of science must believe in the universality of order throughout nature, yet this belief was, "as Professor Huxley admits it..."an act of faith" brought to nature, and as yet, only in part, verified


" Dixey could not understand this, and insisted that pain was "not (in a state of nature) more severe or more protracted than is adequate to the end in view." Dixey to Moore, March 5, 1888, in Pusey House, Dixey papers, DIX 3/28.

" Moore, Science and the Faith, p. 196.
in nature.⁎⁎ Given that there was much "as yet hopelessly irreducible to law" in nature, and that men of science nonetheless maintained their assumption about the orderliness of nature, Moore believed that those seeking a theodicy could likewise believe, despite evidence to the contrary, that pain in nature had a purpose. And here, citing Darwin's own words, Moore saw evolution as a help.

For there is here a curious parallel. What our rational nature resents is not the existence of facts which we cannot explain, but of facts which have no explanation; and what the moral nature rebels at is not suffering and pain, but needless - i.e. meaningless - pain, suffering which might have been avoided. And here Darwinism gives us a hint, if it is but a hint. "Natural selection works solely by and for the good of each being." The arrangement of the world is "generally beneficent," and tends to progress towards, or to maintain, perfection."

Moore hinted at his idea that evolution had an ultimate, moral goal which a moral science would one day illuminate:

One who believes in the God of Christianity is bound to believe that creation is His work from end to end, that it is a rational work, and the work of a Being who is wholly good. He is bound to believe that "God's mercy is over all his works," that "not a sparrow falls to the ground" without His knowledge, that there is design and purpose everywhere. But he is not bound to know...what that purpose is....Still less is he bound to assert, as the old teleology did, that he can demonstrate the wisdom and goodness of God from nature alone. Evolution starts with an "act of faith", a postulate of our rational nature - viz. that everything is rational and has a meaning, even that which at present is irreducible to law. In this belief, much that was once meaningless becomes intelligible, and a scientific man's faith is not staggered by the fact that much as yet remains outside,


which science has not explained. On the moral side also we start with an "act of faith," a postulate of our moral nature, that God is good, and cannot be the cause of meaningless and unnecessary pain. And our faith is not staggered by much which seems, as yet, like useless suffering. 108

So Moore replies to the problem of pain. God's goodness in nature is not always immediately apparent to Christians, just as order in nature is not always apparent to men of science. While one might object that men of science increasingly found confirmation of their "act of faith", whereas the problem of pain remained an insoluble constant for Christians, Moore might point to the work of men like Dixey in answer. Perhaps scientists would help discover the moral purpose of pain in nature.

The view that evolution is progressive, and generally beneficent seems alien to late-twentieth century Darwinists, but was not apparently problematic to those who considered themselves Darwinists a century ago. Moore's assumption that nature had a moral purpose, and that God must be governing it was not made in such a way as to challenge the mechanism of natural selection, or the naturalistic methodology of Darwinists. It did however, contradict the materialistic metaphysic of those who sought to use science as the basis for a non-Christian cosmology and world-view.

108 Ibid., p. 199.
REACTIONS

Moore’s Anglo-catholic assimilation of Darwinism was well-received by most of his peers, although some clergymen believed that it represented an unjustified acceptance of an unproven theory. His ideas echoed in pamphlets for working men, in scientific addresses, and in apologetic works in the years after his early death in 1890. Naturally, Moore’s views were only advanced by those who were Anglicans, although the agnostic George Romanes, also proved to be a defender and promoter of his work.

After these early reactions however Moore’s apologetic was quite quickly forgotten. This was partly due to the fact that he did not live to produce anything longer than essays and reviews: his writings raised questions and issues which might have been better handled in a longer paper. Many other reasons for the fate of Moore’s reputation might be adduced. His views were founded on idealism, which rapidly developed and died as a philosophical force: by the 1920s logical positivism held sway in England. The idea of divine immanence in nature was subsumed by the process theologies of Henri Bergson, and rather later, of Teilhard de Chardin. The confidence and optimism of the Lux Mundi authors, like much late Victorian optimism, was lost. The idea of God’s immanence in human nature and history was broken by the slaughter of the Great War, when Anglicans again
emphasized the doctrine of the Atonement rather than that of the Incarnation.

Perhaps more important however, was the fact that Moore attempted to assimilate evolution by natural selection into religion, just before this doctrine fell into a decline among scientists. The "eclipse of Darwinism" which occurred from 1890 to the late 1920’s has been well documented.¹⁰¹ At this time, when natural selection seemed to be out of favour with most biologists, many clergymen found it easy to assume that Darwin’s theory was false, and that in the confusion over the actual mechanism of evolution, there was plenty of room to suggest that an external God was somehow involved in directing evolution. When the Darwinian evolutionary synthesis of the 1940’s crystallized into biological orthodoxy in the 1950’s, Moore’s views on natural selection were long lost to religious apologists. For all that Moore’s views were lost to this century, his work did provoke strong reactions on its publication, and was warmly received and remembered by those who knew of his work.

Following the appearance of Moore’s essays on "Darwinism and the Christian Faith" in the Guardian for January and February, 1888, two letters appeared in the same newspaper expressing reservations about the compatibility of Christianity and Darwinism. While one correspondent merely expressed

hesitation about giving up the doctrine of special creations,
the other, William Randall, D.D., insisted that the author
(Moore had written anonymously) had only proven

1. That Darwinism is opposed to the Christian faith. 2.
That he prefers and espouses Darwinism. In other respects
it appears to me confusion and contradiction, "darkening
counsel by words without knowledge," an attempt to
separate the inseparable, to unite the incongruous, and
throughout to beg the whole question at issue.\(^\text{102}\)

Randall particularly objected to Moore's treatment of human
evolution, since he viewed man as an important exception to
Darwin's theory. As mentioned above, this was no uncommon view
among the Anglican clergy of the day, and Randall's objection
was soon seconded by another priest who claimed that Darwinism
was truly incompatible with Christian belief: "And all these
weak, puny, unsatisfactory efforts to bring them together no
more bring them together than Sir E. Watkin's submarine tunnel
brings together the opposite cliffs of Dover and Calais."\(^\text{103}\)
A long attack on Darwinism followed in the dramatic prose of the
notoriously reactionary Dean of Chichester, John Burgon. He
protested against "the profanation of which those scientists
seem to me guilty who venture, in the sacred name of "Science",
to urge upon the world's acceptance of this utterly
unscientific dream of the origin of the human race." As for
those who used Darwinism to attack religion, he condemned "the

\(^{102}\) W. Randall, "Darwinism and the Christian Faith",

\(^{103}\) Rev. J. W. Moore, "Darwinism and the Christian Faith",
wicked method" of those who gathered "under the banner of one
who had confessedly made shipwreck of his own faith, preaching
openly a gospel of unbelief, and drawing away unstable souls
from the obedience of Christ."104

The clergy who attacked Moore's essays were more
interested in attacking Darwinism, especially when it claimed
to describe the descent of man. However, there were those who
defended Moore's papers. Henry Trevetheck thanked the Guardian
for printing them, and suggested that "their author...has
stated in his lucid and penetrative way what very many people,
whose power of exposition is less, think, and for some time
past have thought."105 And George Romanes, in three letters,
tangled with William Randall on the subject of human evolution.
He rejected Randall's claim that the articles were "an attempt
to separate the inseparable, and to unite the incongruous....":

I do not know who your reviewer was; but having been
struck by the fair-minded ability, as well as by the
intimate acquaintance with Darwinian literature which he
displayed, I should like to say a few words in refutation
of these charges.106

Romanes evidently appreciated Moore's openness to human
evolution, and he gave scientific answers to Randall's


their debate in the same journal: March 7, p. 356; March 14, p. 394; March 21, p. 435; and March 28, 1888, pp. 472-3.
criticism of it. Men like Randall, Romanes lamented, harmed the
cause of religion by their "arrogant incompetency", and should
be censured by their fellow clergymen.

Moore's work was received with far less hesitation by his
fellow Holy party members. Charles Gore, in the preface to the
10th edition of Lux Mundi (1890), published shortly after
Moore's death, wrote of him as a reason to believe that a
reconciliation of science and belief was possible, since in him
"the two lines of faith and science melt into one." Gore also
included a discussion of the relationship between the natural
and supernatural much like Moore's in his Bampton lectures for
1891, on The Incarnation of the Son of God.\textsuperscript{107} Religious
readers, as well as the other essayists, of Lux Mundi
appreciated Moore's approach. Even reviewers in such
evangelical papers as the Record and The Rock, wrote of Moore's
essay as the "most valuable" and "most powerful" in the book.\textsuperscript{108}

Moore's work also made its way into works of popular
apologetic. He contributed an essay on "Evolution and
Christianity" to a series of papers for distribution to
London's working-classes through the religious mission of
Oxford House.\textsuperscript{109} On Moore's death, the Rev. A. F. W. Ingram

\textsuperscript{107} C. Gore, The Incarnation of the Son of God (New York:
Scribners, 1905), pp. 36-7, 260-62. Gore cites the introduction
to Moore's Science and the Faith.

\textsuperscript{108} Reviews of Lux Mundi in The Record, December 13, 1889,
and The Rock, December 27, 1889, p. 4.

\textsuperscript{109} A. Moore "Evolution and Christianity, in Oxford House
published a small eight page pamphlet on him in his "Papers for Working Men" series. Here Moore's view was mined for the answers it gave to agnostic challenges to Christianity, and readers were encouraged to buy his Oxford house paper.¹¹⁰

Moore's immanentist assimilation of Darwinism was also propagated to other audiences. The Rev. J. A. Betts published a pamphlet based on a Church Congress address in 1896 in which he developed the idea that God is omnipresent in nature, and in which Aubrey Moore was cited.¹¹¹ In an Oxford text-book of Christian apologetics, readers were referred to Moore's essays for further instruction on how the orthodox should deal with "difficulties" presented by science.¹¹² In Gore's much later apologetic work, Belief in God (1921), he noted that "for an estimate of the real spiritual effect of the newer biological theories, reference may still be made to Aubrey Moore's Science Papers (1888). Oxford House was founded in 1885 to provide a more explicitly religious alternative to the social mission of Toynbee House (1883). Both were places where Oxbridge men could go to work to help the poor of "outcast London". Moore's pamphlet could be bought for a penny at the Oxford House bookstall.


¹¹¹ Rev. J. A. Betts, The Bearing of the Theory of Evolution on Christian Doctrine (London: SPCK, 1897), p. 7. Betts differed from Moore in agreeing with A. R. Wallace on the unique origin of humans. However, the general content of his apologetic is quite similar to that advanced by Moore.

Moore's "wider teleology" was promoted beyond the realm of strictly theological works. When the centenary of Darwin's birthday was celebrated at Cambridge in 1909, the Rev. Phillip N. Waggett was invited to contribute a paper on "The Influence of Darwin on Modern Religious Thought", which was included among the scientific and philosophical papers of the published centenary volume. Waggett, who had been an undergraduate at Keble college in the 1880's, spoke of Darwinism resulting in a "bolder teleology" in which Christians could find a confirmation of their religious beliefs.¹¹⁴

Men of science concerned with Darwinism were generally impressed by Moore's work. As discussed in the previous chapter, Huxley could not understand how Moore could abandon a literal reading of the Old Testament, but he read the articles "with great interest and much assent": he did not comment on Moore's treatment of chance or teleology.¹¹⁵ E. Ray Lankester, Huxley's protégé, also enjoyed the articles, though as a Marxist and atheist, he did not share Moore's assumptions about religion. When Moore sent him a pamphlet copy of his *Guardian*

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"Darwinism and the Christian Faith" articles, Lankester replied

Dear Moore....
It is a real pleasure to be in converse with so genuine
and true a student as you are with whom one knows there
is a real fundamental bond of sympathy in the desire and
actual practice of the thorough examination of facts.
Your articles seem to me excellent....
You may well be surprised as others would be to know
how much I have desired and struggled for a great
religious belief - such as that in which we were both
brought up - I have not been able to retain it - you
have. I don't know how you do it, but I can quite believe
how greatly you value it. It is one thing to shew (as I
have also briefly tried to do, in my notes to
'Degeneration') that Christianity is not destroyed or
injured by Darwinism and another thing to hold that it
has...any grounds for acceptance.  

Lankester's letter ends with a justification of his own
rejection of Christianity: he could not see any reason to
believe Jesus was anything more than one of history's good men,
and certainly couldn't believe "He died for our sins." As
Lankester ran out of space on the paper he closed with "Forgive
this screed." and his signature. It is apparent from the letter
that Moore and Lankester were acquainted with one another, and
that Lankester felt that he had to justify his own position on
religion. He certainly agreed with Moore that Darwinism was not
destructive of religious belief.

Lankester drew attention to Moore's articles in a notice
printed in Nature on February 23rd, 1888. He claimed that they
represented a complete acceptance of Darwinism by an orthodox
clergyman:

116 E. R. Lankester to A. L. Moore, February 16, [1888], in
E. M. Moore autograph collection, APS Library.
The author is anonymous, but is understood to be an Oxford college tutor, and an Honorary Canon of Christ Church. The orthodoxy of the Guardian is, we believe, unimpeachable. We notice therefore with gratification that not only is Darwinism thoroughly accepted and lucidly expounded by the writer in the Guardian, but that he is an exceptionally well-informed and capable critic, whose scientific knowledge is varied and sound. The publication of these articles in the Guardian is a proof that the clergy as a body are not so unwilling to accept new scientific views as might be supposed were we to regard Dean Burgon as a fair sample of his class.  

Lankester clearly admired Moore's work, and despite his atheism, was happy to see such a popular, "lucid" exposition of Darwinism coming from a quarter traditionally hesitant over, or hostile to, evolutionary theory.

If an atheistic biologist praised Moore's work, so much the more did those biologists who shared his faith. Sir William Flower, whom Moore had met at the Reading Church Congress in 1883, sent him profuse thanks for sending his 1888 pamphlet:

"Can you tell me if your articles in the reprinted form can be bought, as I very much want a few more for friends. I know of nothing written on the subject which is to my mind so thoroughly satisfactory - So clear, simple, and concise, just containing all that is necessary to show how the difficulties that many people feel on the subject may be removed, without any redundant details or recondite or tedious descriptions."  

Flower, who had with Rolleston supported Huxley and human evolution in debates with Richard Owen in the 1860's, felt that Moore's work would help people understand that Darwinism was

\[\text{117} \text{ Nature, February 23, p. 397. Lankester mentions that he is going to send a notice to Nature in the letter cited above.}\]

\[\text{118} \text{ W. H. Flower to A. L. Moore, February 23, 1888, in the E. M. Moore autograph collection, APS Library.}\]
not incompatible with Christian faith.

But the Darwinists who reacted most favourably to Moore's work were Edward Poulton, his Keble common-room colleague, and Frederick Dixey, an Anglo-catholic layman and Burdon-Sanderson's assistant. Both men were neo-Darwinists who would go on to do important work in entomology, Poulton as Hope Professor of Zoology, Dixey as Warden of Wadham college. Poulton had abandoned Quakerism to become an Anglican in 1882, and was keenly interested in the compatibility of his new faith with the scientific theories he advanced through his profession. Moore's work evidently made an impression on Poulton - he cited it often in his addresses and essays on the history of evolution. Even in the last years of his life, as president of the British Association in 1937, Poulton recalled the success of Moore's religious acceptance of Darwinism:

It is...a mistake to emphasize too strongly the very natural shock received by many who read the Origin...for the first time without any preparation; and I believe it is an even greater mistake to criticize the clergy for the time which elapsed before their acceptance of the new teaching. I shall never forget the reception of Aubrey Moore's paper... by the Reading Church Congress in 1883. No speaker could have carried his audience with him more thoroughly: there was not a single protest or indication of dissent - nothing but enthusiastic applause.\(^{119}\)

Poulton still shared in the appreciation of Moore, almost fifty years after his death.

Frederick Dixey spread the news about the "wider teleology" in a rather different way. Less eminent as a man of science than Poulton (though still a Fellow of the Royal Society), Dixey was more active as a layman in the Church. He was a member of the English Church Union (a High Church layman's organization) and a loyal parishioner and chorister at the Anglo-catholic Church of St. Barnabas in Oxford. As a neo-Darwinian entomologist Dixey felt bound to explain to his Christian friends that Darwinian science and orthodox doctrine did not come into conflict: in this cause he borrowed from the work of his friend Aubrey Moore.

Dixey gave addresses at various religious meetings: "Darwinism and Christianity" at Bethnal Green in 1888; "Right and Wrong Views of Evolution" to a small group of biblical critics and theologians in Oxford in 1898; and "Darwin, Weismann, Mendel, de Vries and Religion" at the ruridecanal meeting at Shipton in 1930. At each he emphasized Moore's point, citing Moore's words, that Darwinism represented a triumph of an orthodox, immanentist view of creation over the shallow, creationist, deistic view.120 When new discoveries or

120 None of these talks were printed, but all are preserved in manuscript in Pusey House's Dixey Papers (DIX/3, ff. 15-55, 285-97, 319-39). The talk on "Right and Wrong Views of Evolution" is mentioned in his diary at the Bodleian, MS. Eng. misc. e. 784, f. 23.
opinions were published in the years after Moore’s death, Dixey would lament the loss of his intelligent friend. While reviewing Henry Drummond’s *Ascent of Man* (1894), he said

I have never had brought home to me more keenly than when writing this paper the irreplaceable loss that we have suffered in the removal of one whose scientific and philosophical equipment and power of vigorous speech, no less than the acuteness of his intellect and the deep spirituality of his life made him fit, as few others have been fit, to deal with the inter-relation of science and the faith. I cannot help thinking what profit might have been ours if the question raised in the book before us could have been illuminated by the humour, learning, and acumen of Aubrey Moore.\(^{121}\)

To a Darwinian scientist who was also an Anglo-catholic, Moore’s death in 1890 was perhaps the greatest loss of all. However, there was one other prominent biologist who deeply mourned this event, one who was not an Anglo-catholic or a Christian at all. George Romanes, whom we have met before in this chapter, is best known for his work in comparative psychology, and for being a man of science who lost his faith, but returned to it on his deathbed. I shall now move to a consideration of Aubrey Moore’s part in the spiritual and intellectual pilgrimage of Romanes, and investigate what this tells us about Moore’s success as a Christian popularizer of Darwin.

George Romanes (1848-94) studied physiology with Michael Foster after taking a degree at Cambridge, winning attention for his work on the invertebrate nervous system. He was made a fellow of the Royal Society in 1879, and he turned his attention to comparative psychology in the 1880's, publishing books on Mental Evolution in Animals (1883) and Mental Evolution in Man (1888). In these he continued the research program of the man who became his mentor in 1874, Charles Darwin. Romanes was loyal to Darwin in other aspects of science as well. When neo-Darwinians like Poulton followed Weismann in claiming that Darwin's original theory of natural selection could be the only mechanism of evolution, Romanes pointed out that Darwin left a place for the Lamarckian mechanism of "use and disuse", and was not dogmatic about natural selection. Romanes also advanced a theory of speciation which explained the isolation of diverging populations by "physiological selection". He was a very active participant in debates over evolutionary mechanisms from Darwin's death in 1882 until his own in 1894.

Romanes is interesting to historians not only for his scientific work, but also for the public changes in his religious opinion. Romanes was raised an Anglican, and won a prize for an essay defending Christianity, but on turning to biology, he found that science seemed to demand a skeptical attitude towards nature. Romanes defended agnosticism and
scientific naturalism for more than a decade, but in the last year of his life re-entered into communion with the Church of his childhood faith. Romanes has been studied as an individual exemplifying the philosophical struggle "between science and religion". One important element in his spiritual pilgrimage however, has been ignored: his keen appreciation of the work of his friend, Aubrey Moore.

In 1873, when Romanes was completing his studies at Cambridge and contemplating a future in science, he wrote a prize winning essay on Christian Prayer and General Laws. In it, Romanes argued against those who had proposed that the power of prayer could be scientifically tested, by asserting that an "Unknown God" might well act through natural laws, although humans could not perceive this. In 1876, having become a part of Darwin's circle, Romanes revised his argument by taking its implicit agnosticism further in A Candid Examination of Theism.

Romanes, as a disciple of Darwin, was aware that none of the arguments from nature advanced by religious apologists were scientifically defensible: human mental and moral characteristics were not different in kind from those of animals and had evolved, as he attempted to prove in the 1880's. Evolution occurred by purely naturalistic processes,

relying on changes brought about by random variation, or use and disuse (in both of these mechanisms of evolution he followed Darwin's example). There was no argument from design which held true. As Owen Chadwick and Frank Turner have both noted, "Romanes was one of the very few men whose loss of faith...can be directly ascribed to the influence of scientific naturalism." 123 Romanes was likely confirmed and encouraged in his scientific agnosticism by his close association with Darwin, who had preceded him on that path, and who enthusiastically greeted Romanes' *Candid Examination of Theism*, the work in which he surrendered his belief in God. 124 Romanes did not give up his faith lightly however. While he felt bound by reason to put aside his old beliefs and to take up an attitude of "purest skepticism", he felt that "with this virtual negation of God, the universe to me has lost its soul of loveliness." 125

Romanes defended Darwin and scientific naturalism in the pages of *Nature* through the early 1880's. As we have seen above in our discussion of Asa Gray and the Duke of Argyll, Romanes was particularly anxious to answer those who attempted to reintroduce an external, supernatural teleology into the study

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of nature. Romanes insisted that such speculations were
disallowed by the fact that natural causes alone were
sufficient to explain all natural phenomena: the introduction
of an external power was unwarranted by the facts of nature.

Romanes was, however, even-handed in his agnosticism
about the supernatural. In his Rede lecture at Cambridge in
1885, Romanes warned against the dogmatic rejection of the
supernatural by men of science. If science could not prove the
existence of God, neither could it offer any disproof.\textsuperscript{126}
Romanes' most striking assertion of this point came at a
symposium - "Is there evidence of design in Nature?" - held by
the Aristotelian Society on December 16, 1889.\textsuperscript{127}

This talk has been noted by Robert Richards as evidence
that Romanes' attitude towards teleology had changed. In 1883
he had argued against Asa Gray's contention that nature was
designed: in 1889, he seemed to allow that it might be possible
to see design in nature.\textsuperscript{128} I think it is clear however, that
Romanes was introduced by Aubrey Moore to a new way in which a
religious believer could view teleology, and the shift was not
in Romanes' attitude, but in the religious approach to design

\textsuperscript{126} F. Turner, \textit{Between Science and Religion}, pp. 150-52.
\textsuperscript{127} The date is given in the notes of \textit{Mind}, 15 (1890), p.
448. The symposium was published in \textit{The Proceedings of the
\textsuperscript{128} R. Richards, \textit{Darwin}, p. 345. F. Turner also cites this
paper as an important public step towards an agnosticism open
in nature.

There were three speakers at the Aristotelian symposium. The first, the Reverend William Gildea, argued that Darwinism was insufficient to explain natural phenomena, particularly those of instinct (one of the Duke of Argyll’s favourite examples): he argued that intelligence must be sought "not in nature, but elsewhere."¹² The next speaker, the idealist philosopher Samuel Alexander, refuted Gildea’s external teleology by advancing the arguments of orthodox Darwinism. No God was necessary where natural causes could explain. Alexander concluded that the amount of pain and waste in nature directly contradicted the idea that it resulted from beneficent, intelligent design.¹³

Romanes, who might have been expected to follow the naturalistic line of Alexander, took up yet another position. While agreeing with Alexander about the universality of natural causation, he claimed that this was not incompatible with a belief in "hyper-physical design". Of course the Paleyan idea of a "Carpenter-God" external to nature had "been totally destroyed by the proof of natural selection." But there were other ways in which God might act through natural laws. Romanes cited the pantheistic theory of Herbert Spencer, and the deistic view of Baden Powell. More impressive to Romanes

¹² "Is there Evidence of Design in Nature?", p. 57.
¹³ Ibid., p. 61.
however, were the ideas of Aubrey Moore, whose *Lux Mundi* essay he had read. Romanes thought it "an essay of such high ability that...it must be ranked among the very few of the very greatest achievements in the department of literature to which it belongs", and cited much of Moore's argument:

...it may...be argued, as it recently has been argued by the Rev. Canon Aubrey Moore, that "the counterpart of the theological belief in the unity and omnipresence of God is the scientific belief in the unity of nature and the reign of law;" that "the evolution which was at first supposed to have destroyed teleology is found to be more saturated with teleology than the view which it superseded"; that "it is a great gain to have eliminated chance, to find science declaring that there must be a reason for everything, even where we cannot hazard a conjecture as to what the reason is"; that "it seems as if in the providence of God the mission of modern science was to bring home to our unmetaphysical ways of thinking the great truth of the Divine immanence in creation, which is not less essential to the Christian idea of God, than to the philosophical view of nature." But on the opposite side it may be represented - as indeed Mr. Aubrey Moore himself expressly allows - that all these deductions are valid only on the pre-formed supposition, or belief, "that God is, and that He is the rewarder of such as diligently seek Him."  

Romanes could apparently identify with Moore's argument. He cited him once more: "Darwinism has conferred upon philosophy and religion an inestimable benefit by showing us that we must choose between two alternatives: either God is everywhere present in nature or He is nowhere." Romanes agreed, and added that "As far as natural science can help us, we must all be equally agnostic."  

111 Ibid., pp. 73-4.  
112 Ibid., p. 75.
working, Romanes was "not ashamed to confess that in my own individual case...I do not perceive any evidences of Design in Nature." However, a believer might well look at the universal orderliness of nature (what Moore called its "wider teleology") and "rationally" see such evidence. Romanes concluded,

Hence the one man [a believer] is as logically justified in seeing the evidence as the other man [a non-believer] is logically justified in not seeing it....The question, "Is there Design in Nature?" has been referred from the lower courts of objective fact to the supreme courts of subjective personality; and there it stands to be decided by each man for himself at the tribunal of his own judgement."

Since Romanes had left the Christian faith and embraced agnosticism largely because he felt bound by the facts of science and the demands of reason to do so, I see this paper as a turning point in his spiritual path. Romanes had previously speculated on the idea that divine immanence was not incompatible with natural causation: it was the contention of his 1873 prize essay on Christian Prayer and General Laws. Aubrey Moore's paper showed him that this kind of divine immanence could allow a religious believer to accept the evidence of science as a confirmation of the existence of God.

Robert Richards has suggested that Romanes was psychologically attached to religion, and that he "felt the pull of religion and of a moral impulse past natural

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113 Ibid., p. 76.
114 Ibid., p. 76.
explanation." While this is likely true, I think it ought to be recognized that there was a logical precondition which Romanes felt had to be met before he could seriously consider belief in God. Aubrey Moore's treatment of teleology helped him see that the external teleologies of Asa Gray and the Duke of Argyll were not the only religious approaches to Design compatible with orthodoxy. Romanes admired the Lux Mundi group, and came to know Charles Gore, Francis Paget, and Aubrey Moore in 1889. In December he praised the work of the Anglo-catholic apologist best acquainted with science. He looked forward to further talk with him. A month later, however, Aubrey Moore was dead.

In a letter to the Guardian, Romanes mourned Moore's passing and praised his learning, ability, and fearlessness:

Now, in as far as these qualities of mind and temper were rendered conspicuous in his writing on Darwinian subjects, they were not only holding up the light of a salutary example to other men of his own calling, but were showing to the general public a strength and beauty of personal character which it was the privilege of his private friends to admire still more deeply in more intimate relations.\(^\text{137}\)

Romanes spoke of Moore as "about the best case that could be pointed to of the possible co-existence in the same mind of an unshaken Christian faith with all the highest elaborations of


secular thought. " His death was a "calamity" not only to Oxford, where Moore had "constituted a link of union" between scientific and clerical members of the university but also to the country, since he was such an able champion of Christianity. Romanes went so far as to claim that Moore was probably the most learned man in the country, given his wide sweep of accurate knowledge in theology, history, philosophy, and science (though he was not a "specialist" in any one of these fields). Even if we suspect Romanes of exaggerating Moore's learning, it is clear from such a statement that he felt strongly about the counsel Moore could have given him. Romanes closed by noting that although he had known Moore only briefly, he felt "what, among all his friends, must be, in an unusual measure, a consciousness of personal loss." 

Romanes' private letters reveal the same feeling. To Sir James Paget, he wrote "personally the loss is to me more than I can compute. For not only have I lost a newly-gained friend, but one whose rich stores of knowledge and of thought had just begun to open such possibilities in the way of adding to my own." Had Moore lived, he would have exerted even more influence on the spiritual pilgrimage of George Romanes.

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138 Ibid., p. xxix.
139 Ibid., p. xxxi.
140 G. Romanes to Sir James Paget, January 18, 1890. E. M. Moore autograph collection, APS Library.
CONCLUSION

Did Moore really accept Darwinism? According to Lankester, who did not share Moore's religious views, yes, he "thoroughly" accepted it. Romanes thought so too, and believed that Moore's view of a "wider teleology" was, for one who already believed in God, a logical way to read religious meaning in nature. Romanes was not a Darwinist in the sense of one who believed in natural selection alone (a sense he bitterly contested), but he was a doughty warrior against those who tried to find God meddling with natural laws. Moore was popular among men of science because his interpretation of the "internal teleology" of Darwinism did not introduce the supernatural as an interference with the natural, but as a complementary belief. Moore abandoned the argument from design, to be sure, but not Anglo-catholic orthodoxy: the Tractarians had never had any use for Paleyan natural theology.

Moore was praised for his able grasp of Darwinism by many contemporary "Darwinists": the atheist Lankester, the spiritually questing Romanes, the Anglican neo-Darwinian entomologists, Poulton and Dixey. If these contemporaries of Moore, all with impeccable "Darwinian" credentials, and without any common religious bias, welcomed Moore's work, a historian can only say that yes, Moore accepted the real Darwinism of the day. These scientists particularly admired Moore for popularizing Darwin. Lankester, in his note to Nature, expressed his happiness at seeing Darwinism so thoroughly
accepted and "lucidly expounded". Romanes, in his letter to the *Guardian*, noted that Moore had been a "salutary example" to his fellow clergymen. At the centenary of Darwin’s birth, Poulton recalled Moore as "the clergyman who more than any other man was responsible for breaking down the antagonisms toward evolution then widely felt in the English Church." In a letter to Poulton, Romanes called Moore’s death "a loss to Darwinism on its popular side." 

The popular aspect of Moore’s apologetic is often lost on modern critics, who tend to be more concerned with its philosophical coherence as judged by current understandings of Darwinism. Moore’s peers, religious and scientific, felt that he had shown how it was possible to maintain Christian and Darwinian views. Moore’s pamphlets were read by a wide audience, from the director of the Natural History Museum, to the working-men who went to Oxford house. In showing the compatibility between the doctrines of divine immanence and the universality of law, Moore helped promote a wide public acceptance of a controversial scientific theory. Men of science, like Romanes, apparently appreciated the work Moore was doing.

Moore’s popularity must be considered if we are to...
effectively judge his work. We can see this by considering some modern criticisms. John Kent, for example, complained that late Victorian "reconciliations" of science and religion were often little more than a "Hegelian belief that history, now including... biological pre-history... revealed a process of development in which spirit progressively dominated matter." Moore's work, with its emphasis on the reality of a progressive moral evolution, might be seen in participating in such a Hegelian view, but he was much more interested in scientific phenomena, and in the teleological aspect of Darwinian evolution than in an evolutionary recasting of history - neither Lankester nor Romanes would have had much time for Moore had he been merely a reworker of the philosophical idea of development.

The modernist theologian Don Cupitt considered Moore's "wider teleology" to be a distortion of scientific truth:

Darwin himself, it must be confessed, was sometimes unguarded in his use of such terms as lower, higher, beneficent, and progress. Moore builds on these texts, on mild remarks in Darwin's letters, and on the drift towards a measure of Lamarckism in some of Darwin's later writings.... The result in Moore is the familiar "wider teleology" on which so many apologists were to build.... Well, the interpretation of Darwin is a controversial matter to this day, but one cannot help thinking that Moore and his friends did some violence to him and his achievement."  


D. Cupitt "Darwinism and English Religious Thought", p. 129.
Of course, Moore got the phrase, and the content, of a "wider teleology" from Huxley, as mentioned above. As to Darwin's belief that evolution was progressive, this seems to have been unproblematic to Moore's scientific readers - Michael Ruse's recent study shows that Darwinian evolution has often been, and with some still is, connected with an idea of progress. And Moore held no brief for the neo-Lamarckians: his sympathies lay with the mechanism of natural selection which the neo-Darwinian Poulton surely preached to him in the Keble College Common room.

For all that I can not consider Aubrey Moore a representative of "Christian Darwinism", as James Moore does in his Post-Darwinian Controversies (1979). Aubrey Moore's vision of history, his view of morality, and his belief in an immanent God are all qualities which he sees as compatible with Darwinism, yet he states clearly that Christianity is committed to no particular scientific theory. Aubrey Moore also hopes that the development of a moral science will change our understanding of biology. To call him a "Christian Darwinist" is to over-emphasize Moore's loyalty to Darwin. He accepted the findings of science, but sought a deeper interpretation of nature than the science of his day could offer. Because of this Moore was supported by both clergy and men of science. Clergy appreciated his disentangling of scientific fact from

145 M. Ruse, Monad to Man, 1996.
metaphysical naturalism, while men of science, whatever their religious views, admired his defence of the scientific fact and theory of the day.

Of course, the modern reader turning to Moore may still ask what he means by the "elimination of chance from nature", or how he expects the answer to the problem of pain to be uncovered. While both the late twentieth and the late nineteenth centuries are times in which "neo-Darwinism" is triumphant, there are many differences in the way we read the implications of natural selection into wider philosophical issues. Moore’s position may seem idiosyncratic to those who have grown up with the idea that "Darwinism is naturalism," but to his contemporaries, his views seemed a fair and logical religious interpretation of biological evolution.
Science had pushed the deist's God further and further away, and at the moment when it seemed as if He would be thrust out altogether, Darwinism appeared, and, in the guise of a foe, did the work of a friend. It has conferred upon philosophy and religion an inestimable benefit, by showing us that we must choose between two alternatives. Either God is everywhere present in nature, or He is nowhere....In nature everything must be His work, or nothing. We must frankly return to the Christian doctrine of direct Divine agency, the immanence of Divine power in nature from end to end, the belief in a God in Whom not only we, but all things have their being, or we must banish Him altogether.

Aubrey Moore in *Lux Mundi* (1889)

Aubrey Moore assimilated science into Anglo-catholic orthodoxy. He granted epistemological authority to critical and natural sciences in the interpretation of Genesis, he supported the establishment of a controversial physiology laboratory, and he "thoroughly accepted" Darwinism. In these, as in all things, Moore displayed the same zeal for Anglo-catholic orthodoxy that made him the Master of the Brotherhood of the Holy Trinity, and a favourite of men like Canon Liddon and Dean Church. Moore saw all sciences as streams of truth that flowed into the sea of the "One Truth", and he firmly believed that they could be shown to illuminate the truths of Christian doctrine and sacred tradition. Revelation, Moore wrote, in his last essay, is both final and progressive. Final, since there is only one Christ; "progressive, because Christianity claims each new truth as enriching our knowledge of God, and bringing out into greater clearness and distinction some half-understood fragment of its
This treatment is most apparent in the subject on which Moore focused in his essays, evolution. Darwinism helped Christianity by recalling the doctrine of God's immanence in nature, which followed from the doctrines of the Incarnation and the Trinity. In the seventeenth and eighteenth centuries, some Christians had lost the doctrine of divine immanence, and had felt that God was ordinarily absent from the world (Deism), and utterly transcended human understanding and morality (Calvinism). While many felt that Darwinism changed man's place in nature, Moore believed that it restored God's place in nature, and in so doing, strengthened catholic truth.

The philosophical resources Moore used in "assimilating science" are also clear in his treatment of evolution. Moore followed T. H. Green's idealism in his interpretation of how divine immanence might act in human history as well as in nature: he also used Green's ideas in his rejection of the utilitarian, "selfish" theory of the evolution of morality. Moore turned to Church fathers to support the idea that "the facts of nature are the acts of God": his Anglo-catholic heritage made him familiar with the philosophical depth and subtleties of the early Church, and also freed him from any sympathy with arguments from design. As a first in the "Greats"

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school, and as a lecturer on the *Nichomachean Ethics*, Moore was a good Aristotelian, and he drew parallels between the philosopher's reading of nature and Darwin's. Finally, as an Oxford don of the 1880's, Moore was an instructor in a modernizing, if not modern, university and he could see the growing intellectual difficulties facing Christians. His common room conversations with the neo-Darwinian Edward Poulton (perhaps sparked by their shared interest in natural history) seem to have convinced him of the adequacy of natural selection. Moore could not simply dismiss Darwinism as "unscience", as many other Christian apologists had been content to do.

Since he took seriously the challenges of Darwinism to Christianity, Moore had two choices. He could abandon orthodox belief, as many of his generation did, or he could follow in his father's footsteps, and attempt an apologetic which would answer the "difficulties of the day." Encouraged by the optimism and Anglo-catholic fervour of his holy party comrades, Moore took the latter course.

Was Moore's apologetic successful? Many remained unconvinced. Some believed that in accepting Darwinism, Moore accepted an unscientific and anti-Christian theory. Others, like Huxley, thought that if Moore accepted evolution and gave up Genesis as historical fact, he ought also to accept that Genesis, and, for that matter, the whole Bible, were merely a haphazard collection of myths and corrupted histories of one
particular desert tribe. Moore's apologetic, like that of Charles Gore, attempted the difficult task of balancing freedom of inquiry and study with the authority of revelation, and the success of such attempts remains a subject of debate within most denominations.

However, many of Moore's friends considered his apologetic successful. Men as different as the Marxist biologist Ray Lankester, and the old guard Anglo-catholic Canon Liddon praised his work. Lankester gave Moore a scientific imprimatur, by praising his treatment of Darwinism in Nature. Liddon told Moore that

It is given to very few to move as easily as you do through the defiles and along the precipices of thought on this frontier of Revelation: few men seem to understand how to do justice to negative forms of opinion, or even to scientific truth, without compromising faith."

Darwinists said Moore had accepted Darwinism. Most Anglo-catholics claimed that he had kept the faith. According to Poulton, Moore's essays did much to remove Anglican hostility to evolution. Charles Gore, in the Preface to the tenth edition of *Lux Mundi* (1890), described Moore's mind as the best positive evidence that science and religion could be reconciled. George Romanes noted that Moore had constituted a link of union between clergymen and scientists, and this link seems to have facilitated Romanes' return from scientific doubt.

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2 H. P. Liddon to A. Moore, April 2, 1889, Bodleian MS. Eng. lett. e. 128, f. 37.
to communion with the Anglican Church.

If Moore's apologetic was successful, can we then say that Moore's was a successful religious acceptance of Darwinism? Some have said so, and dismissed the idea that science and religion are at war. Some have denied it, and insisted that there is no philosophically valid basis for reconciling Darwinism and Christianity. There is some danger here of putting the history of apologetics at the service of current apologetics, Christian or non-Christian, and so any answer must be carefully qualified. As I have mentioned above, and shown in the last chapter, Moore's contemporaries, by and large, credited him with a successful assimilation of Darwinism into the truths of Christianity. Moore accepted real Darwinism.

However, it is impossible to draw conclusions from this fact about the current relationship between Darwinism and Christianity by abstracting the philosophical content of Moore's work, and applying it to what is a completely different historical situation. Darwinism has changed, and so has Christianity. The optimism and progressionism of Moore's Anglo-catholic creed grew from certain local circumstances, as did the progressionism of late nineteenth century Darwinism. Moore's essays were written as popular defences of Christianity for a small, educated Christian audience who read them and took from them what they would. This is not to say that Moore's philosophical points are devoid of interest to modern students of science and religion, but that they must be understood in
their context if they are to be understood at all.

Moore's acceptance of Darwinism consisted of a thorough-going immanentism: a belief that the universality of law which Darwinism revealed in organic nature could be interpreted as the constant action and presence of an immanent, creating God. This vision accorded with idealist metaphysics and Christian orthodoxy, and allowed Moore to speak of a "wider teleology", in which the universality of purpose and cause in nature, the unity of nature, could be read by Christians as a confirmation of God's work. Moore dealt with the implication that God was directly involved in a painful, wasteful process of creation (evolution by natural selection) by looking ahead to the discovery of a new moral science. This would demonstrate that the process of evolution was not just uniform and law-like (one aspect of the Divine nature) but also moral. Evolution was the ongoing work of a moral, beneficent God. Moore also rejected the idea that human morality evolved because it was useful to its possessors, and instead claimed that it evolved in response to the presence of a moral law which had a real existence independent of human nature.

Inasmuch as Moore accepted the evolution by natural selection of all creatures, late twentieth century Darwinists might accept him as one of their own. However, the utilitarian school of the origins of morality which the idealist Moore deprecated has a firm, if controversial, place in modern science (as sociobiology). The idea that evolution is
progressive is usually denied. No moral science such as Moore looked for, has yet arisen. Modern readers must draw their own conclusions.

If Moore's assimilation of Darwinism must remain in its historical context to be understood, then what is its effect on the historiography of nineteenth century "science and religion"? In the introduction I mentioned four influential historiographical conceptions of their relationship: conflict, co-operation, competition, and continuity. This study of Moore and his context casts some light on each, though since Moore's was such a unique case, it does little to judge absolutely the respective merits of these models.

The warfare thesis presented science and religion at war. Its earlier presenters are not quite as unreasonable as they are sometimes presented in modern caricature: Andrew Dickson White, in his *History of the Warfare of Science with Theology* (1896) recognized that some biblical critics and religious believers (like the *Lux Mundi* essayists) sided with science. Still, the popular understanding of the conflict model has been that science and religion were and are at war, and that religion (or superstition) has been steadily beaten back by the advance of positive knowledge.

James Moore used Aubrey Moore as a counter-example to the warfare thesis in his *Post-Darwinian Controversies* (1979). Indeed, as mentioned above, Aubrey Moore saw natural science providing useful illumination of the truths of Christianity,
and in no way destructive of Christian truths. For all that, the very existence of Aubrey Moore's apology is evidence that there was a perceived warfare between science and religion. In his introduction to *Science and the Faith* (1889), Moore noted that evolution had changed apologetics: "because the battlefield has shifted, or...the mist has partly cleared away." However, there still was a battlefield: "We welcome all that evolution has done to destroy the old materialism, with its mechanical theories...but the battle of personality, the personality of man and God, has to be fought out." Metaphysics and religion must battle side by side against scientific attempts to reduce human personality to biological necessity, and human freedom to determinism.

Religion was not at war with science then, but with the faulty metaphysics which some champions of science mistakenly espoused. There was a conflict, not between the hypostases of religion and science, but between people of different philosophical opinions on ultimate questions. In this period as in no other before it, the merits of Christian orthodoxy and non-Christian thought-systems were publicly discussed and debated. Since the natural sciences provided increasingly influential ways to think about nature, humanity's history, and the judgement of evidence, the merits of science and particular

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4 Ibid., p. xlv.
scientific claims, must be central to these debates. Differences in opinion could be expressed in the belligerent manner of Wilberforce and Huxley, or in the polite manner of the exchanges between Romanes and Aubrey Moore, depending on the circumstances as perceived by the participants. Moore could not accept a "natural science of man" which reduced human qualities to those discerned in animals, and so described the issue of "personality" as a battle, but he was careful not to attack the methods or facts of men of science. The social and political circumstances of an encounter may have led the participants to describe it as a battle, a debate, or a dialogue. The fact remains that there were differences of opinion which were not easily resolved. The historian must avoid reading his or her own views on these differences back onto historical encounters.

When someone like Aubrey Moore, thoroughly sympathetic to science, uses the language of "warfare", it seems apparent that the conflict model can not be dismissed. The substance and circumstances of the "battle" terminology may lead us to a better understanding of the real differences between the contending parties.

The co-operation model pioneered by James Moore then, seems to pass over significant differences between those like Aubrey Moore who were Christians and Darwinists, and those Darwinists who sought in their science a full explanation of human nature. In the Post-Darwinian Controversies (1979), James
Moore wrote that orthodox Christians could accept Darwinism because they had underlying philosophical affinities with Darwin's world-view. Without treating James Moore's claims in detail here, I think that it is clear from the above description of Aubrey Moore's conception of evolution, that there were more philosophical differences than similarities between him and Darwin. Moore was an idealist who believed in divine immanence. His notion of the evolution of morals was completely different from what Darwin proposed. His theodicy, depending as it did, on a future proof of evolution's moral purpose, was again alien to Darwin's rather more ambiguous vision of nature.

Aubrey Moore indeed found it possible to co-operate with men of science, and to accept their findings, but not because he shared with them foundational philosophic approaches. Moore assimilated Darwinism because he had to: it was by the 1880's an established theory which posed problems to Christian belief and required a constructive response. Moore was able to give such a response using the tools supplied by his Oxford influences: religious, philosophical and scientific. Other late-nineteenth century Christians who accepted Darwinism, like the much-studied American Presbyterians, have arguments which differ significantly from Aubrey Moore's because they, like he, were responding to local needs and drawing on a different set of intellectual resources. Christian responses to Darwinism were carefully constructed, and not discovered in a set of
common cosmological "orthodox" assumptions. Where there is apparent co-operation between Christians and Darwinists, the social context of subtle and complex arguments ought to be considered.

This emphasis on social circumstances has been treated in Frank Turner’s paper on the "professional dimension" of the Victorian conflict. From the 1850’s onward, a new generation of professional scientists cast out clergymen naturalists from scientific societies: Huxley considered evolution the "Whitworth gun" of this liberal, professional army. The success of this campaign was also felt in the universities, where parliamentary reforms effectively transformed them from pillars of Anglicanism to "disestablished", non-denominational academies. In the course of these changes, science education gradually advanced, and the theories which had been controversial in London societies found their way into Oxford examinations.

In this context, Aubrey Moore’s work can be considered an attempt to remove any notion that scientific study and religious belief were competing for the minds of Oxford students. Pusey and Liddon had fought to maintain Oxford’s ecclesiastical character and had failed. Moore, and other Anglo-catholics of his generation, did not know this disappointment, but set to work showing that religion was not the enemy of professional, “scientific” knowledge, which was advancing at the university. Their support of the physiological
laboratory is one instance of this - the clergy could not be seen to oppose science. Another instance is Moore's enthusiastic adoption of the most controversial biological theory of the day, Darwinism, and his campaign to prove that it was no enemy of religion when shorn of its reductionistic, utilitarian metaphysics. Similarly Charles Gore defended the findings of professional biblical criticism and argued that they were compatible with Christian belief, when the real purpose of the Bible was understood.

The *Lux Mundi* essayists, especially Moore and Gore, were in a position analogous to that of Henry Acland in the 1830's and 40's. Acland and his colleagues in Oxford found that the best way to advance their study was to defend it as a contribution to a religiously orthodox and sound classical education: in so doing, they distanced themselves from the utilitarian and heretical views of certain metropolitan champions of natural science. They made science fit into the predominant Oxford ethos. However, through the century, that ethos changed as reformers abolished religious tests and revised examination statutes. By the 1880s, most colleges reserved only one fellowship for a clergyman (the college chaplain). The natural science school had become well funded and established, and was expected to grow. Now those who felt that religion had a constructive part to play in the university had to show that it fitted into a changed Oxford ethos. If they wanted religion at Oxford to be more than a decorative remnant
or an embittered minor faction, they had to show that religious belief was rationally possible and compatible with the authoritative claims of rising critical and natural sciences. Aubrey Moore's apologetic may well have had something of this motive behind it.

Another approach which integrates the encounter between science and religion and its social context is Robert Young's. He suggested that Darwinism naturalized cultural values which had belonged to religion. Science took up the role of religion in perpetuating certain themes - particularly the idea that pain and struggle led to progress. Beneath the surface conflict, there was a deeper continuity. In the face of this, Young claims, religious apologists emptied natural theology of its content by identifying God with nature, and so "emasculated" the theodicy of natural theology. Young does not consider the work of Aubrey Moore, but on the surface, Moore does seem to fit in with Young's characterization of the religious response to Darwin. However, there are two significant differences.

Firstly, Moore did not care about natural theology. He had imbibed his faith from the Tractarians, who had always dismissed Paley. It may not be easy to extend Young's analysis, which emphasizes the importance of Malthus and Paley, to an intellectual tradition which paid these figures little

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attention. Moore developed his immanentism from orthodox and idealist resources, and drew his concept of teleology from this and his reading of Aristotle. While it may be possible to place Moore's work into the intellectual and social framework of natural theology, it seems more likely that there are other (and more complex) intellectual and social paths between science and religion than the one Young delineates.

Secondly, Moore did not accept the "naturalized" cultural values which appear in utilitarian accounts of the origins of morality, in laissez faire social Darwinism, or in eugenic movements. Moore believed that evolution was a moral process, although it could not be proven to be so in the late nineteenth century. He believed that morality, even though the human moral sense had evolved, had a real existence independent of nature. To Moore, nature, like human history, is the revelation of a gradual process of God's work. In a historical sketch which did follow Young's program, Moore might be considered a transitional figure in the translation of certain cultural values from religious to secular language. Moore was not willing to give over all authority to natural science, and his philosophical idealism prevented him from sympathizing with some scientists' attempts to reduce human nature to that of its animal antecedents.

In addition to casting light on broader approaches to the study of Victorian science and religion, Moore's case gives a new perspective in several respects. It contributes to our
understanding of the development of Anglican, and particularly liberal Anglo-catholic, apologetics. Studies of Lux Mundi often focus on the acceptance of biblical criticism by Charles Gore, and down-play Moore’s acceptance of Darwinism. I hope that this thesis has shown how the "assimilation" of scientific and critical knowledge were closely related.

I have tried to trace here the relationship between Oxford’s men of science, and its leading religious apologists. It is apparent that this relationship underwent radical change through the century, but that a close friendship between the parties was maintained despite the stresses presented by the development of Darwinism. Oxford’s men of science had attempted to make their studies palatable to Anglo-catholics in the mid-century: by the 1880’s however, liberal Anglo-catholics strove to show that Christianity and science were compatible. Thus the alliance was maintained: Pusey supported Acland in the construction of the museum, and Moore supported Burdon Sanderson in the construction of the physiological laboratory. It also seems interesting that Oxford was Britain’s only neo-Darwinian school in the decades around 1900. Could it be that the holy party’s support of Darwinism facilitated the development of this approach at Oxford? Further study would be required to establish the truth of such a speculation, but the close intellectual and political relationships described here suggest that Oxford science owed something of its character and success to its religious supporters.
Finally, this thesis suggests a way to study the state of late-nineteenth century Darwinism. If a modern Darwinist balks at certain of Moore’s conclusions, why were his contemporaries, many of them good "neo-Darwinists", so pleased with Moore? It seems likely that they had different perceptions about key aspects of Darwinism - chance, progress, the evolution of morality - than those common today. Two leading Oxford neo-Darwinists, Poulton and Dixey, were also Christians: was there some aspect of Moore’s assimilation which helped them to focus on certain philosophical implications of natural selection theory while ignoring others? Had Oxford neo-Darwinism different emphases from other schools of Darwinism? While it is sometimes difficult to find perceptions on such abstract topics explicitly stated in the writings of scientists, their reactions to non-scientists’ essays gives us some insight into the evolution of the metaphysical assumptions of those who called themselves Darwinists.

I hope that this study of Moore’s work has strengthened the claim that ideas must be read and understood in their context. It is easy for a historian to take a statement like that which opens this chapter ("Darwinism in the guise of a foe, did the work of a friend....") and claim that by the late nineteenth century Anglicans were happy with evolution. While there is some truth in such a claim, it passes over the large differences which still existed between Moore and some other men of science, and it leaves the reader wondering how someone
like Moore could make such a claim. I have explored several aspects of the context of Moore’s treatment of Darwinism: his philosophical resources and treatment of the history of ideas; the development of Anglo-catholicism at Oxford; 1880’s debates on the authority of science and criticism. In each of these I have found that Moore’s treatment of Darwinism is organically related to its Oxford situation, and have been confirmed in my view that this contextual approach is essential to understanding his thinking.

Aubrey Moore’s assimilation of science to religious orthodoxy must be judged by its late-nineteenth century success, yet there are elements of his work which could be profitably considered in a modern context: the idea that an internal teleology can be read as a confirmation of divine action might appeal to Christians who accept Darwinism today. Chance remains a problem for those who would try to renovate Moore’s "wider teleology", but a close reading of Moore’s work in its context may nonetheless help clarify the issues of modern debates.

If it is impossible today to effect the kind of successful assimilation that Moore did in late-nineteenth century Oxford, it is because religion, Darwinism, and their respective places in a larger cultural and philosophical context have changed. The political uses to which science is put, and the relative cultural authority of science and religion are much different now than they were then. It would
be impossible for a modern "assimilator" to differ as much from positivistic orthodoxy as Moore did, and still gain the same widespread praise from men of science. Such a modern onlooker can imitate Moore only in his sympathy for science, his philosophical acumen and sense, and his zeal for orthodoxy.

Moore might have worked up his essays into a deeper, and more explicit treatment of Darwinism had he lived longer. Certainly his scientific friends lamented that he had not survived to offer his perspective on the changes in science that continued to occur after his early death. On January 10th, 1890 Moore returned from London to Oxford, suffering from Russian influenza. He died on January 17th, 1890 at the age of forty-one. It seems fitting to conclude with one last insight on the context of Moore's work, his character, as drawn by the unnamed "friend and colleague" who wrote his funeral address:

A distinguishing feature of his character was his intense power of sympathy with men of divergent views in theology or philosophy...by virtue of which he attracted towards himself a very wide circle of friends to whom he set a noble example of fairness, tolerance, courtesy, and gentleness, whilst maintaining firmly and fearlessly strong his own convictions of religious and speculative truth....Why one whose peculiar gifts seemed so valuable in a University, where the great questions of life and mind are debated with keen interest, and never required more reverent and calm treatment than now, should have been removed from its midst when he had scarcely passed the age of forty is one of the mysteries of Divine Providence to which we can only bow in resignation. But it is good for us to know that the faith of the metaphysician and the theologian was the faith of the Christian man, in which he lived, and which was strong enough to uphold him in death. His last words were "Going home, going home, going home."

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