

Doubting Darwin

Creationism and evolution
scepticism in Britain today

by Robin Pharoah, Tamara Hale and Becky Rowe

Doubting Darwin: Creationism and evolution scepticism in Britain today

is part of *Rescuing Darwin*, a wide-ranging project exploring the extent and nature of evolutionary and non-evolutionary beliefs in the UK today and their perceived relationship with theism and atheism. *Rescuing Darwin* is managed and run by Theos, the public theology think tank, in partnership with the Faraday Institute for Science and Religion. It has been conducted with the polling company ComRes and the research agency ESRO. *Rescuing Darwin* was made possible by a generous grant from the Templeton Foundation.

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contents

foreword	8
executive summary	10
acknowledgements	15
chapter 1 - approach to the study: sample and method	20
chapter 2 - contested meanings	23
chapter 3 - Young Earth Creationism (YEC), Old Earth Creationism (OEC), Intelligent Design (ID) and self-ascription	33
chapter 4 - religious belief, theology and evolution	44
chapter 5 - evolution: science, evidence and Darwin himself	63
chapter 6 - creation science, Intelligent Design and the scientific framework	81
chapter 7 - the place of creationism in the UK	104
chapter 8 - unity and disunity: is creationism a movement?	111
chapter 9 - Islam and creationism from overseas	120
chapter 10 - conclusion	135
bibliography	143
appendix	145

foreword

Doubting Darwin is the fourth major report Theos has published in 2009 to mark the Darwin anniversary. It is likely to be the most controversial.

The fact that anti-evolutionary sentiment in the UK is growing seems to be beyond doubt but the reasons for this trend are obscure. They are likely to remain so while people ridicule creationists rather than listening to them. This report listens.

Because Theos openly adheres to a position of theistic evolution – the idea that evolution and belief in the existence of God are true and compatible – it was deemed inappropriate for us to conduct the research ourselves – a decision that was borne out by findings which reported that “criticism of theistic evolution was in many ways as vehement as [that of] Darwin and evolutionist scientists.”

Theos therefore commissioned ESRO, a respected independent ethnographic research agency, to conduct fifty in-depth interviews with a wide range of people who, for various reasons, reject evolution and promote an alternative, whether Young Earth Creationism, Old Earth Creationism, Intelligent Design or some combination of the three.

Respondents were opinion-formers within their respective communities – people who took an active interest in the evolution/creation “Debate” and who sought to articulate and promote their opinions in public. They were people who had thought through their position. As a result, the findings are extensive and detailed, outlining a considered opposition to Darwinian evolution, as opposed to more reflexive popular objections.

Extensive and detailed, they are also likely to be controversial. The ESRO researchers were careful to remain as neutral as possible throughout the research. This meant allowing the respondents to speak in their own voices and refusing to pass any judgement on the veracity of their opinions. The fact that those voices and opinions were not openly challenged in the interviews will frustrate some readers – but it should not. The purpose of this research was to listen to and reach an understanding of the reasons people today reject evolution, and that would not be achieved by turning interviews into debates.

Interviews touched on a wide range of topics – geology and biology, theology and hermeneutics, politics and education – as well as turning up some apparently counter-intuitive findings, not least the idea that “ultra Darwinists” were often deemed to be a *good* thing for creationism: “Richard Dawkins’ position is philosophically consistent... Dawkins has a point actually... I actually think that Dawkins has been a good thing for Christianity.”

Interviewees were mainly Christians, although there were also a number of agnostics and Muslims within the sample, the latter group providing documentation of a source of anti-evolutionary feeling – Islamic theology – that is likely to grow over coming years. At a first glance, there were clear differences between creationisms rooted in different religious traditions, but there were also notable similarities. As one Muslim respondent remarked, “The current debate about evolution vs. religion is bad for Islam because it is driving young Muslims to an anti-evolution standpoint.”

For those who have publicly argued that belief in God and belief in Darwinian evolution are compatible, some of the findings in *Doubting Darwin* will make uncomfortable reading. But one of the more encouraging facts was that even among these respondents, who had taken some time and effort to think through the issues, creationism was not necessarily “a ‘Here I stand’ issue” (Interview 23, see page 108). In the words of one interviewee, “At the end of the day, I wonder how much it will really matter, when there is a world starving and people who need to be told the Christian message.”

This is perhaps the place to start for those who wish to rebuild dialogue where it has broken down and to argue that you can do both God and Darwin.

Nick Spencer

Director of Studies

executive summary

aims and methodology

Doubting Darwin seeks to map and analyse the views of leading evolution sceptics in the United Kingdom. It is part of the Theos *Rescuing Darwin* project which aims to demonstrate, on the bicentenary of his birth and the 150th anniversary of the publication of *On the Origin of Species*, that Darwin's theory of evolution does not necessitate atheism, and adherence to orthodox Christianity does not require the rejection of evolution.

Although initially conceived as a small illustrative component of the wider programme, *Doubting Darwin* was made editorially independent from the wider *Rescuing Darwin* project. Carried out by an independent ethnographic research agency, it would enable:

... a greater understanding of the discourses that lie behind three strands of thought and belief: 'Young Earth Creationism' (YEC), 'Old Earth Creationism' (OEC) and 'Intelligent Design' (ID), with specific focus on the use, acceptance and rejection of Darwinism.

Semi-structured interviews were conducted with 50 respondents identified as 'thought-leaders' with regard to evolution scepticism in the United Kingdom, either as creationists or supporters of Intelligent Design (ID). The final sample includes Christians and Muslims, church ministers, representatives of creationist organisations, academics and teachers, students and one lawyer.

Observing that, in practice, the term 'creationist' is most often used to refer to those who reject the Darwinian model of evolution in light of a commitment to a literal reading of Genesis, the report suggests that there is nevertheless considerable diversity of belief among those who reject evolution.

Young Earth Creationism (YEC), Old Earth Creationism (OEC), Intelligent Design (ID)

Just over half of the 42 Christian interviewees ascribed to Young Earth Creationism, the acceptance of the biblical creation narrative as literal and historical truth (i.e., suggesting a '6 day' creation and that the Earth is thousands, rather than millions, of years old). Young Earth Creationists presented the Bible as the unquestionable authority on the creation of the Earth and in no need of any particular interpretation.

Old Earth Creationism is the view that the Genesis narrative, properly interpreted, allows for an old Earth, either through ascribing to the gap theory (the idea that there could in fact be a very long time - or 'gap' - between the events described in Genesis 1.1 and Genesis 1.2) or the day/age theory (a day in the creation narrative means, figuratively, an age). Many Old Earth Creationists are agnostic about the nature of an age or, indeed, of the gap between days, and therefore over the age of the Earth. The report argues that the key to understanding the position of both Old and Young Earth Creationists is not a rejection of the evolutionary model but a commitment to the authority of the creation account in the Bible, understood as a literal or historical text.

Intelligent Design (ID) refers to the belief that certain complex phenomena found in nature can only be explained with reference to an Intelligent Designer, though proponents avoid suggesting that the Intelligent Designer is the God of the Christian, or any other, tradition. ID, therefore, stands in opposition to the Darwinian view that the development of life can be explained with reference to natural phenomena alone, yet also presents itself as a scientific pursuit relying on evidence garnered through scientific research and standing apart from metaphysical arguments and claims about the biblical creation narrative.

arguments against evolution: theological, sociological and scientific

The arguments behind evolution scepticism can be divided into three categories: theological, sociological and scientific.

theological arguments

Theological arguments are concerned with those aspects of evolution which are contradicted by theological teachings. They tend to focus on the length of time needed for God to create the world and humankind in particular (for YECs in particular, the idea

of evolution over millions of years is clearly incompatible with the account of creation found in Genesis); the creation of humankind in God's image (even those who were prepared to accept a geologically old Earth argued that Darwinian evolution did not cohere with this aspect of the biblical narrative); and the notion that there was no death before the Fall of humankind. This last argument was for many the most serious problem: respondents were emphatic that death could not be part of 'God's way' of creation, and that, since Christ is said by St Paul to be a second Adam, acceptance of human evolution is the capitulation of Christianity itself.

sociological arguments

Sociological arguments concern those things about evolution which are seen as having social and moral consequences. Some interviewees argued that Darwinian thought was part of the historical move toward rationalism and materialism, mirroring a broader moral decline. Again, respondents often argued that the idea that humans are made in the image of God is vital to the value and purpose of the individual. They argued, in other words, that evolution is amoral.

scientific arguments

The scientific arguments attempt to challenge the science behind evolution or propose alternative scientific theories. Creationists and other anti-evolutionists do not perceive themselves to be anti-science, often arguing that they reject evolution on *scientific* grounds. Similarly, a lack of scientific understanding and education was seen by evolution sceptics as a potential weakness. Most respondents felt that science, properly understood, could fit well within an evolution-sceptical worldview. Support for 'creation science' and ID represents an attempt to find a science which is fully compatible with the creationists' beliefs about origins. Only a limited number of respondents were antagonistic towards science *per se*: a rejection of evolution and evolutionists was expressed by these few in terms of a rejection of science and scientists in general.

Views of Darwin himself were complex – he was variously presented as a player, sometimes naïve or unwitting, in the historical trajectory of secularisation which began in the Enlightenment; a self-conscious atheist who sought to exclude God from the world; or as a genuinely gifted scientist who either was mistaken or extrapolated a theory beyond the legitimate boundaries of the available evidence.

responses to the scientific evidence

A common response among creationists to the evidence for evolution is to make a distinction between micro-evolution (the small changes that can occur within species of animals over time) and macro-evolution (the idea that species of animals can over time evolve into new species). Many respondents argued that the former is directly observable, while the latter is not.

Some interviewees alluded to problems with the fossil record, citing what they see as lack of evidence for 'transitional species' or 'intermediary forms'. In modifications of this argument, respondents also pointed to certain well-known examples of attempts to forge transitional fossils and to alleged inaccuracies in carbon dating. YEC respondents also often used 'flood geology' as a method of marrying scientific evidence with a young Earth historical framework, arguing that apparently old geological formations were in fact formed by a sudden and violent flood, concomitant with the Old Testament flood.

Finally, respondents also showed an interest in philosophical questions around the nature of science as a way of gaining and legitimising information, often arguing that science was being falsely used to address questions which it could not answer. Further, respondents often argued that science was not free of ideological bias, namely scientific materialism (the view that there is nothing in this world apart from that which is available to observation).

Intelligent Design

While creation science specifically uses a Biblical framework as a foundation, proponents of ID - the hypothesis that in order to explain life it is necessary to suppose the action of an unevolved intelligence - deliberately reject the use of scripture and rarely mention God in publications or scientific work: they want their arguments to be judged solely on scientific grounds.

Respondents showed a variety of attitudes to ID, ranging from support to ambivalence to rejection. *Doubting Darwin* argues that the characterisation of ID as a front for creationism is an over-simplification, noting that many evolution sceptics, and indeed those who would identify themselves as creationist, rejected ID in their interviews precisely because it is *not* creationist enough, in the sense that it doesn't recognise any Biblical underpinnings.

is creationism a movement?

Doubting Darwin sought to test the assumption that creationism in the UK, particularly Intelligent Design, could be said to be a movement. It concluded that, far from being a unified group with a coherent set of aims and goals, there was considerable *disunity* among the respondents.

Interviewees did not seem to be united in either a geographical or a political sense. They did not necessarily belong to or attend any creationist groups or organisations and, where they did, they belonged to different ones. They did not keep contact with their counterparts in the US and they did not necessarily communicate with each other. There

were vehement disagreements over theological matters and over the means by which evolution scepticism could be promoted. Intelligent Design had not successfully created a paradigm through which all evolution sceptics might engage in the debate around evolution.

Respondents did suggest that figures like Richard Dawkins had a uniting, galvanising effect on the variety of evolution sceptic points of view, and for bringing other religious believers behind the banner of evolution scepticism. Respondents also saw a systemic bias against their arguments and pointed out that they had rarely been given the opportunity to question evolutionist dogma in the ways they felt they were questioned themselves. In this way, they asserted, evolution scepticism has been portrayed as defensive of a worldview, rather than as more positively *contributing* to science and knowledge. This led to a sense of feeling embattled and under attack.

Islamic creationism

The small number of Muslim respondents that the authors recruited were willing to self-ascribe as creationists but did not necessarily identify with Christian creationists, again giving the lie to the idea of a unified evolution-sceptical movement.

The starting point for Muslim respondents, even for those who did not reject evolution outright, was that God must be considered to be present in all things, that science should be conducted within this framework and that the primary source of information about God and his actions comes from the Qur'an. Respondents argued, however, that the fact that the account of creation in the Qur'an was not as prescriptive as the Biblical one had profound implications for the theology of creation.

Some Muslim respondents were prepared to accept parts of the evolutionary paradigm but were eager to avoid a conclusion of human purposelessness, and thus emphasised the involvement of Allah in the process, above chance or random mutations. Like Christian creationists, some respondents did express concern about the moral implications of evolutionary theory, or about the concept that humankind was not a special creation but simply part of the wider animal kingdom.

Unlike their Christian counterparts, most Muslim respondents did not propose new kinds of science based on the Qur'an, but instead argued one of two quite different points. The first was that the Qur'an's truth and scientific truth should not be in conflict, and the second was that the Qur'an should not be seen as being ignorant of modern science.

acknowledgements

The authors would like to thank all the respondents, who gave their time to speak openly and frankly about their views.

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background

This work was first proposed in early 2008, to address the phenomena of 'creationism' and scepticism of evolution as they manifest themselves in the UK. It was hoped that, through in-depth interviews with a number of leading evolution sceptics, creationists and creationist thinkers, the research would move towards an understanding of the landscape of evolution-sceptic thought in the UK. The culmination of the research was also timed to coincide with the bicentenary of Charles Darwin's birth and the 150th anniversary of the publication of his most seminal work.

On the Origin of Species was the first full account of Darwin's theory of evolution. As this report will show, there was and is an intimate link between Darwin's evolution and creationism. Creationists themselves are often revealed only through their position in a public debate over the truth of the theory. Theos¹ originally conceived the research project as a small-scale exercise which would feed into a larger programme named *Rescuing Darwin*. This programme aimed to show that Darwin's evolutionary theory should neither necessitate atheism nor be rejected on Biblical grounds. In April 2008, The Templeton Foundation, as principal funders, suggested expanding the qualitative project in order to address the current lack of research in this area in the UK. It was also decided that the research would be made independent of the larger *Rescuing Darwin* programme. The effect of this would be to allow the research to stand aside from any particular position within a debate and to avoid being used to create evidence specifically for one side or another – instead, it would be free to aim solely at discovery and elucidation, learning about creationism from the point of view of creationists themselves. The aim of this newly independent study was laid out in the following statement of objectives:

To gain a greater understanding of the discourses that lie behind three strands of thought and belief: 'Young Earth Creationism' (YEC), 'Old Earth Creationism' (OEC) and 'Intelligent Design' (ID), with specific focus on the use, acceptance and rejection of Darwinism.

ESRO was brought in as an independent research consultancy to carry out this research and the fieldwork was conducted with very little intervention from either Theos or the Templeton Foundation. ESRO brings no larger agenda to the work and remains neutral as to the issues involved. This report presents the findings of the research and an attempt to address the statement of objectives.

1. A UK-based public theology think tank launched in November 2006 with the support of the Archbishop of Canterbury, Dr Rowan Williams, and the Cardinal Archbishop of Westminster, Cardinal Cormac Murphy-O'Connor.

introduction

The 150th anniversary of the publication of Charles Darwin's *On the Origin of Species* has seen a rise in media interest in the theory of evolution. Prominent biologists have been writing in mainstream newspapers and making television programmes which celebrate the man and his work.

An interesting feature of these articles is that a great many of them deal in argument and debate. They seem to go beyond the confines of eulogy or explication of the more compelling or subtle aspects of Darwin's work. Instead, they position themselves as a *defence* of Darwin against the perceived challenge or arguments of creationists and a more recent, so-called 'anti-Darwinist', paradigm known as 'Intelligent Design' (ID). Further searches of the same mainstream UK media sources reveal that, just as there are articles which defend Darwin, there are also a number (though fewer) which *do* take a specifically anti-Darwinian or anti-evolutionist stance. These creationist articles, or those that argue for the relatively new theory of ID, in turn attack their Darwin-supporter counterparts as being die-hard 'Darwinists' or 'evolutionists'. For each side in this publicly conducted debate, the applied labels, 'creationist' and 'evolutionist/Darwinist', sound an almost derogatory note.

In this report we deal specifically with those on one side of the debate – the creationists – and with what is commonly called 'creationism'. We also examine ID, the anti-evolutionist argument which attempts to use science to discredit evolutionary theories of the development of man, and of life on earth. More specifically, we are interested in the creationists themselves. Who are they? What do they believe? On what grounds do they reject Darwin and evolution? What does it mean to be a creationist or a supporter of ID? And can we speak of a 'creationist movement' in the UK?

Much of the discussion of these issues in the UK media has focused on certain key figures who lie at the extremes of the debate, or on the rise of the 'religious right' in American politics. These figures and narratives provide an explosive way of looking at creationism, but not always a correct one. These stories tend to simplify the concepts of creationism and evolution and to polarise views into a language of 'all right' or 'all wrong'. One recent example of this might be the treatment, by both media and employers, of the Reverend Professor Michael Reiss, former Director of Education at the Royal Society.

Reiss commented openly on the issue of how to deal with creationism in schools and, more specifically, in science lessons. His comments, though fairly innocuous to anyone familiar with the issues, were interpreted by many, including fellow scientists at the Royal Society, to be a sign of dangerous ambivalence, lacking a correct level of opprobrium towards creationism and creationists. Shortly afterwards Reiss was forced to resign from his position at the Royal Society.

The irony is that Reiss's comments may not have particularly appealed to many creationists either, given his clear suggestion that creationism had no scientific basis. There are undoubtedly further complications and caveats to this story; it does, however, serve to highlight the way in which the public debate over creationism is often simplified in the UK, on both sides, allowing for neither nuance nor variance in position but, rather, promoting a vision of there being one side and another – a right and a wrong.

Furthermore, those events bringing creationism to the fore in the UK are commonly understood through the lens of American creationist politics and religious life. Often, creationism is described in the language of 'movements' with discernible agenda and concrete aims. Such labels can misrepresent the position of creationism, and the positions of creationists, in the UK.

Perhaps the most significant controversy over creationism in recent times was the dispute over the Emmanuel Schools Foundation and its creation of Emmanuel College in Tyneside, in 1990. The school was set up with a specifically Christian ethos and with money from a well-known Christian (and reputedly creationist) businessman, Peter Vardy. Following a public lecture in 2000 given by the school's newly appointed Head of Science, in which he advocated the use of ID in the science classroom, it was alleged that creationism was being taught in science lessons in the school. The schools inspection agency (Ofsted) was called in and public letters were written by leading anti-creationists and evolutionists, including religious leaders and scientists, decrying the practice. A website created in response to the school and the foundation described creationists thus:

[L]ike all religious extremists they insist on forcing their views onto others. Creationism is of particular concern, as their main tactic is to target schoolchildren & the schools in which they are taught. They then attempt to undermine a child's understanding of the principles governing modern science, especially that relating to the concept of biological evolution. They also attempt to indoctrinate the children with extreme religious views & antipathy to modern society ... This problem is America [sic] in origin, where fundamentalist extremism is common & deep-rooted with incessant & widespread interference in the American educational system.

In this quotation, UK-based creationists and American creationists are instantly conflated. The mass movements and churches of America are depicted as being transplanted to the north-east of England. These are, of course, complex issues, and we are simplifying the uniquely *British* politics that lie behind this particular story. Nonetheless, the language used indicates a common belief that creationism in the UK and in the US are one and the same thing and that it is about ‘movements’, with political agenda. Even long after the event, articles about the Emmanuel Schools Foundation continued to use a similar language. The relatively sober tones of *The Times*, for example, also noted the connection with the US:

Creationism is less widespread in Britain than in the US, but there is a growing movement lobbying to have it introduced as part of the national curriculum.

This report attempts to address some of these issues by talking to creationists and evolution sceptics themselves and, in so doing, to challenge some of the more commonly held assumptions about those who reject evolution in the UK. It also aims to fill the relative gap in knowledge about creationists themselves and what they believe.

approach to the study: sample and method

Both the research method and the way in which the research sample was collected were subject to the constraints and difficulties inherent in the subject matter. As will be shown, there are a number of difficulties with terminology that make 'objectivity' a problematic notion. In practice, certain assumptions had to be made, which in turn has meant that the intended neutrality of the writing team may not always have been achieved.

method

Face-to-face interviews were carried out with 50 respondents identified as 'thought-leaders' with regard to creationism. All the respondents mentioned in this report presented themselves, at least in part, as a creationist, evolution sceptic or supporter of ID. Respondents were identified mainly in England, though two were based in Scotland. Interviews were conducted by a lone researcher, who was part of a research team consisting of three experienced field researchers, all permanently employed at ESRO.

Each interview was scheduled to last between one and one and a half hours, though in practice many ran for longer. The interviews were recorded using voice recorders, and were coded together – coding being the process of systematically ordering the interview data into thematic sets that are not mutually exclusive. The researchers each had a lengthy topic guide (containing a checklist of questions, grouped thematically), which they used as a reference only, preferring instead to encourage free discussion during the interview. Given that one key aspect of the research was to try to understand creationism and evolution scepticism from the point of view of the creationists and sceptics themselves, it was important not to constrain answers by adhering rigidly to a pre-defined interview structure. Feedback from respondents suggested that the researchers' willingness to allow free discussion was greatly appreciated and played a significant role in enabling the researchers to establish a rapport of trust with interviewees.

recruitment and the sample

The purpose of the research was to study a cluster of beliefs united by scepticism of Darwinian evolutionary theories. One of the challenges of creating the sample was that it involved making certain assumptions about creationism and creationists: for example, the term 'creationist', in itself, does not denote formal or informal membership of a particular organisation, group or association. As formal sampling in such a loosely identified group is not possible, the approach taken was to identify leading spokespeople and others identified as authoritative thinkers in this field.

We aimed to interview those who might be considered thought-leaders, those who either hold a position of religious or academic authority or who write and speak publicly about the issues. This included some who belonged to organisations that specifically aimed to promote or inform on issues of creationism or ID.

An initial sample of 12 vocal critics of evolution was supplied by the Faraday Institute at Cambridge University. Using these 12 contacts as a starting point we then 'snowballed' to find others of like mind – that is, asked these initial respondents for help in identifying others whom *they* felt were influential, as well as in providing contacts with or information about organisations that might provide more respondents. We also spent many hours reading websites and documents available on the internet, and conducting library searches.

Our final sample includes Christians and Muslims, church leaders and ministers, representatives of creationist organisations, academics and teachers, students and one lawyer. Nonetheless there is a bias in the sample towards Christians belonging to independent evangelical churches. The majority of the respondents are also white and male. The reason for these biases is primarily that much of the publicly available material arguing against evolution comes from these sources, and it is from this particular mode of Christianity and this particular demographic that much of the public championing of creationism comes.

It would be wrong to claim that our sample is perfectly representative of creationists in the UK. It is, rather, a sample of people who are vocal on the issue. In this way, there is a bias against, for example, those who may be creationist within larger churches or denominations and those who may be more wary of speaking publicly on the issue. One of the problems in trying to be 'representative', which will become abundantly clear during this report, is that too little is known about evolution scepticism in general to be able to construct a robust set of sampling criteria.

A numbered table of the different respondents, given in the Appendix to this report, may be used to correlate quotes with the different respondents. No names are given, and respondents are identified only with a brief, non-specific description.

issues

Most of those whom we contacted were more than willing to speak to us and provided extensive accounts of their thoughts, beliefs and personal histories. However, a small number of people declined to be interviewed, expressing fears that this study might be used to 'out' them or ridicule them. Given the charged nature of the issue, especially in relation to education, some creationists and evolution sceptics are justifiably fearful that there could be negative repercussions from being publicly identified as such.

This study took place alongside two separate pieces of research carried out by different research teams: a quantitative mapping exercise aimed at providing a demographic picture of beliefs about evolution in the UK, and a separate thought-piece arguing for 'theistic evolution' which refers to the commonly held position that religious teachings, with especial reference to the Christian Bible, are not incompatible with the science of evolution. With regard to the piece on theistic evolution, three respondents contacted us after the interviews, concerned that their views may be used in ways they did not wish; all three respondents rejected the principle of theistic evolution and did not want their views to be used as part of an argument for it.

There are two points that need to be made in response to these complaints. First, the identities of the respondents interviewed during research will be kept anonymous, to safeguard against repercussion. Second, both the research process that formed the evidence collection for this report and the process of writing the report were kept entirely separate from those who worked on the theistic evolution thought-piece. The authors of that piece maintained an interest in our work but did not seek to influence either the research or the findings in any way. This report stands entirely independent of all the other research and writing strands that made up the *Rescuing Darwin* programme.

ESRO is an independent research agency and has no interest in promoting or detracting from any particular standpoint in the debate we are discussing. This report represents an attempt to be neutral on the issues and to give voice to those who are creationists, supporters of ID and/or sceptical of evolution. Wherever possible we have provided quotes from the interviews themselves in order to give voice to those we spoke to.

contested meanings

One of the primary challenges when writing a report like this is in defining and using certain words. For creationists and evolutionists alike what is being fought over is precisely the definition of terms such as ‘science’, ‘evidence’ and ‘theory’. Furthermore, many of the terms come with associated baggage. We have already discussed, for example, the association of the term ‘creationists’ with American religious politics, and how terms like ‘ultra-Darwinist’ or ‘creationist’ are also used as insults. The use of all these terms can therefore often be charged with emotion.

To some extent this report seeks to challenge assumptions about who creationists are and what they believe, but in doing so we are forced to use the very terms that we are challenging and which are so loaded with the potential to cause offence or disagreement.

This chapter proposes an approach to the use of these key terms that will, we hope, demonstrate our intention to steer a neutral path through this minefield.

creationism and evolution scepticism

The term ‘creationist’ could be applied broadly to the large majority of Christians, Muslims and many other religions. As many of those whom we interviewed pointed out, most (if not all) Christians would believe that God is the creator of the universe – in this sense, they are all ‘creationist’. In fact, they would share this belief with Muslims and adherents of other religions. Used in this way, the term does not address specific beliefs about the origins of life or about the extent to which God influences the various physical and social processes playing out on Earth or across the universe but merely the belief that it was God who created the universe.

In practice, the term ‘creationist’ is mostly used in a far more restrictive sense, to identify those who specifically reject the Darwinian evolutionary model as an explanation for the development of life on Earth. More often than not, the label is applied to those who are, even more specifically, identified as Christian evangelicals with a ‘literalist’ view of the Bible¹ and therefore of the story of creation as told in the book of Genesis. These statements, from interviews for this research, perhaps typified this view:

The book of Genesis, where the origins have come from, is not a poetry book: it's a history book.

Director, creation science organisation (1)

Because I believe in the Lord Jesus Christ and that Christianity is a relationship with him...so we can take the Bible seriously and I believe that the creation story is not negotiable. It is not secondary. It's not up for debate.

Author, creationist organisation (26)

The 'typical' creationist, then, is often understood as a 'Biblical literalist' who rejects evolution in favour of the account of creation laid out in the book of Genesis. There will undoubtedly be people who would consider themselves to be Biblical literalists but who do not necessarily reject evolution – but the notion of Biblical literalism can still be useful to us. In this report we use the term 'creationist' to refer to those Christians who specifically doubt the veracity of Darwinian evolution *and* who favour a more literal reading of the account of creation in Genesis.

In as much as creationism could be described as a movement (a question we address in this report), it is also seen as originating, and finding greatest support, in North America – more specifically in Protestant, Evangelical churches in the USA. Despite this, it is clear that many of the ideas associated with creationism have a life beyond the borders of the American continent. 'Creationist' beliefs can be found among Christians of many denominations and from many different parts of the world, from Sweden to Australia and everywhere in between (Coleman and Carlin, 2004).

The British evolutionary biologist Richard Dawkins (among others) has also widened the use of the term 'creationist' beyond the confines of Christianity. He asserts, for example, that "most devout Muslims are creationists"².

He does not use the term 'creationist' here to mean a simple belief that God created the world and everything in it, or to refer only to those who take a literal understanding of the Bible; rather, what unifies all these people under the banner of creationism for Dawkins is their simultaneous rejection of the Darwinian evolutionary, and adherence to a religious, worldview. In this report, we do not use the term so broadly, as it tends to conflate ideas that are not wholly compatible. Furthermore, respondents themselves rejected the notion that, for example, Christians and Muslims could be understood in the same way. For much of this report we restrict our use of the term 'creationist' to Christians. This is as much a tool to make the job of writing and reading easier as to assert a definitive use of the word. In chapter 9 we do use the term 'Muslim creationist', but this should not be understood as implying any *necessary* links between a creationist Christian and a creationist Muslim: on the one hand, respondents themselves reject such a link; on the

other, it would tend to valorise the importance of the common rejection of evolution over and above the theological bases for that rejection.

If we are to understand creationism in the UK, then, we must also understand that we are not dealing with only one specific branch or flavour of Christianity but rather with a set of beliefs, backed by Christian theology, that reject the Darwinian evolutionary model. These beliefs, as we shall see, could be held by a number of different churches, denominations and individuals. But, in dealing with a rejection of Darwin and evolution, as opposed to a specific religious sect or group, we also encounter beliefs and views that are not wholly encompassed by Christian theology. Intelligent Design for example, while sceptical of much of evolutionary theory, claims to be a branch of science and rejects the idea that it is founded on a Christian or religious worldview.³

We have therefore used the term ‘evolution scepticism’ rather than ‘creationism’ to denote views such as these, where the scepticism of evolution does not refer specifically to the Bible. This distinction is to enable the reader to separate the different types of arguments that are presented, rather than as a definitive statement on the issue. Indeed, some will undoubtedly dispute the idea that the two categories are separate. And it is of course the case that many creationists also hold to those ideas that we have chosen to call just ‘evolution sceptical’. It is for these reasons that the title of this report refers to ‘doubting’ Darwin rather than to creationism directly.

Anti-evolutionary beliefs do not necessarily imply anything specific about what people actually do believe about creation, merely what they don't.

Even with the benefit of hindsight, a simple, ideological definition of creationism is not easy to give. Anti-evolutionary beliefs, and the belief in the authority of the Bible on matters of creation, do not necessarily imply anything specific about what people actually *do* believe about creation, merely what they *don't*. It is equally difficult to approach the question the other way round, by first finding creationists and then finding what they believe in common. As we have said, the term ‘creationists’ could encompass a nebulous group, whose beliefs are so divergent that to group them together under one heading obscures the diversity within. In practice, creationism means different things to different people, including, of course, to those who may choose to use it to define themselves. Creationists (as we have called them) do not, for example, all agree on the ways in which the book of Genesis should be understood. And, although some will accept the arguments made by advocates of Intelligent Design, others do not. Similarly, a supporter of Intelligent Design may not necessarily believe that the Bible stands above science in all matters, or that all Biblical passages should be read literally.

In this report, we aim to unpack those beliefs and views which seem to be part of a creationist 'worldview' and to identify those views which might better be referred to as 'evolution sceptical', such as Intelligent Design. It is worth remembering, however, that the use of the terms will always depend on where one stands within a debate about evolution. For many, the key defining feature of the creationist is the rejection of evolution on religious grounds, but such a broad-brush generalisation would encompass people who would not necessarily see themselves as being particularly united by this issue. For many Christian evangelicals the key defining issue is actually the authority of the Bible and Christian theology, and they would not see themselves as in any way similar to, for example, a Muslim evolution sceptic, whether or not that scepticism is founded upon an understanding of the Qur'an.

In this report, we have tried to take a neutral stance towards the debate about evolution and creation and we have tried, as far as is possible, to define our terms and use them in an uncontroversial way. Nonetheless we aim to present creationism and evolution-sceptical thought from the point of view of those who *are* creationist or evolution sceptic. In doing so we are bound to displease some. Just as the term 'creationist' is contested by those who are often labelled as such, so the creationist use of terms like 'science', 'scientific' and 'evolutionist' are often disputed by 'evolutionist scientists'. In this sense, by representing one view, we cannot help but offend the other.

Darwinism and evolutionism

The publication of Charles Darwin's theory of evolution in *On the Origin of Species* in 1859 marked the beginning of a new, publicly embraced, *scientific* paradigm for understanding the origins of life. The theory uses a number of ideas and principles and combines them to give a grand narrative of life on Earth. It takes us from a single common ancestor, many millions of years ago, to the teeming plethora of flora and fauna that we now see. It describes how, through the processes of reproduction, inheritance (or descent with modification), population pressures, competition for resources and natural selection, the deep complexity and vast array of life on Earth has multiplied and evolved over time.

Although Darwin's work was not the first to use evolutionary ideas (his own grandfather had used the term before him⁴) it was *On the Origin of Species* which took hold in the popular imagination.⁵ The notion that complex life can evolve from the simplest of cells, that animals which think and breathe, even walk and talk, were once organisms floating in a 'warm pond' full of primordial soup, is still linked quintessentially with Darwin. Today, it is Darwin who receives wide attention and who is credited with being the founding father of a revolution in thinking about the question of how it is that we are here.⁶

Despite the advent of genetics, which now provides the basis for our current understanding of evolution, modern appraisal of Darwin's original work from within the scientific community is still characterised by superlative descriptors revelling in its 'greatness', 'elegance' or 'brilliance'. Such high regard exists perhaps for two reasons. The first is the very scale and scope of the theory, in both geographical and historical terms – a facet that Darwin himself explains in the final paragraph of his famous book:

There is grandeur in this view of life, with its several powers, having been originally breathed into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved.

The second is its durability. Darwin's theory has, for most scientists in the UK, withstood the twin tests of time and scientific enquiry. Debates over exactly what Darwin may have meant or how well he understood the principles of inheritance notwithstanding, his picture of the struggle for life, of the unending competition over natural resources, natural selection and 'descent with modification' have all proved to be enduring concepts. Indeed, the growing evidence found in fossils, together with the discoveries of geneticists, have served, for most scientists, only to bolster the theory of evolution.⁷ As the prominent American biologist Stephen Jay Gould said of the various scientific debates around evolution in his publication *Evolution as Fact and Theory*, "amidst all this turmoil, no biologist has been led to doubt the fact that evolution occurred; we are debating how it happened"⁸.

But there are also grounds to suggest a third reason for the effusive flattery of Darwin today. The same ebullient words which are used to describe Darwin's work to scientific audiences and students are also used in articles and books written in *defence* of science and evolution against a perceived attack from religious quarters. It is the very genius of Darwin and his theories that is sometimes invoked to strengthen the case for evolution and often science as a whole. In the atheist polemic *The God Delusion*, Richard Dawkins rails against the argument that evidence of God's design can be found in nature, with just such language:

Far from pointing to a designer, the illusion of design in the living world is explained with far greater economy and with devastating elegance by Darwinian natural selection.⁹

And later with more force:

Thanks to Darwin, it is no longer true to say that nothing that we know looks designed unless it is designed. Evolution by natural selection produces an excellent simulacrum of design, mounting prodigious heights of complexity and elegance.¹⁰

For Dawkins, Darwin and his theory of evolution provide the key battleground in an ideological war between science and religion. He counters the notion that the wonders of the natural world give us cause to celebrate the glory of God with the notion that the very 'elegance' of Darwin's theory lies in the fact that it tells us how such wonders came about without the need for God. Darwin appears as both the focus of a supposed attack and the best means of defence.

The biologist Steve Jones has also stoutly defended Darwin's theories of 'descent with modification' and 'natural selection' against the perceived challenge of so-called creationist views on the origins of man. In 2006 he gave a lecture at the Royal Society with the title 'Why Creationism is Wrong and Evolution is Right', a title that bluntly outlines the way in which the two are seen as directly opposed. And in an interview with *Science and Spirit* in 1999, he is similarly to the point:

What Darwin called descent with modification is so simple, it's impossible not to believe it.¹¹

For Dawkins, Darwin and his theory of evolution provide the key battleground in an ideological war between science and religion.

Darwinism or evolutionism, then, seems to mean more than just simply holding to Darwinian principles of evolution (many thousands of people in the UK will do this without devoting much thought to it); it also means representing or defending the man or his theories in the context of a debate over their validity.¹² In this report, we use the terms Darwinist or evolutionist to refer specifically to those who champion Darwin and his theory publicly and in response to creationists. In

this sense, an evolutionist is more than just 'someone who believes in evolution' and is, rather, an active campaigner for a belief in evolution. Our usage here is drawn from the ways in which our respondents referred to Darwinism and evolutionism, and in this sense our report will remain consistent in its use of the terms.

Steve Jones' comment also provides us with our point of departure. As we will show, despite its simplicity, there are many who find cause *not to believe* in Darwin's theory.¹³

the debate

In the end this is a spiritual battle not a scientific one. And the Darwinists are becoming more and more evangelical. This battle is going to get worse on both sides.

Science teacher, secondary faith school (33)

As we have said, it is difficult to give a coherent ideological definition of creationism. However, creationists themselves can often be identified by the fact that they take part in or engage with a debate over evolution. This debate is often carried out publicly, in newspaper articles, TV journalism or on internet weblogs and forums. Indeed, in many cases this was exactly how we identified potential respondents.

A central thrust of our findings suggests that rather than seeing a coherent constituency of creationists with a certain set of cultural features and beliefs, creationism is better understood as a *label* given to (and only sometimes accepted by) certain people, based on their position in the debate over the veracity of Darwinian evolution.¹⁴ Some of these creationists may well belong to the same organisations or churches and may well hold similar beliefs; others may not.

The different sides of the debate are seen differently depending on where one stands within it. That is to say, an evolutionist or a creationist is characterised, and sometimes *caricatured*, differently depending on whether one is oneself a creationist or an evolutionist. Such caricatures are keenly felt by many of our interviewees:

There is a stereotype that creationists aren't worth talking to. Or it is platitudes and put-downs. There is painting of creationists as medieval and not worth discussing with. People don't think that we are engaged in science, but that just isn't true. It's definitely an unfair playing ground at the moment.

Minister and author, independent evangelical church (24)

Many of our respondents felt that they were being attacked or derided for the beliefs they held, and it was common for interviewees to make an appeal to us, as researchers, to give some kind of redress to this issue in this report. It was through stereotype and derision, they argued, that they were silenced, at least in the mass media.

The problem of caricature and stereotype is exacerbated by the fact that the public debate over evolution can often extend into other arenas. For Richard Dawkins, the debate over evolution is part of a much greater argument between atheism, science and religion, as we have seen. Similarly, for an evangelical Christian, evolution may be seen as only a small part of a generally undesirable trend towards the secularisation of society. In

the US, stances on evolution have also entered mainstream political invective. The creationist views of the 2008 Republican Party vice-presidential candidate, Sarah Palin, for example, were seen as having political significance by voters and commentators on both the right and the left of the political spectrum. Her beliefs were both praised and mocked. And sometimes the language of the debate descended into sweeping generalisations, *ad hominem* attacks and plain insult, as this piece of internet journalism illustrates:

Sarah Palin: a blithering idiot who could destroy science...¹⁵

The blending of the issue of evolution into much wider debates means that figures on both sides often conflate many issues and stances. A creationist, for example, is not just seen as a Biblical literalist and a rejecter of evolution but often also as being right-wing politically and opposed to science in general. On the other hand, but in a similar way, creationists can sometimes conflate evolutionists with scientists in general or with atheism and a movement towards the greater secularisation of society. This trend, from both sides, means that the language and terms of the debate over evolution can take on a much wider significance and draw in ever more aggressive and polarising totalising viewpoints. In turn this can lead to a building of caricatures which prevent deeper understanding of the issues involved.

In writing this report, then, we are treading a minefield of overlapping but conflicting and often irresolvable viewpoints, heated personal arguments, loaded terms and left/right political hostilities. In the preface to *Cultures of Creationism*, the anthropologist Christopher Tourney notes that, even in taking a non-critical, 'neutral' stance towards creationism and choosing not to focus an argument on its 'dangers', authors are criticised for being too sympathetic to creationists.¹⁶ And in their introduction to the same publication, the editors note that, despite taking a stance perceived as 'soft on creationism' by those who reject it, they were nonetheless accused of being biased *against* creationism by creationists, for not having included an identifiably creationist article in their collection.

We have chosen to refer to this very public and ongoing struggle between creationists and evolution sceptics on the one hand and evolutionists on the other as 'the debate'. We use this term to refer not only to the technicalities of the argument over the truth of Darwin's theory of origins, but also to the polarised way in which the argument is conducted and portrayed through the media.

For our respondents, the debate is certainly real. They were not unified in their insistence upon engaging directly with it but they knew where they stood nonetheless. As a general rule, those whose daily work consisted mainly of administering a church were less likely

to have engaged directly with the more technical arguments of the debate and were less likely to have sought actively to enhance or promote their 'side' publicly. Those, on the other hand, whose main activities included writing, thinking or teaching about matters of creationism specifically (such as those who worked in creationist organisations) were far more likely to have engaged directly with evolutionists or to have published work which directly addresses evolutionary theory.

To gain an understanding of the ways in which the debate is conducted and the ways in which creationists feel they are positioned within it, one could look to this vivid description given by one leader of a creationist organisation:

Many of our respondents felt that they were being attacked or derided for the beliefs they held.

You have to have skin as thick as a pig to be a creationist, because you will get slandered. The BBC has labelled the clip of Dawkins interviewing John Mackay [a leading creationist researcher] on their website 'An Unreliable Witness'. There is also one website from an anti-creationist bunch of atheists. On there I am described as a 'slimy lying toad' ... I couldn't be in this ministry if I was bothered about my own personal prestige.

Creation science author, creation science organisation (26)

chapter 2 - references

1. Some of our respondents pointed out that 'literalism', with regard to Biblical understanding, is itself a contested term and also that understanding the Bible literally does not mean that everyone will understand it in the same way. We will talk more about this later.
2. Rosie Millard, "Review Interview: Richard Dawkins," *The Sunday Times*, 3 August 2008: (accessed 10 January 2009).
3. There is some controversy around the claim that ID is indeed a legitimate branch of science or that it is wholly dissociated from creationism. We deal with this in some detail below.
4. "From having observed the gradual evolution of the young animal or plant from its egg or seed..., philosophers of all ages seem to have imagined, that the great world itself had likewise its infancy and gradual progress to maturity." Erasmus Darwin, *The Botanic Garden* (Jones and Company Books, 1825).
5. *The Descent of Man*, which Darwin published 12 years after *On the Origin of Species*, put beyond question whether or not the processes of evolution also applied to the development of mankind. For Darwin, man was essentially an evolved animal. Even our apparent consciousness was, for Darwin, an evolved attribute: "there is no fundamental difference between man and the higher mammals in their mental faculties." Michael Ruse *Charles Darwin* (Blackwell Publishing, 2007), p. 159.
6. Ibid.
7. Creationists and evolution sceptics dispute this fact, as we shall explore below.
8. Stephen Jay Gould, *Evolution as Fact and Theory. Hen's Teeth and Horse's Toes* (Norton, 1981).
9. Richard Dawkins, *The God Delusion* (Bantam Books, 2006), p. 2.
10. Ibid, p. 79.
11. Kate Prendergast, "Updating Our Origins – Biology, Genetics and Evolution: An Interview with Steve Jones," *Science and Spirit*, 1999.
12. Here we are looking at the terms 'evolutionist' and 'Darwinist' through the lens of the issue of creationism and anti-evolutionism in the UK. We are aware that within the scientific world there are further debates surrounding the terms 'neo-Darwinist', 'ultra-Darwinist' etc., but these are far beyond the scope of this study (see, for example, Stephen Jay Gould, "Darwinism and the Expansion of Evolutionary Theory", *Science* 216: 4544 (1982), pp. 380–7.
13. The authors are well aware that evolutionary ideas and theories existed before Darwin's publication of *On the Origin of Species*. For the sake of clarity we have chosen to use Darwin's theory as a focal point for discussion. There are three reasons for this:
 - Darwin is a familiar point of reference when discussing evolution, for scientists, sociologists, theologians and laypeople alike. We are trying to write for a broad audience.
 - There is not the time or space within this study to give either a full account of the history of evolutionary biology or of the myriad technical arguments which attend it.
 - This study was commissioned with mind to the 150th anniversary of the publication of *On the Origin of Species* and aims specifically to examine sceptical attitudes to Darwin's theory of evolution.
14. Hereafter we use the shorthand 'the debate' to refer to the ongoing debate in the public domain between evolutionists and evolutionary biologists and those termed creationists or proponents of Intelligent Design, over the validity of Darwin's theory of evolution.
15. <http://biochemicalsoul.com/2008/10/sarah-palin-a-blithering-idiot-that-could-destroy-science-and-medicine/> (accessed 1 January 2009).
16. Simon Coleman and Leslie Carlin, eds., *Cultures of Creationism* (Ashgate, 2004).

Young Earth Creationism (YEC), Old Earth Creationism (OEC), Intelligent Design (ID) and self-ascription

Creationism can take many forms and may involve many different arguments and beliefs. Creationists themselves may hold to one, some or all of these different arguments. They may give different levels of importance to them. And they may also be willing to adapt some while holding strictly to others.

One of the more common ways of distinguishing between creationists, however, is the distinction between 'old Earth' and 'young Earth' creationists. The difference between Old Earth Creationists (OECs) and Young Earth Creationists (YECs) lies in the interpretation and understanding of the Biblical narrative of creation and its implications for understanding the age of the Earth. The difference on this issue of the age of the Earth has come to be associated with a much broader difference between those who are 'strict' in their interpretation of the book of Genesis and those who are less so.¹ In this way, YEC and OEC have come to represent a kind of 'hard' and 'soft' creationism. In practice, the distinction is less clear. While OECs certainly hold a position which is more compatible with certain scientific understandings of the world, it should by no means be inferred that OECs are therefore 'softer' on their stance towards evolution. Both YECs and OECs reject evolution and both can be equally vehement in doing so.

A third term commonly associated with both creationism and evolution scepticism in general is Intelligent Design (ID), which refers to a kind of scientific enquiry and theory that rejects aspects of evolutionary theory, rather than to a type of person, although supporters of ID are increasingly known as 'IDers'. There are also references made to the 'ID movement' by creationists and evolutionists alike. Along with the distinction between YECs and OECs, ID has become yet another key term in the debate. ID is not opposed to either YEC or OEC and supporters of it will come from both positions.

Below we briefly describe the important aspects of each of these three key labels and demonstrate the, at times contrasting, ways in which our respondents accepted or rejected them for themselves. In doing so, we hope to show that the language of the debate, in which these terms are often used definitively, can serve to mask the underlying belief systems which are fundamental to the creationists' sense of their own identity.

Young Earth Creationism (YEC)/‘six-day creationism’

‘Young Earth Creationist’ is the label given to those who believe that the account given in Genesis of God creating the world in six days can be taken as a literal truth: in six 24-hour periods God set in place the heavens, the Earth and all of life therein. For YECs, the age of the Earth is taken to be somewhere between 6,000 and 10,000 years, as derived from the genealogies and ages of the people described in the Bible. This view, in and of itself, is not related to the rejection of Darwinian evolution except in the sense that Darwinian evolution is understood by its supporters as having taken place over a much longer time period than this view of the age of the Earth allows.

The quotes below typify the ways in which a YEC position was presented to us:

I believe the Bible to be true from the very first verse. I take a plain reading of scripture and that informs all of my other beliefs ... I believe that God made the Earth in six days. Some would say that it is a classic YE Creationist view but I prefer to say that it is a Biblically accurate view.

Minister, creationist organisation (17)

Genesis is accurate. God created it in six days. Literal days. I am a Young Earth Creationist. Genesis. Bible. Flood. The lot.

Creationist author (7)

The Bible is not ambiguous. I believe the world is around 6,000 years old, as it says in the Bible, and that God created it, as it states in the Bible.

Minister, African evangelical church (22)

Recent studies have suggested that YEC is now the dominant form of creationism in North America.

Such explanations are both simple and emphatic. They leave little room for argument. The Bible is presented as an unquestionable authority on the creation of the Earth and the words of the Bible are taken to be literally true, in no need of any particular interpretation. YEC is inseparable from this kind of literalist reading of the book of Genesis.

Of the 42 interviews we conducted with Christian creationists, just over half described themselves as believing in a young Earth and as having a commitment to the literal reading of the account in Genesis. Recent studies have suggested that YEC is now the dominant form of creationism in North America and that it is gaining ground among creationists elsewhere.²

There are perhaps two practical reasons for the ascendancy of the YEC position. The first is to do with the fact that much of ‘creation science’ (which we deal with in greater detail below) has been conducted by YECs. This growing field provides evidence for creationists that scientific knowledge of the world and Biblical knowledge *are* compatible. The most famous strand of YEC science is perhaps ‘flood geology’ (or ‘floodism’), which seeks to explain the *apparent* old age of the Earth with reference to a ‘catastrophic’ flood that covered the Earth and then drained away very quickly to leave the different geological formations we see today.³ This flood, it is argued, occurred relatively recently in the Earth’s history. Such a theory coincides with the narrative of Noah’s flood in Genesis chapter 6. This kind of theory can be used not just to challenge prevailing scientific orthodoxies but also to persuade other creationists of the truth of a YEC understanding of the Bible.

The second reason for the ascendancy of the YEC position is that YECs have a dogmatic view of the age of the Earth and are therefore keen to persuade other creationists of their position. Many books written and published by YECs, for example, aim squarely at a *creationist* audience. By contrast, the OEC position is less clear and is itself subject to division.

Old Earth Creationism (OEC)

Old Earth Creationism (OEC) is the label given to those who believe that the Biblical account of creation allows for the Earth to be old, even on the timescales suggested by evolutionary and geological theory, but who still see the Biblical account of the origins of life as being at odds with evolution.

There are potentially many different OEC theories and interpretations of Genesis, but the two most widely known are the ‘gap theory’ and the ‘day/age’ theory. ‘Gap theory’ refers to the idea that there could in fact be a very long time (or ‘gap’) between the events described in Genesis 1.1 (‘In the beginning God created the heaven and the Earth’) and those in Genesis 1.2 (‘And the Earth was without form, and void; and darkness was upon the face of the deep. And the Spirit of God moved upon the face of the waters’).⁴ In this view, God still did much of creation in six literal days, but the ‘gap’ explains why the Earth appears to be so old.

The ‘day/age’ theory differs in that it refers to the belief that the ‘days’ of creation could have been much longer than 24 hours. This interpretation of Genesis rests on the interpretation of the Hebrew word ‘yom’ (‘day’), which can also be translated as ‘age’. In this sense the ‘six days’ of creation could refer to ‘six ages’ of indeterminate length.

In practice, none of our OEC respondents referred to themselves solely in terms of either the 'gap' or 'day/age' theories, but rather maintained a kind of agnosticism as to the length of time that may have been involved in Genesis. Furthermore, the majority of our OEC respondents did not see themselves as antagonistic to the YEC position but rather as still engaged in enquiry about the issue. The equivocation of our OEC respondents contrasts markedly with the emphatic responses of those who held a YEC position:

I can't say that I am YEC because that would mean that I have a specific idea about the age of the Earth, which I don't. I admit there are a lot of questions with current science but I don't claim to know the answers to those questions.

Lecturer, theological college (9)

Young Earth, there is maybe something going for, but I can't find that central thing. I am a lapsed Young Earthist. They may be right. However... at the moment I haven't come up with a really good and satisfactory answer about Old Earth Creationism either. A day can be an age, not a literal day. I am not totally satisfied with that or my belief that the Earth is 4.5 billion years old. So I am probably slightly agnostic on this issue.

Principal, theological college (27)

There are problems saying they were 24-hour days, because the sun only comes into existence on day 4. Before that it [Genesis] talks about evening and morning. Although... I think talking about a day as a geological age is also problematic because you are importing ideas from today into a historic text from thousands of years ago.

Minister, independent evangelical church (40)

I am a bit on the fence when it comes to the age of the Earth. You might say, there are different camps. The fundamental issue for me is creation or evolution. The age of the Earth is a secondary issue ... There are three forms of creation theory. I do believe the YECs in that Genesis 1 should be read literally and that the days were 24-hour days. In that sense I don't go along with the OEC about each day being a million years. However, I do uphold the gap theory as a possibility, which the YECs don't like. That basically says we can have an old universe – so it is possible that there was an original creation of the universe, and this hazy period where darkness covered the Earth and then God said 'Let there be light...' so that view I uphold as a possibility ... I think the Bible leaves open the possibility of an older universe.

Minister and author, independent evangelical church (24)

Both YECs and OECs argue from a position of Biblical authority but differ on how to interpret the language of Genesis. This does not imply that OECs take a 'less literal' view of the Bible but rather that they find a different truth in the literal words of Genesis. The self-ascribed 'agnosticism' is not over the age of the Earth *per se* but over the meanings of words like 'day' and 'age', which in turn have implications for the age of the Earth. The two views represent a theological division among creationists. It may be tempting to suggest again that what unites the two strands of thought is a rejection of evolution, but their common position on the belief that the Bible is an authority with regard to creation is perhaps more important than the common, but subsequent, rejection of evolution.

It is not necessarily an interpretation of the first two verses of Genesis that leads to a theological rejection of the truth of Darwinian evolution.

Although both terms creep into the debate over evolution, being YEC or OEC does not in itself imply anything necessarily about beliefs regarding the truth of evolution; rather, they are positions on the age of the earth (as taught by the Bible) which have implications for beliefs about evolution. Although there appears to be greater compatibility between evolution and an OEC position, there is no strict correlation between them, merely a coincidence of timescale. As we shall see below, it is not necessarily an interpretation of the first two verses of Genesis that leads to a theological rejection of the truth of Darwinian evolution.

OEC and YEC are both creationist positions and they both believe in the importance of design [as opposed to evolution]. That is what is important. Obviously there is a huge difference between them ... OECs accept some of the scientific picture; YECs question everything. Theologically, though, there is not a huge difference.

Lecturer, theological college (9)

Intelligent Design (ID)

The term 'Intelligent Design' is often used to describe a third strand of creationist thought, but it is an idea which is separate from YEC or OEC positions, dealing with an entirely different kind of argument. It refers to the idea that certain complex phenomena found in nature can only be explained with reference to an Intelligent Designer. ID proponents, however, often make no reference to who or what the designer might be. Indeed many

proponents of ID specifically avoid any reference to the nature of the designer and oppose attempts to suggest that the theory points to the existence of God as revealed by any particular religious text. The theory simply proposes that there is scientific evidence for there being a guiding hand in nature, as against the position that evidence for evolution shows a process of random development through natural selection.

ID is also sometimes referred to as a 'movement' in the sense of being an idea which unites those working towards a common goal of questioning evolution. There is not yet a generally accepted term for those who hold to ID or who actively engage in promoting and furthering its arguments and ideas, but some of our respondents did refer to themselves or others as IDers.

By using scientific language, and evidence gleaned from scientific studies, ID proponents refer to ID as being a branch of science. Critics often reject this viewpoint, arguing that ID is not only *not* a science but is also inherently anti-scientific.⁵ It is important to note, however, that ID aims to stand apart from creationist or theological arguments and seeks to be judged on solely scientific terms. Proponents of ID see it as a way of understanding the world around us with reference to the scientific method, not with reference to Biblical authority – hence the insistence that ID itself tells you nothing about the nature of the designer.

We go into much more detail about ID below. For now suffice it to say that ID is compatible with either Young or Old Earth Creationism. Both YECs and OECs can and do identify with ID. However, there is a common misperception that all creationists are to some extent supporters of ID. Although most creationists will of course agree that God's hand is evident in nature, by no means all of them support or promote ID. It is also worth noting that not all of our respondents were familiar with ID. Some had heard of it but were not yet able to say where they stood on the issue. Others simply had not come across the term, let alone the 'movement'. This was especially true of those working in churches that had their roots overseas or with congregations that came largely from overseas, but it applied to some other church ministers, too.

self-ascription

I'm an evangelical Christian. I am born again. I would describe myself as a conservative evangelical Christian. By evangelical I mean that I am a Bible-reading Christian. I believe the Bible to be true from the very first verse.

Creationist author, various creationist organisations (43)

Some understanding of the labels that we have mentioned above is critical for an understanding of much of what follows. However, as we have already said, each term comes fully loaded, and some of our respondents expressed a great reluctance to accept them:

Oh, I avoid those terms [YEC and OEC] like the plague because of the baggage that comes with them. If you say you are one of those, then people think you don't know anything about science or that you must be some ranting, crazy from the Southern states of America. Actually I think that is a bit of a caricature, too...but still I don't want that.

Maths teacher, secondary school (34)

Occasionally the language that surrounds labels including the term 'creationist' can also be seen as misleading (and in some cases insulting or threatening, as we have seen):

I wouldn't go up to someone and say, 'Hi, I'm a creationist' but that's because of the way they are seen in the media. I believe in creation but not of the type that they usually mean when the term is used.

Presenter, Christian media (29)

The same is true of the ID label. More than one internet weblog, for example, uses the term 'ID-iot' to refer to those who speak out in favour of ID. On a more sinister note, some of our respondents feared that being *outed* as a creationist or supporter of ID might have professional consequences:

We want to promote ID but, as you know, it is a controversial topic and people have lost their jobs over it. I don't want to put anyone at risk.

Lecturer, theological college (13)

Another respondent referred us to a film which detailed cases in which teachers and professionals had lost their jobs for openly admitting to being supporters of ID or being creationist. Of course, the terms carry different weight and different controversies depending on situation. The respondent quoted above, for example, taught at a college and feared for his and others' academic positions. For others, whose daily work largely takes place within a church or creationist organisation, the labels are perhaps less threatening.

For some the labels are divisive *internally*. They cause friction among Christians themselves and are therefore to be avoided:

I might go along with many of their intellectual arguments [YECs and OECs] but I don't go along with the way they present themselves or their information – there would be an aggressiveness and it would be all-consuming. Whereas for me this is not all-consuming.

Minister, Baptist church (25)

One of the popular speakers on behalf of the YE view, I do get concerned sometimes because he does have a dig at the OE Creationist people. His view is quite firmly held. But I do not see the need for that kind of militancy. I do not encourage my congregation to take that view or to go and see him speak.

Minister, independent evangelical church (21)

Certainly I am an IDer or I support Intelligent Design ... I support OEC and YEC but they have baggage...therefore it can be difficult to align with them. A friend of mine has been deliberately trying to frustrate those terms by referring to himself as a 'Young Earth evolutionist' or a 'floodist', by which he means that, 'Yes, I absolutely believe in evolution so long as you give me a Young Earth'. YEC is almost now a political statement. Most people would call me YEC but I resist that term because of its baggage.

Lecturer, theological college (13)

The reference to YEC being a 'political statement' is a comment on the way in which some YECs see OEC as a 'cop-out', as not being strict enough in its understanding of the Bible. YECs who take this view can be very firm in their insistence that OECs ought to shift their position to a YEC position. As one YEC put it:

Some of our respondents feared that being outed as a creationist or supporter of ID might have professional consequences.

Old Earth Creationists have missed the point. OECs are neither one thing nor the other. They are opening up to compromise. I believe if they took the time to really read the Bible and seriously consider what is written there, they would see that it is not really up for debate.

Minister, creationist organisation (17)

Others, less troubled by the potential conflicts, felt quite comfortable being labelled as Young or Old Earth Creationist and felt that it was an open and important part of their identity. Organisations such as Answers in Genesis and the Biblical Creation Society, for example, are clear about their Young Earth position and, as their names imply, are unambiguous about where they feel authority for this lies.

And yet, despite all this discussion over the meanings of these terms and the personal struggles or pride in taking them on, the terms were invoked in only two of the interviews

in answer to the rather direct question: 'How would you define your own beliefs?' In 50 interviews, not one single respondent replied to this question with the simple answer: 'creationist'. Two respondents *did* define their beliefs according to Young Earth Creationism. In every other case the answers that came back used an entirely different language. Muslim respondents simply answered in every case that they were 'Muslim'. Likewise Christian respondents, as the first description of their beliefs, described themselves most often as 'Christian', with other terms attached, such as 'traditional', 'orthodox', 'evangelical', 'charismatic', 'conservative-evangelical', 'born-again'.

Two aspects of this Christianity were often emphasised more than others. The first was that they saw themselves as part of a long Christian tradition. The fact that they might also reject Darwinian evolution did not mean that they in any way saw their brand of Christianity as a historically recent phenomenon. Rather, they saw themselves as sharing their beliefs with those who lived far back in history. The second was the centrality and authority of the Bible.

I am a traditional, orthodox Christian. I am a Christian theist, meaning it really is the central version of Christianity down the ages. I suppose another way to describe it these days is evangelical...Bible believing.

Science teacher, secondary faith school (12)

There have been views like mine for many hundreds of years. I share my beliefs with true Christians through the ages.

Creation science author and retired minister, Church of Scotland (16)

I see it as a long tradition that goes right back to the time when God himself created the world in six days.

Minister, creationist organisation (17)

I am Christian. Of the Evangelical persuasion. We are Christ-centred and very much focused on the gospel. We have a very high view of scripture.

Creationist author and theologian, several creationist organisations (4)

We could fill several pages with similar quotes from some 80 per cent of the respondents. There would be subtle differences in the respondents' personal history, the churches they have attended and the ways in which their current beliefs were formed, but they would be largely similar in their reference to being part of a tradition and in the insistence upon the authority of the Bible.

There is, of course, much more that could be said and studied about these kinds of worldviews or descriptions of beliefs, most of which is far beyond the scope of this report. Nonetheless, it is perhaps a measure of the way in which the debate is constructed that

creationists and evolution sceptics are often thought of and described according to their *creationist* beliefs rather than being seen as, first, Christians or Muslims. Some of our respondents were frustrated that creationism was often understood solely in terms of its response to evolution rather than to their faith. As one respondent put it:

I don't have one hat on for being a Christian and one hat on for being a Darwin sceptic. I am the same me!

University lecturer (15)

Perhaps all these labels are used more comfortably by those who do not hold to the positions than by those who do. The terms valorise one specific aspect of a belief system, the aspect of creation and/or the rejection of evolution, thereby conflating people and doctrines that may actually be quite different, possibly even opposed. This suggests again that creationism is, more often than not, understood solely through the lens of the debate over evolution, rather than as a particular part of a religious worldview. The labels also ignore the ways in which people talk about themselves, failing to acknowledge those beliefs which are the foundations of faith and identity: evangelical Christianity or Islam, the authority of scripture, and the importance of the centrality of God in trying to understand the world.

chapter 3 - references

1. We will explore in later sections why this distinction is important theologically and what the implications of it are for the ways in which different creationists reject evolution.
2. See, for example, RA Eve and FB Harrold, *The Creationist Movement in Modern America* (Twayne Publishers, 1991).
3. 'Catastrophism' more generally can refer to any large-scale event in the Earth's history which has wrought dramatic changes on the landscape.
4. Taken from the King James Bible.
5. See for example, Kevin Padian and Nicholas Matzke, "Darwin, Dover, 'Intelligent Design' and Textbooks", *Journal of Biochemistry*, 417, (2009), pp. 29–42.

religious belief, theology and evolution

Initially this research was conceived as an attempt to understand the modes of thought that lie behind the rejection of Darwinian evolution in the UK today. We have discussed at great length the problems inherent in trying to fix the parameters of such a discussion and the dangers in trying to see evolution scepticism as a single strand of thought which can be used to push different types of people together. Perhaps unsurprisingly then, scepticism of evolution, as it was presented to us by our respondents, did not appear as a coherent dogma which can be simply laid out as a set of bullet-pointed thoughts.

For many of our respondents, rejection or scepticism of Darwinian evolution was a stance which had developed over time and through consideration of different arguments, after they had been exposed to different influences and competing arguments. So varied and diverse were the views and arguments we collected, that it would be impossible even to summarise them all here. Instead, we have tried to draw out different strains of thought or argument in order to give the reader some understanding of the reasons for rejecting, or being sceptical of, evolution.

It would also be fair to say that, since our respondents knew that our study was focused specifically on the issue of evolution, some came *prepared* to speak on the issue. Perhaps because of this, arguments were sometimes presented in a strategic and argumentative way, with mind to the wider context of the debate. Respondents were open about wanting to make us aware of, and to clarify, their position within this debate. Many felt that their views were being misrepresented or under-represented publicly, so our interviews were seen as an opportunity to bring the arguments to a wider audience in a more neutral context. We have tried, as far as is possible, both to recognise the concerns of our respondents and to illustrate in our report where the arguments we present were made in this way.

Broadly speaking, the arguments and considerations that make up scepticism of evolution fall into three categories. The first is a theological strand of thought in which evolution is seen as being at odds with scriptural evidence and Biblical truth and knowledge. The second strand of argument is one based on, or over, science and evidence. The third might be called 'sociological', in that it deals with concern over the implications of evolution for humankind and society.

None of these strands are mutually exclusive and elements of each overlap with the others. Respondents presented arguments from all three strands to a greater and lesser extent, both in tandem and separately. Science and religion were not seen as different domains of knowledge by the majority of those we interviewed. We separate them here for the sole purpose of rendering the arguments legible to those who stand outside the debate. In the conclusion we sound a specific warning about trying to understand these arguments in isolation from each other.¹

Consider, for example, these thoughts of one theological scholar, which seem to combine all aspects of the theological, scientific and sociological arguments against evolution:

Certainly it's 50/50 now. In my advocacy of Intelligent Design I might say that evolution is wrong. Scientifically, that is to say. But the way in which I got there is through a sense of dissonance with my beliefs. It is wrong to say that I started with my scriptural beliefs and therefore looked round for a way to oppose it [evolution] ... I was a frustrated Bible believer for many years, not knowing that there was a solution to the problem and part of that solution came from my study of physics. The opposition to Darwinism, then, is not simply a reflection of my theistic beliefs. It is motivated by that, because I find truth to be such an important concept and I have a theological concept of truth that drives me. But I think that, as it stands now, it's the sheer wrongness [of evolution] in scientific terms that bothers me...and, more than that, the social consequences of that sheer wrongness. I think ideas are not ideologically neutral. By definition.

Lecturer, theological college (13)

In this chapter we deal with the theological and sociological arguments against evolution made by Christian creationists. We acknowledge, however, that these arguments should not be seen as a complete picture, nor as forming one complete side of an argument. Rather, they should be read in conjunction with the following chapter relating to science and evidence, with an understanding that the two are seen as overlapping, dealing as they do with what respondents believed were a single set of truths evidenced in *both* science and scripture.

Biblical theology and the encounter with evolution

The notion, articulated in the scholar's quotation above, of there being an initial sense of dissonance between religious beliefs or Biblical teachings, and the world as presented through the science of evolution, was repeated in many of our interviews. For many, the feelings are described as beginning in childhood or in youth:

I don't think I have ever really been taken with evolutionary theory. I have always believed in God ever since I was a young and it has always seemed sensible to me that God was behind the origins of the universe and the earth.

Principal, theological college (27)

I was a very middle-of-the road Methodist. There was always a question about how the world came about and what I believed about God did not fit perfectly with evolution. But I didn't worry about it too much at that time.

Creationist author (7)

Part of the reason why I came to faith was I was teaching things in science and there were too many questions in my mind and I felt I had to explore 'Is there a God?' ... Before I became a Christian...I was an evolutionist because I had to be.

Science teacher, secondary faith school (33)

It was in my teens that I was trying to fit these ideas together, you know, while I was learning about evolution ... 'Were Adam and Eve literal people?' And I remember talking to my dad in the car and asking him, and I came to a fairly happy understanding that it doesn't have to be literally true. It wasn't something that dominated my life at that point.

Presenter, Christian media (29)

Children are seen as being naturally imbued with a sense that the world has been designed and created. This natural sense is then dampened or counter-balanced by evolutionary teaching.

I had come to faith when I was about 8 or 9. And I was reading the Bible and when I was about 10 or 11 I realised that there was a conflict between the Bible and what evolution was teaching. And even then I started to dismiss evolution on the basis that there must be something wrong with it. And then when I started to read science and physics and biology I began to come to the position I now hold.

Minister, independent evangelical church (14)

For some, though by no means all, of our respondents, a childhood sense that the world has been created is a common experience. Children are seen as being naturally imbued with a sense that the world has been designed and created. This natural sense is then dampened or counter-balanced by the orthodoxy of evolutionary teaching, which in turn becomes normalised. In this way, a natural understanding of God's role is seen as being supplanted by an evolutionary view in which God's role is diminished.

This view is, to some extent, tempered by those who felt that they grew up in a religious environment in which questioning of evolution was quite accepted. Even among these

respondents, however, it was felt that education in the UK took evolution to be a given and it therefore required a curious mind and a questioning attitude to see beyond it:

I was a pain in the neck to the biology teacher. Every time he said 'This shows evolution,' I said 'Excuse me' – I do remember that was a core issue for me.

Creation science author, creation science organisation (26)

No teacher, in my 36 years of teaching, has actually got a training sufficient to cope with the sort of questions that intelligent children...want to ask [about evolution].

Science teacher, secondary faith school (33)

I always found it hard to believe in evolution. There is a sort of absurdity to it ... I had been indoctrinated with evolution at school, but I was finding it hard to believe it because it really is an incredible story.

Minister and author, independent evangelical church (24)

Respondents divided fairly evenly into those who had grown up in a religious household and those who had not. Very few of those who had done so said that they had grown up with parents who might be called creationist. In this sense, most of our respondents presented a story of personal conversion or maturing which led to the beliefs that they now hold.

I couldn't inherit any kind of faith from my parents. I realised that I needed to find God for myself. I needed to find redemption ... When I became a Christian, at 16, I felt the need to share my beliefs with others, which meant speaking and writing. My parents thought that was odd, even though they did attend church.

People are not Christians by virtue of their society or family or their tradition. The Bible teaches that we are all sinners and that we have standards to live up to. God did not make Adam as a robot. He said that he should obey and gave him the opportunity to disobey. This is why we must all come to God for ourselves. We cannot do this by ourselves. We come to God through Jesus Christ. It is something that is personal and it is a necessary journey for every single person.

Minister, creationist organisation (17)

Often then, the early sense of dissonance between religious beliefs and the prevailing orthodoxy of evolution is described as having been followed by a period of critical examination and personal study, or an introduction to different ways of thinking. These studies and reflections challenged the orthodoxy of evolutionary education and led respondents to the ideas they now hold. This narrative of a personal journey, from doubt or blind acceptance, to an enlightenment or revelation of Biblical truth, often through

intellectual enquiry, is a common thread in studies of Christian conversion.² During interviews it became clear that the issue of belief in evolution (or rejection of it) had become part of this story, or was at least being explained in similar terms.

There were two clear ways in which initial doubts about evolution became a more concretised rejection. The first was through a growing sense of the authority of Biblical teaching and the apparent disjuncture between the Biblical story of creation and the theory of evolution. The second was through an exposure to the science and the evidence around evolution. We deal with the understanding of scientific evidence and the theory of evolution below, but it is important to note here that it plays a part in a broader narrative of conversion or enlightenment.

Theological or Biblical doubts about evolution centre on the book of Genesis. We cannot claim here to have encountered every published theological argument on the issue (many go to great lengths to point out all the ways in which the Biblical narrative, read literally, is at odds with evolution), but we present here the arguments that were most frequently made, and which were considered to be central, in the answers we received from our respondents.

In keeping with one of the central themes of this report, it should not be assumed that all creationists subscribe to *all* the arguments about the incompatibility of evolution with the Biblical story of creation. Different arguments matter more or less to different people, and the strengths and weaknesses of different arguments are also seen differently. For example, some sources have argued that Genesis shows birds being created by God before insects, whereas evolution suggests that insects existed before birds. Many of our respondents may well have noted this difference, but none mentioned it in interviews. This kind of argument over detail was often seen as secondary to the larger arguments which needed to be made about evolution and the more central aspects of Christian theology.

Theological arguments tended to focus on three particular parts of Genesis: the length of time needed for God to create the world and humankind in particular, the miraculous creation of humankind in God's image, and the notion (which also appears in the New Testament) that there was no death before the Fall. Many of our respondents had felt a strong need to gain a proper understanding of the Bible and specifically Genesis for these issues, and this had led them to engage in serious study of the exact words used in various editions of the text. Some had learned to read Greek or Hebrew and had spent many hours poring over the precise meanings of words across different historical contexts and different versions of the Biblical text. Far from being a blind acceptance of scripture, there was, in many cases, an ongoing project to understand better the language which laid the foundations of their belief.

time, creation and evolution

For the YECs in particular, the idea of evolution taking millions of years is clearly at odds with the apparent Biblical narrative of the Earth being only a few thousand years old:

Darwinian evolution needs to be very well defined...for example, when you go to Galapagos and you see the finches and you see these birds do change according to seasons and the availability of food then therefore Darwin was right. If that's what you mean by Darwinism, then Darwinism is absolutely right and we are all Darwinists. But that isn't what Darwinian evolution actually means..it is a process that is defined by mutations and variations that occur over millions of years ... My perspective is thousands, not millions, of years.

Lecturer, theological college (13)

If the Bible says six days, then I am going to start from that point. Unless there is a good reason not to. In the end I am going to stand before Christ as my judge. If when I do stand before Christ as my judge, and if I'm wrong, and it turns out the Earth is billions of years old, and we did come about by evolution...my excuse will be: 'I tried to take your word seriously.'

Headteacher, faith school (18)

They [scientists] have no idea about 'billions of years'. They must use these words but it makes no sense ... Here and in Nigeria they teach evolution. You need to look at the Bible and study what the Bible really says. You need to look deep then you see that evolution breaks down. They have never really seen it in the lab ... The Bible is not ambiguous. I believe the world is around six thousand years old as it says in the Bible and God created as it states in the Bible.

Minister, African evangelical church (22)

Even for those respondents who were more amenable to an old Earth, the idea that humankind evolved over a long period of time is a problem. OECs are more likely to be willing to accept an ancient geological Earth, but the Biblical account of the creation of humankind is still at odds with the long process of evolution described by Darwin. Indeed, YECs also note that this issue can be separated theologically from the argument about the age of the Earth. One respondent used this analogy by way of explanation:

Look...I can walk from here in [place name] to Wales given enough time; therefore, given even more time I can walk from here to America. The problem with that argument is that there is a fundamental barrier to that change and that is the Atlantic Ocean. I highlight the ocean in that argument. Darwinists would say that it doesn't exist or that you can walk on water.

Lecturer, theological college (13)

The point here is that, quite regardless of the question of the age of the Earth and the conflict between Genesis chapter 1 and the suggestions of geology and evolution, the creation of humankind in particular would have needed more than just time. Something is needed to explain the particular challenge of the emergence of humans.³ In fact, the aspect of evolution which requires time is seen as entirely at odds with the Biblical narrative of God's *deliberate* creation of man and woman. One Old Earth Creationist explained the two separate time arguments this way:

There are problems saying they were 24-hour days [referring to the six days of creation in the Genesis], because the sun only comes into existence on day four. Before that it talks about evening and morning. Although I think talking about a day as a geological age is also problematic because you are importing ideas from today into a historic text from 1000s of years ago. However, there is another problem ... The problem of macro-evolution is that it doesn't fit with the description in Genesis, which doesn't seem to be a long drawn out process. There is a specific problem in relation to Man, because Man, as presented in Genesis 1 and 2, is created in the image of God. If there is a process leading up to that, then which one is Man and which one isn't Man? How does Man suddenly become 'in the image of God'?

Principal, theological college (27)

The theological question here is about the *way* in which humankind is created. Evolution implies a long process of incremental change by which we arrive at *Homo sapiens*; the Bible teaches that humankind was created by God in his own image. To imply that God may have used evolution to create humankind does not seem to solve the problem, because it does not explain how a transitional form, say Neanderthal Man, suddenly becomes 'in the image of God'. Where would one draw the dividing line between an earlier form of humankind and a species which was 'in the image of God'? Would great apes also be, to some extent, 'in the image of God'? In this sense, it is not the particular length of time which presents the problem but rather the fact that evolution requires any time at all. According to the account of the creation of humankind in Genesis, God created humankind, in his image, in a relative instant. The conclusion to this argument, for the respondent above, is that evolution simply does not fit with the Biblical narrative.

This issue of humankind being created in the image of God means that there are further implications to accepting an evolutionary narrative in terms of humankind's place in the world. If evolution sees both time and the random (or chance) process of natural selection as key (as is understood by most of our respondents), it fundamentally challenges the idea of humankind being created *specifically* by God. This aspect of Biblical theology is seen as simply too fundamental to a Christian worldview to be thrown aside. God creating humankind in his own image gives humankind a reason to be here. It provides the fundamental place of humankind in the universe. It shows that humankind is special and unique and has a place in creation:

From a Biblical worldview, God is the creator and he created Man in the image of God. Very clearly in the account of creation, every man is made as the summit of God's creation and that gives Man dignity and that speaks to ethics and morals. The foundation of morality is that man is made in the image of God. Genesis is my authority on this issue.

Minister and author, independent evangelical church (24)

I believe that we are created by God in his image. I believe that it provides us with, as humans, a better platform to develop ... The concept of man being created by a loving God brings more out of us than the concept of us evolving from lower animals.

Educational director, Seventh Day Adventist faith school (2)

The critical point here is that being created in God's image means that there is sanctity to human life: life is not part of a random process and it is not an accident or chance that we are as we are. Furthermore, it is God's hand in our creation that leads directly to the *moral* character of our life on Earth. The ethical dimensions of our lives, it is argued, come directly from our very accountability to the creator. We are given a duty to be answerable to God for the choices we make, precisely because he created us in his image:

God created us in a specific way, not by chance or an incremental process, but in a single, discrete act, and in his image.

According to the Christian – who are you? You were created by God in his image. That tells you you are worth something – you did not just evolve. There is a value placed on your life by God.

Minister and author, independent evangelical church (24)

We were created by and are accountable to God. How do we argue for the sanctity of life without a creator God? ... We are not made by accident and we are fundamentally accountable to God.

Minister, creationist organisation (17)

This – in contrast to the kinds of Christian apologetic argument that seek to show design in the world or argue for the *necessity* of a creator – is an argument, from scripture, that God created us in a specific way, not by chance or an incremental process, but in a single, discrete act, and in his image. This position specifically rejects the idea that God could have used evolution to create humankind, since evolution cannot be reconciled, theologically speaking, with this notion of creation. One minister of an evangelical church put it to us more emphatically:

Evolution is incompatible with the Bible and Genesis. You can't read any other thing into Genesis other than man being created by God. There is no evolution. It was God. He created us in his own image. He did not use evolution.

Minister, independent evangelical church (36)

the Fall

Just as being created in God's image is seen as fundamental to the Christian worldview, so another key event described in both Genesis and in the New Testament was often held to be so important that it could not be negotiated with regard to the science of evolution: the story of Adam and Eve, and the Fall. "The Fall" itself is not a term used in the Bible, but it is the moment at which humankind, through the rebellion of Adam and Eve in eating from the Tree of Knowledge in the Garden of Eden, fell from a state of innocence. This is the *original sin* of humankind: disobeying God.

It is perhaps in relation to the Fall that the science of evolution and the Biblical worldview come into greatest conflict. The central issue lies in the interpretation of the Biblical text that says that Adam's rebellion against God led directly to death and bloodshed entering the world, as a punishment. According to this understanding of the Bible, there was thus no death before the Fall.

There are a great many debates among Christians and between creationists as to whether this means that there was no death of any kind before the Fall⁴ (which many YECs believe), or whether it is an idea that applies only to human mortality (an opinion held by many OECs).⁵ Because OECs accept that the Earth could be old, it is suggested that they also accept that different geological strata contain fossils of animals that have died prior to the existence of humankind. Either way, it is the subject of human death that was of most importance to our respondents, especially in relation to evolution. And the debate over animals notwithstanding, there is a common understanding of the conflict between evolution and human mortality, introduced by Adam's sin.

It is clear that the process of evolution not only implies a great length of time and a system of natural selection, but also a great deal of life, death and reproduction in the evolution of all life, including humankind. Indeed the competitive struggle for life is one of its central driving forces. For creationists then, there is division between the historical narrative of evolution and the historical account of humankind and its origins given in the Bible.

This conflict between evolutionary and Biblical accounts of creation has profound implications, both in terms of the veracity of evolution and also for the very nature of God as revealed in the Bible. For some, believing in both God and evolution is seen as implying that God's chosen method of creation involved death and suffering. And this is at odds not only with the Biblical historical fact that death and bloodshed were introduced specifically as a punishment for sin, but also with the fact that God is said to have loved his creation, even prior to the creation of humankind.

The issue was presented to us both as an issue of factual accuracy and as an issue which calls into question the very nature of God. For example:

When did death start? ... Man and animals have the breath of life in them. Death spread to everything through Adam's sin. If evolution is what God used, then the problem is, when did death start? Evolution depends upon death. It depends upon death to weed out the sick, those that can't survive. That is not God's way.

Author, creationist organisation (26)

For a time I was a theistic evolutionist – it made me feel a bit more comfortable, I cobbled together the Bible with that explanation. And it took me a while to see that I would have to reject the early parts of the Bible. That death was not God's way – death came in because of man's sin – it wasn't part of God's original plan. Death came in through sin. So if I was to accept the Bible then I need to accept that evolution isn't compatible with the Bible.

Science teacher, secondary faith school (33)

This assertion that death simply wasn't 'God's way' is an emphatic denial of the idea that God could have *used* evolution as his means of creating. There was an implicit and explicit questioning here of the theistic evolutionist position, which seeks to reconcile a Biblical understanding of God with evolution. Sometimes this point was described in terms of the problem of evil – in terms not of the much larger philosophical debate over the existence of evil in a world created by God, but of the specific issue of whether God could have used the process of evolution as a means to create humankind. For these creationists, the evolutionary narrative is simply too cruel, too full of death and struggle, to be compatible with the narrative in Genesis describing creation as 'good'.

My major problem...is to do with the nature of God as billed in the Bible. There are certain things we know about creation – God calls creation 'very good'. There is a specific time when death enters the world ... Death of the weakest? Survival of the strongest? Death? ... God said *the meek* should inherit the earth and he also said to consider others' needs above our own. These are quite counter-evolutionary things. When I read through the Bible, it says that God's creation was 'good'; therefore, the God as revealed in the Bible could not be the author of evolution.

Director, Christian media (30)

I don't accept that [evolution]. To me it contradicts the character of God. Why would a 'good' God use such an evil process that combines death and suffering in order to finally bring about the human body? What makes sense is that God created the human body.

Minister and author, independent evangelical church (24)

What matters to me is the Bible, God's word and its big-picture intent...which is not to win an argument about creation but to reveal the God who is loving and caring for the world. Evolution doesn't fit into that picture.

Minister, African evangelical church (39)

Many creationists, therefore, do not see the Fall as simply a historical account (although they would claim it is that) but as a fundamental part of a Christian worldview, with which evolution is incompatible not just at a factual level but also on a theological level. And there are theological reasons to doubt the veracity of evolution that go beyond the Fall presented in the text of Genesis and the Old Testament. The Fall also presents an understanding of humankind as having sinned and as needing salvation. This leads directly into the narrative of Jesus and his position as the saviour of mankind. In fact, the

centrality of the Fall to this aspect of Christian theology means that creationists cannot see the account of Adam and his rebellion as merely metaphorical or symbolic.

Many creationists do not see the Fall as simply a historical account but as a fundamental part of a Christian worldview.

For a great many of our respondents, the very fact that evolution suggests death before the Fall, means it *cannot* be correct: God created the world without death; Adam sinned; God brought in death as a punishment for this sin; humankind is tainted by that

original sin and needs a saviour; Jesus Christ is that saviour. Given a belief in the factual accuracy of scripture and the literal truth and theological importance of the account of Adam and Eve in understanding humanity, evolution simply cannot be resolved with the Biblical understanding of the way the world is and was.

For some, accepting that there may have been death before the Fall, as evolution would require, is a capitulation, not just in terms of a reframing of the Biblical narrative of creation, but a capitulation by Christianity itself. This argument was most clearly articulated by two respondents in particular. Both worked in creationist organisations and wrote and spoke publicly on the issue:

That link that exists in the Bible between Adam's rebellion against God and God bringing into the world sin and death...death as a judgement ... It's that link which I think is theologically so important. I am a no-death-before-Adam creationist rather than a YEC.

One of the problems with evolution is that it drives a wedge between Genesis 1–11 and the Gospel message and I think that has been disastrous for humanity. I will talk to Christians and say that the evolutionary account undermines the Gospel – when you follow it through to its logical conclusions. It is almost like it [Christianity] saws the branch off the tree it sits on [when it accepts evolution] ... If death and bloodshed did not arrive because of sin then what was Christ's death about? What did it mean?

Creation science author/speaker, creation science organisation (31)

I know there are many Christians who believe in the theory of evolution. However, it seems to me to be an inconsistent position if you believe in Jesus Christ. Jesus seemed to think it was important to talk about Genesis. It was important to Jesus to talk about Adam and that Adam was real.

When Richard Dawkins asks Christians if Adam was real and they say 'No, he was just symbolic', then he argues: 'Well then, Jesus had himself tortured and executed for a symbolic sin committed by a non-existent individual.' Well, Dawkins has a point actually. Now I believe that there was a real person called Adam, who lived in a real garden, who committed a real sin who angered a real Holy God and therefore brought real death and real sin into the world and therefore we need a real saviour to die a real death on a real cross, who can bring real atonement for real sins and therefore bring us closer to a real God. And you can't get around that point. The New Testament talks about Jesus as the 'last Adam' and therefore ties everything up and brings it back to Genesis.

Minister, creationist organisation (17)

the slippery slope and its social consequences

The notion that an acceptance of evolution would mark a kind of theological capitulation marked a more general theme presented by our respondents: that the acceptance of evolution, both by Christians and by society at large, was a landmark on a *slippery slope* of decline. This decline would manifest itself as a diminished role for Christian theology, a diminished respect for the authority of the Bible and a more general moral decline in society. If evolution was seen by our respondents as a 'threat', it was a threat not to their Christian belief system but to the role of Christianity in society. In giving up on the authority of scripture on issues such as those outlined above, they argue, Christians have ceded ground to those who would prefer secularism to be the dominant ideology in the UK.

For some, the move away from Biblical authority began much earlier than Darwin. It began in the Enlightenment, with the rationalist philosophers such as David Hume, and continued with the development of the rationalist, materialist sciences. And the church was seen as having given in too quickly on issues such as the Biblical record of the age of the Earth when confronted with, for example, geology:

I actually trace the roots of the problem long before Darwin. The church did itself no favours way back in the 17th century, when they started to reinterpret the Bible in light of things like geology. The church capitulated then. And when Darwin came along it was easy for them to capitulate again. And they did – and it has been disastrous. Now people wonder why they should believe anything the Bible says.

Creation science author/speaker, creation science organisation (31)

One respondent described this as a *trend* of thought leading to an ever-diminishing role for God as science seeks to explain more and more things that were traditionally in the domain of Biblical authority. The idea that human knowledge, often through the sciences, can reclaim territory from the Bible defines God as a ‘God of the Gaps’, a God who only has a place in the realm of the unknown or supernatural. As humans discover more through study and through science, they fill the ‘gaps’ in understanding which were traditionally explained away as being God’s work. Those Christians who choose to accept evolution are seen as *relegating* God to being a God only ‘of the Gaps’:

The problem with the God of the Gaps is that the more science discovers, the smaller your God ... They’re [those who accept evolution] on the wrong side. Jesus believed in a literal Adam and Eve, in a literal flood. This is why I can’t understand [name of a theistic evolutionist]. If Christ himself believed it... then it’s irrational [not to believe these things were real].

Science teacher, secondary faith school (33)

Accepting evolution necessitates the re-evaluation of the authority of the Bible on matters of creation and the origins of humankind and even, as we have seen above, elements of the Gospels themselves. Because of this, many of those we talked to were just as concerned with Christians who accepted evolution (theistic evolutionists) as they were with the general secularisation of society.

Criticism of theistic evolution was in many ways as vehement as the language used about Darwin and evolutionist scientists. Often the accusation levelled is that theistic evolutionists are simply not taking their religion seriously. Creationists argue that picking and choosing which bits of the Bible are to be taken as literal and authoritative, and which are not, is inconsistent, and smacks of capitulation. These creationists were calling for Christians to have the courage of their conviction and recognise that their beliefs, which

are founded upon the Bible, should not be so readily given away. Theistic evolutionists were often described as vague or compromising:

I have a huge concern that the theistic evolutionary perspective is blurring the role of God. It is turning Christianity into a hobby, into a club. That is not anything like my concept of Christianity. It does function a lot like that but that is not at all what it is about. I am fundamentally opposed to theistic evolution.

Director, creation science organisation (1)

Theistic evolution, that's a bit of a compromise – saying evolution is the way God did it. I respect those positions, but the two philosophies are quite different ... It could be true, but it seems to me to be a bit of a mix and match that doesn't match with the Bible – on the philosophical side of things.

Author, creationist organisation (26)

The strength of feeling about Christian acceptance of evolution, among creationists, can perhaps be best illustrated by the fact that Richard Dawkins was in some respects seen as holding a position of greater consistency, and that theistic evolutionists were merely providing grist to secularist and atheist arguments.

Richard Dawkins' position *is* philosophically consistent. I think there is a philosophical consistency for an evolutionist to be atheist and a creationist to believe in God. But there is an inconsistency for a Christian to believe in evolution.

Minister, creationist organisation (17)

You don't tend to hear very much from theistic evolutionists in the media, who Dawkins would regard as sell-outs anyway...who just want the theory of evolution but want to have God as well.

Presenter, Christian media (29)

Such strong arguments against theistic evolution seem to mirror the internal arguments between YECs and OECs. Just as some creationists concern themselves with the exact age of the Earth, so others are equally concerned with Christians who accept evolution – further demonstration perhaps of the fact that, despite the polarisation of the debate and its associations with a battle between religion and science, many of these issues are just as much about Christianity and the nature of faith.

It is not only Christians who are being warned about the slippery slope, however. Evolution, it is argued, is also part of the general secularisation of society that will have dire moral and social consequences, and a wider decline in moral understanding. If, as we have seen it argued, accepting evolution is a rejection of the creation of humankind in God's image, people will be left with a sense of purposelessness or meaninglessness. And

it is precisely this existential angst that leads to many of the social problems we see around us.

I believe that we are created by God in his image. I believe that it provides us with, as humans, a better platform to develop ... The concept of man being created by a loving God brings more out of us than the concept of us evolving from lower animals ... It causes us some of the problems we have today. People do not understand the potential they have. They are unhappy. A Christian will be more positive because of the belief that they are created by a great God.

Educational director, Seventh Day Adventist faith school (2)

Evolution, then, can become bound up with a more general discourse about the decline of religious observance and the potential ill-effects this can have on individuals. Some spoke of the counterbalancing effect of churches and of being part of the Christian collective on local communities and especially on young people. Great importance was laid on the idea that it is through the notion of God as a loving creator, rather than blind chance and the cruelties of natural selection, that people will find meaning in their lives.

For a small number of our respondents, evolution was described as being more specifically dangerous. It was associated, for example, with the evils of Hitler's ideology of the master race and with Stalin's Russia.⁶ This argumentative trope can be found in many anti-evolutionist sources such as anti-evolutionary websites or literature, although it was not commonly expressed during our interviews. However, the theme of evolution itself being, in some sense, amoral (if not immoral) *was* repeated.

The problem lies in the fact that evolution lacks a moral discourse. Or, rather, it teaches a philosophy of chance, struggle and survival rather than 'right and wrong'. If we are created via a process of evolution, it is argued, then we are created in a distinctly amoral way. The narrative of evolution places no value on any particular life. Death and killing, far from being condemned, are inherent to the system. There is no language of 'good and evil' applied to the actions of evolving animals.

What about the Fall? How do you reconcile good and evil? Evolution means that anything we do is part of evolution. How can we decide what is right and wrong?

I am not happy with evangelicals who want to twist Genesis 1–3 to fit evolution. It is important, but it is more part of a problem of worldviews. Right and wrong is a key issue. Where do we get that idea from if there is no God in creation?

Principal, theological college (27)

Seventy-five per cent of the children in schools are functioning atheists. They have no moral framework for understanding the world; they just go with what they

think. They believe that you can't say that what Hitler did was evil or that Pol Pot was evil. That is clearly not what the government wants, but that is where the children are.

Lecturer, theological college (9)

God's creation...gives Man dignity and that speaks to ethics and morals. The foundation of morality is that Man is made in the image of God.

Minister and author, independent evangelical church (24)

Furthermore, just as an understanding of God's role in creation is seen as giving us a moral foundation and an accountability to God, so evolution can be seen as one of the ways in which humankind has chosen to reject God and eschew that very accountability. The Godlessness of evolution, some argue, is an attempt by humankind to build a theory that will free him from taking responsibility for his actions.

For many of our respondents, evolution had a specific part to play in a decline in social values.

There is a value placed on your life by God. But you will pay the consequences of how you live when you die. That is scary and it means people cannot live the way they want to live. So they invented evolution to escape from this. To feel free. It's so that Man can live, once you have taken away God, without being responsible to a higher power.

Minister, African evangelical church (22)

The concept of the Fall is that people have rejected God's standards and that can happen at the point in which conscious life comes to be and there is a sense in which the more we are attuned to a moral compass and a sense of moral understanding then the more culpable we are when we turn away from that and turn away from God. The Fall is critical to moral understanding. Evolution just does not allow it.

Creation science author/theologian, several Christian and creationist organisations (5)

As we have said, many similar arguments could be made without reference to evolution. Such rhetoric feeds into a much larger discussion and debate about moral standards in public and private life, which is not uniquely to do with creationist or anti-evolutionist arguments. As such, a full discussion is perhaps beyond the scope of this report. Suffice it to say that, for many of our respondents, evolution had a specific part to play in a decline in social values and in a general trend of secularisation.

is evolution inherently atheistic?

Given the animosity some of our creationist respondents expressed towards those Christians who chose to accept evolution, one might ask whether a belief in evolution is inherently atheistic. If evolution is seen as conflicting not just with the Biblical history but with fundamental aspects of Christian theology, can it be reconciled with a Christian worldview? Is the principal reason for rejecting evolution the fact that evolution is seen as necessitating atheism?

The simple answer to this last question is 'No'. Despite the creationist rejection of evolution on Biblical grounds, those who chose to believe in evolution were rarely described as being inherently 'atheist' or even 'atheistic'. The majority of our respondents were able to reconcile the Christianity of Theistic Evolutionists with their belief in evolution. The belief in evolution did not make these Christians atheist. As one respondent put it:

It is not evolution that is atheist. It is just wrong. Rather...it is the way people use it that is atheistic. Certainly...my evolutionist friends, who are certainly believers, do not use evolution to promote atheism.

Creationist author (3)

This kind of statement seems to draw a distinction between evolution and atheistic evolution, which was described as the way in which evolution had come to be used to serve an 'atheist agenda'. When evolution is used as a weapon against the authority of the Bible or as a tool for an atheist agenda, then it *is* 'atheistic' – but only in this context. Christians who accepted evolution were sometimes described as having bought into the 'atheist evolutionist myth', but that did not make their acceptance of evolution itself atheistic.

This distinction between two types of evolutionism depends more on the person who holds the evolutionary position, and their intent, than on evolution itself. In other words, a theistic evolutionist is not atheistic, though he or she may have been swayed by others who were. One of our respondents who did not describe himself as a creationist, but who had doubts about evolution and a sympathy for the arguments presented by ID, made the difference between himself and an atheistic evolutionist clear:

I believe God created but he created through evolution. Having said that, I don't believe in the atheistic evolution that Richard Dawkins espouses.

Presenter, Christian media (29)

Here, the respondent draws a sharp distinction between his own current belief in God and creation through evolution, and the atheism of Richard Dawkins. Of special relevance to this report, of course, is the question of Darwin himself and of Darwinian evolution. Was Darwin seen as an atheist? Was his theory of evolution atheistic? This is a question which was addressed directly, without prompting, during the course of many of our interviews. A great many of our respondents referred to those aspects of evolution which were correct and compatible with a Biblical stance, and those which weren't. For most, however, Darwin *was* seen as atheistic, either wittingly or unwittingly. This fact, it is argued, was clearly demonstrated by Darwin's desire to project evolutionary theory beyond what the observable evidence showed him. Since Darwin could not observe the past, they argued, his choice to theorise about it showed a willingness to push his theory into contention with the Bible. Darwin's evolution (or evolutionism) was atheistic precisely because his theory sought to deliberately challenge Christian understandings of the way in which humankind came to be. In the following chapter, we explore in greater detail creationist responses to Darwin and his science.

chapter 4 - references

1. Some commentators and academics have preferred to refer to these different types of argument as 'strategies' that are, and have been, employed in different contexts and which have gained strength and favour at different points in history. The problem, as we see it, with this view is that it suggests that there is some kind of 'pure' evolution scepticism that underlies these different 'strategies'. We would prefer to see evolution scepticism as a manifestation of some or all of these arguments in a person's beliefs.
2. See for example, R Hefner, ed., *Conversion to Christianity: Historical and Anthropological Perspectives on a Great Transformation* (University of California Press, 2003).
3. It is also a comment on, and criticism of, the perceived aspect of evolutionary theory that allows it to project the small changes we *can* observe back over the millions of years we *can't* observe.
4. The argument is tied up with the rather larger debate over 'the problem of evil', which would require an entirely separate report.
5. This is partly the result of the OEC acceptance of an ancient Earth which contains a fossil record and therefore accepts the death of animals before Adam.
6. There is a danger here of becoming mired in political discussion. Views about Stalin were tied to comments about communism and the views of Karl Marx. Marx is seen not only as an evolutionist, but as no friend of the church and religion in general. The associated arguments about Marx's thought, evolution and communism would require far more space than this report allows.

evolution: science, evidence and Darwin himself

One criticism often levelled at creationists and at many of those who advance alternatives to evolution (such as ID) is that they are 'anti-science'. The criticism works on two levels. First, there is the accusation (famously made by the British biologist Steve Jones, for example) that the *theories* that are being advanced are anti-scientific, in that they have no basis in scientific evidence. Second, there is the accusation that those who advance such theories are *themselves* anti-scientific in their ideology. These terms often come as part of quite vicious attacks on the characters of those who hold anti-evolutionary views.

What counts as science – and, indeed what counts as *interest* in science – is not necessarily, however, the same for those on either side of the debate. From the point of view of those we studied, creationists and anti-evolutionists do not perceive themselves to be anti-science; they simply say that they are 'anti-evolution'. They draw a firm distinction between these two stances, even arguing that they reject evolution on *scientific* grounds.

In this chapter and the next, we deal with this most contentious aspect of the debate: the science and evidence for evolution. Here we cannot help but use terms in ways which are hotly contested. The ways in which creationists talk about 'science' and 'evidence' are often challenged by evolutionists, who argue that many of the creationists' arguments are so far from being scientific that their use of the terms is a kind of abuse. Claims and counter-claims over specific details of tiny biological organisms alone can fill entire books. Hostility between the two camps is rife.

We have attempted to remain neutral about the legitimacy of various arguments about evidence and the nature of science, using the terms here as they were presented to us by our respondents (just as we have done with other contested terms in this report). In this way we hope to use the creationists' own language to articulate their position. We do, however, recognise the risk we take in not fully presenting the counter-arguments made by scientists and evolutionists.

engagement with science

Before moving on to discussions of evolution specifically, it is important to understand the backgrounds of the creationists and their attitude towards science in general. For most of our respondents, some level of engagement with science was a given. Indeed, since the debate is so often conducted in the language of science, it would arguably be impossible for a creationist *not* to have at least a cursory familiarity with the scientific arguments which lie at its centre.

Many of our respondents had studied the natural sciences at university. Some taught science in schools or colleges or had jobs which required scientific training, such as engineering. Others, with no professional or educational background in science had nonetheless read popular scientific texts in an attempt to understand the theological or ideological significance of certain scientific theories. Of course, there were some for whom science held less interest, but most engaged with scientific material on at least some level. Attitudes towards science in general seemed to be vastly different from the stereotype of the creationist who dislikes and rejects science completely:

At the time [of doing my physics degree] it became very evident that the understanding of the physical universe needed an understanding of physical law and matter. Understanding that revealed the delightful possibility that you could work out a complex formula and that matter would conform to it in real life.

Lecturer, theological college (13)

I was really a space-age child and that was what really captivated me. All things being equal, I would have gone into physics. But I switched to biology [for PhD] because I thought I might be able to find the answers to my questions there.

Lecturer, theological college (9)

[With regard to my religious beliefs] I stand absolutely in the same position as Isaac Newton and most of the founders of modern science.

I went to study biology at Sussex University and it was very avant-garde back then. The department was being set up by John Maynard Smith who subsequently became very famous as an evolutionary biologist ... He was not a traditionalist and he taught us to challenge everything ... We were a small group and we were quite close to Maynard Smith – it was a real privilege.

Science teacher, secondary faith school (12)

From a very young age I was interested in geology and rocks and fossils and dinosaurs and that kind of thing. Even as a primary school child I knew I was going

to be a geologist ... People think creationists are about attacking sciences. Actually I wish more Christian young people would go into the sciences and I would like to see the sciences thrive.

Creation science author/speaker, creation science organisation (31)

Aside from these respondents, whose lives had all been shaped, at least in part, by the study of the sciences, there were respondents whose educational background had little to do with the sciences. But a lack of interest in science was rarely seen as a good thing. Rather, it was referred to as a weakness or failing which ought to be corrected.

I am in no position to make any comment about science as it's my area of weakness.

Minister, independent evangelical church (21)

Even among those respondents without a scientific educational background, many revealed at least some interest in scientific ideas and texts. We heard many references to books by the likes of Richard Dawkins, for example, or arguments about the development of biological organisms or the formation of the universe. Often their researches were sufficient to give detailed explanations of various mechanisms, using quite technical language.

Much of science fits comfortably inside a creationist or evolution sceptical viewpoint.

Far from wanting to be anti-scientific, then, most of our respondents had gone to some length to show how interested they were in science. Is this in fact so surprising? Evolution is a scientific theory, backed by scientific evidence, and it is science that has taken Darwin as one of its heroes. Those who attack creationists publicly often do so in the name of science, and the basis upon which they formulate these attacks is often scientific.¹ In this context, is it any wonder that anti-evolutionists have had to take a special interest in that same science that is being used to attack them? Since the language of the debate is often framed in terms of the scientific evidence for evolution, those who deny its validity feel compelled to familiarise themselves, at least to some degree, with that same language, even if the detail can prove too difficult for some:

Astronomy: I am absolutely fascinated by that. And I have read books by Paul Davies and Sir Martin Rees...and I have two or three of Richard Dawkins' books but, to be honest and unfortunately, I didn't get very far with them because I am not a scientist...I'm a lawyer.

Retired lawyer (11)

Much of science, at least as it is commonly understood by our respondents, actually fits comfortably inside a creationist or evolution sceptical viewpoint. For almost all of our respondents, the vast majority of science is good, proper and above all, correct. When Steve Jones said in an interview with *Science in School*, "I will never debate with a creationist. They think that $2 + 2 = 5$; or, at a push, as a compromise, 4.1. I'm entirely sure that $2 + 2 = 4$," he portrays anti-evolutionism as having a total disregard of all things scientific.² This is perhaps unfair.

This polarising language of rationalism and science versus irrationality and religion in which much of the debate is conducted can fail to represent accurately what people actually believe or understand. It is perhaps precisely because many of our respondents *do* believe in the power of science and scientific enquiry as a way of gaining and legitimising knowledge that we see support for the phenomenon of 'Creation Science' and growing acceptance of (and adherence to) the notion of ID – whether or not evolutionists or scientists accept the scientific validity of their arguments. We deal with these phenomena in more detail below, but it is worth noting that creation science and ID can both represent attempts to find a science which is fully compatible with the creationists' beliefs about origins.

Here we risk the criticism from some scientists that creation science and ID are not in fact sciences at all. However, we are concerned here with representing creationism and evolution scepticism *from the points of view of creationists and evolution sceptics themselves*, and there can be no doubt that both creation science and ID are indeed driven by a desire to be scientific while maintaining a scepticism of evolution and/or a Biblical understanding of creation. This desire to be true to both science and faith is argued strongly, even with respect to evolution:

I think that the relationship between science and scripture is one that Christians can be in danger of treating rather naïvely...I think it's important. My view is that we are never intended to understand the Bible in complete isolation from the world in which we live. The Bible is inerrant and it is a divine book, but it is also a human book, and it is intended to be understood in the context of the world in which we live. For example – when it says the sun is rising, we should not understand this to mean that the Earth is fixed and that the sun moves round it ... Science has informed us that the Earth moves round the sun ... So there is interplay between science and our understanding of scripture ... My understanding of how the world works must affect the way I understand the Bible.

Creationist author, various creationist organisations (43)

I have very little interest in being a crusader against evolution. I recognise that evolutionary colleagues do great work. They are honest and conscientious scientists. I don't have any bones to pick with them. I would like them to get on and do the science the way they do it. But what I am passionate about is that creationists develop scientific theories of their own because the best apologetic we are going to have is if creationists can do science to a better standard than our evolutionary colleagues. And come up with alternative scientific theories that explain the same data better, and perhaps even explain more of the data, than our evolutionary colleagues. And that is what I am passionate about ... That to me is the way ahead. I don't accept evolution but I will not have my whole focus being attacking someone else. I want to do good science to understand the world ... I don't see why creationists and evolutionists can't work together.

Creation science author/speaker, creation science organisation (31)

These kinds of statements run against popular understandings of creationists. There will undoubtedly be those who feel that such statements are dishonest, because creationists set limits on how far science is allowed to interrogate scripture. To some extent, this accusation simply reflects the difference in worldview between creationists and their detractors. For a creationist, the Bible and scientific truth could only ever be in agreement. Where there is contradiction, there is a need to look further at the science.

However, despite the enthusiasm for science among some creationists and evolution sceptics, there are others who employ the same kind of polarising language that is used against them. Science and evolution are sometimes conflated rhetorically, and a rejection of evolution and evolutionists can often be expressed in terms of a rejection of science and scientists in general. Especially for those who are less engaged with science directly, either through learning or teaching, there is perhaps a cruder and more generalised rejection of science:

Science is deceiving people. Evolution is a deceit.

Minister, African evangelical church (22)

These more generalised antagonistic statements should be seen in the context of the debate and its tendency to simplify into a war between science and religion. The respondent who made this statement actually went on to provide us with one of the most detailed critiques of evolution, which involved both a promotion of science and a rejection of evolution (see pp. 75-76). However, just as creationists will always be described as 'anti-science' by some evolutionists, for some creationists, scientists will always be engaged in deceit.

Darwin the man

The confrontation between creationists and evolution often begins with a consideration of Darwin himself. Of course, biology and evolutionary theory have moved on since Darwin, but much of the controversy and argument still focuses on him. Many have noted that Darwin provides a rather uncharismatic figure for controversy. He largely shied away from the arguments his theory caused, and many of the thoughts he did express about the implications of his work for religion and Christianity were confined to private letters and concerned his own religious position, rather than dictating terms for others. Far more suitable a character perhaps would have been Thomas Huxley, who referred to himself as 'Darwin's bulldog'. Huxley was vocal in confronting people on the issue of evolution in Darwin's day. Perhaps his most famous defence of Darwin came in response to Samuel Wilberforce, the then Lord Bishop of Oxford, in 1860. When asked if he was descended from an ape on his mother's or his father's side, Huxley reportedly retorted 'that he was not ashamed to have a monkey for his ancestor; but he would be ashamed to be connected with a man who used great gifts to obscure the truth'.³

For a creationist, the Bible and scientific truth could only ever be in agreement. Where there is contradiction, there is a need to look further at the science.

Such forceful argument seems to be the precursor of the modern debate over evolution, and much of the same rhetoric is still employed today. Nonetheless, in 2009 it is Darwin himself who remains at the heart of the controversy rather than those who took on the mantle of being his defender.

A full account of the history of the theory of evolution and its acceptance in British society, and among Christians especially, is beyond the scope of this report. Instead, we choose to focus on the ways

in which contemporary creationists and evolution sceptics present their views of the man and his work. In doing so, we recognise that we are not fully representing the counter-arguments or the detail of Darwin's theory. Instead, we will see Darwinian evolution portrayed as a flawed science and a flawed ideology. Darwin the man is painted both as a naïve, sometimes unwitting, player in a historical trajectory of secularism which began in the Enlightenment, and as a self-conscious atheist who sought to exclude God from the world.

At the time of interview, one of our respondents was writing a book about Darwin and his journey on the *Beagle*:

My book isn't about the science; it's about the history. People think that Darwin went out on the *Beagle* and had this idea about evolution, and wrote this book, 20 years after he got back. But actually he had no thoughts about evolution on the Galapagos. It was only when he got back and he got interested in geology. He was a creationist...and the possibility of being a famous man was what got him. It is quite clear to me he was a sick man...psychological sickness.

Creationist author (7)

Here Darwin is presented as in part not responsible for what he has done. His natural disposition, we are told, was to be a creationist and it is psychological 'sickness' that led him to evolution. This view lay at the extreme end of a particular line of argumentation that came up during our interviews: that Darwin was either naïve in his understanding of what he saw or not wholly and consciously responsible for what he had done in rejecting the presence of God in his science and in leaving God out of the theory of origins. These kinds of argument stem from the view of Darwin as having a specific place in history and as situated within an intellectual tradition which began before him and to which he could not help but belong. This reasoning in turn leads some to suggest that sympathy should be shown towards Darwin, both for his personal rejection of God and for his not having access to new kinds of knowledge which would have persuaded him of the errors of his theory.

This simultaneous rejection of, and sympathy for Darwin was expressed in different ways:

Darwin is often seen as a hate figure – I do not see him that way at all ... He was right about lots of things. But he extrapolated beyond what the evidence actually shows. I think one of the reasons he did that was...he recognised the theological implications of what he was doing...and I think he was on the run from God. I think the death of his daughter really impacted on him. He could not reconcile a God of love with this event. He became, I think, more agnostic throughout his life and I do not think it was the science that did this to him. It was a spiritual problem.

Creation science author/speaker, creation science organisation (31)

I don't think that Darwin's theory was all that stupid in its time...the middle of the 19th century...but I think it has since been disproved ... Darwin didn't realise the difficulties that there are in explaining how random mutations and natural selection could actually work. The advances in knowledge have made his theory impossible.

Creation science author and retired minister, Church of Scotland (16)

In the first statement there is sympathy for Darwin's psychological wellbeing. In the second we see a kind of intellectual sympathy, in which Darwin can be forgiven for his errors on the basis that they were down to a general lack of knowledge at that point in history.

Darwin's place in this history of secularisation was also sometimes invoked as a way of explaining how he might have come to his theories:

Darwin is really part of a secular tradition that began in the Enlightenment ... There was a movement to be rational and materialistic ... God was increasingly absent in this. Darwin is really just part of that.

Minister, Church of England (8)

This kind of rhetoric is actually a kind of damning with faint praise. The portrayal of Darwin as deserving of pity or as needing to be understood within a general historical framework is not an attempt to understand the man as a great figure of his time, but rather to reconfigure the narrative of Darwin that comes from within the scientific world. Where Darwin is described as brilliant or as a genius by scientists, he is described as naïve and 'pathetic' (in the sense of deserving sympathy) by creationists. The rhetoric denies the portrait of a brilliant and singular individual and promotes instead a picture of a man who is an unwitting pawn of psychological torment and historical trend.

Others are even less kind in their critique. They argue that Darwin was in fact self-consciously atheistic and was trying specifically to find a theory of origins which excluded God. This argument was often made with reference to Darwin's respect for his friend and mentor, Charles Lyell. Charles Lyell was a 19th-century geologist who proposed that the long processes of geological formation through, for example, weathering and erosion that we see today were the same processes that had taken place in the past. His theories (sometimes known as 'uniformitarianism') were instrumental in the now common understanding of the Earth as being very ancient. Lyell's postulation of minute physical changes taking place over a long period of time, leading to the large-scale formations we see today, influenced Darwin's own work, and the two were in close personal contact on Darwin's return from the voyage of the *Beagle*. The influence of Lyell on Darwin was sometimes seen by respondents as pernicious, although just as many blamed Darwin himself for seeking out Lyell's theories:

Darwin took with him on the *Beagle* a book by Lyell. Now Lyell had a prior commitment to ridding science of Moses. So Lyell had an agenda when saying that rocks form slowly...actually they dissolve very quickly.

Science teacher, secondary faith school (33)

Lyell was the man behind evolution. He wanted to destroy Genesis. There are links between revolutionists and evolutionists ... Darwin was a willing puppet.

Creationist author (7)

In the end, these kinds of argument lead back to a more emphatic kind of statement:

Darwin was searching for a theory that would totally deny the existence of a creator and replace it with a materialist view of the world.

University lecturer (10)

He was *trying* to come up with a theory that excluded...well, that excluded those things that are not immediately available to observation. He wanted a theory without God.

Creation science author and retired minister, Church of Scotland (16)

This suggestion that Darwin's agenda was *specifically* atheistic or secularist was evidenced perhaps most strongly in the assertion that he willingly chose to extrapolate his theory beyond the observable facts:

The problem with Darwin is that he took a very small amount of evidence...I mean he had very limited data...and he extrapolated a very long way. He simply did not have any evidence of species changing into other species. He was very influenced by Charles Lyell. So what he saw was small changes and then he said that there must have been very big changes in the past over a very long time ... But he didn't observe this happening.

Science teacher, secondary faith school (33)

Many of our respondents made similar arguments, that Darwin saw one thing and theorised about something else. The small changes to the beaks of finches which can occur in observable timeframes, they argue, do not provide evidence of larger and more qualitative changes taking place over larger time scales. We describe below the asserted difference between the *observable* facts of 'micro-evolution' and the *unobservable* theory of 'macro-evolution'. For now it suffices to say that it was Darwin's volition in choosing to push his theory beyond the bounds of the observable and into the realm of large-scale theory, directly challenging Biblical narrative and authority, which creationists often saw as evidence of his atheism.

The portrayal of Darwin as being in some sense cynical, driven by an anti-Christian or at least 'materialist' agenda, is an argument often repeated in comments about Richard Dawkins, who has become in some ways the modern-day Thomas Huxley. This insistence that there is an underlying agenda of atheism can help to drive the debate towards a more generalised war between science and religion:

The Dawkins agenda is fundamentalist atheist...not just science.

University lecturer (37)

I read *The Blind Watchmaker* by Richard Dawkins but I resolved never to read any more of his books. It just wasn't very good. The way he mixes in rhetoric and ranting with his science is...well, he is using his limited knowledge to try and further his atheism.

Creation science author and retired minister, Church of Scotland (16)

Richard Dawkins comes to the discussion from a number of presuppositions, the first one being that there is no God.

Minister, independent evangelical church (40)

It seems that much of the rhetoric that surrounds Darwin the man, then, is couched in the same kind of language as the debate itself. Suggestions of a weakness, in terms of a predisposition to one or other side of the argument or in terms of a lack of scientific knowledge and understanding, come from both sides. And Darwin himself gets caught in the same rhetoric. Argument like this has been around for as long as Darwin's theory itself, as we saw in the words of Bishop Wilberforce and Thomas Huxley, and is sustained through today's published and broadcast media and on internet forums around the world.

the evidence for evolution

micro- and macro-evolution

For many creationists the matter of evolution has gone far beyond the realms of the theological conflict we outlined earlier. The argument has instead become a battle over the legitimacy of scientific claims about evidence, and even over the legitimacy of certain kinds of scientific knowledge themselves. Darwinian evolution, they argue, is a theory which lacks evidence, and a theory to which science has become subservient. Scientists have bent their methods to fit the theory rather than maintaining a principled scientific rigour and having a healthy respect for the gaps in the evidence.

But what are the gaps in evolutionary theory that creationists and evolution sceptics are so concerned to highlight? Perhaps the most widely accepted (among creationists) critique of the evidence for evolution lies in the leap between the observable processes of change within animal species and the unobservable processes of evolutionary change which suggest changes from one species to another. It is this distinction between the observable evidence for evolution and the unobservable 'theory' of evolution that has led to the further distinction, accepted by many creationists, between Darwinian macro-evolution and micro-evolution.

In the simplest of terms, micro-evolution is seen as encompassing the small changes that can occur within species of animals over timescales that are directly observable. Macro-evolution refers to the larger idea that species of animals can, given long time scales and the processes of evolution, become whole new species. While micro-evolution *can* point to a single common ancestor for a single given species, it does not (indeed cannot) point to a single common ancestor for all, or even two, different species. Darwinian macro-evolution, on the other hand, theorises a single common ancestor for all life on Earth. Both refer to the biological processes of change over time but differ in scale and kind.

The distinction between these two types of evolution is important to creationists and evolution sceptics for two reasons. The first is that micro-evolution is observable and testable, while macro-evolution is not, since it has taken place over huge

timescales and in the past. This is an argument about the scientific validity of the evolutionary theories. The second is that macro-evolution implies that humankind evolved over many millions of years from a different species of animal, whereas micro-evolution does not make claims beyond what is immediately observable and therefore does not postulate a theory for the origin of humankind. The significance here is to do with the compatibility of each type of evolution with the Biblical narrative of origins. Darwin was often described as having *observed* micro-evolution and *extrapolated* to macro-evolution.

Darwin was often described as having observed micro-evolution and extrapolated to macro-evolution.

The argument is clear. Distinguishing between these two types of evolution allows the question to be raised, in scientific terms, about the validity of using direct observations of the present to theorise about the past. In theological terms, it allows for an understanding of evolution (through micro-evolution) that does not necessarily conflict with a Biblical understanding of the creation of humankind. One respondent put the distinction pithily:

We should make the distinction between macro-evolution and micro-evolution. There clearly are adaptations in a species...the peppered moth and things like that. Christians believe that, within the sorts of species (or kinds), there are differences and that there is micro-evolution. It's where an amoeba turns into Charles Darwin that I have a problem.⁴

Minister, independent evangelical church (21)

Again, the respondent is highlighting the special case of the evolution of Man and using it to illustrate the difference between an evolution he can accept and an evolution that he can't.

Many evolutionary scientists contest the distinction in the way that it is made by creationists and evolution sceptics, arguing that micro-evolution and macro-evolution are actually one and the same thing and that there is ample evidence for evolution over both long and short timescales. They also point out that the processes of micro-evolution which involve small changes are the same processes that have taken place over large timescales. It is the accumulation of small changes over time that has led to the changes of one species into another. Most scientists and evolutionary biologists, therefore, do not recognise the distinction between micro- and macro-evolution used by most of our respondents.

In fact, the differences between micro- and macro-evolution can become very technical, with detailed arguments about the genetic changes within and across populations of different animals and species. Many scientists have engaged directly with the theories and arguments of creationists and their arguments have, in turn, spawned counter-arguments and qualifications by creationists. As recently as January 2009, for example, a journal article had this to say about the creationist distinction between micro- and macro- evolution:

Creationists generally do not have a problem with most of this literature [pertaining to micro-evolution] because, as far as they are concerned, this is all about variation within 'created kinds', not worth arguing about except to question the assertions that natural selection is driving most of it.⁵

This suggests that creationists have a problem with natural selection. But a leading creationist website makes the following statement:

Despite the claims of evolution, the appearance of new species, antibiotic resistance in bacteria, pesticide resistance, and sickle-cell anaemia are not evidence in favour of evolution. *They do, however, demonstrate the principle of natural selection acting on existing traits – a concept that creationists and evolutionists agree on.* [Emphasis added].⁶

Indeed, some of our respondents espoused these same views about natural selection, that at the level of micro-evolution it was both observable and clearly accurate – and to be distinguished from science that is neither observable nor verifiable. So, natural selection, rather than being something that needs to be challenged, is a point of purchase for arguments about observable and unobservable, valid and invalid, scientific theory:

Changing from one level of species to another hasn't been shown. Yes, natural selection has been shown, but evolution hasn't been shown.

Minister, independent evangelical church (23)

One must be careful to understand what is being accepted here and what is not. The creationist acceptance of natural selection does not extend to the level of macro-evolution, as a process by which different species came to be, and especially not to the use of natural selection as an explanation for the origins of humankind. Rather, creationists accept the observable processes of natural selection within species, and at the level of micro-evolution.

Many of these arguments centre on the same broader point: that some things have been shown scientifically; others have not. And many of our respondents came to the interview with clearly articulated critiques of the theory of evolution (arguments made with thought and consideration), and its claims to be based upon observable evidence.

By way of illustrating this point, it would perhaps be worthwhile reporting one of the arguments against the evidence of evolution given to us by one of our respondents at length. Again, we caution against assuming that all creationists and evolution sceptics would know, understand or agree with the following argument. Rather, we intend this to demonstrate the extent to which such arguments are fully formulated:

There are different kinds of evolution. There are six types of evolution. The theory of evolution...is the greatest con-trick that has ever been proposed by man. When people talk about it they are usually talking only about one part of six parts:

- 1) There is 'cosmic evolution' (the big bang theory).
- 2) Chemical evolution. The periodic table has all kinds of elements. Chemical evolution is the origin of the higher elements. How does iron evolve from hydrogen, for example...?
- 3) Stellar evolution. No one has ever seen a star formed. Scientists are still bewildered by how a star forms.
- 4) Organic evolution: The origin of life. How does life come from a rock? How does a rock become a life?
- 5) Macro-evolution: this is the changes of one 'kind' into another. How does a tiger become a fish or a fish become a tiger? How does a tiger become a man?
- 6) Now there is 'micro-evolution'. That I believe is what you are talking about. That I believe in. But the first five have never been seen. No scientist has ever seen these happen ... The big bang theory is completely useless. The first five are a con. You can have variation in kinds – but you will never see human beings mating together and becoming a dog ... You will never see a dog develop into a banana ... Micro-evolution does exist and there is a limit ... There is no way a chimpanzee will ever, ever, ever evolve into a human ... What people

believe is not science. It is religion. How can people come to believe that we came from a dot? They don't know – they just believe it. Science is something you can test and prove. They try to use the proof of the sixth type to prove the first five – but that is a trick. It's not true.

Minister, African evangelical church (22)

This argument is not original. Different versions of it can be found in many sources. It is also a specifically YEC argument, which rejects the idea that there is observable evidence for an ancient universe. The important point to note is that there is more to the 'rejection

When a creationist asserts that they accept natural selection, this is a genuine acceptance of at least one part of evolutionary theory.

of evolution' than simply a rejection of all things related to evolution. When a creationist asserts that they accept natural selection, this *is* a genuine acceptance of at least one part of evolutionary theory. It's just that there are limits on how much they accept beyond that. And those limits, they say, are set by the limits placed on observation, by time.

The arguments over micro- and macro-evolution, and observable and unobservable evidence, have become a dominant form of creationist

understanding of the science of evolution both in the UK and elsewhere. Most of our respondents either used the terms directly or alluded to the distinction in some way. Indeed, many of the quotes included elsewhere in this report can be understood in this light. There are, however, other problems with the evidence for evolution that were mentioned by our respondents.

the fossil record

Perhaps the most famous creationist argument with respect to the evidence for evolution is the importance placed on the 'gaps' in the fossil record. The fossil record is an important part of the evidence for evolution. By looking at the fossilised remains of long-dead animals, evolutionary scientists assert that they can point to the evolutionary pathways which led to the different species of life on Earth that we now see. The point of contention for creationists, is what they see as lack of evidence, in the fossil record, for *transitional species* or *intermediary forms*. These transitional species would be the fossilised remains of animals that demonstrate the evolutionary shift from one species to another. An example might be animals that mark a transition between a sea-dwelling animal and a land-dwelling animal, or an animal that walked and an animal that flew.

The fossil record itself, of course, raises an immediate point of contention with YEC views about the age of the Earth and we deal with this in some detail below when talking about creation science. However, the notion that there are gaps in the fossil record still has significance for those who hold to an OEC position. For these creationists, the lack of transitional species found in the fossil record shows that there is a lack of evidence that one species of animal can change into another, no matter the lengths of time involved. The importance of this lies in the fact that Darwinian evolution asserts that humankind has evolved from other kinds of animal species, through ape-like forms, into *Homo sapiens*. These creationists are happy to accept that fossils can show differences within certain types of species, but would argue that there is no evidence of an animal that is half-way between one species and another. This is of particular significance to the argument over whether humankind could have evolved from apes. Creationists would point out that ‘the missing link’ is indeed ‘missing’.

Many scientists have challenged this line of creationist argument, pointing to the presence of many transitional forms both in the fossil record and among animals alive today, and it is true to say that, during our interviews, a relatively small number of respondents referred to the problems of the fossil record. However, the argument over transitional fossils was sometimes used in a subtly different way. Rather than arguing about the exact nature of the fossil record, some of our respondents pointed to certain well-known examples of attempts to *forge* transitional fossils. This, they argue, demonstrates the way in which evolution has become a kind of religion for certain scientists and evolutionists. It shows that scientists are willing to create evidence for the theory where no such evidence exists.

The most commonly referred to examples of this were the cases of *archaeopteryx* and Piltdown Man. *Archaeopteryx* is the name given to fossils of an early flying dinosaur, which some have considered to be one of the transitional forms between walking animals and birds.⁷ In 1985, some leading scientists questioned the authenticity of the fossils and the reconstructions of the animal they evidenced. In particular, they questioned whether the animal had feathers, as reconstructions showed. Though the issue is now largely resolved, one or two of our respondents referred to *archaeopteryx* as a hoax which demonstrated a willingness to accept any evidence for evolution even where none existed.

Piltdown man, on the other hand, is a far more concrete and less controversial example. The remains of Piltdown man, found in 1912 in East Sussex, England, were assumed for a long time (both by scientists and wider society) to be the ‘missing link’ between apes and humans. They were even used as evidence for evolution during the Scopes Trial (the first court case to address the issue of the teaching of evolution and creationism in American public schools). In the 1950s it was shown that the Piltdown man remains were indeed a hoax, and had been put together using the bones of both orang-utans and humans. This

case was used again by some of our respondents as evidence for the willingness of certain scientists to accept any evidence for evolution, without questioning its validity.

One final example of the ways in which our respondents argued against the evidence for evolution concerns the methods used to show the age of certain rocks and fossils, namely carbon-dating. Questioning the validity of carbon-dating raises arguments about the age of the Earth as well as arguments about the lengthy process of evolution. It is, again, primarily an argument made by YECs rather than OECs.

As with the arguments about micro- and macro-evolution, the details of creationist rejections of carbon dating can be complex and involve claims and counter-claims in response to scientific criticisms. For the most part, our respondents simply alluded to the perceived error in using carbon-dating to imply long evolutionary timescales, rather than articulating the argument in full. Indeed, a full explication may well have been beyond the majority of our respondents, and for those who were more familiar with the issue, it would have taken the length of an interview to gain a complete understanding of all the arguments involved.

further challenges to the evidence around evolution

The issue of carbon-dating does highlight one particular feature of the ways in which scientific arguments were given during interviews. There was much repetition of certain examples in nature and in the scientific material (well known among creationists) which are supposed to demonstrate flaws in evolutionary theory. The argument against the reliability of carbon-dating methods was one, but there were many others.

Challenges to the notion that the Peppered Moth displayed natural selection, the 'irreducible complexity' of the bacterial *flagellum*, the perfection – in design terms – of the humble banana and the apparent evolution of dogs into different breeds but not into other animals, all cropped up frequently during interview – mainly because they come from the same source material. Arguments that appear in creationist literature and from within creation science (which we deal with in greater detail below) are read and explored by many creationists. There are, however, still relatively few creation scientists and ID scientists, even though their numbers may be increasing, so many creationists revisit the same material, and the same examples of evidence against evolution recur. Some of our respondents stated that this was not the most desirable state of affairs and that they would rather there was a far larger body of scientific literature questioning evolution:

I read as many scientific publications on this matter as I can. The problem for me stems from the fact that almost all scientists working in this field are coming at these issues from a very specific angle. There are very few of us arguing in proper scientific terms for what we believe. Obviously the sheer weight of all of the scientific publications produced in favour of evolution will outnumber those that contest it – there are lots more of them! What we need [as creationists] is more scientists and more properly conducted scientific research projects that argue our point of view.

Medical professional (28)

One respondent also despaired at what he saw as creationist repetition of flawed arguments or arguments which had long since been proved wrong:

I have to say I think a lot of creationists are too desperate to find an answer so therefore they grasp at straws. They don't think issues through. And sadly I think they actually do damage to the cause ... A common argument that is used is migration in animals. Some creationists will say 'How on earth did birds manage to do that without God?' but they will also tell you that the world before the Flood was different to the one now, so when did God tell the birds that the Earth was different? They have silly arguments and it's about time they stopped using them.

Author, creationist organisation (26)

It is also worth remembering, however, that creationist arguments about the *evidence* for evolution and examples in nature which, they say, *challenge* evolution, have their own complexity and nuance. Claims, criticisms, re-evaluations and capitulations mean that the exact nature of the arguments proposed develops over time. Among our respondents, there was not an even adherence to all the arguments and not all would know about the latest developments. Rather, these arguments should be seen as forming only parts of different critiques of evolution that are understood in tandem with theological understanding and also with creation science, which we deal with below.

chapter 5 - references

1. To a greater or lesser extent, this is true regardless of who is making the attacks. Some of those who publicly attack creationists are very well-respected and learned scientists. Others are merely lay people with a better or worse understanding of scientific argument.
2. "Interview with Steve Jones: The Threat of Creationism", *Science in School*, 9 (2008).
3. Quoted from an issue of *Macmillan's Magazine* 1898, in JR Lucas "Wilberforce and Huxley: A Legendary Encounter", *The Historical Journal*, 22 (1979). Huxley's exact words are not reported and there is some debate over what he may or may not have actually said.
4. This use of the word 'kinds' rather than 'species' has a special significance for creationists, which we will explain in more detail below (see the section on "Creation Science").
5. Kevin Padian and Nicholas Matzke "Darwin, Dover, 'Intelligent Design' and Textbooks", *Journal of Biochemistry*, 417 (2009), p. 39.
6. <http://tinyurl.com/5w6r2j> (accessed 22 February 2009).
7. We are aware that some current theories have disputed the relationship between *archaeopteryx* and modern birds.

creation science, Intelligent Design and the scientific framework

In chapter 5 we discussed the ways in which creationists challenge the evidence for evolution and how they try to reframe the debate in order to make certain kinds of argument. In this chapter we explore some of the ways in which creationists and evolution sceptics propose theories that counter evolutionary orthodoxy. These theories are more than just simple rebuttals of evolution and evolutionary evidence; they are also attempts to create new theories and new theoretical frameworks with which to examine (or re-examine) the evidence created by scientific enquiry into the origins of life and the formation of the Earth.

creation science

Creation science is perhaps the most concrete manifestation of the desire among creationists (rather than evolution sceptics) to develop a scientific discourse that supports the Biblical story of creation. In contrast to the arguments about the validity of scientific evidence dealt with in the previous chapter, creation science aims to create counter-theories and models to explain geological and evolutionary data and evidence.

It is important to understand that the ways in which examples of creation science and creation science theory were presented to us were not always in the form of discrete blocks, separated from theological argument or from critiques of the evidence for evolution. Rather, creation science was seen as an equally valid way of criticising evolution, but one which also offered an alternative understanding of natural phenomena. At the conclusion of this chapter, we again caution readers not to associate all creation science with all creationists. Many of the arguments came specifically from creationists with specific understandings about the age of the Earth or who paid special attention to certain aspects of Biblical theology.

Creation science aims to create counter-theories and models to explain geological and evolutionary data and evidence.

A further problem when trying to understand the views of our respondents and the level of knowledge which lay behind these views was that some of the arguments we describe

below were merely alluded to, rather than fully explained. Among certain types of creationists, especially YECs, these arguments have reached the level of orthodoxy. Information about them was passed often through similar sources or people, so that there was a shared understanding of what was being referred to. A reference to 'the flood', for example, was commonly understood as being a reference to the creation science of 'flood geology'. However, much of the work behind such theories was carried out by creationists in America rather than creationists in the UK, and respondents had differing levels of familiarity with the latest theories. This means that we cannot be sure that all respondents were referring to exactly the same arguments. The following should be read with these caveats in mind.

The most influential piece of creation science is perhaps *The Genesis Flood* by John Whitcomb and Henry Morris.¹ Published in 1961, the book was an attempt, as the authors state clearly in their introduction, "to examine the anthropological, geological, hydrological and other scientific implications of the Biblical record of the Flood, seeking if possible to orient the data of these sciences within this Biblical framework."

The book was cited by several of our YEC respondents as still centrally important to their understanding of the world and how it came to be as it is:

In 1961 a book was published called *The Genesis Flood*. What they are claiming is a scientific rationale for the age of the Earth ... They say there was something catastrophic that happened at the time of the flood...and when it came, there was a massive deluge and that's how you explain the geological elements and fossils. That was what I bought into about 30 years ago and it still influences me today.

Minister, independent evangelical church (21)

Essentially the theory proposed by *The Genesis Flood* is that the various geological formations on Earth were formed by a sudden and violent flood, roughly coinciding with the flood of Noah in Genesis chapters 6 to 8, which covered the Earth and then drained away very quickly, tearing mountains apart and trapping rocks and bones in different geological strata to give the appearance, today, of old age. The flood also explains the presence of fossils in a young Earth. Fossils are the remains of animals that were caught in the sudden deluge.²

For many of our respondents, the exact details of Whitcomb and Morris's theories were not of paramount importance. Rather they saw significance in the fact that a large and catastrophic flood could have important consequences for geological formation and the presence of fossils:

I think the flood is Biblically described and has global consequences and consequences for the fossil record, shape of the continents, extinctions, climate change...over the last few thousand years.

Lecturer, theological college (13)

The strength of 'flood geology' for creationists lies in its Biblical confirmation. It is a theory which not only explains geological data, including the presence of fossils in different geological strata, but also has theological validity:

The Bible says there was a flood that had global consequences. So I accept that. It seems to me that Jesus believed this too. He compares his own second coming with Noah and the flood – so he believed in the flood, too. To be consistent with the words of Jesus means to accept these things happened.

Creationist author (3)

I'm not a scientist but I have looked at *The Genesis Flood* and it is very technical and so on. Flood geology was scientific confirmation in my mind of Genesis.

Creationist author and theologian, several creationist organisations (4)

In this theological sense, and despite the obvious convergence between flood geology and Young Earth Creationism in explaining how things can come to look old without actually being so, OECs can also see the validity of the theory:

The Bible does not say the Earth was created 6,000 years ago. It says that the Earth was without form and void – but everything was there – it just wasn't constituted yet ... There is evidence that there was a great flood and this is how evidence came to be as it is. So you see – there isn't a problem with science as such...it is a problem with how we use the data.

Educational Director, Seventh Day Adventist faith school (2)

Here the 'evidence' for the flood is understood as Biblical evidence, and the evidence that 'came to be' as the geological phenomena created by that flood. We will go on to explain this common conflation of Biblical and physical evidence in more detail in the conclusion, as it is a complex issue. However, it should be understood that these two kinds of evidence are not seen as conflicting. Rather, they are seen as mutually reinforcing.

This idea can also be used to explain the respondent's statement that the flood 'confirms' Genesis. In terms of creation science, the Bible can inform science, and the scientific evidence should support the Bible. Furthermore, theories such as those put forward in *The Genesis Flood* can be seen both as refutations of, and as possible alternatives to, the evolutionary narrative and existing orthodoxies:

Look. I am a biologist by training. I do not know everything about how to explain the apparent age of the Earth. But the Bible says there was a flood...which is a pretty good place to start.

There is evidence in the shapes and patterns of mountains to show that there was a sudden movement of a large body of water.

Science teacher, secondary faith school (12)

Flood geology is not the only kind of creation science, but it is perhaps the most widely known and accepted among creationists in the UK, despite its American roots. Similar attempts to reinterpret scientific data through the Biblical framework have proliferated since *The Genesis Flood*, and creationist theories can now be found which explore everything from genetics to astronomy.

There are creation scientists working on lots of fields. There is one PhD student at the moment, I don't want to mention his name because he is pretty much under the radar, but he works in astrophysics, and he will probably be able to advance our understanding of cosmology.

Creation science author/speaker, creation science organisation (31)

There are a wealth of creation science theories which seek to explain micro-evolution without giving any validity to macro-evolution.

In relation to evolution, for example, and the specific differences between micro- and macro-evolution, there are a wealth of creation science theories which seek to explain micro-evolution without giving any validity to macro-evolution. Such theories do borrow from conventional biology but often introduce new concepts such as 'information' or 'kinds' that do not rely on the perceived baggage of conventional evolutionary terminology. The use of the word 'kinds', for example, replaces the use of the

word 'species'. While 'species' carries with it the notion of 'speciation' (the macro-evolutionary process by which one species can become a whole new species) the term 'kinds' has a Biblical referent in Genesis. Thus 'species' of animals becomes 'kinds' of animals, which God created fully formed, as laid out in Genesis.³

In essence, these theories seek to show that there can be change within 'kinds' of biological organisms, but not changes from one kind to another:

God as the author created the various 'kinds', not necessarily the same as species, and within each kind is a certain genetic richness to allow for adaptation to different environmental conditions ... Species can only reproduce in their kinds ... Those kinds, such as humankind, develop into various forms ... Because there is

one single creator, yes, every single kind has commonalities, like DNA similarities, but that doesn't necessarily follow that everything started from one specific organism.

Minister, Baptist church (25)

Those of our respondents who worked directly in this field clearly stated that there was much work still to be done to complete the theory of kinds. One obstacle, they pointed out, was in building a complete taxonomy of the different kinds of organisms and animals. But they presented these difficulties as being the same as you would expect to find in any branch of science.

The theory of kinds is supplemented by genetic theories that seek to draw a clear dividing line between micro- and macro-evolution. These theories can be very complex and detailed, and a full explanation would be far beyond the scope of this report. Essentially the argument runs that, while natural selection and genetic mutation can occur at the level of micro-evolution, they cannot be used to explain the large-scale changes of one 'kind' into another. Observed mutations, creation scientists argue, only occur within kinds. Furthermore, it is argued, such mutations do not produce changes which are qualitatively better. So although changes do happen, improvements do not. For this to occur, they say, it would require an increase in genetic 'information' during mutations, which simply does not happen. In other words, the theory rejects two principles of evolution: that one species can evolve into another, and that species can evolve into 'higher' species.

There are many responses to this argument from evolutionary scientists, and many hundreds of examples in biology given as responses to those responses. For now, we must rest on the finding that there is a branch of creation science which attempts to deal directly with the biology of evolution and that these theories are found, or at least alluded to, in the critiques of evolution given by creationists in the UK.

Much of the actual work of creation science is done in America, though some organisations in the UK have been set up specifically to provide funding to those who will advance creationist understanding of scientific data. Such organisations also provide a platform for theories from creationists overseas to be disseminated in the UK. As has been noted, creation science is a much larger phenomenon in the US than in the UK. Some of our respondents were actively engaged in conducting creation science research, and others were creationists who were scientists, but the constituency in the UK remains relatively small.⁴ In essence, though, creation science does not belong to any particular organisation or movement. It can include any 'science' which is undertaken by a creationist or which interprets data through a Biblically informed framework.

Astronomy and cosmology are also areas which have more recently been targeted by creation scientists, largely outside the UK. The work is of special interest to those who hold

to a Young Earth position. Astronomical data which demonstrates an ancient universe originating from a single, huge, cosmic event (the 'Big Bang') has been reinterpreted by creation scientists in a number of different ways. But these creationist theories of cosmology have not reached the level of orthodoxy that 'flood geology' has. There are, for example, internal arguments over whether God created the universe 'in motion', with particles of light already moving, and giving the impression of having been generated many millions or billions of years ago – or whether it is the relativistic nature of space and time that gives the illusion, on Earth, of an ancient universe. Two of our respondents also explained the existence of light travelling from other stars and galaxies with reference to a changed speed of light. In the past, they argue, it may have been much faster, thus explaining the huge distances travelled within a Biblical timeframe.

It should also be remembered that not everyone shares the concern of some YECs about the apparent age of the universe. Some see the account of creation given in Genesis to be perfectly compatible with conventional cosmology:

I think there are good aspects of the story [in Genesis] which I think do illustrate scientific truths; for instance the fact that God created from nothing. And in many ways the big bang theory supports that.

Presenter, Christian media (29)

Creationists united by a scepticism of evolution do not necessarily share a scepticism of all the science which asserts an ancient universe.

Often, the work of creation scientists is aimed as much at Christians and other creationists as it is at scientists and the wider society. It can be used to teach other Christians how to respond to a perceived threat from scientific evidence or theory, or to allay fears that the truth of the Bible is in some way challenged by scientific theory. And it can also be used as a means of persuading OECs of a YEC position. YECs may hope that, in providing robust scientific alternatives to mainstream theories of an ancient Earth, they can persuade OECs to take a more literal or 'stricter' understanding of Genesis. In a sense, creation scientists can be seen as offering the possibility that certain theories about the age of the Earth and the universe are untrue, and thus of seeking to convert those (including Christians and creationists) who believe otherwise but may prefer to take the Bible at its word. We are reminded here of Stephen Gould's feeling that, although Pope Pius XII accepted evolution, he wouldn't have minded if it were all proved to be untrue.⁵

The various theories proposed by creation scientists are now far more accessible thanks to the internet. Looking at British internet forums in which arguments between creationists and evolutionists take place, there is evidence of British creationists increasingly using creation science to support their positions. It remains to be seen whether awareness and acceptance will grow in the future.

attitudes to Intelligent Design (ID) and its theories

Intelligent Design is perhaps the most controversial of all the themes dealt with in this report. While creation science is open about its use of a Biblical framework as a foundation for its science and rejection of evolutionary theories, proponents of ID deliberately reject the use of scripture and rarely mention God in their writings or scientific work. In this sense, ID aims to be judged solely on scientific grounds, regardless of its theological implications. In practice, many proponents of ID are in fact creationists, although they claim many supporters who are not creationists.

It is worth quoting here from the introduction to *Debating Design* by William Dembski and Michael Ruse, in which they explain the theory of ID. Michael Ruse is a philosopher who has written a biography of Darwin and is a prominent evolutionist. William Dembski is a key figure in the ID movement:

Intelligent Design is the hypothesis that in order to explain life it is necessary to suppose the action of an unevolved intelligence. One simply cannot explain organisms, those living and those long gone, by reference to normal natural causes or material mechanisms, be these straightforwardly evolutionary or a consequence of evolution, such as an evolved extraterrestrial intelligence. Although most supporters of Intelligent Design are theists of some sort (many of them Christian), it is not necessarily the case that a commitment to Intelligent Design implies a commitment to a personal God or indeed any God that would be acceptable to the world's major religions. The claim is simply that there must be something more than ordinary natural causes or material mechanisms, and moreover, that something must be intelligent and capable of bringing about organisms.⁶

Phillip Johnson is usually seen as the initiator of ID both as a name and as what might be considered a 'movement'; he is also the founder of the 'Discovery Institute', often seen as the spiritual home of the ID movement. Johnson was an American professor of law who became a born-again Christian. During the course of our interviews we were to hear the story of Phillip Johnson and the founding of ID a number of times, most often by those who adhered to it or who considered themselves to be part of the 'movement'. The appeal of the tale in the UK might have something to do with the fact that it has a distinctly British flavour.

The story, as told by Phillip Johnson himself, is that during a sabbatical trip to London in the late 1980s, he found himself intellectually dissatisfied and in need of something to occupy his mind.⁷ In a bookshop he came across a book called *The Blind Watchmaker* by Richard Dawkins, which introduced him to the key principle that evolution as a process was random, governed by chance and fortune. Unconvinced by Dawkins' argument, he began to read everything he could about evolution, from Darwin himself right up to Dawkins, becoming increasingly convinced that something was wrong. For Johnson, evolutionary theory had too many holes, and its grandiose claims were far more than the evidence allowed. Eventually he put together a kind of manifesto of counter-claims to evolution, constructed in lawyerly fashion. Central to his arguments was the notion that some of the evidence might be better understood if one were to allow for the hand of an Intelligent Designer in the creation of life.⁸ And ID was born.

The narrative has plenty of appeal for the British creationist. First, it has a man who was not at the time an ardent Christian, finding God in the same evidence so often used to attack creationists. Next, it puts him in direct conflict with the arch-evolutionist Richard Dawkins and has him prevailing by sheer force of intellectual endeavour. And, finally, all of this happened in London, the very place in which Darwin first formulated his theory between 1837 and 1839.

There is, however, another aspect to the story of ID which has a distinctly American character. ID rose to public prominence through the infamous Dover trial in Pennsylvania, USA, in 2005.⁹ The trial concerned the rights of the Dover public school district to allow the teaching of ID as an alternative to evolutionary theories of the origin of life in their public schools (state schools in America). The judge at the trial eventually ruled that ID was in fact creationism under a new name and that to allow it into schools would violate the first amendment of the US constitution.

Many commentators before and since have similarly argued that ID essentially tries to hide its Christian, creationist roots by claiming to be an objective science, that its chief proponents are in fact Christian creationists and that, when advocates of ID claim that it merely points to the existence of an Intelligent Designer, which may or may not be the Christian God, they are being obscurantist. IDers on the other hand, claim that ID is a robust, falsifiable science and can be demonstrated without any reference to God or religion.

Some of the arguments which now come under the banner of ID may well have existed before the term existed, although we include them here simply as a way of ordering the arguments which we were presented with during interviews. The arguments of ID specifically aim to deconstruct evolutionary theory, and as such, hold plenty of appeal for creationists. Where ID differs from creation science, however, is in its specific rejection of Biblical inference.

The most widely accepted ID theory is that of ‘irreducible complexity’, first advanced by Michael Behe in his book *Darwin’s Black Box*.¹⁰ This argument was referred to by many of our respondents, on the one hand as a critique of Darwinism for its unwillingness to accept the need for an influence outside the processes of natural selection and descent with modification and, on the other, as a scientific theory in its own right. The theory proposes that there are certain things found in nature that are irreducibly complex: they are so complex that it would be impossible to explain any one of their parts without reference to the whole. In this way, Behe argues, the parts could not have evolved separately, since each has a function which is only relevant when all of the other parts are present. Behe describes an irreducibly complex phenomenon in this way:

[A] single system which is composed of several well-matched interacting parts that contribute to the basic function, wherein the removal of any one of the parts causes the system to effectively cease functioning. An irreducibly complex system cannot be produced gradually by slight, successive modifications of a precursor system, since any precursor to an irreducibly complex system is by definition nonfunctional. Since natural selection requires a function to select, an irreducibly complex biological system, if there is such a thing, would have to arise as an integrated unit for natural selection to have anything to act on. It is almost universally conceded that such a sudden event would be irreconcilable with the gradualism Darwin envisioned.

There are certain things found in nature that are irreducibly complex: they are so complex that it would be impossible to explain any one of their parts without reference to the whole.

In order for all the parts to have come together, he argues, one would need an element of outside intelligence, the Intelligent Designer. Since Behe first proposed the theory, hundreds of examples of irreducibly complex systems have been advanced. But the most widely known are the case of the ‘bacterial flagellum’, and the eye. Both are given as examples in Behe’s original text, in which Behe argues that there are so many individual components that come together to perform a single function that it would be impossible for them to have evolved incrementally (one part after another), since no part has a function without the presence of the other parts. The bacterial flagellum, for example, which is essentially a kind of motor that allows bacteria to move around, requires the complex interaction of about 40 different parts. Without any single one of these parts, Behe argues, the motor could not function. In order to explain the development of the motor, one needs to imagine an Intelligent Designer, who could see the whole mechanism as it was being created, and who understood the functions of each separate part.

Interestingly, one or two of our respondents, who devoted some of their time to the study of biology, had begun using the notion of irreducible complexity to explain their own data and thoughts:

You need DNA to make RNA. You need RNA to make DNA. There is a certain irreducible complexity there – to actually form those molecules – such is the complexity. Scientists can only produce the simplest amino acids, but yet we are expected to believe that the most complex molecule formed by accident. It's the impossibility of it.

Minister and author, independent evangelical church (24)

As with all of the arguments we have explored in this report, there are many claims and counter-claims made by proponents of ID and evolutionists, all of which should be read with an understanding that there is ongoing debate and reformulation of positions. To some extent, though, irreducible complexity can be read as a modern version of the teleological argument for the existence of God; many of our respondents were happier to put it in these terms than to attempt to understand the biology. We will see below how comments about ID were often couched in an argument that ID is essentially an argument about design, which, in turn, is essentially the same as the teleological argument for the existence of God.

The second ID theory mentioned during our interviews was William Dembski's notion of 'specified complexity'. This is a much more technical argument than that of 'irreducible complexity' and refers to the idea that life is not defined by the complexity of its components but by the very specific order of that complexity. And that order, he uses statistical analysis to argue, really could have come about only with the guiding hand of an Intelligent Designer. The kinds of statistical argument that Dembski makes were not mentioned during our interviews, although the central idea was. Often such references were made in a simpler way and sometimes, again, as part of a teleological argument for the existence of God:

The specific complexity of the DNA molecule is one of the biggest challenges to the atheist view. It is plausible that there are points in the evolution or creation process where it seems we can quite clearly see divine influence.

Creation science author/theologian, several Christian and creationist organisations (5)

Here, of course, we see ID being used specifically as an argument for the existence of God, which suggests that although proponents of ID themselves reject the mention of God in their theories, lay adherents may not.

For the most part ID was not described during our interviews in the ways in which perhaps it was intended. Instead, ID was seen as part and parcel of the larger debates over evolution. Theories such as irreducible complexity and specified complexity did not stand apart from other arguments about the veracity of evolution but, rather, were added to them. Furthermore, ID was often seen as a kind of strategy for tackling the issue of evolution, rather than as the sole means by which evolution could be conquered.

When critics of ID make the accusation that ID is a front for creationism, they often conflate the two. Given the fact that ID does reject some of the central principles of evolution, on scientific grounds, it would be easy to assume that ID is supported by all creationists and evolution sceptics. Certainly in the UK, however, and among our respondents, this was not the case. The statements collected during our interviews may broadly be divided into four types of response to ID:

- A. Support for ID as a uniting force for evolution sceptics.
- B. Support of ID on the basis that it provides an accessible way of bringing doubt over evolution to a wider audience.
- C. Ambivalence to ID on the grounds that it just isn't saying anything new or exciting.
- D. Rejection of ID based on its unwillingness to admit that it is the God of the Bible that is the creator.

We have used these letters to label the statements that follow:

A. Well as we have said, we do not all have the same views, but Intelligent Design provides a kind of umbrella. We may disagree about things like whether the Earth is young or old, but we can all agree that there is an Intelligent Designer.

University lecturer (15)

A. It provides a minimal commitment label for anyone who is sceptical about evolution without having to sign up to OEC/YEC or anything else. The bulk of those in ID are Christians but certainly there are Hindus, Muslims, Jews and agnostics, secularists – a good number, surprising number, who don't have theistic principles at all.

Lecturer, theological college (9)

B. ID is a clever way to say that there was an Intelligent Designer. I do support that. We need to get it into the public debate, as there is an intolerance of discussing this issue in the public arena.

Minister and author, independent evangelical church (24)

B. Whichever way you look at science, you can only come to one conclusion. It was designed, intelligently...of course. People need to understand that. My children will be taught evolution in school but as good Christians they will know about the creator.

Minister, African evangelical church (22)

Those who spent most of their time in actively ministering the Bible were more likely to feel that ID did not go far enough towards encouraging a belief in God and the Bible.

C. Well I don't see there is that much to it, to be honest. It's just common sense that everything has been designed. If I told you to look at the Forth Bridge and said to you that it had come about by chance, you would think I was mad. The same is true of nature.

Creation science author and retired minister, Church of Scotland (16)

D. At the end of the day they do not go far enough because they are not saying who the Intelligent Designer is. It could be God. It could be Allah, it could be a Buddhist concept, it could even be an alien from outer space. I am an evangelist first and foremost and I am presenting the gospel of Jesus Christ and therefore I want to present the designer as the intelligent God of the Bible. They are not creationists by any means – though some of them are. I do not ally myself with them in any way.

Minister, creationist organisation (17)

D. I have read a bit about it [ID], here and there, I know vaguely what they say, I haven't read a great deal. What I have heard of some of their arguments seem to me to make sense – I certainly do think that people who think about the way we live ought to see that there is design in it and therefore a designer, so to that extent I would agree with them. The problem with their line of argument, they don't want to say this, but people would say that they are really pushing a creationist line and are now sitting half way between ... It's not what I would do. As a minister I believe it is my job to say what I believe, which is that God was the creator.

Principal, theological college (27)

D. I am no supporter of the ID movement. One difference being that they say 'you can tell there is a designer' and I say that from the New Testament we can tell what the designer is like, and who he is. I have some sympathy with the ID position but I think most of them are barking up the wrong tree.

Teacher, secondary school (41)

There seemed to be no kind of typological link between people's differing creationist beliefs and their position on ID. A YEC was as likely to be a supporter of, a rejector of, or ambivalent towards, ID. However, we did find that those who spent most of their time in actively ministering the Bible through church or to ad hoc congregations were more likely to feel that ID was not useful to them, and that it did not go far enough towards encouraging a belief in God and the Bible.

I can't see the point in bringing this message out to the world and then not having the courage of your convictions. Of course it's not just any old Intelligent Designer. It's God. I believe it's God. We must have the courage and confidence in our beliefs and tell people that.

Minister, independent evangelical church (36)

We can also see that the characterisation of the debate as ID-as-science versus ID-as-front-for-creationism is an over-simplification. We see instead that some evolution sceptics, and indeed those who would identify themselves as creationist, reject ID because it is not creationist enough, in the sense that it doesn't recognise its Biblical underpinnings. And, further blurring the issue, some of our respondents felt that ID was obviously creationist and that this wasn't a problem.

It is fair game for the evolutionists to say [ID] is creationism dressed up. I think it is as well. Most of these people are believers ... It's as CS Lewis says, if there is a supreme God...He is of supreme importance...so if that brings God in, well OK. If there is a God he's bigger than science.

Teacher, secondary school (41)

Intelligent Design – is that just another way of someone saying he's a creationist? I think it probably is.

University lecturer (35)

Neither the position that ID is not creationist enough nor the position that ID is in fact creationism in disguise comfortably fits the standard characterisation of ID given by its supporters or detractors. Furthermore, for most of our respondents there were in fact two ways of looking at ID: the first was as an ideology or way of explaining reality; the second was as a 'movement' or 'strategy'. Responses divided between those who saw that ID

offered a 'science' that they could accept and which challenged the evolutionist orthodoxy, and those who didn't think it did enough to recognise the role of God and the Biblical account of creation, as we have already seen. The responses below show how supporters of ID could see ID as being a valid science in and of itself:

To say that it is not scientific, that it's religious, is absolute nonsense. Kepler and most of modern science comes as a direct result of what you might call Intelligent Design thinking. It can have real scientific and empirical significance.

Lecturer, theological college (9)

There are two competitive worldviews – one, you might call it Intelligent Design, the other is evolution by random processes ... Intelligent Design, as I understand it, it is an attempt to challenge the evolution model...which I support entirely.

Minister and author, independent evangelical church (24)

The second way of seeing ID was as a movement or strategy. This view usually portrayed ID not as an end in itself but as a good way of introducing challenges to the orthodoxy of evolution into society.

The strategy is two-fold...one, to really put on the table the implicit materialism and naturalism in science and to attack that as such ... Having been involved in a number of debates and events dealing with the Dawkins phenomenon, one of the things I find intensely irritating is that...religious beliefs are always really under the spotlight and, whether by intent or just by default, no one seems to be allowed to put the spotlight on Dawkins. I want to say, "Right, if you say we are nothing more than just chemical machines then let's explore the implications of that. How do we teach good citizenship, for example? Where do these morals and values come from?" They have some hard questions to answer, too – but it's never allowed ... ID has to a large extent succeeded in putting these issues on the table.

The other issue is that the world and the universe simply look designed, and ID allows us to explore that issue through science.

Lecturer, theological college (9)

We have got to get around this dogma that talk about creation is religious and therefore can't be addressed in the public arena. Which is why ID works, because it is abstracted from religious dogma and so therefore can be discussed. It is likely that after buying the ID arguments that someone will realise that it must be God, and they may find the Christian God. ID is a step in the right direction.

Minister and author, independent evangelical church (24)

Where Intelligent Design comes in is that it actually shines a light at evolutionary biology – it just says, “Look here, there is an alternative explanation, there are issues that people haven't answered about evolutionary science.”

Director, Christian media (30)

Supporters of ID – both as a strategy for making evolution-sceptical ideas more widely understood, and as a force that could unite the many different types of evolution sceptic – often made the argument that ID could, and did, include and appeal to those who were not creationist – which was an important part of the argument that ID is not inherently creationist. The story of Phillip Johnson itself is a story of discovery rather than creationist fervour. And the two most commonly-cited examples of non-creationist ID supporters were David Berlinsky and Professor Steve Fuller.

David Berlinsky is an American thinker who works at the Discovery Institute founded by Phillip Johnson. He is a leading evolution sceptic and publishes articles and books attacking Darwinian evolution. He describes himself as an agnostic, secular Jew and pointedly refuses to make reference in his work to what the origins of life might be. There is much controversy surrounding David Berlinsky and we urge readers to research for themselves his work and his views. However, his support for ID is not unconditional, and it is unclear whether he truly supports the movement, despite working at the Discovery Institute.¹²

Professor Steve Fuller is an American professor of sociology at Warwick University in the UK. He describes himself as a secular humanist.¹¹ He was a witness for the defence (in defence of ID) during the Dover trial, but his testimony was cited by both the prosecution and the defence during closing arguments. His position is subtle and is widely misunderstood. In fact, he offers little succour to any who occupy an entrenched position on either side of the debate. Indeed, although he has published widely on the issue of ID, the philosophy of science, evolution and the sociological structure of the debate, most recently in his book *Dissent over Descent*, his positions are often forced into the service of one side of the debate or the other.

Fuller is in fact a maverick and iconoclast who has deliberately avoided placing himself clearly on one side or the other in the debate over evolution, standing, if anything, outside it. He is clearly, however, not a proponent of ID. Rather, he recognises that the history of science is replete with examples of great minds who would have held to an ID-type position (Isaac Newton and Gregor Mendel are two examples he cites). He goes further to show that they were also driven to their discoveries precisely by their religious understanding. In this way, he argues, there is no reason to assume that proponents of ID should not be able to conduct good and important science. He is at pains to point out that he by no means sees all of ID or creation science as good science and that in fact a lot of it is pure nonsense, but his point is that there is no reason to assume that it can never be good science and that creationists are incapable of being good scientists.

For Fuller, it is the very fact that creationists have an interest in disproving Darwinian evolution or the age of the Earth that could lead them to important discoveries in fields such as biology or carbon-dating. They could provide a check to scientists who claim more than they should or who assume that such theories and methods are more certain than they actually are. It is ironic that, although Professor Fuller is often cited as an example of a non-creationist supporter of ID, he too thinks that ID is inherently linked with creationism or, at the very least, with monotheistic religion.

To many of ID's self-ascribed creationist supporters, it does not matter that neither David Berlinsky nor Professor Fuller provides an unproblematic example of non-creationist support for ID. For them, after all, ID is simply good science – good science that happens to provide support for one aspect of their worldview. And supporters understood that, in the end, ID should stand or fall on the strength of its science and not on the judgement of those who support it:

If you look historically, there are two specific arguments relating to science and ID – irreducible complexity and specific complexity – those were just specific ideas that were put forward some years after the movement started in the 1990s. There might be some real mileage in those concepts because they are falsifiable, but if at the end of the day they don't hold up, then fair enough.

Maths teacher, secondary school (34)

During our research we did in fact encounter a supporter of ID who was avowedly not a creationist, nor in fact an out-and-out sceptic of evolution. We cannot claim to know how representative his views were, we merely present him here as an example of the way in which ID can be used by a non-creationist Christian. To some extent, he provides an example of the ways in which the ID 'strategists' have been successful, as he shows that ID can be used to sow doubts about evolution among those who currently accept it:

I believe God created but he created through evolution ... I believe in creation but not of the type that they usually mean when the term is used. There isn't really a label for it, I'd say I am somewhere in between evolution and Intelligent Design...this issue has never been foundational in terms of shaking my faith. If someone did come and refute all the ideas of ID it wouldn't shake my faith.

I think that a lot of ID theorists are keen to disassociate themselves from creationist views because obviously it's much harder to support those views if you have a presupposition which is 'the Bible is literally true' and therefore they fit everything to match that. Whereas I don't feel that that's what ID is doing. Genuine ID theorists are saying there are problems with the evolutionary account, not "because I [they] want there to be" but "because I've [they've] looked into it".

It's the kind of questions that the ID movement poses in terms of the complexity of life that for me do make me sit up and think there may be more to it than this. It's not because I necessarily want there to be a designer or think that we would be much better off without Darwinian evolution because then we'd know that God created everything. I was happy, before I encountered ID, that evolution was a perfectly satisfactory explanation and that God was just the one who set things in motion. It's not that I have a theological issue with evolution.

Presenter, Christian media (29)

ID, then, should not be seen in the simple terms of creationists on one side and scientists on the other. As an ideology, a science and a strategy, different people see it in different ways. Those who share a belief in one thing, for example a young Earth or a scepticism of evolution, may not share the same attitude to ID. There are also those who are passionate in their views on ID as either a good or a bad thing. And there are those who are fairly ambivalent, who see it as nothing new or special, or simply as not particularly relevant to them.

As some of our respondents pointed out, though, ID has a peculiar position in the UK. ID was founded by an American lawyer, and it has seen its most public exposure in a trial to determine whether, constitutionally, it could be taught in American public schools. The same legal issues do not exist in the UK. If, as some claim, ID is itself designed, to allow for the legal teaching of evolution scepticism in American public schools, then its function is slightly at odds with the British legal situation. In the UK, teaching religion in public schools is permitted (albeit with certain limits and caveats) and there are state-funded 'faith schools'. This can lead UK-based evolution sceptics, who are Christian and creationist, to doubt the need for ID to hide its Christian and/or religious roots. Far better, they argue, for there to be an open discussion of secularism in schools and far better to be open about their belief in the need for a more Christian education.

***ID is likely to remain
an important strategy
for some and a bugbear
for others.***

The debates about ID are unlikely to subside quickly. Debate within and between evolution sceptics, creationists, scientists, teachers, ministers and politicians is only likely to grow as more people become aware of it. For the purposes of this study, the most important lesson to be learned is that the issues are more complex than they at first seem. ID in the UK is likely to remain an important strategy for some and a bugbear for others. It has the potential to be a uniting force on the one hand and a source of division on the other. In the final analysis, the market for its ideas is fractured and it remains to be seen

whether or not it will be a powerful player in the landscape of evolution scepticism in the UK.¹³

materialism and the scientific framework

How a scientist normally works is that he will look for explanations and formulate theories on the assumption or the presupposition that this world is all there is. I don't have a problem with that...until science starts to address questions in which the existence of God is fundamental...like the origin of the universe or the origin of the human race.

Principal, theological college (27)

This kind of view was not unusual. It forms the beginning of an argument about the limits of science, which was often invoked during our interviews. It would be wrong, however, to equate this kind of argument with that of Stephen Gould and his famous argument about 'non-overlapping magisteria'. Gould's argument runs:

The net of science covers the empirical universe: what is it made of (fact) and why does it work this way (theory). The net of religion extends over questions of moral meaning and value. These two magisteria do not overlap.¹⁴

The argument of the respondent above is not about where the limits of non-overlapping magisteria are but that the magisteria do in fact overlap. This was a repeated theme among those we interviewed, made with more or less sophistication by many of our respondents. The logical deduction, in fact, is that, if evolution is being rejected on the basis of the Biblical account of creation, then the assertion is being made that science and religion operate in the same realm.

I don't believe in separate spheres of knowledge – I think this is a way that many people have tried to demarcate science from other forms of knowledge ... They want all forms of knowledge to be in the science area and they want experiences and values to be in the other area. I think this is an artificial analysis of the situation. I find in myself that there is a web, and that everything is connected.

University lecturer (15)

This was one of the most important issues for some when thinking about issues of creation and Darwinian evolution. The 'framework' in which scientific facts and evidence are interpreted is the key issue. They argue that science itself cannot be seen as free from either value or ideological bias. The argument has been alluded to in many of the statements we have already quoted. Many of our respondents, for example, say that science starts with the assumption that there is nothing in this world apart from that

which is available to observation. Such presumption, they argue, is as much of an article of faith as any belief in the supernatural or, more specifically, God and that it is this presumption of 'naturalism' or 'materialism' that can cloud the judgement of scientists, and evolutionists in particular, when it comes to interpreting the data they collect.

These kinds of argument are not new and they are not confined to the world of creationism and evolution scepticism. Indeed, philosophers and social scientists often make similar arguments about the way in which scientific knowledge is derived. The post-modern philosopher, Francois Lyotard, for example, has made similar arguments about how the nature of what counts as knowledge and evidence is dependent upon prevailing epistemological ideologies, themselves a product of history, politics and culture: 'The question of the legitimacy of science has been indissociably linked to that of the legitimization of the legislator since the time of Plato.'¹⁵ And the philosopher Mary Midgley, who deals directly with the question of creationism and ID, introduces one of her own articles on the subject thus:

Is science value-free? Of course, it has to be in the sense of recording particular facts without bias. But science as a whole is something much larger than its particular facts. It is a thought-system, a structure of general ideas within which those thoughts are assembled so as to make sense. And that structure is, itself, always part of a still larger pattern that encloses it, namely the dominant thought-system of the age.¹⁶

One or two of our respondents had published books and articles that deal with the topic directly and many others alluded to it frequently during interview. The critique usually involves the argument that there is a specific materialist bias in much of mainstream science and especially with regard to evolution:

You have to remember that all scientific evidence has to be interpreted within a framework. Most often they choose a materialist one.

University lecturer (20)

In philosophical terms, the Kantian paradigm under which we now live is the point at which we now need to be addressing ourselves: the view that says we can only know what we hear and see and feel in this world and we can know nothing of anything beyond it ... That whole framework by which we frame our beliefs needs to be challenged and I see evolution as an aspect of that.

Principal, theological college (27)

Materialism asserts that the phenomena of the physical universe are all that really exist and that everything can be explained in terms of physical entities subject to natural laws and chance. Human intelligent agency, even if real, is ultimately the product of unintelligent causes.

Materialism is an unproven assumption. The ultimate nature of reality is not a scientific question. Belief in naturalism is an act of faith that was not shared by most, if not all, of the founders of modern science, nor by most of the great scientists of the 19th and 20th centuries, nor by many scientists today.

Science teacher, secondary faith school (12)

For those respondents who had taken an interest in the history and/or philosophy of science, the naturalistic or materialist approaches of science, are seen as beginning in the Enlightenment. They do not see this as a particularly modern attack on their worldview. Rather, they see modern science, and its materialist secularism, as being part of a longer trend which began much earlier in European history and which perhaps reached its apotheosis in the work of Charles Darwin.

Evolution is a worldview; as a historian, I would see it as the rise of Enlightenment and rationalism: man putting himself in the centre.

Minister, Baptist church (25)

Essentially, the argument about scientific materialism is about the framework that is used to interpret natural phenomena. The materialist or naturalist framework to which most

The argument about scientific materialism is about the framework that is used to interpret natural phenomena.

scientists and evolutionists adhere, argue the creationists, discounts the possibility that there could be more to the world than what we can observe. They argue that in excluding the possibility of God from the outset, scientists have a pre-determined bias in their work. Evolution in particular, and this includes Darwin himself, is seen as a theory which was built on this materialist assumption:

Materialistic ideology has subverted the study of biological and cosmological origins so that the actual content of these sciences has become corrupted. The problem, therefore, is not merely that science is being used illegitimately to promote a materialistic worldview, but that this worldview is actively undermining scientific enquiry, leading to incorrect and unsupported conclusions about biological and cosmological origins.

The identification of materialism with science also means that materialism itself is not placed on the table for critique. Especially in the UK, media programmes on science and religion regularly critique (even ridicule) theistic positions, but carefully guard materialism/atheism from similar searching critique.

Lecturer, theological college (9)

The ‘subversion of the biological origins’ comes from the failure to recognise even the possibility of an influence which is beyond that which is immediately observable. The respondent is not necessarily arguing that Darwin should have come to a predetermined conclusion about the role of God, but rather that he should have entertained the possibility. And because of that, the respondent is arguing, the very biology itself is undermined – not because it lacked the possibility of God, but because it also included a materialist bias:

Darwinism is essentially ‘unintelligent’ evolution – though some elements (natural selection, random mutation, etc.) could be given a Christian interpretation in all sorts of ways ... But I think that is just confusing. As Darwin intended it to be, it is a materialistic framework for people. In our present cultural framework, it is confusing to dissect out of it the biological part.

Lecturer, theological college (9)

Here the respondent is drawing a distinction between good biology and biology which is corrupted by a materialist assumption.¹⁷ This understanding of science in itself may not be as controversial, in the sense of being specifically creationist, as the more positive assertion, made by some of our respondents, that scientific facts could (and should) be interpreted within a Biblical framework:

Some scientists are approaching questions like the origin of life with their worldview, a materialist one, one in which there is no God. Just as I come to it with my worldview, my paradigm, which is that the Bible is the truth and everything else flows from that ... But that does not mean that I am not a scientist or that I do not believe in scientific verification.

Maths teacher, secondary school (34)

I don't think that we can look back in time when we look at distant galaxies because I do not think that we can look back in time before the Fall ... Creationism takes the Bible as its starting point and tries to fit science to it.

Creation science author and retired minister, Church of Scotland (16)

Others were more forceful in arguing that using the Bible and the existence of God to interpret data would ultimately lead to a better understanding of the world:

Behind science, ultimately everything has to go back to knowledge of God – because God is the foundation of all knowledge. You need God to have wisdom – because just raw knowledge and information will not suffice to solve problems – they try – but we still have problems. And the missing ingredient is knowledge of God, because that helps you to manage and use information and data you receive in a more productive way. Science is a subset of our knowledge of God. They are not in contradiction ... Evolution ignores the real centre of things – God being the centre.

Educational director, Seventh Day Adventist faith school (2)

For those who involve themselves in the debate, arguments and counter-arguments often run past each other. For some, evolutionary evidence disproves creationism by showing that humankind was not created by God according to the narrative provided in the Bible. Such arguments fail to take account of the fact that those who see scriptural truth as a given are asking for that same evolutionary evidence to be re-interpreted within a framework of scriptural truth, not for that evidence to be analysed separately and used to examine the truth of scripture. Biblical truth is not seen as a theory that is open to evidential or scientific enquiry. It is seen as an *a priori* part of the over-arching framework that should be used to examine evidence and create theory.¹⁸ In contrast, the materialist assumption is seen as being an inherent bias in much of science, which corrupts the proper interpretation of data.

chapter 6 - references

1. John Whitcomb and Henry Morris, *The Genesis Flood: The Biblical Record and its Scientific Implications* (Presbyterian and Reformed Publishing, 1961).
2. The Flood also explains the existence of dinosaurs, which are seen to have been among the animals present on Noah's ark, but which were killed both by the flood and by subsequent changes in climate.
3. For example, "And God said, Let the earth bring forth the living creature after his kind, cattle, and creeping thing, and beast of the earth after his kind: and it was so." Genesis 1.24 (King James Bible).
4. Simon Locke, "Creationist Discourse and the Management of Political-legal Argumentation" in Simon Coleman and Leslie Carlin eds., *The Cultures of Creationism* (Ashgate, 2004).
5. "In short, Pius forcefully proclaimed that, while evolution may be legitimate in principle, the theory, in fact, had not been proven and might well be entirely wrong. One gets the strong impression, moreover, that Pius was rooting pretty hard for a verdict of falsity." Stephen Jay Gould, "Non-Overlapping Magisteria", *Natural History*, 106 (1997), pp. 16–22.
6. William Dembski and Michael Ruse, eds., *Debating Design: From Darwin to DNA* (Cambridge University Press, 2004).
7. "'Intelligent Design' Proponent Phillip Johnson, and How He Came to Be," *Washington Post*, 15 May 2005.
8. The story has much resonance with other accounts of conversion to Christianity. The narrative structure of someone finding themselves in a position of adversity, a struggle to comprehend, and a subsequent enlightenment, can be found in many different accounts of Christian conversion across the world. See for example, Fenella Cannell ed., *The Anthropology of Christianity* (Duke University Press, 2007).
9. Much has been written about the trial and the arguments that were presented within it. Accounts of the trial are often seen as belonging to one side or the other and we hesitate to recommend any specific text. Instead, we would urge readers to conduct searches themselves for relevant information about the various testimonies and a full account of the issues involved.
10. Michael Behe, *Darwin's Black Box* (Free Press, 1996).
11. We would like to thank Professor Steve Fuller for agreeing to be interviewed as part of our study and for allowing us to use his name in this report.
12. Steve Fuller, *Dissent Over Descent: Intelligent Design's Challenge to Darwinism* (Icon Books, 2008).
13. There are several books and articles, from all sides of the debate, which tackle the 'science' or 'anti-science' of ID. We would urge the reader who is more interested in understanding the specific details of 'irreducible complexity' or 'specific complexity', or the ways in which ID confronts and is confronted by mainstream science, to look at the wealth of literature available. For an introduction to both pro- and anti- ID points of view, try Dembski and Ruse, *Debating Design* (op cit).
14. Stephen Jay Gould, "Non-Overlapping Magisteria", *Natural History* 106 (1997), pp. 16–22.
15. Francois Lyotard, *The Postmodern Condition* (Manchester University Press, 1984).
16. Mary Midgley, "Intelligent Design Theory and other Ideological Problems", Impact Publishing, 15 (2007).
17. This particular respondent was an active supporter of ID and was keen to assert arguments which did not rely on a Biblical or religious argument.
18. ID presents a different kind of argument here, which we return to. ID is more of an attempt to show that evidence in nature can actually be used to show the presence of an intelligent designer and does not ask for scriptural truth or the existence of God to be present in the analytical framework.

the place of creationism in the UK

There is much talk about the place of creationism and evolution scepticism in the UK in terms of political life, or in terms of its perceived threat to science education. Far less is written or spoken about the ways in which creationists and evolution sceptics themselves feel about their place in the world. It is in relation to this that we might find the greatest differences between creationists and evolution sceptics in the UK and elsewhere, at least at the level of what the respondents themselves feel. As we have seen, evolution scepticism, and creationism more specifically, may be better thought of as part of a broader worldview of truth and knowledge. It is with regard to this worldview that respondents often couched their feelings about how they were understood (or misunderstood) in society.

In the introduction to this report we wrote that some respondents were afraid of the ways in which they might be portrayed or even 'outed' in this report. This fear of misrepresentation, ridicule or even malice reflects the way in which respondents feel they are treated in the UK. We have already spoken about how the labels applied to evolution sceptic ideas have been used as terms of abuse or insult, but respondents expressed the sense of unfairness in ways that went beyond the insult caused by petty name calling. Rather, many of our respondents saw a more systemic bias against their points of view and arguments. The media, in particular, was seen as a forum which gave time and space more to one side of the debate than the other. And education, too, was seen as systemically secular.¹

the mass media

The UK media was seen as not only providing *more* of a platform for evolutionist arguments and counter-creationist (or counter-Christian) polemic, but also as providing a qualitatively *different* platform for evolution sceptics. Respondents argued that they were never allowed to present evolution-sceptical arguments as they would have liked. Rather, evolution sceptics were asked to defend themselves against certain charges made by evolutionists, often in ways that questioned the very legitimacy of their having the views they held. They felt that they had rarely been invited to present arguments to the evolutionists or to question evolutionist dogma in the ways they felt they were

questioned themselves. In this way, they assert, evolution scepticism has been portrayed as defensive of a worldview, rather than as more positively *contributing* to science and knowledge.

Christians are always intensely under the media spotlight. Nobody seems able to do the same to Dawkins. You're 'right' if you just adopt the materialist position. But why can't I question that? Or ask for examples? What do we teach children in schools then? Where does it become *necessary* to have an enterprise called science? That never happens, that is never allowed.

Lecturer, theological college (9)

Others argued that the media control of the debate prevented them from arguing their side of the case and that the media's desire to avoid religious language prevented any reasoned debate about evolution, even in scientific terms.

I am not saying that evolution is necessarily part of the decay we see in everything, but there are people who are controlling that decay. They are pulling the strings and they dare not allow anything about the existence of God to come into the mass media. But if you don't want God in life then you have to believe in evolution ... If we could debate with evolutionists or be given time to present our ideas, then we could get more people to open up to the gospel ... It is about trying to get rid of one of the major blocks to hearing the gospel properly.

Creationist author (7)

The media has trivialised the issue and made it science versus faith. They don't recognise the science that is internal within the creation movement.

Headteacher, secondary faith school (18)

It's a bit of struggle right now to be able to express your opinions in public. We have got to get around this dogma that talk about creation is religious and therefore can't be addressed in the public arena.

Creationist author (3)

This sense of frustration at being both misrepresented and controlled in the mass media left many with the feeling that, at least in the UK, they were not only marginalised but also embattled, under attack. And in the need to defend against attack, they felt that they were unable to articulate properly their arguments, or question those that questioned them.

Nonetheless, it was also recognised that ultimately the media could be a useful way to bring evolution scepticism and, in a more general sense, religion to a wider audience. Despite the frustration with the way the mass media treated the issues in the UK, there

was still a desire to engage with it and to develop ways of talking to a wider audience through it. The recognition of the potential power of the media was raised by one respondent as being a key factor in the 'success' of creationism in the US:

Creationism in the US has been more successful than in the UK because of access to media. Instead, here, the media is used as a vessel against us.

Creationist author (7)

Other respondents had gone some way to addressing the imbalance by creating their own media outlets on the internet and using radio stations. These respondents again recognised that much of the widespread support for creationist views and for evolution scepticism in the US had been encouraged by the multitude of religious media channels that existed there.

ID too was seen to offer a way in which evolution scepticism could be talked about in the mass media without the baggage of religious argument. Because the arguments of ID are couched in solely scientific language – without either reference to the authority of any particular scripture or religion, or the need to be familiar with any particular religious text or theology – some hoped that it would allow a public examination and critique of evolution in a religion-phobic media. In this way, ID addresses one of the perceived problems associated with the position of evolution scepticism in the UK, that it is a solely religious, non-scientific, view. Furthermore, ID is seen by some to have the potential to wrest control of the debate and refocus the questions away from the legitimacy of creationism and on to the legitimacy of evolution.

Intelligent Design, as I understand it, is an attempt – which I support entirely – to talk about these issues publicly. It's been hard for creationists to even be allowed to debate the issue of evolution. [People say] It's religious and therefore not scientific ... The ID movement has detached itself from any religious model: 'Let's just get an idea out there that there is some kind of Intelligent Designer'. This is an attempt to get around the weapon that the secular establishment use to prevent creation being presented in the public arena ... ID is a clever way to say that there was an Intelligent Designer. I do support that. We need to get it into the public debate, as there is an intolerance of discussing this issue in the public arena.

Minister and author, independent evangelical church (24)

This open acceptance of the idea that ID is a strategy, a way of being allowed to talk about evolution scepticism (even creationism specifically) more widely, should not be seen as cynical or underhand. Rather it is a strategic response to a feeling that serious examination of evolution is being curtailed. ID is seen as one potential way of redressing the balance and levelling the playing field for debate.²

beyond the mass media

Beyond the treatment of creationism or evolution scepticism in the mass media, the picture changed somewhat. Some respondents were concerned that some people could be put in a difficult position professionally if their views on creation and ID were made public, but for the most part our respondents themselves felt relatively safe from personal threat. The sense of risk that respondents felt in revealing and talking about their views on evolution was related strongly to the kinds of job they had. Teachers and lecturers, for example, had a concern for their careers and for the treatment they might receive for their beliefs from peers, whereas those who worked as ministers or pastors in churches had few of these concerns. For those who wrote and published anti-evolution articles or maintained websites, there was often a feeling that the risk of abuse or censure was worth taking. Some, in fact, had had to suffer ridicule on web-forums, or the infamy of public naming by organisations like the British Centre for Science Education, but had carried on anyway.

For many, however, the primary cause of any social upset associated with being a creationist or an evolution sceptic came through direct confrontation or media-based confrontation with opponents in the debate. Those who did not engage felt that their views did not make their position in the world particularly problematic and expressed little concern about being marginalised or about their views being made public. Respondents whose main daily tasks involved talking about evolution to other evolution sceptics, creationists or Christians were unlikely to be concerned about the potentially negative perceptions of the wider world. Church ministers, too, often reported that their beliefs about evolution were a relatively minor concern in daily life, a comparatively unimportant aspect of their work or of their identity.

These kinds of view do raise the question of just how important the issue of evolution is in the daily lives of those we studied. Ours was a self-selecting sample, in that we were specifically seeking to recruit those who actively took an interest in creationist theology or doubted the veracity of evolution. But even among our sample there were those for whom the issue ranked fairly low in their daily lives. When evangelical Christianity is discussed, the debate often places a magnifying lens on the issue of evolution, falsely focusing on the denial of evolutionary science and the issue of science and religious education, thus portraying creationists as solely concerned with these issues.

When evangelical Christianity is discussed, the debate often places a magnifying lens on the issue of evolution.

For some of our respondents, however, day-to-day concerns were as likely to be about the practicalities of administering pastoral care to a congregation or the securing of funds to maintain a church as about considering the minutiae of a debate over evolution. This may reflect a feature of creationism particular to the UK: without a huge base of support or funds to pay for large numbers of people to staff creationist organisations, creationist thought-leaders in the UK are still the same people as those who run and minister to local congregations in small independent churches and whose responsibilities encompass all that running a church entails. This is not to belittle the importance of what we have been discussing here. Rather, it is an attempt to get a sense of scale and proportion. As two church ministers put it to us:

There are bigger issues for me than worrying about how old the earth is. Some I would be willing to go to the stake for. We have to be careful of letting the ground slip from under us ... At the end of the day, I wonder how much it will really matter, when there is a world starving and people who need to be told the Christian message. Do we have the luxury of sitting around and making daisy chains? It's all about getting things in proportion ... So I tend not to preach about creationism. I have been working on it personally to get it more settled in my mind. But I am more concerned that we are united and I don't want to bring anything in that would be divisive. Martin Luther said 'Here I stand', but I don't think this is a 'Here I stand' issue. If I would speak about it, I would do it in cautious terms.

Minister, independent evangelical church (23)

There are some who you will probably encounter who are banner waving, badge wearing, I'll even say 'goose stepping' in terms of their holding to a particular teaching...and though I might go along with many of their intellectual arguments I don't go along with the way they present themselves or the information. There would be an aggressiveness and it would be all-consuming. Whereas for me this is not all consuming ... This is where you have to put the context in. We have poor people, we have refugees, we have drug addicts and drug dealers and we minister to these people, and in one sense it doesn't matter to them two hoots. They wouldn't even understand the phrases. And my call first and foremost is to show them the love of God in a personal and loving way. And for them to come to that it is not necessary for them to have a fully worked out understanding of how the world began ... What matters for me is...look...John, the apostle, says 'I've told you what's important'...and he doesn't mention creation.

Minister, Church of England (8)

Clearly, as we have seen throughout this report, the debate over evolution can be seen as of key importance in a battle against atheism and secularisation but it is important also to see that for others whose worldview leads to an evolution-sceptical position, there are

other issues and other aspects of life which are important. Often these issues (spreading the word of God and ministering to the needy, for example) are defined by the very same worldview that has led them to doubt evolution. One respondent who worked as a minister in a ministry with a specific focus on creation science made this point, even while recognising the importance of the evolution debate:

There are lots and lots of people out there who need my help. There are real issues. That's why you need good people on it ... I regret that some people see me as a creationist first and foremost, because I am Christian first. I deal with this area because it has come my way and it needs dealing with ... For me I am far more than a creationist, but creation is that area that has an influence on so many issues – it seems to have become an area of focus.

Author, creationist organisation (26)

These statements come from people who wrote about, thought about and even ministered and preached specifically on the issues of creation and evolution. Of course, their views do not necessarily represent all, or even the majority, of those we spoke to. But our interviews also focused specifically on the issues of evolution and it is worth remembering that creationist and evolution sceptic views are sometimes part of a broader worldview.

It is also worth pointing out that there was some difference between those who saw themselves as marginalised, especially by the media, and those who saw a bigger picture. Most of our respondents noted that they may represent a minority view in the UK, but others, especially those working in churches whose congregations contained many parishioners from overseas, considered that they may not be in such a minority in global terms after all. One respondent stated boldly that a creationist viewpoint was probably the dominant mode of Christian belief around the world and, the relative secularism of the UK notwithstanding, that creationism, in comparison with theistic evolution, was probably in the ascendancy.

chapter 7 - references

1. We explore the issue of education in more depth in chapter 8.
2. Whether ID succeeds as a strategy in this sense remains to be seen. Many criticisms of the position have included assertions that ID is simply 'creationism in disguise', as we have seen already, and as such proponents of ID are often treated simply as creationists in the mass media.

unity and disunity: is creationism a movement?

Many voices on both sides of the debate use the term 'movement' to describe both creationism and evolution scepticism more generally, and ID in particular. It is often used loosely to describe those who share the common goal of questioning the science of evolution and the certitude of evolutionary theory. One prominent anti-creationist website, for example, says the following about creationism:

[One] key issue is that the movement is well organised...but small. It has imported American organisational abilities and techniques and punches well above its weight when it comes to the number of adherents to the movement. Its activists have systematically and for years been proselytising in back-street churches and chapels all across the country. The movement has well-funded publications including seemingly very convincing technical journals (they are not convincing once looked at in detail – they are plain wrong). They organise conferences, distribute brochures in mainstream churches, have well-organised websites, publish and distribute books, DVDs and so on. Their adherents are on satellite TV daily. The movement employs full-time people with advanced science degrees to proselytise their cause.¹

It is not exactly clear here who it is that constitutes the 'movement'. If they can be described as proselytising in churches, can we assume that it does not include ministers of those churches, who may already be creationist? And do they mean Old or Young Earth Creationists? Are they in fact referring to those who work specifically on ID or creation science? All of which begs the questions: If there is a movement, is it a movement which is defined by adherence to certain interpretations of the Bible? Is it a movement of people who belong to a specific religious denomination? Or is it a movement which aims to see a change to the way in which evolution is taught in schools? These different possibilities are often conflated when commentators on either side of the debate use the term 'movement'.

And yet these different possibilities actually throw up some sharp divisions between people who are supposed to have the same shared set of beliefs. Interpretations of religious texts are not uniform; strategies like ID are not universally lauded or welcomed; the politics of education are not agreed. The term 'movement', in fact, seems to imply a far

greater unity than was evidenced in the answers respondents gave during our interviews. Far from a unified movement with a coherent set of aims and goals, it seemed that there was a distinctive *disunity* among our respondents, creationists and evolution sceptics alike.

The evolution sceptic respondents we spoke to did not seem to be united in either a geographical or political sense. By 'geographical' we mean that respondents did not necessarily belong to or attend any groups and organisations and, where they did, they belonged to different ones. They did not keep contact with many of their counterparts in the US and they did not necessarily communicate with each other. Indeed, the organisations they did belong to were varied: some were specifically defined by their creationist or anti-evolutionary missions; others were not. Many of these groups themselves did not enjoy universal support among our respondents. Some were seen as too militant, others not militant enough; and some were seen as simply misguided in their aims. For example, there is a forum for those who promote ID to talk to each other, but not all saw ID as something that they wanted to be involved with. And even within this forum, it was recognised that there was a spectrum of beliefs and that there was a great deal of internal disagreement.

By saying there is a lack of 'political' unity we mean to say that, whereas a 'movement' implies a certain shared set of beliefs and goals, our respondents were not united. There were disagreements (sometimes vehement disagreements) over theological matters and over the ultimate end of any actions taken to promote their beliefs, let alone the means by which those ends should be achieved.

geographical disunity

As we have alluded to many times during this report, one of the most common assumptions made about creationism in the UK is that its adherents must share strong ties with the US and with the kind of creationist or anti-evolutionist 'movements' that are seen there. The reality is less clear. There are certainly organisations with links to the US, such as Answers in Genesis, and there are individuals who communicate with key players in, say, the Discovery Institute, but there were just as many who had no link to (or any particular reverence for) US-based creationists and evolution sceptics.

In fact, the US was not always considered a good role model for UK creationists, and associations with it are understood, by some, to have a negative impact on the image of creationism and evolution scepticism in the UK. Several of our respondents made clear that they wished that they were not associated with 'crazy southern Baptists' or 'redneck Americans' or with certain churches that hold beliefs about 'end times', the 'tribulation' or 'the second coming'.²

One of our respondents, a minister in an evangelical church, related a story that should caution against assuming that creationism in the UK is the same as creationism in the US.

American Christianity is so broad that they do not need to engage with people that you do not agree with. The tracks are so wide that you do not need to leave them. Because there is enough of them [people belonging to each particular denomination or set of beliefs]. Here, you can't help but come into contact with people who disagree with you. Every day. I interact with guys that Americans would not have to interact with. My American friends have told me that they may not feel comfortable even *being seen* to mix with people who may have only slightly different takes on matters of theology.

I know of American church-planters who came here trying to open evangelical churches. There was a failure to work cross-culturally – a failure to understand context. They had an almost imperialist attitude that they would teach us how to do it. And to some extent they misunderstood what it was like here. They had to hand over control to local pastors rather quicker than they had realised ... They failed to understand that in this country church is 'enemy' and that they would not be welcomed with open arms. That if they wanted to talk about Jesus they would have to understand the kinds of people they were talking to ... They think they can import an American model into the UK without taking notice of the context. I do not know of one American church planter who has managed to start a church here in the way he would have liked.

The US was not always considered a good role model for UK creationists.

America and Australia are understood to be the spiritual home of the creationist. But it's sloppy thinking to think that we are just the same.

Minister, Baptist church (25)

This argument came from a YEC who explicitly advocated the use of creationist materials produced in the US but who nonetheless did not think that the proselytising strategies of US creationists were useful in the UK. Ironically, one of the key differences being emphasised is that of the disunity among creationists and Christians in the UK and the importance of recognising the need to work with people who believed different things theologically. It is the very ideological disunity of creationism within the UK that is being used to highlight a geographical disunity with the US. As another respondent put it:

Evangelicals are not united on this issue of creation. It's not like America here.

Minister and author, independent evangelical church (24)

It was the very nature of the disunity on theological questions (such as arguments over a young or old Earth) which, argued one of our respondents, prevented creationists from using theology to unite geographically:

It's difficult to define the boundaries of an issue with evangelicals so issues don't become so defining. It would be difficult to use them as an organising principle.

Principal, theological college (27)

Just as there is perhaps not the connection with the US which many commentators assume there to be, there is also no single place or organisation that one could point to in the UK and suggest that it represented all creationists or that it could be described as the centre of a 'creationist movement'. Our respondents belonged to churches of many different denominations, including both independent and mainstream churches. They belonged to different organisations that held different beliefs and had differing, sometimes opposing, aims. Far from being 'organised', as the anti-creationist website claimed, creationists in the UK can often see themselves as being profoundly *dis*-organised:

A lot of creationists frustrate me. Not all of them are great people. Some are very frustrating ... You have got us about right if you say we're disorganised. There is only one group that is more disorganised than us and that's them [evolutionists]! We are pathetic when it comes to getting things together ... Discussions amongst creationists can be some of the most aggressive discussions I know.

Author, creationist organisation (26)

This is not, of course, to say that there is no desire for unity but that such a desire does not necessarily translate into a united 'movement' on the ground.

We should probably do more things together as creationists ... There probably are churches that could join together, because more and more this is going to be an issue [evolution] – especially as this argument is being used more and more by secularists.

Minister, Baptist church (25)

political and ideological disunity

Throughout this report we have been at pains to stress that not all of the arguments we present were expressed or adhered to by all of our respondents. Issues such as the age of the earth divide creationists in quite important theological ways and can affect the ways in which beliefs are promoted and acted upon. For example, much of creation science is

associated more with YECs than OECs, and indeed many of its premises derive from a YEC position. 'Floodism' is clearly a YEC understanding of how geological strata are formed within the timescale of a young Earth. Such arguments have less relevance for most OECs, who are not concerned with geological timescale.

With a growing body of knowledge, different theories and different models can become more or less widely known and accepted. The distinction between micro- and macro-evolution, for example, was used by most of our respondents, but few framed it in terms of genetic information. Yet some creationists in the US have argued that the micro- and macro-evolution distinction has been superseded by a model incorporating theories of mutation and genetic 'information'. Similarly, some of our respondents were familiar with creationist cosmological models that looked at the evidence drawn from astrophysics and astronomy, while others were not. And individual positions are not necessarily fixed. Several of our respondents were quite open to changing their understanding in the light of new theory or evidence with regard to, for example, micro-evolution, ID or the age of the earth.

ID also proved controversial, despite some of our respondents' assertion that it had the potential to unite those with differing points of view on theology or Biblical interpretation. Many of our respondents considered it offered no particular help in their fight to bring an understanding of God to those with no such understanding. For others, however, evolution was of such significance, in terms of being a misunderstanding of the world, that a detailed examination of the science around it was of paramount importance. And yet others felt that the fight against evolution was only one of several key fronts in a broader battle against secularism and atheism in general. Diversity of views within a movement is common, of course, but some of these views contradict each other. One cannot promote Biblical understanding, for example, if one is trying to exclude God from one's polemic.

Certain leaders in creationist thinking were also sometimes seen as divisive. We encountered church ministers who actively discouraged members of their congregation from going to see certain speakers, on the grounds that their militancy on specific issues was too divisive. And yet those who saw their interpretations of scripture as fundamentally important were dismayed at the ambivalence of those who did not.

One issue that is often assumed to unite creationists and evolution sceptics in general is the issue of teaching counter-evolutionary ideas in schools. But here too we find division. For some, this was, indeed, a key issue, as this respondent put it, when asked whether it was worth fighting the battle over evolution in the classroom, in the UK:

Of course, I think it is worth it. This is what we believe. What else can we do? What else should we do? We think it's important. It's not an issue to just be discarded. We believe that children are being taught wrongly.

Science teacher, secondary faith school (12)

To this end, some of our respondents had been involved in writing to and lobbying politicians to permit the teaching of ID in science classrooms. There is a sense here that the issue of evolution needed to be challenged for the sake of all children, and therefore schools were necessarily somewhere that should be targeted. These kinds of view are often seen, from the outside, as belonging to a particularly fundamentalist kind of creationist. And yet we spoke to a leader of a YEC organisation well known for its particularly strong line on the authority of scripture, whose view was quite the opposite:

Several of our respondents were quite open to changing their understanding in the light of new theory or evidence.

We do not get involved in trying to teach creationism in schools ... Some in the organisation may wish to see more of a Christian viewpoint in more schools but we do not take any part in that side of things. There are faith schools in this country and people must make their own choices about where their children are educated. I do think that teachers should be encouraged to allow children to examine the moral implications of science and allow them to discuss and criticise it, but it has always been my position that I do not believe in forcing people to teach something that they do not believe in.

Minister, creationist organisation (17)

This view was expressed from within an organisation that many of our respondents regarded as one of the stricter, and possibly most divisive, creationist organisations in the UK.

For others, the issue of how to teach evolution in schools was simply not as important as the secularisation of education in general:

I think it [evolution] gets over-hyped, I don't think it's the be-all and end-all that some would make out. Education is a huge subject. The whole of our education system is basically secular and this is just one part of it. So to just address this particular part is not really satisfactory – if you are going to put effort into this then you should address secularisation of the whole of the education system.

Principal, theological college (27)

And for many, the issue simply did not arise during the interviews. After prompting by the interviewer, respondents often declared a dislike for the way in which science and evolution were taught as an orthodoxy in British schools, but they had no particular involvement themselves with trying to change the national curriculum or in campaigning to introduce ID. Furthermore, many of our respondents had children who attended local, state-run schools, and few expressed fears about the scientific education they were receiving. This is not to say that respondents did not desire a change in the way evolution was understood, but rather that the issue of education was not necessarily of prime concern.

Perhaps one reason for this relative ambivalence is the fact that, in the UK, religion *can* be taught in state-funded schools. A small number of our respondents taught in faith schools, for example, where creationist ideas were introduced in religious education classes alongside the teaching of evolution in science classes. All these schools, respondents were at pains to point out, were examined by Ofsted and often received high praise for their science programmes.

towards unity?

Despite the differences between creationists and the resulting disorganisation, there are some things that unite creationists, most obviously the issue that is the subject of this report: evolution. As we have already seen, many of our respondents noted that this issue is becoming more, rather than less, prominent in public discourse. While the debate can tend to lump together those who may have differing views, it is also a uniting force for those who hold those views. OECs, YECs and adherents to ID may differ on theological and political matters, but they know which side they are on in the public debate over the veracity of evolution. In this way, a figure like Richard Dawkins can become a common enemy, someone around whom a future movement might be built:

I don't think he has had a negative impact. I actually think that Dawkins has been a good thing for Christianity. He has caused Christians to address a lot of issues more seriously than they have done in the past. He certainly has raised a lot of interest. One of the most popular things that I can do at a conference is to do a session on Dawkins.

Lecturer, theological college (9)

One might argue that the emergence of 'flood geology' also played a large part in the rise of YEC in the US. In its presentation of a science which is compatible both with the Bible and with the geological realities of the world, it had a powerful part to play in persuading

Christians to move to a Young Earth position. In the same way, it is possible to imagine a time in which creationists are united by a new paradigm that resolves certain theological or scientific controversies. ID might be seen as an effort to create just such a paradigm. It can be seen as an attempt to unite the differing creationist standpoints under a banner of evolution scepticism. Its assertion of the need for an Intelligent Designer in nature is seen as a point on which all creationists can agree. We have already seen how, as a movement, it has not yet been successful in uniting creationists – but it is also still being developed. How it adapts in the future remains to be seen.

chapter 8 - references

1. British Centre for Science Education website: <http://tinyurl.com/be57of>, accessed February 2009.
2. We do not have space in this report to tackle these concepts in detail. Suffice it to say that many of our respondents saw a concern with these issues in American churches as being a point of difference with the UK.

Islam and creationism from overseas

For much of this report we have concerned ourselves with arguments and ideas about evolution that have come from self-identified Christian creationists. We have been careful to outline the different kinds of argument that different creationists make, and to address the divisions within creationist thought – but we have spent less time discussing the different kinds of Christian they are. The variety of Christian belief in the UK is large. Adding to existing diversity, immigration has seen an increasing number of people bringing different forms of Christian theology, Christian tradition and Christian worship that originate from overseas.

A small number of ministers among our respondents oversaw largely immigrant congregations. The bulk of the ideas about evolution and creationist theology they presented were not substantially different from those of native creationists, but some of the ways in which they expressed these ideas highlighted the differences between Christian traditions. To fully understand creationism in the UK, research would perhaps need to be carried out within different groups of Christians, encompassing both differing religious traditions and a diversity of geographical backgrounds.

One example of the ways in which creationism can be thought of differently came from one of our Latin American respondents, who was a minister in a large church catering largely to an immigrant, Spanish-speaking, congregation. He explained *his* evangelical Christianity with reference to a historical trajectory that differs from the one we were most often presented with. Instead of references to the Enlightenment and the battle between secularism and godliness in the UK, he spoke in terms of a colonial narrative, in which northern European and British Christians had brought Protestant evangelical ideas to a largely Catholic part of the world. Placing himself in the story, he saw himself as returning to the home of evangelical (and therefore creationist) thought and bringing back with him that same Protestant evangelical message. He also presented the UK as a place that had largely forgotten its Christian history in this regard, and he saw his mission as being part of a movement to revive it.

This story reminds us that creationism can emerge from within differing traditions and historical timelines. In fact, these differing roots, or perceived roots, of belief can also be found among other Christian groups in the UK. One church minister we spoke to had trained in a Nigerian church before coming to the UK. He ministered to a large

congregation consisting mainly of British Afro-Caribbean and West African immigrants. During discussions about the theological basis of his creationist beliefs, he pointed out that there were many things which lay outside the scientific paradigm, and he went on to mention features of belief and mysticism in what he called 'African thought'.

This raises questions of the role of syncretism with regard to creationism in the UK. It was not clear whether the minister himself reconciled elements of African mysticism with his Christian and creationist beliefs but he was clear that many did. This has implications for Christian theological arguments and for concepts such as the inerrancy of the Bible. These issues point to the need to be careful when making generalisations about creationist thought and the beliefs that may lie behind it. They also suggest strongly that, to fully map creationist thought in the UK, further research needs to be carried out within individual churches and branches of Christianity.

As one Afro-Caribbean church minister put it to us, with reference to the idea that all Christians could be united by their belief:

Our church has tried to reach out to native white English people. We want to be an all-inclusive church. The problem in the UK is black worshippers want to hear about all the fire and brimstone, but the white audiences are a bit put off by that. It's just a matter of style, really.

Educational director, Seventh Day Adventist faith school (2)

Generalisations aside, it is more than a matter of style. It is also about differing traditions and notions of the 'right' ways in which to worship. We must remember that what we call creationism can emerge from any, and every, one of these different traditions.

Islamic creationism in the UK

Finally, we wish to explore, briefly, the phenomenon of Islamic creationism in the UK. Among those we interviewed there was a small number of what might be termed 'Muslim creationists' and Islamic scholars. The sample can by no means be considered to be representative and what we present here should be seen as no more than a guide to some themes that relate to Muslim creationism in the UK.

The first point to note is that we faced two particular problems in recruiting Muslim creationist thought-leaders for our study. The first was that many Muslims declined our invitation to interview on the grounds that they had no wish to engage British Muslims in 'another controversial debate'. The second is that 'thought-leadership' for Muslims, especially on matters such as creationism, may lie outside the UK. In fact, thought-

leadership may come from within many different Islamic traditions and from many different parts of the world. Imams in the UK might reject evolution on scriptural grounds, but there is very little Islamic creationist material in the UK which is written or produced by UK-based Islamic theologians.

Our respondents did indicate that there were Islamic bookshops with creationist material, but that the majority of this literature would be produced overseas. Even within the UK, what is considered thought-leadership may depend on language and cultural background. A British Arab may not see these issues in the same way, or seek guidance from the same people as, for example, a British Nigerian Muslim.

The notion of recruiting Muslim ‘creationist thought-leaders’ in the UK is also problematic in other ways. First, it assumes that we can understand the term ‘creationist’ to be something that applies across religions and cultures in the same way. Second, it assumes that there are a set of *clearly* identifiable Islamic creationist thought-leaders present in the UK. Neither is the case, as we shall see. What we can do, and did do, is talk to Muslims who were interested in, and actively studied, the issue of Islamic creationism.¹ Those who spoke about it or wrote publicly might therefore be considered ‘thought-leaders’, but not everyone we spoke to was a creationist themselves.

One prominent example of an Islamic creationist who promotes ideas rejecting evolution in the UK is Adnan Oktar.² Oktar is a wealthy Turkish author who has gained some international notoriety for distributing an illustrated tome, *The Atlas of Creation*, to prominent scientists, schools and universities in the UK as well as the US. The book outlines illustratively many of the ‘scientific’ arguments against evolution which we have already talked about in this report, especially from within ID.

The idea that there is a coherent group of creationists including both Christians and Muslims is a notion that often comes from detractors of creationism.

Controversy surrounds Oktar and his work, but the significance here is that Oktar illustrates one example of Islamic creationist thought-leadership that does not originate in the UK. Just as we have seen that the assumption that British creationists are similar to their US counterparts is a dangerous one, so we would caution wariness in assuming that Muslim creationists in the UK are adequately represented by prominent Islamic creationists elsewhere.

Just such an assumption may well have led Richard Dawkins to make the comment that most devout Muslims are creationist. The picture on the ground in the UK is perhaps less clear than that. Certainly, during interviews we spoke to an Imam who was not creationist except in the sense of believing that God was the ultimate creator. He did not reject

evolution and he would not have agreed with the vast majority of the arguments presented by Christian creationists and detailed within this report.

an Islamic interpretation of creationism

Of course Muslims are creationist. We believe in God and that God is present in all that we do. However, it doesn't mean that we have to believe in Christian creationism or the creation story as told in the Bible. That isn't part of our faith, so it's not helpful to put us all in a group together.

Imam (47)

This comment is interesting for two reasons. The first is the obvious assertion of a difference between Muslim creationists and Christian creationists. The idea that there is a coherent group of creationists including both Christians and Muslims is a notion that often comes from *detractors* of creationism, who tend to see any religious objection to evolution as, in some sense, creationist, thereby bracketing Christians and Muslims together. Such a view ignores the complexity and diversity of belief and thought that lie behind the rejection of evolution.

The second point of interest is the respondent's strong assertion that "Muslims are creationist". What does the respondent mean by this? Does he mean 'creationist' in the sense in which we have been using the word, or in the sense that God created the world and everything in it, by whatever means? Furthermore, the respondent's simultaneous rejection of the label as one which can be usefully used to describe both Christians and Muslims, and acceptance of the idea that Muslims *are* creationist, highlights a new set of semantic problems.

As the interview proceeded, it became clear that the respondent was using the term 'creationist' in the broad sense of meaning that Muslims believe that God created the world. He did not himself reject evolution. At first glance, then, it may seem that this respondent was not in fact creationist, at least not in the sense that we have been using the term here. But the issue is perhaps more complex than that. The respondent went on to say that he shared with creationist Christians the belief in the absolute authority of scripture – in his case, the Qur'an. In this sense, he explained, he was a 'fundamentalist'.³

This immediately problematises the broad use of the term 'creationist'. If creationism is defined, at least in part, by a rejection of evolution, then this respondent cannot be called creationist. However, if one of the key components for a Christian creationist is that the Bible constitutes an ultimate authority, then the respondent's insistence upon the ultimate authority of the Qur'an seems to indicate that there is indeed something about

this respondent which is similar to the Christian creationists. Furthermore, although the respondent did not reject evolution, he had this to say about science:

When I accepted Islam I realised that no science could touch it. Faith is outside science, it can't be threatened. That doesn't mean that I don't value the scientific method or scientific evidence.

Imam (47)

This kind of statement sounds like many of the Christian creationists' views of science, and like the kinds of statement that evolutionists and creationist detractors fight against. Yet the respondent did not reject evolution.

The question of how to use the word 'creationist' in relation to Muslim respondents remains. If we reject the self-description 'creationist' on the grounds that it does not contain the notion of evolution scepticism, then we would be ignoring the views of self-described creationists in favour of the evolutionists' view. Furthermore, we would be excluding those Muslims who share with the very strictest of Christian creationist evolution sceptics the idea that the axiomatic truth of scripture must stand as part of a framework in which scientific evidence must be interpreted. On the other hand, if we include this respondent among those we call creationists, then we must accept that there are creationists who do not necessarily reject evolution. For the time being, we will leave this question to one side and return to it in the light of more evidence.

Islamic theology and creation

The starting point for our Muslim respondents, even for those who did not reject evolution, was that God must be considered to be present in all things, that science should be conducted within this framework and that the primary source of information about God and his actions comes from the Qur'an:

For Muslims or anyone who believes in monotheism, their starting point is: God created the Earth and all life forms. So they take that as their starting point and come to different conclusions from those who don't.

In the Qur'an it says that every atom, every grain, every leaf, happen by the power and permission of God.

Imam (48)

Respondents argued, however, that the fact that the account of creation in the Qur'an was not as prescriptive as the Biblical account of creation had profound implications for the theology of creation. If the fact that God created cannot be in doubt, the language of the creation story was such that many more interpretations could be accommodated than was the case for Christian evangelicals who used Genesis as their reference point. The most commonly cited example of this was the matter of the age of the Earth. Some have described Islamic creationists as 'Old Earth Creationist' because of their willingness to accept that the Earth could be ancient. Indeed, most of our respondents understood the Earth to be old:

There is no such thing as a six-day creationist Muslim. In the Qur'an it mentions six days but it says that those days could be tens of thousands of years long. Genesis could easily be mistaken on that fact.

Imam (47)

Terms like OEC, though, obscure the issue. The age of the Earth may not be a major point of contention for a Muslim creationist, but that should not be taken to mean that there is a capitulation to science and geology on the matter. As one scholar put it:

I am open-minded about the age of the Earth. I tend to go with the scientists. We might be right or wrong, but it's difficult to know how good our scientific assumptions actually are. The Qur'an says six days but then gives different lengths of those days. Who knows which one is true?

Imam (48)

In other words, the ambiguity of the Qur'an does not mean that the Qur'an should not be seen as the ultimate authority on the issue. Rather, the acceptance of the evolutionary or geological accounts comes simply from the fact that there is not a clear conflict with the Qur'an's account of Earth's creation. This respondent, however, chooses to remain open as to how old the Earth might be, recognising that the Qur'an simply does not make it clear. The truth of the matter, however, lies in the Qur'an, whatever the certainties or uncertainties of science. Again, although we may describe this as an OEC view, the dogmatic acceptance of the Qur'an's ambiguity regarding the length of the days of creation has just as much in common with a Christian YEC view, which also insists upon the dogmatic interpretation of the length of the six days. The respondent's ambiguity is just as 'strict' in reading the Qur'an as the YEC view is 'strict' in its understanding of Genesis. In fact, it is probably better to characterise this view as one determined by the ambiguity of the Qur'an. Since the Qur'an does not specify clearly how old the Earth is, our respondent argues that he too should maintain an open mind on the issue. The scientific assertion of an old Earth, then, may be accommodated without conflict.

If the age of the Earth did not prove problematic for our Muslim respondents, the creation of humankind presented a larger theological conflict with evolution, and there were significant similarities here with our Christian respondents. The key issue lay in the perceived conflict between the purposeless, chance *evolution* of humans and the *purposive* creation of humankind by God.

We occupy a kind of middle path. On the one hand, you have the Christians and they say that the Earth is very recent. On the other hand, you have scientists who tell us about evolution, dinosaurs and what have you. Now the Qur'an says that the six days lasted a very long time. But the Qur'an also tells us that humans did not come about by accident. So maybe we are in-between the Christians and the scientists. We agree with the scientists about the Earth and even about the animals. But there is something wrong with evolution in that this can't have all happened by accident or by chance. You know? Natural selection? No. It is God's selection.

Speaker, Islamic communications organisation (50)

It is not clear whether this respondent is rejecting evolution outright. He is, however, rejecting that part of evolution which he perceives as relying on chance and random mutations. The problem for him lies in the absence of God's volition in the evolutionary process. Any theory which removed God from a story of the origins of human life would be seen as incorrect in this way. This is an argument about the facts of creation; where evolution asserts chance, the respondent asserts purpose. But he falls short of rejecting the possibility that God could have used evolution to create.

For another respondent, however, there were larger implications than just disagreement over the extent of God's intervention:

Evolution replaces the accountability of mankind to the higher authority of God, with the idea of natural selection – which is free of moral constraints. If we all came about by accident, then we are not accountable for our actions. This is not true, of course. We must be accountable to God.

Imam (48)

This reiterates the arguments made by Christian creationists about the amorality of the evolutionary narrative compared with the scriptural account of the accountability of humankind to God. For this respondent, like many Christian creationists, this aspect of creation was inflexible. The process of evolution was seen as wholly incompatible with the moral account of humankind's creation and therefore could not be accepted.

Most of the theological arguments against evolution from our Muslim respondents fell under these three themes: that God is present in all things, that God created man with purpose, and that God created man with a moral responsibility. And of course, surrounding these is the principle of the authority of the Qur'an.

If some Muslims, however, used these theological principles as the basis for a rejection of evolution, others could use them as a way of accepting evolution. Here we must draw a distinction between the theology of Islamic adherence to the authority of the Qur'an and the Christian evangelical belief in the authority of the Bible. The Qur'an, it is argued, does not have as clear a description of creation as the Biblical book of Genesis; as such, even strict adherence to exact words can lead to different positions. One respondent, insistent upon his own strict adherence to the Qur'an, explained:

I don't believe chance can explain the animal world entirely – when you get interested in these things, it is so magical that it becomes obvious there must have been a creator behind it all. However, I don't dispute the evidence for evolution. It is God's way.

The Qur'an does not have as clear a description of creation as the Biblical book of Genesis.

I believe that we evolved from apes, but that at some point God differentiated us by giving us a soul. He made Adam and Eve different from the other 'ape-people'. It was a special event.

University lecturer (46)

This belief in the 'special event', the respondent insisted, meant that his position diverged from the evolutionary account. By emphatically emphasising the role of God in evolution, he saw his perspective as fundamentally different from that of Darwin. And this, he insisted, made him creationist. For others who also described themselves as strict adherents to the Qur'an, the idea of humans evolving from other animals was unthinkable:

When I originally got interested 12 years ago, I got involved because a friend of mine told me that he heard someone say on TV, 'As Darwin stated, we evolved from monkeys' but even though I didn't have the knowledge... I knew, even as the laiest person, that something like that didn't make sense. That just can't be right. The Qur'an describes nothing like that.

Creationist author/student (45)

These differences were not clearly articulated in terms of occupying different schools of creationist thought or even as being points of grave disagreement; both respondents

considered themselves to be strict in their reading of the Qur'an. Despite the disagreements in terms of responses to our questions, the theological arguments rest on the same principles. So maybe a Muslim creationist is someone who believes in the axiomatic truth of the Qur'an on the issue of origins and creation, regardless of whether that person rejects evolution or not.

This challenges our original use of the term 'creationist' but seems to better reflect the position of the respondents themselves. Of course, when understood in this way, the term is at odds with the way in which the term 'creationist' has come to be popularly associated with evolution scepticism. But to make sense of the responses provided by our respondents, it was necessary to understand that strict adherence to creation as presented in the Qur'an could, in fact, have differing implications for beliefs about evolution – with some seeing strict adherence to the Qur'an as implying a need to reject evolution, and others as being perfectly compatible with evolution.

the Qur'an, science and evolution

Whereas the Christian creationists often emphasised their own specific interest in science, our Muslim respondents insisted on the scientific knowledge in the Qur'an. Muslim respondents were not proposing new kinds of science based on the Qur'an, like the creation science described above, but instead argued two quite different points. The first was that the Qur'an's truth and scientific truth should not be in conflict, and the second was that the Qur'an should not be seen as being ignorant of modern science.

The first argument here, that science and the Qur'an should not be seen as being in conflict, is very similar to the arguments we have raised already in relation to the Christian creationist belief that the Bible and science both deal with one single body of truth. Again, the respondents' arguments could be interpreted as meaning that the realm of scientific knowledge and the realm of religious knowledge overlap and should be mutually reinforcing.

Islamic scholars have always believed that science is useful in helping us increase our appreciation of God's power.

The Muslim world was at the forefront of science. Science increases belief in God – therefore it isn't a threat to the Muslim faith.

University lecturer (46)

Again the point here is that science and faith can be complementary: scientific revelations can aid an understanding of God's world. One point of difference with the

Christian creationist understanding of this issue, however, is that our Muslim respondents talked with great pride of a history of Muslim scientists. Where Christian creationists expressed dismay at the secularising trajectory of the European Enlightenment, the Muslims we spoke with saw the history of science conducted by Muslim scientists as being entirely complementary to the Islamic faith. We will return to the specific place of evolution in this narrative below.

A second point on which Muslim respondents differed greatly from their Christian counterparts was in their presentation of a discourse about the apparent scientific foresight of the Qur'an:

The Qur'an is full of scientific discoveries and historical discoveries ... God says all life was created from water, so the first cell could have come from water. Any life form needs water to survive.

Imam (48)

This type of argument is qualitatively different from any made by the Christian creationists. The argument suggests that modern scientific discoveries have allowed insight into scientific truths that were actually revealed in the Qur'an, albeit in archaic language appropriate to the time in which it was written. In other words, modern science is being used specifically to understand and interpret the words of the Qur'an.

A number of our respondents cited examples of modern science in the language of the Qur'an, one such being the nature of salt and fresh water:

A recent discovery: in the ocean you get salt water but inside the salt water you get pockets of fresh water. That's something the Qur'an says...how God divided the salt water from the fresh water.

Creationist author/student (45)

The respondent is not suggesting that the Qur'an could have been used to reach this discovery, but rather that the discovery helped to reveal the deep knowledge inherent within the Qur'an – hidden until we were able to discover it. Other examples given to us were the gestation of the human foetus, the structure of mountains and, perhaps of great relevance here, the Big Bang and the biological origin of life.

Unlike the Christian creationist science of 'flood geology' or the biology of 'kinds' rather than 'species', these are examples of modern scientific orthodoxies finding their *confirmation* in the Qur'an. The last two, the Big Bang and the biological origin of life, are of particular importance for the Islamic creationist. Obviously, the presence of a narrative describing something similar to the Big Bang immediately begins to fit with scientific

understandings of an ancient Earth. And with regard to the biology of evolution itself, the account in the Qur'an of life being created from water and mud seems to chime a little even with Darwin's own account. It is perhaps this last point which led some of our respondents to hesitate before rejecting evolution entirely.

The account in the Qur'an of life being created from water and mud seems to chime a little even with Darwin's own account. It is perhaps this last point which led some of our respondents to hesitate before rejecting evolution entirely.

Those who did reject evolution used scientific arguments that were largely similar to those used by Christian creationists. Indeed, one or two of the respondents recognised that Christian creationists had done a great service to the science of creation by pointing out flaws in evolutionary theory. Adnan Oktar's *Atlas of Creation* itself seems to be a pictorial illustration of arguments coming directly from the Discovery Institute. The arguments we received from Muslim respondents regarding the science of evolution were similar to those of Christian creationists to the point of being virtually indistinguishable. For example:

Whether you believe in evolution or creation, look at it this way: How far do you have to go to prove one or the other? I say, look at your own body: you can't get an optical engineer who can create better vision than what you see with your eye. Analyse the eye, it's got 30 major components. If it didn't have one of them, it wouldn't work. Look at your heart, the way it pumps oxygenated blood round your body. Look at how DNA organises itself. So that's my starting point. That's what I say to people. You don't have to go far, you don't have to read a scientific journal. You can see design. You can see God's hand.

Creationist author/student (45)

This respondent, taking his arguments directly from ID materials, went on to acknowledge that a lot of his understanding of the flaws in evolutionary theory had derived from Christian sources. ID, in particular, offered a source of scientific argument with evolution that did not rely on a Christian or Biblical narrative and could therefore be used by Muslims. As with the theological arguments, however, such arguments were not presented in terms of a clear movement or strategy, or in terms of something that might prove to be a divisive issue for Muslims in the UK. Instead, respondents considered their positions to be a personal understanding of creation and the science of evolution.

the global context of evolution

For the Islamic scholars we spoke to, the issue of creation and evolution went beyond both the theology and the science involved, however. They saw it, rather, in terms of a politics of West and East and of an anti-atheism which had emerged in this context. Both evolution and atheism, they argued, were seen as inherently Western phenomena, especially by young Muslims growing up in a climate of Us-and-Them politics in the UK. One scholar specifically criticised the whole way in which the debate had polarised the issue to science versus religion or atheism versus religion. In this context, he noted, young Muslims would have no choice but to take an anti-evolution and anti-science stance:

The current debate about evolution versus religion is bad for Islam because it is driving young Muslims to an anti-evolution standpoint. They aren't engaging with the ideas, they are just standing up for their faith. It is really sad because Muslims can have both the science and faith – but the current debate isn't leaving them any room to think it through. They end up choosing God and that, to them, means rejecting science.

University lecturer (46)

Furthermore, it was argued, these kinds of issues can then be taken up as part of a more radicalised discourse about the hegemony of Western ideas. Evolution can be seen, they argued, as part of a secularised orthodoxy that is *imposed* upon a religious part of the world. This, of course, feeds into discourses of Western imperialism and a far wider range of global, historical and political issues.

These arguments seem to suggest that two forces in the UK may push Muslims toward a creationist position. The first is the public manifestation of the debate in which rhetoric tends to be couched in the language of atheism and religion. Here Muslims are left with little choice but to choose religion. Second is the political discourse of Western imposition upon Muslims, which can be seen as including the secular science of evolution.⁴ Thus, anti-evolutionism can become a political stance against the perceived hegemony of Western ideology.

Despite these arguments, however, there was another, quite opposing theme which emerged during our interviews with Muslim creationists. One Imam described the UK as a place in which most Muslims simply did not confront the issue of creationism and evolution at all.

Look, most Muslim kids these days are probably creationist when they get home and evolutionist when they get to school. And they probably haven't even thought of it as a problem.

Imam (44)

Another respondent insisted that:

Even in the Middle East, you know, this isn't such a big issue. Children learn about evolution, but they also learn that it is a Western idea. Teachers don't necessarily teach that it's wrong. They probably haven't even thought about it. It's just that evolution is not quite the orthodoxy that it is here in the UK. But if you see what I mean...if it's not a big issue over there then it's not going to be a big issue over here.

University lecturer (50)

There are a number of possible reasons why UK Muslims have not engaged with the issue of evolution. The first is that, as we have seen, Islam is traditionally thought of as being compatible with science. The discourse of the secularising Enlightenment is not present. One respondent suggested that this could mean that, since science and the Qur'an are compatible, those Muslims who encounter the science of evolution simply do not think about the issue that much.

Another respondent advanced a different theory to explain the lack of an anti-evolutionary, Islamic creationist view:

The Qur'an is transmitted through generations by tradition and the chain of transmission is incredibly important. All Imams have a chain going back to the Prophet himself. I think I have 25 people in my chain. That is why we try to learn from the oldest people around, as they are closer to the Prophet. We look to those individuals with awe and respect. There is a danger in questioning the wisdom of elders – because it is seen as disrespectful.

The Islamic faith has a strong tradition of received wisdom. We have a lot of respect for the teaching of older people and few would challenge those teachings. Most just accept them. This causes a problem on this issue [of evolution], because most Imams in Britain are older and have little scientific education or awareness of contemporary science. They aren't really aware of these issues.

Imam (44)

This may explain why those who have tried to study creationism in the Muslim world have consistently come up with very weak data about people's beliefs about evolution.⁵ The issue has simply not yet arisen.

In the UK, however, the confrontation between evolution and the Qur'an is likely to grow. Muslim children attending schools in the UK are going to be taught evolution as a dominant scientific mode while also learning about the authority of the Qur'an. And the proliferation of websites and media articles devoted to the debate over evolution and creation means that the arguments are much more readily available than before. We have seen in our own data that the arguments of Muslim creationists already echo those of Christian creationists and cite examples taken from proponents of ID.

It is impossible to predict the outcomes of a Muslim encounter with the science of evolution. Just as there are voices insisting that the debate can force Muslims towards a creationist position, there are others insisting that living, working and being educated in the UK can have a secularising effect. It is clear, however, that if the debate is going to emerge in a Muslim context, responses may well depend on the ideas which are presented to them by emerging thought-leaders. In an article in *The Guardian*, Salman Hameed argues that the only voice providing any real public thought-leadership on this issue, for Muslims, is Adnan Oktar.⁶ In the future there may be more, and it remains to be seen in what ways the debate will be changed or may evolve as it is shaped by Muslim protagonists.

chapter 9 - references

1. It is also worth noting that all the respondents we recruited were fluent English speakers. We recognise as a limitation the fact that a significant amount of Islamic material pertaining to the issues examined here is published in languages other than English in the UK, but time and budget limitations meant we were unable to recruit Islamic thought-leaders in the UK whose primary language was not English.
2. Oktar publishes under the name Harun Yahya.
3. He uses the term 'fundamentalist' here in the same sense as the Christian respondents used the term 'evangelical' to describe their belief in the authority of scripture.
4. In fact, although it did not come up during our interviews, there are Islamic arguments that evolution was an ideology which justified colonialism on the grounds of civilising the less evolved.
5. See, for example, Taner Edis, *An Illusion of Harmony: Science and Religion in Islam* (Prometheus Books, 2007).
6. <http://www.guardian.co.uk/science/blog/2008/dec/12/islamic-creationism-evolution-muslim>.

conclusion

At the beginning of this report we outlined our ambition to map the arguments and beliefs lying behind the various forms of evolution scepticism in the UK. The points and positions which we have presented, we believe, go some way towards illustrating that landscape.

However, in trying to reveal this landscape, we have run into the significant problem of tackling the variety of differing (and sometimes opposing) viewpoints that comprise creationist and evolution-sceptical thought. One of the most difficult issues was the problem of how to use the very terms which defined the research. What does creationism mean? Who does it refer to? Is there a clear distinction between evolution scepticism and creationism? In laying out the different arguments systematically, we have now reached the point at which we can reasonably ask whether it is possible to create some kind of typology of creationist and evolution-sceptical belief.

towards typology

We began our report with a working definition of 'creationist' that confined the use of the term to Christians who both rejected evolution and who held the authority of the Biblical narrative of creation to be paramount. This definition made it much easier to write the report, and to do so using terms in ways that were compatible with popular understanding.

There is a problem, however, when trying to apply the same definition to the views of some of our Muslim respondents. These respondents were clear in their view that the Qur'an was the primary authority when it came to understanding creation and the origins of humankind, but were not convinced that this necessitated a rejection of evolution, since the language of the Qur'an does not explicitly rule out the truth of the evolutionary account.

This distinction between the Christian creationist thought-leaders and the Muslim creationists suggests that we must examine the definition of 'creationist' again. The relative importance of the two criteria – rejection of evolution and the acceptance of the

authority of scripture in matters of creation – depends on where one stands within the debate about evolution. For evolutionists, the rejection of evolution is of paramount importance and can be seen as something uniting Muslims and Christians. But, for many Christians and Muslims, the defining feature of their creationism lies in faith in the authority of scripture with regard to creation, coupled with faith in the existence of God. For these creationists, the rejection of evolution is subsequent and comes as a result of two things: the incompatibility of the evolutionary narrative with the accounts of creation in the Bible or the Qur'an, and what is seen as the flawed science lying behind the theory.

A creationist (Muslim or Christian), then, might be best defined simply as someone who believes in the authority of scripture as providing a literal historical account of creation and the origins of humankind. Evolution scepticism or rejection can then be divided into two different sets: 'theological scepticism' and 'scientific scepticism'. Theological scepticism of evolution can be seen as encompassing those arguments that derive from the incompatibility of evolution with scriptural narratives of creation. Scientific scepticism can be seen as encompassing those arguments against evolution that do not hinge on the authority of the Bible or the Qur'an, but on the flawed evidence or science of evolution.

A creationist might be best defined as someone who believes in the authority of scripture as providing a literal historical account of the origins of humankind.

Examples of theological scepticism of evolution might include the belief that there was no death before the Fall, or the incompatibility of evolution with the creation of man and woman in the image of God. Examples of scientific scepticism might include, the conceptual division between testable micro-evolution and un-testable macro-evolution, or ID and the notion of 'irreducible complexity'.

Creationists could, of course, be both theological sceptics and scientific sceptics of evolution. But as we have seen, it is also possible to be a scientific sceptic of evolution, without being a creationist or a theological sceptic. Our respondent who was convinced by the arguments of ID, but who did not see himself as a creationist, would fall into this category. And it is also possible to be, for example, a Muslim creationist, without being either a theological or scientific sceptic of evolution.

Creationists may also be divided into Christians or Muslims, OECs or YECs, and doubtless many other categories. These differing theological positions will have implications for the ways in which creationists adhere (or do not adhere) to the various theological and scientific arguments against evolution. It should be noted, however, that the relationship is not linear or formulaic. Individual creationists will make connections between their theology and the various evolution-sceptical arguments in their own way.

We are left with the more difficult question of where to include creation science. Does creation science belong to theological or scientific evolution-sceptical beliefs? This question reveals the difficulty of the subject. For the evolutionist, creation science belongs firmly to theology. It is seen as being derived from the presupposition of the truth of the Bible and as therefore not being, strictly speaking, science at all. For the creationist, however, creation science is valid science. Where it challenges evolution, it does so on scientific grounds, despite its simultaneous adherence to a Biblical framework.

Remaining neutral, we would rather leave the question of how to understand creation science to others. It exemplifies the difficulties inherent in the debate over evolution and in trying to understand the debate while maintaining a neutral perspective.

a creationist worldview?

Many times during the course of researching and writing this report, the research team were asked by fellow researchers and evolutionists whether the creationist or evolution-sceptical views on the science of evolution were, in fact, just bluster. The questioners suggested that the religious or theological objections to evolution would mean that these people would object to evolution, regardless of the scientific evidence.

There is some mileage in this question. There can be no doubt that theological concerns about the implications of accepting evolution and the incompatibility of a Biblical historical account and an evolutionary historical account do play a part in the evolution scepticism of creationists. However, the structure of the question is problematic. There is an assumption, inherent in this line of reasoning, that science and scientific evidence can be used to interrogate the truth of Biblical scripture. In fact, most of our respondents did not see the science of evolution in this way.

Instead, it would be better to understand Biblical creationism as part of a worldview in which the truth of scripture and the presence of God in the world are axiomatic. Our separation of the arguments into those that are theological and those that are scientific is not necessarily a separation that our respondents would have thought to make themselves. Many of them, for example, expressed clearly the idea that science and scripture both reveal the same, single truth.

Science and God aren't incompatible, because science is part of God's world.

Lecturer, theological college (9)

Criticisms of science by creationists and evolution sceptics rest much more on method and interpretation than on the goals of science, or the kinds of knowledge it is able to

produce. And, given the axiomatic truth of scripture, the findings of science *ought* to be compatible with scripture. In fact 'true' science will *always* be compatible with scripture. 'How could it be otherwise?' they argue. In this way, what we have labelled 'scientific' arguments above can also be seen as theological. And what we label 'theological' arguments should be considered as arguments about the framework in which science should be conducted and in which evidence should be interpreted. It is, for creationists, all part of the same body of knowledge, separated only perhaps by a rhetoric and language appropriate to the topic and the forum.

Both my theology and my scientific knowledge are one complete whole. I make a point of saying there is no war between science and the Bible. My attitude to the Bible is one complete whole. True science supports the Bible. My philosophy of life is one complete whole.

Creationist author (7)

This kind of comment does not imply that science could reveal the same truths as scripture, or that all science needs to be considered in the light of scripture, but rather that the two should not be incompatible. Of course, for many creationists and evolution sceptics, this demonstrates the need to reinterpret scientific evidence and to advance new scientific theories and models which draw theology and science together.

This point is going to be difficult for some to accept. For those who do not see the Bible and the existence of God as central to their understanding of the world, or as axiomatic when carrying out research, the insertion of the Biblical perspective will always appear as an unacceptable bias. In a recent article in *The Guardian*, for example, the author remarks of an interviewee:

[W]hat worries me about many [of her fellow] creationists is that they begin with the Bible and then start looking for scientific evidence to back up what their faith tells them is true.¹

The writer goes on to suggest some sort of personal satisfaction at being able to persuade a creationist to 'admit' that this was the case. It was as if his comment constituted some kind of argumentative victory over the creationists. But the author misunderstands. He has not gained an 'admission', he has merely learned something about creationism. Consider these comments by one leading YEC:

There were a lot of influences in Darwin's background which would lead him almost inevitably to the point he reached. His father was clearly an atheist. And certainly there was a background of disbelief in the Bible. And certainly there was a belief about millions of years that existed before him. He started his theories

from that point. Now I have a clear bias. The Bible. And I admit that. But most scientists do not want to admit these kinds of biases that they have themselves.

Minister, creationist organisation (17)

Far from being a bias that needs to be hidden, then, the respondent sees the fundamental truth of the Bible to be critical to science. Just as the *Guardian* journalist might perceive a victory in pointing out a bias in the creationist's views on, and approach to, science, so the creationist might point to the journalist's unwillingness to open his mind beyond the materialist scientific paradigm, as a bias in his.

The point which is particularly difficult to grasp is this: For a creationist, given the inerrancy of the Bible and the axiomatic role of God in the world, creation science does not have a bias, but is a perfectly valid science regardless of its religious underpinnings. Creationists often urge scientists to consider the scientific validity of flood geology or irreducible complexity, not as a rhetorical device, but because the science of these theories *must* stand up. The fact that theology is a concern for creationists in their consideration of scientific material does not mean that they think that creation science requires theological knowledge to be proved true. Creation science should be true through the lens of scripture *and* through the lens of science.

For a creationist, given the inerrancy of the Bible and the axiomatic role of God in the world, creation science does not have a bias, but is a perfectly valid science regardless of its religious underpinnings.

What this leads to is the apparent paradox that creationists often seem to use Biblical evidence to create scientific theory and yet simultaneously use certain 'scientific' theories to bolster the evidence for Biblical accuracy. Yet this paradox only appears to those who believe that scientific theory should be built in isolation from theological concern, and that scientific truths can interrogate religious narrative. From the point of view of the creationist, the multi-directional relationship between science and theology is entirely consistent.

And this is perhaps why the debate can be so fruitless. Science and evidence are often thrown at creationists as if they were going to persuade them out of their Biblical belief. And creationists often throw creation science at their detractors as proof of their arguments. It is hard to see how either side can succeed, using these tactics. One of our respondents articulated this view clearly, illustrating perhaps why many scientists feel such frustration when confronting creationist arguments:

I would be happy to accept a rigorous scientific assessment of the Bible that contradicted my belief in the Bible. But it's not going to happen. Science is about constructive criticism. But science cannot do experiments on the past. It is my job to submit to the authority of the Bible on these issues ... There could not be a discovery or evidence that challenges my belief in the axiomatic nature of the Bible. I understand that there will be challenges and things that need to be explained, but we start from the axiom of faith.

Faith is the evidence of things unseen. Faith itself is evidence...and this is quite difficult to get across to people who do not have faith in God. But faith itself is the evidence that's needed. This can't be written down for people who do not have that faith. But faith is the starting point from which we can interpret science and evidence.

Minister, creationist organisation (17)

An evolution sceptic can emerge from within a sea of different religious beliefs and traditions, from the Church of England to Islam and beyond.

The question we are left with, then, is whether one can speak of a specifically creationist worldview that can be defined with reference to its specific understanding of truth and knowledge? Some of our respondents did refer to a 'creationist worldview'. In practice, however, it is difficult to unpick those things which might contribute to it. Scepticism of evolution is not enough. For one thing, there may well be those (especially among the adherents to ID,

for example) who reject evolution but do not consider themselves creationist. And, for another, scepticism of evolution does not tell you anything about how creationists view the world. It merely indicates a position with regard to a certain scientific theory. Furthermore, to argue that a creationist worldview is defined by a rejection of evolution on religious grounds seems potentially to conflate Muslim and Christian creationists, who, though they may share some theology and history, could certainly not be described as having the same worldview.

Those features of creationist beliefs which might be seen as constituting a worldview (the authority of scripture and the role of God in creation and in nature, for example), seem to come more from within a broader religious worldview than a specifically creationist one. For most of our respondents, creationism does not arise from just anywhere. It is part of a specifically Christian or Islamic understanding of the world. Of course, Christian creationists may disagree with other Christians over their interpretation of what that Christian worldview should look like but, essentially, their views are formed from within Christianity. Creationism, then, is probably best understood, not as a unique worldview, but rather as a particular stance on creation that comes from within a broader religious worldview, such as that of Christianity or Islam.

In fact, were a body of scientists to suggest a theory that directly challenged the existence of God, non-creationist Christians and Muslims may also find themselves in conflict with scientists. Such a conflict may well be conducted in terms of a debate over the status of knowledge and truth, just as creationists find themselves in such a conflict over evolution. And a debate like this might reveal that non-creationist Christians share certain beliefs about the status of scientific knowledge with creationist Christians. This has already happened, to some extent, in response to the arguments for atheism made by the likes of Richard Dawkins. Non-creationist, Christian responses to Dawkins already challenge the appeal to the authority of evolutionary science with regard to the question of the existence of God. Theos's own paper *Rescuing Darwin*, for example, states: 'The atheistic interpretation of evolution is based on a fundamental misunderstanding about the aims and scope of science.' In other words, creationists are not unique in fighting against the use of science to challenge their beliefs.

The specific phenomenon of someone's evolution scepticism, then, whether from a creationist or not, is only part of the story. It seems to be only the tip of a very large iceberg of belief and worldview. An evolution sceptic can emerge from within a sea of different religious beliefs and traditions, from the Church of England to Islam and beyond. Every time we meet such views, we must consider the nature of what lies beneath. In exploring these depths, we find, not unity, but a variety of competing worldviews, complex theological arguments and differing motivations and perspectives.

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appendix

No.	Job	Organisation	Relevant views
1	Director (former university lecturer)	Creation science organisation	YEC
2	Educational director	Seventh-Day Adventist church	OEC
3	Creationist author	N/A	YEC
4	Creationist author/theologian	Member of several creationist organisations	YEC
5	Creation science author/theologian	Member of several creationist and non-creationist Christian organisations	YEC
6	University professor	N/A	ID commentator
7	Creationist author	N/A	YEC
8	Minister	Church of England and various creationist organisations	YEC
9	Lecturer in science and religion	Theological college	YEC/OEC/ID
10	Lecturer	University	YEC/ID
11	Lawyer	Various Christian organisations	OEC
12	Science teacher	Secondary school	YEC
13	Lecturer	Theological college	YEC/OEC/ID
14	Minister	Independent evangelical church	YEC
15	Lecturer	University	YEC
16	Creation science author (former minister)	Church of Scotland and various creationist organisations	YEC/OEC

No.	Job	Organisation	Relevant views
17	Minister	Creationist organisation	YEC
18	Headteacher	Faith school	OEC
19	Pastor	Protestant Latin American church	YEC
20	Lecturer	University	OEC/ID
21	Minister	Independent evangelical church	YEC/OEC
22	Minster	African evangelical church	YEC
23	Minister	Independent evangelical church	OEC
24	Minister/creationist author	Independent evangelical church	OEC
25	Minister	Baptist church	YEC
26	Creation science author	Creationist organisation	YEC
27	Principal	Theological college	OEC
28	Medical professional/creationist author	N/A	YEC
29	Presenter	Christian media organisation	ID
30	Director	Christian communications organisation	OEC/ID
31	Creation science author	Creation science organisation	YEC
32	Pastor	Latin American Pentecostal church	YEC
33	Science teacher	Faith secondary school	OEC
34	Maths teacher	Comprehensive secondary school	OEC/ID
35	Lecturer	University	OEC
36	Minister	Independent evangelical church	YEC
37	Lecturer	University	YEC/ID

No.	Job	Organisation	Relevant views
38	Lecturer	University	YEC/ID
39	Minister	African evangelical church	OEC
40	Minister	Independent evangelical church	YEC
41	Teacher	Comprehensive secondary school	YEC
42	Bishop	Independent evangelical church	YEC
43	Creationist author	Various creationist organisations	YEC/ID
44	Imam	Mosque	Muslim creationist
45	Creationist author/student	University	Muslim creationist
46	Lecturer	University	Islamic scholar
47	Imam	Mosque	Muslim
48	Imam	Mosque	Muslim creationist
49	Lecturer	University	Islamic scholar
50	Speaker	Islamic communications organisation	Islamic scholar

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