‘The Most Bogus Ideas’: Science, Religion and Creationism in the John Maynard Smith Archive

Helen Piel

I. Introduction

The science and religion question is one of continued interest in academia and in the non-academic public. In terms of biology, discussions almost inevitably revolve around the question of evolution and (human) origins, contrasting Charles Darwin’s ideas and the theory of evolution (by means of natural selection) to the Biblical account of creation and origins in Genesis (if, when talking about religion, we mean Christianity). ‘[C]ritics of evolution tended to identify themselves as antievolutionists rather than creationists’ until the mid-twentieth century,[1] but in the 1960s, scientific creationism, also known as creation-science, arose in the United States and was defined specifically in its opposition to evolution.

> Creation-science includes the scientific evidence and related inferences that indicate: (1) Sudden creation of the universe, energy, and life from nothing; (2) The insufficiency of mutation and natural selection in bringing about development of all living kinds from a single organism; (3) Changes only within fixed limits of originally created kinds of plants and animals; (4) Separate ancestry for man and apes; (5) Explanation of the earth’s geology by catastrophism, including the occurrence of a worldwide flood; and (6) A relatively recent inception of the earth and living kinds.[2]

Especially since the 1970s, creationism has lobbied vocally against evolution(ism).[3] Naturally biologists, and evolutionary biologists in particular, have a professional and often personal interest in debates on the validity of the theory of evolution and the view of their non-biologist colleagues and the wider public. It is the nature of these debates that they often only portray extremes rather than complexities, echoing the (in scholarly circles widely discredited) thesis of conflict between science and religion. ‘The fundamental weakness of the conflict thesis,’ writes John Hedley Brooke, ‘is its tendency to portray science and religion as hypostatized forces, as entities in themselves. They should rather be seen as complex social activities involving different expressions of human concern, the same individuals often participating in both.’ [4]

This article introduces the archive of the British evolutionary biologist John Maynard Smith (1920-2004), which is held by the British Library, to then discuss Maynard Smith’s engagements

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1 Ronald L. Numbers, ‘Creationism’, in Michael Ruse (ed.), *The Cambridge Encyclopedia of Darwin and Evolutionary Thought* (Cambridge, 2013), p. 476.

2 Definition from the 1981 Arkansas law, cited in Ronald L. Numbers, *The Creationists. From Scientific Creationism to Intelligent Design, expanded edition* (Cambridge, Mass., 2006), p. 7. See also ‘creationism’, *Oxford English Dictionary*, Online version, <www.oed.com> [accessed 25 October 2018].

3 See e.g. John Hedley Brooke, *Science and Religion. Some Historical Perspectives* (Cambridge, 2014), especially chapter VIII, ‘Evolutionary Theory and Religious Belief’, but also postscript, ‘Science and Religion in the Twentieth Century’.

4 Brooke, op. cit., p. 56.

with religion in general, and creationism in particular. Maynard Smith was an atheist who invariably defended science over religion. Since the majority of his interactions were with extremist religious views or in the form of debates, he tended to hypostatize both science and religion. The interactions therefore reveal two things: Maynard Smith's understanding of the nature of science and religion, and, in that context, his use of the philosophy of science.

II. John Maynard Smith and his Archive

John Maynard Smith was the 'senior statesman of British evolutionary biology' with a career that spanned the second half of the twentieth century.[5] He was approached by the former British Library Board chairman Sir John Ashworth in 2001, asking if he 'had thought of the ultimate fate of [his] archive(s)'.[6] The British Library had, at that point, just received the British biologist William D. Hamilton's archive as a loan and was in the process of acquiring the American scientist George R. Price's papers as well.[7] Maynard Smith knew both of these men and had collaborated with Price on a seminal paper in the early 1970s.[8] 'I am anxious,' continued Ashworth,

> that the Library build on this nucleus so that we can develop a collection of material relating to the development in the UK and elsewhere of evolutionary studies more generally. You were and are a key person in this intellectual history and it would greatly enrich the national collection if we were able to add your archives to it.[9]

Maynard Smith agreed to leave his papers to the Library and this, after his death in April 2004, was confirmed by his son Anthony (Tony) Maynard Smith.[10] Thus the donation of the material from John Maynard Smith's office at the University of Sussex was effective from 2 August 2004.

The archive is a hybrid of paper-based material (correspondence, research and lecture notes, computer printouts, manuscripts, offprints and notebooks) and born-digital material (floppy disks containing computer programmes and drafts for his last book, *Animal Signals*,[11] as well as two hard drives). Personal material was mostly retained by the family. The paper-based material is fully catalogued (Add. MS. 86569-86840) and although the scientific material is sparser with regard to Maynard Smith's early career, it does offer a rich portrait of his career and working life.

Maynard Smith entered evolutionary biology after a first career as an aircraft engineer, with a degree from Cambridge where he studied in the late 1930s and early 1940s. But he had had a childhood interest in nature and science and had spent much time in the school library at Eton educating himself with books by Charles Darwin, Albert Einstein, Arthur Eddington, and J. B. S. Haldane. Haldane proved to be a major influence on Maynard Smith (a fact also represented in the archive). After deciding to enter a second career as a biologist, Maynard Smith wrote to Haldane, then teaching at University College in London (UCL). This marked the start of a fifty-year long career as a research scientist who worked, among other things, on the evolution of senescence, sex, and conflict.[12]

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5 Marek Kohn, 'John Maynard Smith', *New Statesman* (14 July 2003), pp. 36f (p. 36).

6 J. M. Ashworth to John Maynard Smith, 21 May 2001. Add. MS. 86809.

7 Other archives by twentieth-century biologists held at the BL are, for instance, those of Anne McLaren, Donald Michie (who later, and more famously, pioneered research in machine intelligence) and Marilyn Monk.

8 John Maynard Smith and George R. Price, 'The Logic of Animal Conflict', *Nature*, ccxlvi (1973), pp. 15-18.

9 J. M. Ashworth to John Maynard Smith, 21 May 2001. Add. MS. 86809.

10 John Maynard Smith to Anne Summers, 25 June 2001, and Anthony Maynard Smith to Jeremy Leighton John, 28 June 2004. BL Acquisition file 'John Maynard Smith'.

11 John Maynard Smith and David Harper, *Animal Signals* (Oxford, 2003).

12 Marek Kohn, *A Reason for Everything. Natural Selection and the English Imagination* (London, 2004), pp. 199-223.

Next to his work within academia – at UCL in the 1950s and early 1960s, until he moved to the newly founded University of Sussex as its first dean for the School of the Biological Sciences in 1965 – Maynard Smith was also an active science communicator. He wrote a popular science book as early as 1958, *The Theory of Evolution*, which inspired generations of future evolutionary biologists.[13] Maynard Smith was also active on radio and television and collected several of his essays and book reviews in edited volumes. One of these was first entitled *Games, Sex and Evolution* but later re-published as *Did Darwin Get It Right?*[14]

This question of the validity of the Darwinian theory of evolution was something with which Maynard Smith dealt throughout his career. He himself was a strong neo-Darwinist, that is, he followed in a tradition that emerged in the first half of the twentieth century and which combined Darwin's theory of natural selection with Mendelian genetics. Important work towards this synthesis was done by J. B. S. Haldane (Maynard Smith's mentor) and R. A. Fisher in Britain, and Sewall Wright in the United States. They showed 'in full mathematical detail how one can have a theory of evolution where selection plays a large role backed and guaranteed by the workings of Mendelian genes in populations'.[15] This revitalized understanding of natural selection, dubbed the 'modern synthesis' by Julian Huxley in 1942, was later expanded upon by biologists like Theodosius Dobzhansky and Ernst Mayr. It introduced new emphases for evolutionary studies on processes rather than objects, on causes, heuristics and mechanisms rather than description, as well as new standards for methods.[16]

The archive at the British Library contains several fascinating instances in which Maynard Smith was confronted with people and publications opposing Darwinian evolution – and Maynard Smith's understanding of it in the above sketched neo-Darwinian tradition – from a religious point of view. Other instances were less confrontational and took the more general form of a discussion of the nature of science and religion and their differences. As an atheist (or at least, an agnostic, depending on which interview you listen to), Maynard Smith always sided with science over religion and tended to use these terms generically, ignoring nuances and almost treating 'science' and 'religion' as distinct entities. In part this is due to the nature of his interactions with religion, receiving material from and debating with proponents of more extreme views of religion that only represent a small part of the possible religious views. Yet nonetheless it is worth bearing in mind that this hypostatization of science and religion ignores that there is 'no single, natural form of the relationship of the two entities, because there are many religions (including many different forms of Christianity) and many different areas of science, each posing its own problem'.[17]

III. Passive Conversations: Jehovah's Witnesses

In 1981 Maynard Smith noted that '[o]ne cannot spend a lifetime working on evolutionary theory without becoming aware that most people who do not work in the field, and some who do, have

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[13] Richard Dawkins, 'Foreword', in John Maynard Smith, *The Theory of Evolution* (Cambridge, 1993), p. xi; David Harper, 'John Maynard Smith', *The Guardian* (22 April 2004); Linda Partridge, 'Appreciations: John Maynard Smith', *The Guardian* (23 April 2004); Brian Charlesworth and Paul Harvey, 'John Maynard Smith', *Biographical Memoirs of Fellows of the Royal Society*, li (2005), pp. 254-65 (p. 258). See also Helen Piel, 'Complicating the Story of Popular Science: John Maynard Smith's "Little Penguin" on *The Theory of Evolution*', *Journal of the History of Biology*, online first (2019) DOI: 10.1007/s10739-019-9566-y.

[14] John Maynard Smith, *Did Darwin Get It Right?* (London, 1993).

[15] Michael Ruse, 'Population Genetics', in Michael Ruse (ed.), *Cambridge Encyclopedia of Darwin and Evolutionary Thought* (Cambridge, 2013), p. 277.

[16] Joe Cain, 'Synthesis Period in Evolutionary Studies', in Ruse (ed.), *Cambridge Encyclopedia of Darwin and Evolutionary Thought*, pp. 282-92.

[17] Peter J. Bowler and Iwan R. Morus, *Making Modern Science: A Historical Survey* (Chicago, 2010), p. 364.

a strong wish to believe that the Darwinian theory is false.'[18] One vocal group disbelieving the theory were – and are – creationists. Maynard Smith had both passive and active conversations with creationism, creationists and the science-religion relationship more broadly speaking. By this I mean that some creationist material he received, he did not comment on (that we know) but still kept in his files, giving it some importance. At other times, Maynard Smith actively engaged with both material and people from a creationist or religious background.

In the context of Maynard Smith's engagements with religion and creationism, we are talking about Christian interpretations. He was raised in the Church of England but broke with his faith at Eton after encountering science, particularly evolutionary biology. In later interviews he could not remember when he first came across Darwin's ideas but recalled the impact of reading Haldane and his interpretations and popularizations of evolutionary ideas:

> I can remember, as a boy of 15, sitting there reading, I'd never come across stuff like this. And I thought: My God, there are people out there who think like that. And it was deeply moving, that ... it was a mixture of reason, of mathematics, of atheism, all sort of mixed up together. That ... it was very moving to find out that I wasn't alone in the world, you know, there were other people out there, who were ... not like me, but I was trying to be like them.[19]

Maynard Smith also felt that he had to decide between science and religion, and he chose science. He has referred to this as an 'escape from religion' and 'an enormous relief':

> what had been burdensome was that I didn't feel it allowed me to follow my thought to the end. I would be thinking about something then I'd think no but that's sort of dangerous if I think like that maybe I'll have doubts and then reading Darwin the doubts just over-whelmed and I thought right I don't have to bother anymore I don't believe it.[20]

Like Haldane, he went to 'that dreadful school' (Eton) and part of breaking with this background was to break with Christianity. He admitted in 2004 that it 'wasn't all that easy' but that he still saw himself as a 'rather militant atheist', like Haldane, and 'we're not alone'.[21] (In 2001 he had still preferred the term agnostic.)[22]

From 1960 onwards Maynard Smith was an increasingly visible scientist who established himself as a public intellectual through radio and television work. In 1964/65, he spoke explicitly on the science-religion relationship (see below), and his interests in the topic and expertise as an evolutionary biologist were known enough for the Jehovah's Witnesses to engage with him. The archive holds some material sent to Maynard Smith by Witnesses or those with an interest in their ideas, mostly dating to 1967. The material – a book and two magazines – serves as an example of some of the creationist arguments against evolution.

The 'Creation' folder in Maynard Smith's archive contains two issues of the magazine *Awake!*. The magazine is meant as a news source for Witnesses, 'unfettered by censorship and selfish interest', without political ties or religious fundamentalism but with 'integrity to truth'. It is 'whole-some' and 'instructive', pledging itself

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[18] John Maynard Smith, 'Symbolism and Chance' (1981), republished in his *Did Darwin Get It Right?*, pp. 15-21 (p. 21).

[19] John Maynard Smith and Richard Dawkins, Interview (1997), 'Reading Haldane's *Possible Worlds* at Eton', <https://www.webofstories.com/play/john.maynard.smith/6>.

[20] John Maynard Smith and Robert Wright, Interview (Sussex, 2001). Available at <https://meaningoflife.tv/videos/40587>.

[21] John Maynard Smith and Paul Erickson (Interview, 2004). BL Sounds [uncatalogued]. Other scientists from the synthetic period were not atheists; Fisher, for instance, was deeply committed to Christianity (Michael Ruse, *The Evolution-Creation Struggle* (Cambridge, Mass., 2006), p. 177).

[22] Maynard Smith and Wright, op. cit.

> to righteous principles, to exposing hidden foes and subtle dangers, to championing freedom for all, to comforting mourners and strengthening those disheartened by the failures of a delinquent world, reflecting sure hope for the establishment of God's righteous new order in this generation.[23]

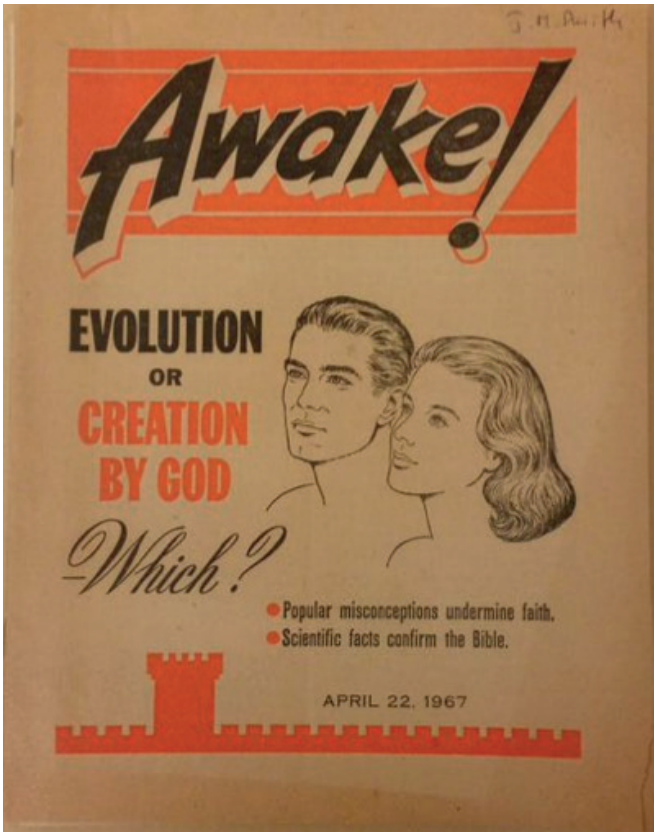

Fig. 1. Awake! magazine (22 April 1967). Add. MS. 86614.

At least one of the two issues in the archive was sent directly to Maynard Smith by the Witnesses' Brighton North Congregation, who 'would appreciate your comments on this (the subject of evolution), but especially on the article entitled "Is Evolution in Question" […].' However, someone took it upon themselves to add, in pen: 'P. S. You are a scoundrel.'[24] (The handwriting indicates it was not the same person who signed the letter.) This specific issue wondered 'Evolution or Creation by God – Which?' but already on the cover assured that 'Scientific facts confirm the Bible'. The first pages confirm the tenor against evolution, explaining that evolution leads to crime; because evolution cannot be harmonized with faith or God, it leads to abandonment of God. Teaching evolution to children is therefore almost guaranteeing they will 'participate in the demoralization rampant today'.[25]

In the following, the Bible is presented as 'reasonable' on the topic of the origin of life (in part because it is 'logical and orderly' and because it is 'in harmony with the facts as we find them today': 'Can a dog produce a kitten or an oak seed a palm tree? Of course not.').[26] Evolution, on the other hand, cannot explain life, nor can scientists make life. History has no proof for humankind's

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[23] Watch Tower Bible and Tract Society, *Awake!* (22 April 1967), p. 2.

[24] D. Sullivan (on behalf of Jehovah's Witnesses) to 'Dear Sir or Madam', undated. Add. MS. 86614.

[25] Watch Tower and Bible Tract Society, op. cit., pp. 3-5.

[26] Watch Tower and Bible Tract Society, op. cit., p. 7.

prolonged existence on earth; scientific dating methods are unreliable and contradictory. Past explanations for evolution, like Lamarck's of the inheritance of acquired characters, were proven wrong – so why believe in Darwin's? Life and organisms are too complex to be the result of natural selection, and mutations only harmful. In general, the orderliness of creation is opposed to the perceived randomness of evolution by natural selection.

The arguments are very similar to the ones given in another Jehovah's Witnesses' publication from 1967. Again, this was sent to Maynard Smith in the hope of hearing his views on the addressed points. This time, it was not the local branch but a Mrs Daphne Taylor from Sheffield. She wrote that '[q]uite a few people in our locality including teachers interested in evolution, have found [the book] most enlightening.'[27] The title was *Did Man Get Here by Evolution or by Creation?*[28] Again, the authors affirm that evolutionary teaching saturates everything, even religion, and then ask what their readers

> personally know of the evidence for or against the belief in evolution? Does it really harmonize with the facts of science? We invite your careful examination of this matter, as it has a direct bearing on your life and your future.

The running argument is one that had been previously used by William Paley in his 1802 book *Natural Theology: or, Evidences of the Existence and Attributes of the Deity* – nature is too complex for there not to have been an intelligent designer or creator. Paley famously used the analogy of a watchmaker: suppose you were to find a watch on the heath, and upon examining it and its complexity, would you not suppose there has to have been a watchmaker? Similarly, Jehovah's Witnesses argue that 'what is made requires a maker'.[29] Liking DNA to 'complex blueprints for future development' (as they also did in the *Awake!* issue), they wonder: 'And when we see blueprints responsible for the building of beautiful bridges, buildings and machines, do we ever contend they came into being without an intelligent designer?'[30] What is more, there is not enough evidence for evolution (while all the existing evidence is compatible with the Bible), it is all just a theory based on conjecture and wishful thinking, unsupported by fact, not proper science at all.

Unfortunately, this material only survived uncommented in the archive. We do not know, for instance, if Maynard Smith ever read the book or shared his views with Mrs Taylor. Or if he got in touch with the Brighton North Congregation. But his keeping the publications (and signing his name on them) demonstrates his interest in these issues. The following will look at three instances in which Maynard Smith directly engaged with the relationship between science and religion, including but not limited to creationism. These discussions will not only reveal Maynard Smith's views on religion but also on what the nature of science is.

IV. Active Conversations: God Broadcasts and Creationist Debates

A. God Broadcasts

The first is a series of radio talks that aired on the BBC Home Service's 'For Schools' programme in early 1965. Maynard Smith archived the transcripts as 'God broadcasts'.

The actual title of the broadcasts was *Christianity and the Natural Sciences*, part of the Sixth Form series *The Christian Religion and its Philosophy*. The nine episodes were guided by the question, 'Is there a meeting point?' and introduced by Stephen Toulmin, then Director of the

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[27] Daphne Taylor to John Maynard Smith, 9 October 1967. Add. MS. 86839C.

[28] Watch Tower Bible and Tract Society, *Did Man Get Here by Evolution or by Creation?* (New York, 1967).

[29] Ibid., p. 36.

[30] Ibid., p. 72.

Nuffield Foundation Unit for the History of Ideas. This episode was followed by four episodes with John Maynard Smith and four episodes with the Reverend John Habgood (1927-2019) (three consisted of talks, followed by one in which the producer put questions to each).

Date	Title	Speaker
19 Jan. 65	One universe: diverse interpretations	Stephen Toulmin
26 Jan. 65	Scientific knowledge and the way to find it	John Maynard Smith
2 Feb. 65	The scientific interpretation of the evidence	John Maynard Smith
9 Feb. 65	Man and nature	John Maynard Smith
16 Feb. 65	Christian knowledge and the way to find it	John S. Habgood
23 Feb. 65	The Christian interpretation of the evidence	John S. Habgood
2 Mar. 65	Nature, man and God	John S. Habgood
9 Mar. 65	Is there a meeting point?	John S. Habgood, Robert C. Walton
16 Mar. 65	Is there a meeting point?	John Maynard Smith, Robert C. Walton

Fig. 2. Christianity and the Natural Sciences.

School radio is almost as old as radio itself, certainly as old as the BBC. In the early stages, between the 1920s and 1930s, it was met with positive anticipation by some and scepticism by others. Assurances were needed that

> the broadcasts were to supplement, not supplant, teachers, that they should make demands of children, rather than merely 'tickling their interest', and that they could contribute to 'a curriculum which had a closer connexion with life'.[31]

That way, teachers were not threatened, while at the same time the BBC's aims to 'inform, educate and entertain' were ensured. It was important that pupils were engaged and challenged, that they were thinkers and actors, not mere listeners.[32] Part of the Reithian era at the BBC was the importance placed on character formation.[33] The period in which Maynard Smith entered school radio was a 'second "golden age"', with a rise from around 3,000 schools listening in at the beginning, to the vast majority of schools using radio (an estimated 90% of UK schools) and television broadcasts (80%) aimed at and produced for their pupils.[34] (About ten years previously, 67% of UK schools had been using school broadcasting.)[35]

Christianity and the Natural Sciences was produced by Robert C. Walton, head of the BBC's School Broadcasting Department. Walton had previously published on religious broadcasting, writing that religious education was 'given its proper place'. At the time of writing, 1954, there were 'two specifically religious series – a Service for Schools, and a Sixth Form series – *Religion and Philosophy*'. This was an 'intellectual presentation of the Christian religion', aimed at pupils about to leave school and who may be firm in their faith, indifferent, or sceptical. The programme 'can bring to the microphone distinguished scientists, historians, theologians, and Christian men of action to share their knowledge and experience'.[36] It was broadcast on

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[31] David Crook, 'School Broadcasting in the United Kingdom. An Exploratory History', *Journal of Educational Administration and History*, xxxix (2007), pp. 217-26 (p. 219).

[32] Ibid.

[33] John Reith was the BBC's founder and first general manager: 'John Reith – 1. Beginnings', <www.bbc.co.uk/historyofthebbc/research/culture/reith-1.> [accessed 9 January 2019].

[34] Crook, op. cit., p. 223f.

[35] Robert C. Walton, 'Religious Education. Religious Broadcasting to Schools', *The Expository Times*, lxv (1954), pp. 271-2 (p. 271).

[36] Walton, op. cit., p. 271.

Tuesdays on the Home Service, 11.40 to 12.00. *Christianity and the Natural Sciences* occupied the same spot (see fig. 2) and followed the same structure. It too was aimed at sixth formers and brought two distinguished scholars together. Maynard Smith was appointed dean at Sussex and Reverend Habgood, a trained biologist, had recently published a volume on *Religion and Science* (1964).[37]

Habgood's book is based on the belief that conflict exists between science and religion, that we have to live with this, that 'there are no final answers to many of the traditional problems of science and religion, and that we oversimplify our actual experience of life if we ignore one or the other of them, or imagine that the conflict between them is of the kind in which one side or the other must win.'[38] He defined science as asking questions that can be answered, as providing information, and with a strong foundation in mathematics. Religion, on the other hand, can ask questions that may only result in vague but possibly more relevant answers. Maynard Smith did not think there were 'any problems which are in principle outside the scope of science, problems which scientists cannot study. For example there is nothing impossible about a scientific study of religious experience itself.'[39] Habgood's view on the science-religion relationship is further illuminated by his interpretation of evolution as a case in which, and to its profit, theology has learnt from science:

> To admit this […] is simply to recognise that one of the important ways in which God leads us to the truth is through science; and although theologians claim to be able to say some true and valuable things about God and man, they cannot and should not claim to be able to say everything. There are times when they must discover the meaning of their own doctrines with scientific help.[40]

Science can cause theologians anxiety, but that is not the same as defeat; both science and religion have to realize they are not blueprints for reality. Science can make theologians rethink their ideas, 'and it is no dishonour or disaster when in the light of science old doctrines are understood in new ways.'[41] When this rethinking did not happen, as Maynard Smith made clear, there will be conflict between science and religion. Both science and religion understand themselves to be ways of explaining the universe;[42] conflicts arise when there are two contradicting explanations for the same phenomenon.[43] Evolutionary theory is such a case.

Maynard Smith saw the main distinction between science and religion in their methodology. Earlier in 1964, the year in which the broadcasts were recorded, he brought up Karl Popper's philosophy of science in a book review. Popper's main thesis, he wrote, 'is that an idea only belongs to science if it could be falsified by observation'.[44] Maynard Smith did not specifically mention Popper in his God broadcasts, but the concept of falsification is apparent in his explanations of how science works. Contrary to what is meant by theory in everyday language, in science a theory is something that is well-tested. Starting with a problem or puzzle that needs addressing, one formulates a hypothesis that is tested through experiment, observation, and fact-gathering. This is given the status of a scientific theory if it passes the tests and makes sense of all the results: it needs to be informative, i.e. tell us something about the problem it addresses, and it needs to allow predictions. 'If a scientific theory predicts that X won't happen, then if somebody does an experiment and show [*sic*] that X does happen, then you can reject the scientific theory, you can test it.'[45] This testing is crucial, and a difference to faith and religion.

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37 Sir Bryan Matthews, 'Foreword', in John Habgood, *Religion and Science* (London, 1964), p. vii.

38 Habgood, op. cit., p. 10.

39 Maynard Smith 1964, Talk II, p.1. Add. MS. 86606.

40 Habgood, op. cit., p. 70.

41 Ibid.

42 Maynard Smith, Talk I, 29 December 1964. Add. MS. 86614.

43 Maynard Smith, Talk II, 29 December 1964. Add. MS. 86614.

44 John Maynard Smith, 'Theories and Connections', *The Listener*, no. 183 (28 May 1964), pp. 881-2 (p. 881).

45 Maynard Smith, Talk I, 29 December 1964. Add. MS. 86614.

Popperian influences are not the only ones visible in Maynard Smith's description of the scientific process as problem – hypothesis – experiment – theory. The example Maynard Smith gave was the work of biologist and 1960 Nobel Laureate Sir Peter Medawar. Medawar had been Maynard Smith's mentor and colleague at UCL in the 1950s. He hired Maynard Smith as lecturer in zoology and later suggested him for the Sussex deanship. Medawar had taught Maynard Smith that

> scientific issues […] have to be settled by observation or experiment. If there is no observation or experiment that can settle a scientific question, it's not a scientific question. […] Ultimately, there has to be a scientific ... there has to be an experimental or observational way of doing it.[46]

Medawar was also a strong proponent and popularizer of Popper's ideas,[47] and it is conceivable that they discussed them. Popper's *Logic of Scientific Discovery* was translated into English in 1959, and Maynard Smith accepted its views on what a scientific theory is (primarily based on examples from physics[48]).[49] Maynard Smith was also occasionally in touch with Popper, who had sent him an offprint of his 1963 paper 'Science: Problems, Aims, Responsibilities'.[50] Yet he never accepted all of Popper's philosophy, as is evident in a 1983 review of Popper's *The Open Universe*.[51] He disagreed with ideas in the book, in part because he was a biologist and because he felt that 'Popper is sometimes too ready to treat as insoluble problems I would like to see solved', examples being consciousness and the origin of life.[52] It appears that another source of disagreement between them were Popper's views on evolution. The archive contains a manuscript written and sent by the molecular biologist and 1962 Nobel Laureate Max Perutz. Perutz was reacting to Popper giving the first Medawar Lecture at the Royal Society in 1986 with a piece entitled 'Popper's New Interpretation of Darwinism'.[53] He wrote to Maynard Smith, 'I am so glad that you liked my article – I thought I could not let Popper get away with all that nonsense.'[54] ('All that nonsense' was Popper's suggestion to split Darwinism into an active and a passive form. The 'main sources of nature's creativity are not Darwin's blind chance and natural selection but the problem-solving of all organisms and, in a later evolutionary stage, the curiosity, preferences, and anxieties of individuals.)[55]

It is unclear how deeply Maynard Smith engaged with Popper's philosophy, and he was generally wary of letting philosophy influence science. But he had 'great respect' for him and

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46 Maynard Smith and Dawkins, op. cit., 'Peter Medawar: "He smiles and smiles and is a villain"' <www.webofstories.com/play/john.maynard.smith/22>.

47 Neil Calver, 'Sir Peter Medawar: Science, Creativity and the Popularization of Karl Popper', *Notes and Records of the Royal Society*, lxvii (2013), pp. 301-14.

48 David N. Stamos, 'Popper, Falsifiability, and Evolutionary Biology', *Biology and Philosophy*, xi (1996), pp. 161-91.

49 John Maynard Smith, 'An Agnostic View of Evolution', in Ian Ramsey (ed.), *Biology and Personality* (Oxford, 1965), pp. 49-73 (p. 51).

50 Karl Popper, 'Science: Problems, Aims, Responsibilities', *Federation Proceedings*, xxii (1963), pp. 961-72. Add. MS. 86840/79.

51 'Popper's World', *London Review of Books* (18 August 1983), pp. 11-12.

52 Popper enjoyed 'this very charming piece' which a friend passed on to him in 1993. 'Your Review-Chapter "27 Popper's World" is the most pleasant piece about myself I have ever read (according to my miserable memory: I am in my 92nd year). Thank you very, very much.' Karl Popper to John Maynard Smith, 7 December 1993. Add. MS. 86604.

53 Ultimately published as Max Perutz, 'A New View of Darwinism', *New Scientist*, no. 178 (1986), pp. 36-38.

54 Max Perutz to John Maynard Smith, 29 July 1986. Add. MS. 86840/78.

55 Hans-Joachim Niemann, *Karl Popper and the Two Secrets of Life* (Tübingen, 2014), p. 2. Popper's views on evolutionary biology changed throughout his life, cf. Stamos, op. cit.

considered him as 'a genuine contributor to our understanding of what we're doing.'[56] What he took from Popper's work, as mentioned above, were his justifications for accepting a scientific theory and for considering a theory as scientific in the first place.

> What we can demand of a theory is that it should be possible to deduce from it by logic certain consequences which we can test. In particular, a theory should exclude certain classes of events […]. A theory which excludes certain events can be falsified, if it is accepted that events which it excludes in fact happen. The wider the range of events which a theory excludes, the more opportunities there are to falsify it, and the more informative the theory is.[57]

These views were published in a 1965 book collecting papers from a conference where experts in biochemistry, biology, neurophysiology and psychology met with officers of the Modern Churchman's Union and discussed science and religion. In effect, he explained Popper's concept of falsifiability in more detail than in his allusions to it in the God broadcasts. He again used Popper – without explicit mention of or reference to him – in an essay on the 'status of neo-Darwinism' (1969). Maynard Smith explained evolution as having the following properties: multiplication, heredity, and variation.[58] The way to refute neo-Darwinism, to falsify it along Popperian lines, would be to demonstrate either that its assumptions made in relation to, and because of, the three properties mentioned 'are not in fact true of all organisms' or that 'patterns of evolution may occur which are inexplicable on the neo-Darwinist assumptions' (Lamarckian patterns being an example).[59]

In general, then, Maynard Smith felt it was important that people understood how science works and how it differs from religion, using Popperian philosophy of science to highlight the differences. He was not dogmatically refusing religion as having no value at all – there may be a poetic one – but did point out it could not explain the world as such. This rather diplomatic view becomes less so when Maynard Smith moves from general discussions of science and religion to direct challenges of the scientific world view – and his field of evolutionary science – by creationists. He introduced a 1972 essay collection as a means of 'taking stock' of evolutionary biology.[60] Similarly to physicists' views at the end of the previous century, population geneticists now believed that 'the fundamentals are known, and all that remains is to work out the details'. One could wonder, however, as 'there appears to be a widespread conviction that there is something rotten in the state of evolutionary theory'. Maynard Smith quickly added 'that this conviction, although widespread, is confined to those who do not work in the field of population genetics.'[61] He differentiated between specialists' and non-specialists' views on the theory of evolution and detected a reluctance on the part of the latter to accept natural selection as the processes bringing about humans.[62] That reluctance is very apparent in the criticisms voiced in creationist publications like those of the Jehovah's Witnesses discussed above.

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[56] Maynard Smith and Dawkins,'Karl Popper and the Philosophy of Science', <www.webofstories.com/play/john.maynard.smith/99>.

[57] 'An Agnostic View of Evolution', p. 51.

[58] John Maynard Smith, 'The Status of Neo-Darwinism' (1969), reprinted in his *On Evolution* (Edinburgh, 1972), pp. 82-91, p. 83.

[59] Ibid., p. 86.

[60] Ibid., p. 1.

[61] Ibid.

[62] It should be pointed out that among those working on evolution there are those who criticize the emphasis on natural selection, not arguing for its inapplicability but for its insufficiency in bringing about evolutionary change. Stephen Jay Gould and a few other palaeontologists and evolutionary biologists, for instance, have called neo-Darwinists like Maynard Smith and others, e.g. Richard Dawkins, 'ultra-Darwinists' following an adaptationist programme. See e.g. Stephen J. Gould and Richard C. Lewontin, 'The Spandrels of San Marco and the Panglossian Paradigm: A Critique of the Adaptationist Programme', *Proceedings of the Royal Society of London. Series B, Biological Sciences*, ccv (1979), pp. 581-598; also Kim Sterelny, *Dawkins vs Gould. Survival of the Fittest* (Cambridge, 2001).

In the same essay, Maynard Smith included a reference to Teilhard de Chardin, the French Jesuit theologian and palaeontologist who mixed science and religion in a 1955 publication (translated into English in 1959).[63] *The Phenomenon of Man* had a favourable introduction by Julian Huxley, biologist and science popularizer, who wrote:

> Père Teilhard de Chardin […] has effected a threefold synthesis – of the material and physical world with the world of mind and spirit; of the past with the future; and of variety with unity, the many with the one.[64]

Medawar, on the other hand, gave it a scathing review ('the greater part of it […] is nonsense […] and its author can be excused of dishonesty only on the grounds that before deceiving others he has taken great pains to deceive himself'),[65] and Maynard Smith was not fond of it either. He took part in a discussion of Teilhard's work on BBC One in 1966,[66] in 1972 still noted an 'odd enthusiasm for Teilhard de Chardin',[67] and in 1981 commented in a review of Stephen Jay Gould's *The Panda's Thumb* that he 'learnt a lot about the Piltdown forgery, and was delighted to find that [his] long-felt suspicion that Teilhard de Chardin had something to do with it is not entirely without support'.[68] The problem Maynard Smith saw was the attempt to turn to evolutionary biology looking for moral guidance. In an article for the popular science magazine *New Scientist* on the developmental biologist C. H. Waddington, Maynard Smith wrote about the dilemma between the scientific world view that was increasingly the basis for an understanding of the nature of life and the fact that (in the West at least) our moral and belief system is based on Christianity. 'Many of our present problems stem from the irreconcilable differences between these two methods of thought,' he continued, and there were two ways of dealing with the dilemma: one can, as Jacques Monod did in *Chance and Necessity*, accept the dualism. 'The scientific world picture carries no moral message, and ascribes no role or purpose to man. Man needs beliefs and values, but cannot derive them from science.' Alternatively, one can follow Waddington's approach as outlined in *The Ethical Animal* and 'attempt to rebuild a single coherent picture of the world, which includes science, ethics and aesthetics'.[69] Maynard Smith was inclined to agree with Monod: as Ullica Segerstråle has noted, he (and, for instance, Richard Dawkins) strongly favoured a fact-value distinction. She refers to them as the 'objectivist school', regarding 'evolutionary biology as a regular descriptive and explanatory science, just like other sciences. Members of this group point out we need to keep science separate from ideology.'[70]

B. Creationist Debates

It is interesting to note that against this backdrop of scientists like Teilhard or Waddington looking for holistic explanations and grand syntheses bringing science and religion together, Maynard Smith started debating with creationists (some prefer creation scientists). In the 1970s and 1980s, the evolution-creation issue was continually discussed in debates which – while they were focused in the US – also found their way to Britain. Duane Gish, one of the most publicly

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[63] Michael Ruse, *From Monad to Man. The Concept of Progress in Evolutionary Biology* (Cambridge, Mass., 2009), p. 35.

[64] Julian Huxley, 'Introduction', in Teilhard de Chardin, *The Phenomenon of Man*, tr. B. Wall (New York, 1959), pp. 11-28 (p. 11).

[65] Peter Medawar, 'Critical Notice. Review of Teilhard de Chardin, *The Phenomenon of Man', Mind*, lxx (1961), pp. 99-106 (p. 99).

[66] 'Viewpoint: Teilhard Discussed', *Radio Times* (24 February 1966), p. 42.

[67] 'The Status of Neo-Darwinism' (1969), reprinted in his *On Evolution* (Edinburgh, 1972), p. 1.

[68] John Maynard Smith, 'Tinkering' (1981), republished in his *Did Darwin Get It Right?*, pp. 93-7 (p. 94).

[69] John Maynard Smith, 'Ethics and Human Evolution', *New Scientist* (15 April 1976), pp. 120-3 (p. 120).

[70] Ullica Segerstråle, *Defenders of the Truth: The Battle for Science in the Sociobiology Debate and Beyond* (Oxford, 2000), p. 376.

known creationists, debated debated with the palaeontologist E. G. Halstead at Reading, the zoologist Professor J. Alexander at Leeds, and Maynard Smith at Sussex in 1979.[71] These debates were funded in a variety of ways, through ticket sales or with the help of organizations like the Campus Crusade for Christ.[72] This group also organized the Sussex debate,[73] an event which shows that Maynard Smith's involvement with the creationists was more than a passive interest in their literature.

Gish was a trained biochemist with degrees from the Universities of California Los Angeles and Berkeley who resigned from a pharmacological company in 1971 to devote all his time to 'the study of the scientific evidence related to the question of creation versus evolution theory'. He was associate director of the Institute for Creation Research and published and talked widely on 'scientific evidence against evolution and on other Bible-science subjects'.[74] In the late 1970s, he was on a lecture tour around Britain, with scheduled appearances at ten universities, amongst which those mentioned above. As Stephen Sizer of the University of Sussex's Campus Crusade for Christ branch wrote to Maynard Smith, Gish was to give four lectures between 12 and 15 February 1979. His topics were:

- Creation, Evolution and the Laws of Science;
- Creation, Evolution and the Origin of Life;
- Creation, Evolution and the Fossil Record; and
- Creation, Evolution and the Origin of Man.

Gish, continued Sizer, 'has participated in over 50 debates in the United States, and would like the opportunity of meeting you. The title he has suggested is, "The Theory of Evolution is Superior to the Theory of Special Creation as an explanation for the Scientific Evidence related to Origins".'[75] Maynard Smith agreed, and the date was set for 14 February.

Gish and Maynard Smith gave 25-minute long talks, followed by five minutes in which each would reply to the other, before the debate was opened for all.[76] No recording or transcript exists in Maynard Smith's archive, but we know that he used a publication of Gish's to prepare himself. In 'CREATION, EVOLUTION, AND PUBLIC EDUCATION' Gish argued that

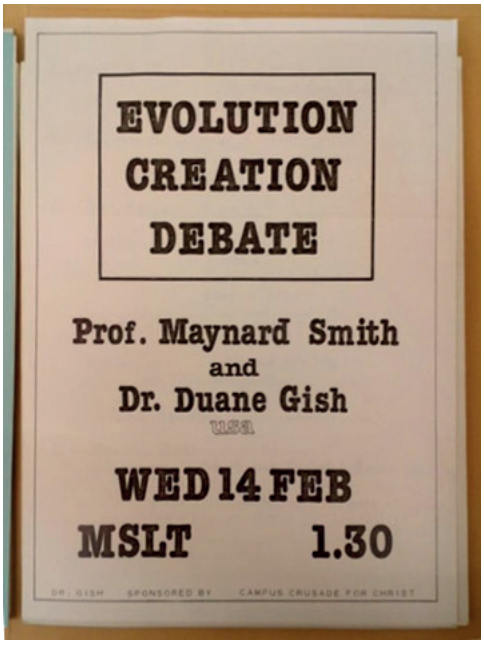

Fig. 3. Poster for the debate between Duane Gish and John Maynard Smith. Add. MS. 86614.

[71] Marvin Lubenow, '*From Fish to Gish*': *The Exciting Drama of a Decade of Creation-Evolution Debates* (San Diego, 1983), chapter 33. Although the initials do not match, Lubenow may be referring to Beverly Halstead and Robert McNeill Alexander: William A. S. Sarjeant, 'Halstead [Tarlo], (Lambert) Beverly (1933–1991), palaeontologist.' *Oxford Dictionary of National Biography*, online edition (2008) <www.oxforddnb.com/view/10.1093/ref:odnb/9780198614128.001.0001/odnb-9780198614128-e-49762> [accessed 24 June 2019]; Andrew A. Biewener and Alan Wilson, 'R. McNeill Alexander (1934-2016)', *Nature*, dxxxii (2016), p. 442.

[72] Lubenow, op. cit., esp. chapter 1.

[73] Stephen Sizer to John Maynard Smith, 15 January (undated [1979]). Add. MS. 86614.

[74] Resume – Duane Tolbert Gish, Ph.D. Add. MS. 86614.

[75] Stephen Sizer to John Maynard Smith, 15 January (undated [1979]). Add. MS. 86614.

[76] Stephen Sizer to John Maynard Smith, 6 February (undated [1979]). Add. MS. 86614.

> modern formulations of evolutionary mechanisms are vacuous and are contradictory to well-established natural laws, and, in contrast to commonly accepted views, the fossil record actually contradicts the predictions based on evolution theory. On the other hand, the major features of the fossil record conform admirably to predictions based on a creation model. When all of the scientific evidence is considered, creation provides a model for explaining origins that is superior to the evolution model.[77]

He wrote that the gaps in the fossil record are contradictory to the story of gradual evolution and change from one species into another. What the fossil record does show, according to Gish, is the distinct nature of each species, as explained in the Bible. Evolution has also never been witnessed and cannot be tested with experimental methods; it is not a scientific theory. Gish concluded that belief in evolution is as intrinsically religious as is belief in creation, that creation is a better explanation for nature and that it should therefore be taught in schools. Out of this preparatory reading, Maynard Smith drew three main arguments for him to deal with during the debate: the fossil record, the scientific nature of evolution, and that of creation.[78]

While the notes are, in the main part, very short, we can recreate Maynard Smith's argument as follows. With regards to the fossil record, he made two points. On the issue of finding intermediate forms, something to show one species changing into another, he pointed to Darwin's difficulties when writing *The Origin of Species* published in 1859. Only few fossils had been discovered then, and Darwin developed his theory without having seen any intermediate forms. Today, even though many more fossils have been found, there are still gaps in the record. As Maynard Smith pointed out, this is only to be expected. For fossilization to occur and for fossils to be conserved and found, a lot of conditions need to be met. But a lot can still be inferred from the existing fossil record. For instance, we see a move from simpler to more complex organisms. Considering the use Maynard Smith made of his book *The Theory of Evolution* and that Gish used it for demonstration purposes, it is also plausible to assume that Maynard Smith used an argument presented there.

> Now if it is true that decisive evolutionary advances would be expected to take place by rapid evolution in single species (or at most groups of related species) confined to a particular part of the world, it follows that the number of individuals representing any particular structural stage is very small when compared to the number of individuals at a given stage in a larger group of animals evolving more slowly. Consequently, transitional forms are less likely to be found as fossils. It is, in fact, the case that major groups often appear suddenly in the fossil record, and although it is usually possible to identify the group from which they have originated, intermediates are rare; sometimes, as in the case of *Archaeopteryx*, one is lucky. Strictly, the rareness of such intermediates is a confirmation of the view that the origin of major groups occurs rapidly in a limited population, rather than a deduction from it.[79]

To Gish's argument that evolutionary theory is not scientific because it cannot be tested, Maynard Smith replied the following. The idea is not to prove it true – science has given up on the claim to provide certainty. His notes read, 'roughly, Popper. 'FALSIFIABLE' / in this sense, Evolution Theory manifestly falsifiable'.[80] He then used the same argumentation to demonstrate that creation is not scientific:

> BUT – cannot be refuted – GOSSE 'one enormous and unnecessary lie ...
> What force is 'cannot be refuted'?? 9AM??
> The Essential Difference[81]

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[77] Gish, 'CREATION, EVOLUTION, AND PUBLIC EDUCATION'. Add. MS. 86614.
[78] Maynard Smith, 'Deal with 3 Things'. Add. MS. 86614.
[79] John Maynard Smith, *The Theory of Evolution* (Cambridge, 1975/93), p. 307.
[80] Maynard Smith, 'Deal with 3 Things'. Add. MS. 86614.
[81] Ibid.

This refers to Philip Gosse's book *Omphalos: An Attempt to Untie the Geological Knot* (1857). Gosse attempted to explain why geological and other signs imply the Earth's history is longer than the 6,000 years suggested by the Bible. He rejected the idea of the Earth's antiquity but needed to explain why it appeared old. He proposed two '"laws" – all organic nature moves in a perpetual circle, and creation is interruption into the circle – and conclude[d] syllogistically that every created organism must possess all those physical attributes characterizing the position in the circle at which its creation occurred'.[82] The book was a failure, and more cynical interpretations summarized it as God having created 'one enormous and unnecessary lie'. The repetition of quotation marks in Maynard Smith's notes hints at incredulity at some of the creationist arguments and stories, such as Bishop Ussher's attempt to calculate the exact day and time of creation.[83]

There are two published summaries of the Sussex debate: Marvin Lubenow's and the one in the University of Sussex's *Bulletin* (see fig. 3). Lubenow is a Baptist pastor and member of the Creation Research Society. He helped organize and was present at many of Gish's debates and wrote a book on them, *From Fish to Gish* (1983). (He also wrote a book on the fossil record, *Bones of Contention: The Bible and the Human Fossils*, to demonstrate that the fossil record proves Special Creation.)[84] Lubenow summarized:

> Gish held aloft a copy of Maynard Smith's book, *The Theory of Evolution*, with a picture of an evolutionary tree on the cover. He emphasized that this evolutionary tree, to be a legitimate scientific theory, must be a continuum from the roots to the ends of the branches without a single gap anywhere. Gish then went on to demonstrate that the only part of the tree that does exist is the tips of the branches – the tiny twigs that represent present-day life.
> Gish first declared that a tree must have a seed. He likened this seed to the first single-celled organism in the evolution of life. He then demonstrated that a naturalistic origin of life was simply out of the question based on known principles of kinetics and thermodynamics.[85]

Lubenow complained that Maynard Smith used humour and sarcasm rather than facts when dealing with Gish and his arguments.[86] Maynard Smith's Popperian explanations of what it means for a theory to be scientific were also unsatisfactory:

> Gish […] claimed that neither evolution nor creation were refutable scientific theories – although both have elements of scientific data in them. Smith then protested saying that he had given certain criteria whereby evolution could be falsified. If the deeper rocks (allegedly older rocks) had more species in them belonging to existing genera than the more recent rocks have, Smith stated, evolution would be falsified.
>
> Smith: 'Would you not accept that as a falsification of evolution?'
>
> Gish: 'No, and I don't believe you will either, because on that basis I can falsify your theory.'[87]

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[82] Frederic Ross, 'Philip Gosse's *Omphalos*, Edmund Gosse's *Father and Son*, and Darwin's Theory of Natural Selection', *Isis*, lxviii (1977), pp. 85-96 (p. 93). See also Ron Roizen, 'The Rejection of *Omphalos*: A Note on Shifts in the Intellectual Hierarchy of Mid-Nineteenth Century Britain', *Journal for the Scientific Study of Religion*, xxi (1982), pp. 365-9.

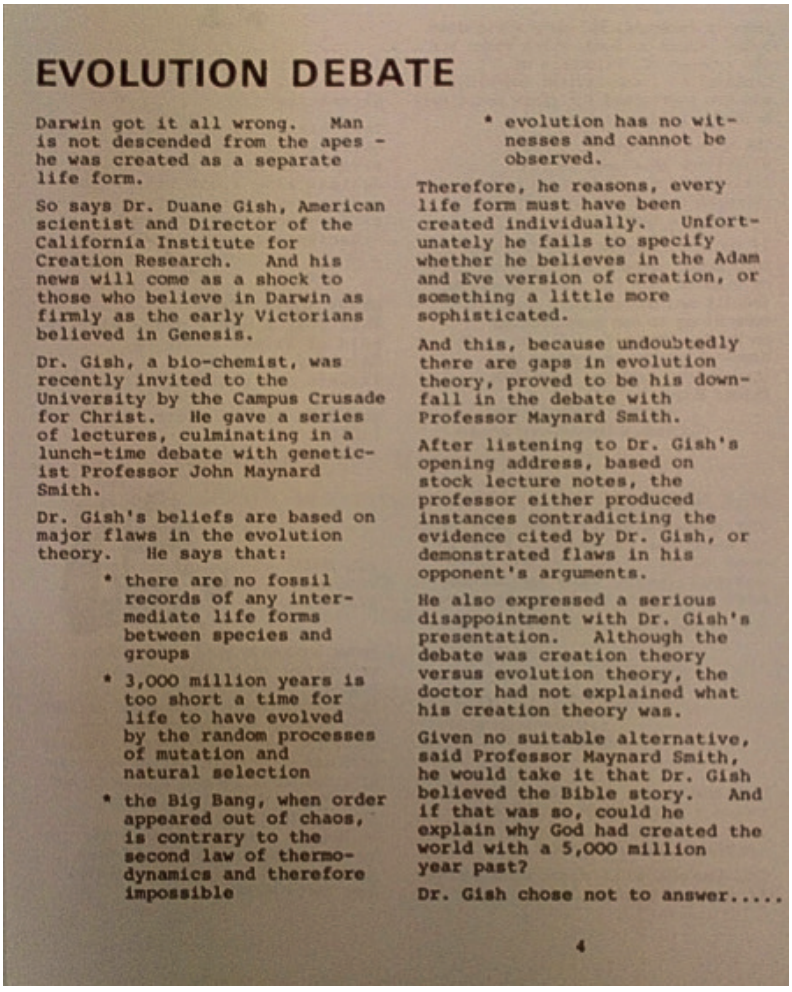
[83] He concluded it was created in 4004 BC, based on the Old Testament genealogies.

[84] Lubenow, op. cit., pp. iii-iv.

[85] Ibid., p. 211f.

[86] Ibid., p. 213.

[87] Ibid., p. 213f. Throughout the brief account of the debate, Lubenow refers to Maynard Smith as Maynard Smith, Smith and Dr Smith (he did not have a Ph.D.).



EVOLUTION DEBATE

Darwin got it all wrong. Man is not descended from the apes - he was created as a separate life form.

So says Dr. Duane Gish, American scientist and Director of the California Institute for Creation Research. And his news will come as a shock to those who believe in Darwin as firmly as the early Victorians believed in Genesis.

Dr. Gish, a bio-chemist, was recently invited to the University by the Campus Crusade for Christ. He gave a series of lectures, culminating in a lunch-time debate with geneticist Professor John Maynard Smith.

Dr. Gish's beliefs are based on major flaws in the evolution theory. He says that:

* there are no fossil records of any intermediate life forms between species and groups
* 3,000 million years is too short a time for life to have evolved by the random processes of mutation and natural selection
* the Big Bang, when order appeared out of chaos, is contrary to the second law of thermodynamics and therefore impossible
* evolution has no witnesses and cannot be observed.

Therefore, he reasons, every life form must have been created individually. Unfortunately he fails to specify whether he believes in the Adam and Eve version of creation, or something a little more sophisticated.

And this, because undoubtedly there are gaps in evolution theory, proved to be his downfall in the debate with Professor Maynard Smith.

After listening to Dr. Gish's opening address, based on stock lecture notes, the professor either produced instances contradicting the evidence cited by Dr. Gish, or demonstrated flaws in his opponent's arguments.

He also expressed a serious disappointment with Dr. Gish's presentation. Although the debate was creation theory versus evolution theory, the doctor had not explained what his creation theory was.

Given no suitable alternative, said Professor Maynard Smith, he would take it that Dr. Gish believed the Bible story. And if that was so, could he explain why God had created the world with a 5,000 million year past?

Dr. Gish chose not to answer.....

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Fig. 4. 'The Bulletin', 27 February 1979, p. 4. Add. MS. 86614.

On the other hand stands the Sussex University *Bulletin*'s note on the debate. It pointed out that Gish used stock lecture notes for his statement and failed to answer Maynard Smith's question on what kind of creationist beliefs he actually had. In fact, the contrast of memories and comments is remarkable. Lubenow depicts Maynard Smith as a self-contradicting evolutionist who cannot help but resort to humour rather than scientific evidence to make his points. In *The Neck of the Giraffe* (1982), Francis Hitching argued that the event 'wasn't so much a debate as a statement of two irreconcilable points of view'. He described Maynard Smith as 'doughty' and 'theatrical', while Gish 'made a confident, knowledgeable speech about the fossil record'.

> No vote was taken, though undoubtedly the great majority were on Maynard Smith's side. But in England, students by and large are no longer Christians, except in name. 'A tragedy,' Duane Gish said sadly to me afterwards.[88]

[88] Francis Hitching, *The Neck of the Giraffe: Where Darwin Went Wrong* (New Haven, 1982), p. 125f. Lubenow had given Maynard Smith the title Dr, which he did not have, Hitching indexed him under 'Smith, Sir John Maynard' (p. 287).

In comments on an internet forum discussing a 2014 debate between Ken Ham and Bill Nye (and, among other things, if Nye would be able to withstand the 'Gish Gallop'),[89] howiekornstein wrote:

> It doesn't take expertise in Biology to argue against the idiocy of creationism, only good debating skills. The specific talent needed is an ability to deal a fatal blow to a high-steam gish gallop. The most skilled debater in doing a hatchet job on a creationist gish gallop (IMHO) was John Maynard Smith.[90]

He was echoed by colnago80 who wrote that 'it is possible to debate creationists if one is well prepared. […] John Maynard Smith successfully debated Duane Gish. The bottom line is preparation to combat the Gish gallop.'[91] Colnago80 also pointed out that the 'late John Maynard Smith […] pummelled' Gish.[92] (On a different forum, they described Maynard Smith as dismembering Gish: 'Gish was considered a great debater until he made the mistake of debating John Maynard Smith'.)[93]

Maynard Smith is on record for one more debate. In 1986, Oxford University's debating society, the Oxford Union, invited speakers for a Huxley Memorial Debate on the motion 'That the doctrine of creation is more valid than the theory of evolution'. The main speakers in favour were Professor Arthur Wilder-Smith (chemist) and Edgar Andrews (physicist); against spoke Richard Dawkins and Maynard Smith (biologists). On both sides of the house there were further shorter speeches by union members. The archive contains no record of any preparation on Maynard Smith's side, although Dawkins sent him a letter quoting Andrews's *From Nothing to Nature*, adding 'What is the total number of errors in this short passage?' (That was, in fact, Dawkins's strategy for the debate: taking apart Andrews's book, for which he was criticized by Wilder-Smith.) Maynard Smith did take very brief notes during the debate, starting with writing down 'The most bogus ideas ...'[96]

The debate was recorded and is currently available on youtube,[97] yet the unfortunately mediocre quality means the vote is unclear. The most quoted numbers of ayes are 115 or 150, opposing 198 noes. Popper made no appearance in this debate, but Maynard Smith repeated his point made in the God broadcasts: one very important difference between science and religion lies in their explanatory power. In 1965 he had argued that both are attempts to understand the world. In 1986 he charged creation scientists with not actually contributing anything to this understanding. Reflecting on his own scientific career, Maynard Smith concluded that in the

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89 The 'Gish gallop' is now the more or less official name for a debating technique: it is a way of arguing one's cause 'by hurling as many different half-truths and no-truths into a very short space of time so that their opponent cannot hope to combat each point in real time.' (Tom Holder, 'Gish Gallop' [blog post] <https://speakingofresearch.com/2012/09/11/gish-gallop/> [accessed 26 November 2018].)

90 howiekornstein (3 January 2014), <whyevolutionistrue.wordpress.com/2014/01/03/this-may-not-end-well/#comment-672796>.

91 colnago80 (3 January 2014), <https://whyevolutionistrue.wordpress.com/2014/01/03/this-may-not-end-well/#comment-672649>.

92 colnago80 (5 February 2014), <https://whyevolutionistrue.wordpress.com/2014/02/05/who-won-the-big-evolutioncreation-debate/#comment-716147>.

93 colnago80 (2 November 2014), <http://americanloons.blogspot.com/2011/02/149-duane-gish.html?showComment=1414968706730#c6629932962759198274>.

94 Jeya Wilson to John Maynard Smith, 29 July 1985. Add. MS. 86614.

95 Richard Dawkins to John Maynard Smith, 10 February 1986. Add. MS. 86614.

96 Maynard Smith, notes on the back of 'Giving some account...' Add. MS. 86614.

97 Huxley Memorial Debate' (1986). Recordings available, accessed 27 November 2018. Part I <www.youtube.com/watch?v=D4I7znTq0gs> and Part II <www.youtube.com/watch?v=uKtT2hDPCIU> or broken up into sections for each speaker, compiled into a playlist, <www.youtube.com/watch?v=GFJDK471B90&list=PLlhAhwSVx-uN3yUA49tmsMrSoyxqPy4wm>.

previous decades, evolutionary biologists had come increasingly closer to solving problems like the evolution of ageing, of sex or of conventional behaviour. They – and he himself – had done so by working within a scientific framework. Creationists, on the other hand, had mainly gone through scientific literature looking for contradictions.

> I believe that what this evening you have to decide, in deciding between the validity of the doctrine of creation or the theory of evolution, is, which of these methods of approach have added most to our understanding of the natural world during recent years. If you believe that, as I do, that evolutionary biologists – even if they've not solved all their problems – have really added to our knowledge and to our understanding of the world, whereas creation scientists have added virtually nothing to our understanding of the world, then you will oppose the motion.[98]

V. Conclusion

Towards the end of his book *The Evolution-Creation Struggle*, charting the history and positions of the current debates, Michael Ruse asked two questions: do evolutionists promote an either/or view of religion, i.e. that one must 'choose between God or Darwin'? [99] And do they promote evolution 'as a guide to and justification for morality'? [100] The answer to the first question is that for Maynard Smith personally, it *was* a choice. Science offered the better explanation for the world, its origins and its developments. There was a 'good dose of scientism' in Maynard Smith's world view, 'in the sense of belief in the Progressive nature of science': scientific knowledge advances, improving our understanding of the world.[101] In addition we have his regard for Karl Popper's philosophy of science, although it needs to be noted that Maynard Smith's overall view and use of the philosophy of science was ambiguous. He loved reading and arguing about it, but he did 'not believe one should allow oneself to be influenced by it, when actually thinking about science'.[102] Maynard Smith mostly used the philosophy of science as a means to advance arguments about (the validity of) science, in particular Popper's notion of falsifiability.

This use is most obvious in Maynard Smith's objections against a world view based on Christian and creationist assumptions. 'They are of three kinds, to factual claims, to methods, and to concepts of intervention.' [103] The first related to claims such as resurrection, the third to the idea of an 'interventionist God fiddling with the machine'.[104] Important to pick out is the second one, which reiterates the above arguments Maynard Smith brought against creationists in particular and religion more in general: the theological method of gaining (absolute) truth and certainty without readiness to adapt or discard theories contradicts his conviction that the scientific method is the better and more powerful way of gaining knowledge of the world. Religion is likened to poetry – it can only give us knowledge in a poetical sense.

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[98] 'Huxley Memorial Debate' (1986), Prof John Maynard Smith. <www.youtube.com/watch?v=Nmk3m04vDtA>.

[99] Ruse, op. cit., p. 203.

[100] Ibid., p. 207.

[101] Michael Ruse, *Monad to Man. The Concept of Progress in Evolutionary Biology* (Cambridge, Mass., 2009), p. 478.

[102] Maynard Smith and Dawkins, 'Karl Popper and the Philosophy of Science', <www.webofstories.com/play/john.maynard.smith/99>.

[103] 'An Agnostic View of Evolution', Ramsey (ed.), *Biology and Personality*, p. 61.

[104] Ibid., p. 62f.

For Maynard Smith, creationism did not pose a serious threat to neo-Darwinism; it was not even a stimulation for scientific discussion: creationism is not a science; they could not be compared. There may be a role for religion as a form of poetry, yet only scientific communication leads to knowledge of the world. Thinking of science and religion as simply two ways of talking about knowledge is unhelpful and damaging. Referring back to Teilhard de Chardin and also Bernard Shaw, Maynard Smith wrote that '*Back to Methuselah* and *The Phenomenon of Man* alike illustrate what nonsense intelligent men, agnostic or Christian, can write when they confuse science and poetry'.[105] Thus, he remained ambiguous about religion until old age, saying in 2001, three years before his death:

> I think there are two views you can have about religion. You can be tolerant of it and say, I don't believe in this but I don't mind if other people do, or you can say, I not only don't believe in it but I think it is dangerous and damaging for other people to believe in it and they should be persuaded that they are mistaken. I fluctuate between the two. I am tolerant because religious institutions facilitate some very important work that would not get done otherwise, but then I look around and see what an incredible amount of damage religion is doing.[106]

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[105] Ibid., p. 64.

[106] John Maynard Smith and Humanists UK, Interview (2001), <https://humanism.org.uk/humanism/the-humanist-tradition/20th-century-humanism/john-maynard-smith/> [accessed 9 February 2019].