

Truth and lies in education

Much of this work has been fairly circumspect, in reference to the sort of science that is currently taught in state schools. However, this chapter will explore some more serious issues, and some more controversial issues. The chapter title contains the word ‘lies’. What should one call it if pupils are taught something which is factually incorrect? Whose fault is it if the pupil picks up factually incorrect information? Is the information factually incorrect because of deliberate policy or by accident?

There could be any number of answers to these questions. It is to be hoped that all teachers will want their pupils to be taught what is factually correct. If there are controversial areas, it is to be hoped that teachers will want their pupils to be appraised of all sides of the argument.

If factually incorrect information is presented to the children, it could be for a number of reasons. It could be because the teacher has made a genuine mistake. It could be because science knowledge has moved on, and the teacher was not aware of new knowledge. It could be because information in a text book is incorrect. It could be because the instructions in a syllabus are incorrect. This chapter includes examples of all of these.

If there is factually incorrect science being taught to pupils, should we start to discuss the issue of blame? For example, if the teacher is not aware that science has moved on since their lessons were planned, whose fault is that? Is it the fault of the Local Education Authority, or the school’s senior management team, or board of governors—should it be their responsibility to account for their staff’s knowledge? Is it the fault of the teacher? Should it be mandatory for teachers to keep themselves up to date with the latest scientific research? How should they go about doing this? Who is going to assess that they have achieved in this area?

Examination of error

It will not be possible to examine every instance of error being taught in science classrooms today. We will therefore restrict ourselves to a number of case studies. In the selection of these case studies we need to be fair.

- I will not be picking on individual teachers. Science teachers are hard-working individuals who need support. It is not possible for such a teacher to be up to date with all the latest aspects of scientific research, especially if they are teaching outside their normal area of expertise—a common problem among UK science teachers. We will therefore restrict ourselves to published materials such as text books and syllabuses.
- Some supposed errors may be controversial. As a creationist, I believe evolutionary theory as a whole to be unscientific. However, it makes more sense to restrict my case studies to concepts or ‘facts’ which have been accepted as erroneous by evolutionists themselves
- Some errors may be honest mistakes. We will therefore restrict ourselves to cases where the published work appears many years after the concept or ‘fact’ concerned had been shown to be in error. Published works appearing five years or so after such a discovery should have been updated, including those works which are revisions of earlier works. While individual school science teachers may have difficulty in being up-to-date within five years, this should pose no problem to the authors and publishers of text books and examination curricula, who have a responsibility to check the accuracy of their works.

Readers of this book will be interested to know where these errors are being taught. If it is true that not all science teachers can keep up to date with the latest scientific research, then how much less likely is it that ordinary parents know what errors their children are being taught? It may be an eye-opener to many parents to see which popular ‘icons’ of scientific theories are, in fact, known to be incorrect.

Peppered moths

Peppered moths are usually taught as an example of natural selection. Sometimes this is expanded to identify the moths as an example of evolution in practice. The BBC takes the latter view, using peppered moths on their ‘GCSE Bitesize’ website.¹ This website provides revision assistance for children sitting General Certificate of Secondary Education exams.

The alleged support for natural selection given by peppered moths is aptly described in one current GCSE biology text book.

The common form is speckled but there is also a variety which is black. The black variety was rare in 1850, but by 1895 in the Manchester area its numbers had risen to 98 per cent of the population of peppered moths. Observation showed that the light variety was concealed better than the dark variety when they rested on tree-trunks covered with lichens. In the Manchester area, pollution had caused the death of the lichens and the darkening of the tree-trunks with soot. In this industrial area the dark variety was the better camouflaged (hidden) of the two and was not picked off so often by birds.²

It should be noticed that Mackean describes this as an example of natural selection, whereas the BBC claims it is an example of evolution. Mackean is correct—if these experiments were genuine, they would imply a reduction in genetic information, not an increase. Evolution requires an increase in genetic information.

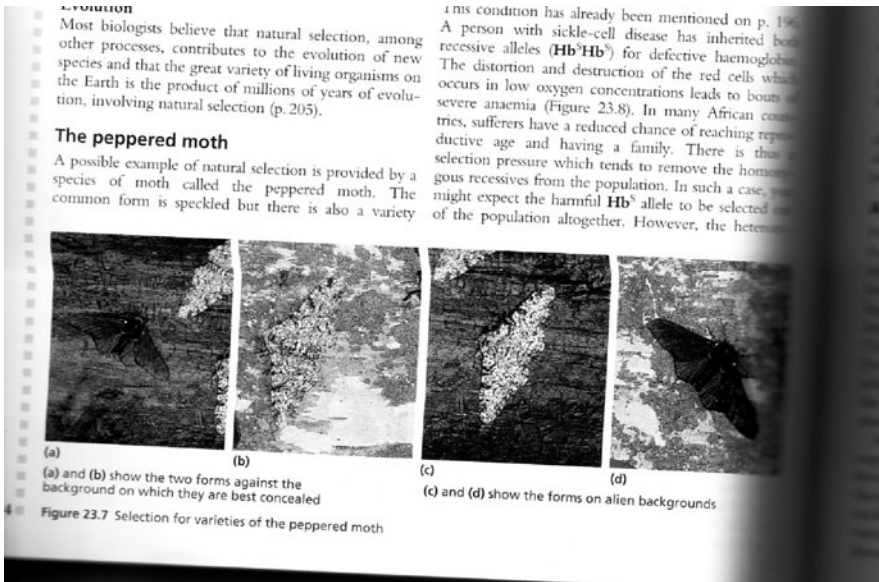
Using the language of evolution, a recent A-Level biology text book says:

Clearly the darker moth has a selective advantage over the light moth in industrial areas, whereas in non-polluted areas this advantage is with the light moth.³

The same A-Level book includes a map of the UK showing the distribution of peppered moths of light and dark varieties. This map is reproduced here.

In his textbook, Williams does not comment on the observation that there is a high concentration of dark-variety moths in rural East Anglia—a result which flies in the face of the usual interpretation of the observed data. Conversely, dark moths are rare in South Wales, even though this was an area of high pollution when the experiments were carried out.

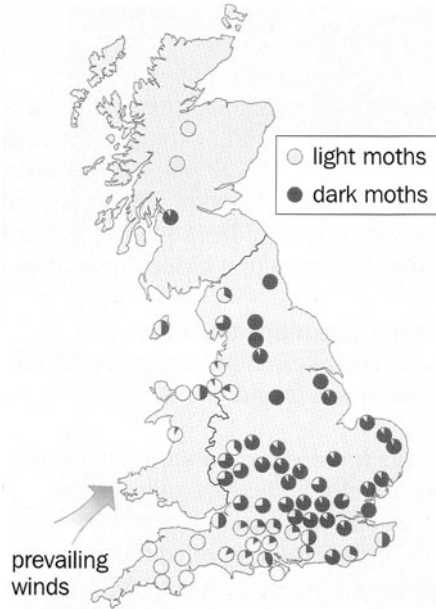
The alleged principles shown by peppered moths are considered educationally very important. They are included as examples in many GCSE science and biology syllabuses. One current GCSE biology syllabus states: ‘Candidates should be able to ... describe how the process of natural selection may result in ... changes within a species, *as illustrated by the peppered moth*.’⁴ (emphasis mine)



Peppered moths photographs in Mackean's GCSE Biology

The observations about peppered moths were carried out initially in the 1950s by Bernard Kettlewell. Unfortunately, his observations should carry a 'health-warning' Peppered moths do not, as a rule, rest on the trunks of trees, so the main premise is flawed. It turns out that the famous photographs, used in so many text books, are fraudulent. Some photos are taken using dead moths glued or pinned to the trunks. Others use live specimens which are placed by hand on the trunks. In daylight the moths are drowsy and tend to stay where they are put. The moths actually tend to rest hidden under the leaf canopy, rather than in the open on the trunk.

Criticisms of Kettlewell's experiments first emerged in the 1980s—twenty years ago. In 1998, Professor Jerry Coyne of the University of Chicago said that finding out the moth story was wrong was like when he found out at age six that it was actually his father who was bringing the Christmas presents.⁵ Coyne has not been pleased that his remarks have been quoted by creationists, such as this author, but the genie is out. Other



The proportions of light and dark moths found in Britain today

Moth Distribution from Williams

himself, in view of all the errors, whether the peppered moth story should still be taught in schools, and answers himself: ‘The answer is an unequivocal “yes”. The basic story is easy to understand.’⁷

To such people, the fact that the example is ‘easy to understand’ is more important than whether it is actually true.

The use of fossils

The Science National Curriculum in England states:

Pupils should be taught that the fossil record is evidence for evolution. (Sc2.4i)⁸

A very similar statement appears in the National Curriculum in Wales (Sc2.4.9).⁹

biologists have admitted to gluing specimens to trees to take some of the iconic textbook photos.

Kettlewell said that if Darwin had seen his experiments ‘he would have witnessed the consummation and confirmation of his life’s work’.⁶ What we now find is that science textbooks and syllabuses in the UK (and, judging from my correspondence, America too) are basing their evidence for evolution on something that has been known to be a fraud for twenty years. What word can we use to describe the situation, if our children are knowingly being taught something which is not true? It is a source of considerable amazement to this author that Michael Majarus, who lectures on evolution at the University of Cambridge, can ask

Chapter 8

These statements are interpreted in the OCR biology GCSE thus.

Candidates should be able to explain briefly how organisms may have become fossilised and recognize that fossils provide evidence for evolution.¹⁰

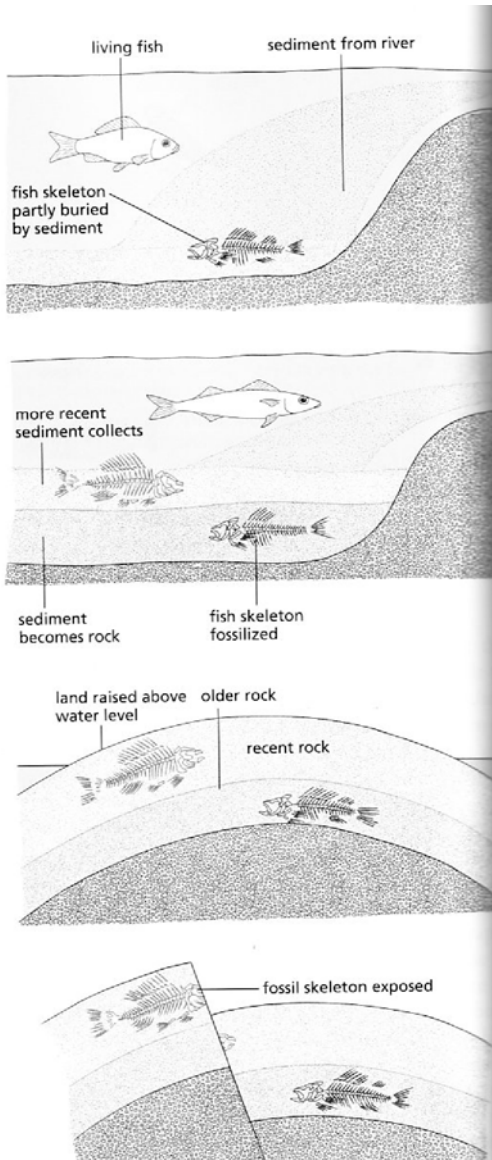
The use of the fossil record is controversial. Many creationists would point out that the fossil record actually shows stasis¹¹ and extinction, not evolution. Indeed, each fossil is a static snapshot in time rather than a record of change.

This section of one chapter of this book cannot be expected to be a comprehensive analysis of fossils and fossilization. Others have provided much more detailed information.¹² What our present study will confine itself to is the analysis of clearly factually incorrect statements. The statement that ‘the fossil record is evidence for evolution’ is factually incorrect. Indeed, the fossil record is frequently used by creationists as evidence *against* evolution.

For example, it is usually assumed that fossils take a very long time to



Fossil of a small fish being eaten by a larger fish



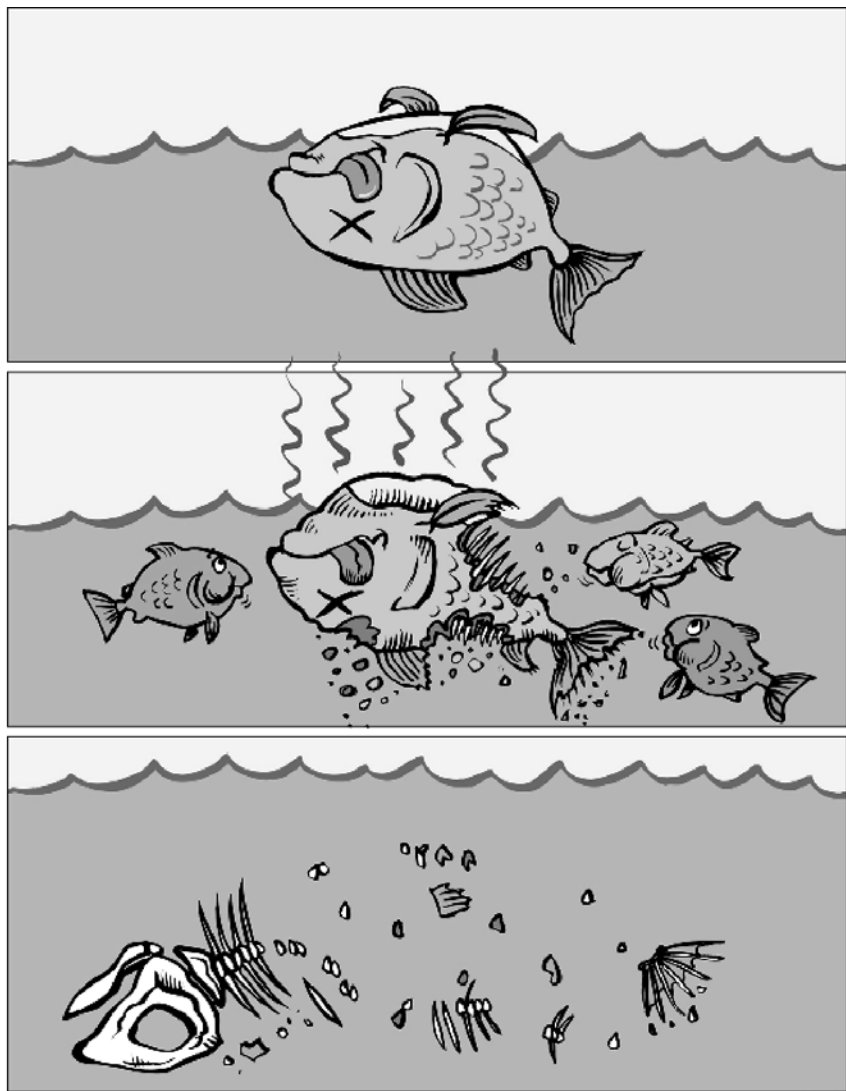
Formation of fossils according to evolution

form. However, the existence of fossil jellyfish¹³ shows that at least some fossils must have happened rapidly. In fact, it is the contention of creation scientists that most fossils are produced rapidly. In the case of jellyfish, we are familiar with examples washed up on the beach. These creatures do not remain on the beach long—they quickly dry up leaving no trace in a matter of hours. Therefore, in order for fossil jellyfish to exist, the jellyfish must have been covered by sediment very quickly.

Another example of a fossil produced quickly is the fish eating a smaller fish.¹⁴

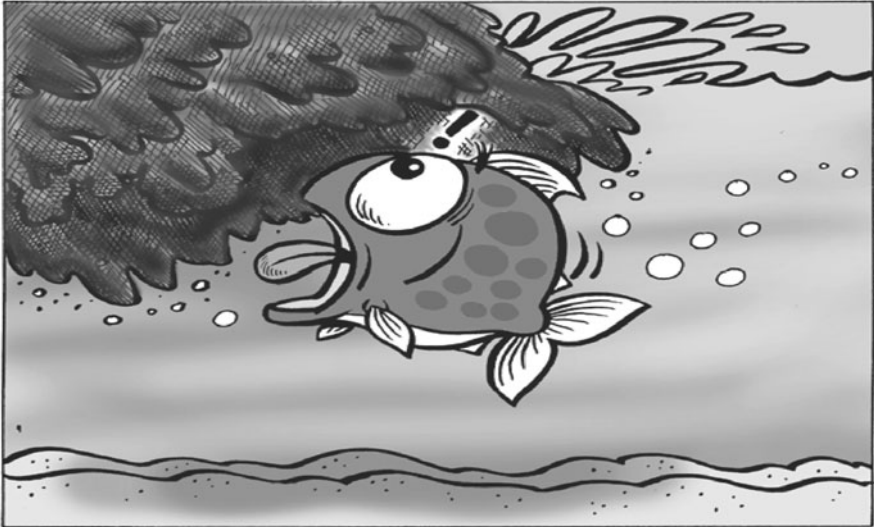
If the larger fish had died, it is unlikely that the smaller fish would have stayed in the bigger fish's mouth. The fossilization must have occurred very rapidly so that this 'snapshot' of marine life could happen.

There is a classic textbook illustration of how marine fossils occurred. In the illustration shown to the left, taken from Mackean's GCSE biology textbook mentioned



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Observed death and decay of fish



Fossil fish are the result of rapid burial

earlier, we see two fish in the first frame. One of these has died and sunk to the bottom of the river. Over a period of time, river sediment gradually covers the fossil. This is then uplifted by slow earth movements, and then exposed by faulting.

Any fisherman knows that this is not what happens to fish when they die. The following amusing illustration gives a better understanding of what happens to dead fish. They do not sink—they float.

It is much more likely that a fish fossil is produced by sudden covering by sediment.

Such a scenario is consistent with the creationist view that most fossils were formed in the Flood. However, school textbooks continue to teach children a method of fossilisation which is demonstrably erroneous.

Notes

1 Examples of Evolution 1,

<http://www.bbc.co.uk/schools/gcsebitesize/biology/variationandinheritance/3evolutionrev5.shtml>.

Chapter 8

- 2 **D.G. Mackean**, GCSE Biology (third edition, 2002) (London: John Murray (Publishers) Ltd, p. 204.
- 3 **G. Williams** (2000), *Advanced Biology for You* (Cheltenham: Nelson Thornes), p. 377.
- 4 OCR GCSE in Biology, 2000, p. 38.
- 5 **J.A. Coyne**, *Nature* **396**(6706):35–36.
- 6 **H. Kettlewell** (1959), 'Darwin's missing evidence' in *Evolution and the fossil record, readings from Scientific American* (San Francisco: W.H. Freeman and Co., 1978), p. 23.
- 7 **M.E.N. Majerus**, 'The Peppered Moth: a problem not to be sneezed at', *Biologist* **53**(1), pp. 13–16, Feb 2006.
- 8 *Science: The National Curriculum for England* (QCA, 1999), p. 50.
- 9 *Science in the National Curriculum in Wales* (English Language Version), (ACCAC, 2000), p. 49.
- 10 OCR GCSE in Biology, 2000, p. 38.
- 11 In biological terms, *stasis* implies that no change over time is seen.
- 12 See, for example, **C. Wieland**, *Stones and Bones* (Green Forest, AR: Master Books, 1990); **D. Gish**, *Evolution: The Fossils Still Say No* (San Diego: ICR, 1985), or, specifically on the subject of human fossils, **M. Lubenow**, *Bones of Contention* (Grand Rapids: Baker Book House, 2004).
- 13 D. Catchpole, *Hundreds of Fossil Jellyfish*, *Creation* **25**(4):32–33, September 2003.
- 14 This fossil is on display at the Answers in Genesis **Creation Museum**, in northern Kentucky, due to open in 2007.