

The plagues of Egypt: Were they natural or miraculous events?

Jonathan Appleby, May 2007

The ten plagues of Exodus 7:14 – 12:30 form the climax of the confrontation between Moses and Pharaoh over the future of the nation of Israel; a story familiar to generations of children in Sunday Schools around the world. The writer of Exodus clearly sees the plagues as being a struggle between the gods of Egypt (especially as embodied by Pharaoh) and the God of Israel.¹

With the advancement of scientific knowledge in modern times, it has become fashionable to give natural explanations for biblical events previously regarded as miraculous – a strategy known as reductionism. The plagues of Exodus have been analysed in some depth in this way in an attempt to reduce them to purely natural phenomena. In the following paragraphs the plagues will be discussed, and some analysis made of the natural explanations. In particular attention will focus on the theories of Greta Hort (1957 and 1958) and more recently John Marr (1998) as these theories seek to demonstrate that some of the plagues were interconnected in an ecological sense.

The first six plagues were the changing of the river Nile into blood, swarms of frogs, swarms of gnats, swarms of flies, the death of all livestock, and a plague of festering boils on men and animals.

¹ Gordon Wenham, *Exploring the Old Testament: The Pentateuch* (SPCK, 2003), p.61.

Hort suggested that these plagues were triggered by the annual Nile flood in July carrying an unusually high level of red silt, together with a red algae (Harmful Algal Bloom, or HAB), which combined to create a blood-red colour.² The algae killed the fish, which in turn drove the frogs onto dry land. The frogs died from internal anthrax, which in turn infected and killed the livestock. The gnats were mosquitoes, which would thrive in the unusual conditions. The flies were *Stomoxys calcitrans*, a biting fly thriving in the flood conditions, thus spreading a form of the anthrax to animals and humans.³

Hort's theory is not without its problems however. Red algae have not been found in the Nile or its tributaries; green algae is the usual colour. Anthrax does not affect frogs or fish, and is caused by a soil-based bacterium. *Stomoxys calcitrans* hibernate in winter, which is when Hort calculated that the plague of boils was spread.⁴

Marr's theory attributes the plague of blood to *Pfiesteria piscicida*, a deadly organism which eats the flesh of fish and leaves a bloody mess. The consequent lack of a predator caused the proliferation of the frogs, which also died because of the *Pfiesteria* toxins. The lack of frogs caused a population explosion of

² Brad Sparks, 'Did Anthrax Plague the Egyptians?', *Associates for Biblical Research: Biblical Archaeology*, (March 14, 2002), p.1.

³ Kenneth A. Kitchen, 'Plagues of Egypt', in *The Illustrated Bible Dictionary* (IVP, 1980), p.1235.

⁴ Brad Sparks, 'Did Anthrax Plague the Egyptians?', *Associates for Biblical Research: Biblical Archaeology*, (March 14, 2002), p.3.

insects, which in turn increased the number of viruses and bacteria in circulation, causing the boils and the death of livestock.⁵

Marr's theory also has problems, although being an epidemiologist his reasoning is in general scientifically sound. The main problem for Marr is that *Pfiesteria* favours stagnant water rather than free-flowing rivers such as the Nile.

The next three plagues were a violent hailstorm, a swarm of locusts, and a thick darkness. Hort argues that the same adverse weather which brought the flooding and silt also brought the hailstorm and then the locusts. The darkness was caused by a *khamsin* dust storm of unusual intensity. Marr on the other hand argues that the hailstorm and the locusts were just 'bad timing', but proposes that the darkness was actually a plague of Rift Valley Fever, causing temporary blindness in the population.⁶

The final plague, the death of the first-born, is when both Hort and Marr's reductionism become decidedly tenuous. Hort explains the plague by claiming that it referred to the firstfruits of the crops, and thus connected with the previous plagues.⁷ Marr explains the final plague as caused by mycotoxins (from the locusts) in the grain supplies, of which the first-born received extra quantities because of their status, with fatal effects.⁸

⁵ Brad Sparks, 'Did Anthrax Plague the Egyptians?', *Associates for Biblical Research: Biblical Archaeology*, (March 14, 2002), p.2.

⁶ *ibid.*, p.2.

⁷ Kenneth A. Kitchen, 'Plagues of Egypt', in *The Illustrated Bible Dictionary* (IVP, 1980), p.1234.

⁸ Brad Sparks, 'Did Anthrax Plague the Egyptians?', *Associates for Biblical Research: Biblical Archaeology*, (March 14, 2002), p.2.

Both Hort and Marr suggest possible reasons for the Israelite community being spared the worst excesses of several of the plagues, largely as a result of the location of Goshen being at the periphery of some of the disaster areas.

Although there are problems with the theories of Hort and Marr, it is apparent from close scrutiny of Exodus 7:14 – 12:30 that there are likely to be elements of truth in them. The account of the plagues when read as a whole has a progression which sits comfortably with modern scientific thought (at least until the final plague). Kitchen notes that ‘the account of the plagues is emphatically a literary unity: it is only the total details of the whole and unitary narrative that correspond so strikingly with observable phenomena.’⁹ Thus the fact that the plague narrative accords with modern ecology to a significant extent is taken as an indication that the narrative had a single author, rather than being a collection of discrete texts collated at a later date.

Were the plagues miraculous? In Exodus 7:3 God says to Moses ‘I will ... multiply my miraculous signs and wonders in Egypt’, and then in Exodus 7:4 God says ‘I will lay my hand on Egypt, and with mighty acts of judgment I will bring out my divisions’. From these words it is clear that in the biblical view the plagues are not to be seen as purely natural events, but as particular acts of God. A study of the Hebrew words used in Exodus 7:3 reveals a threefold emphasis on God’s activity as wonderful, powerful and meaningful.¹⁰

⁹ Kenneth A. Kitchen, ‘Plagues of Egypt’, in *The Illustrated Bible Dictionary* (IVP, 1980), p.1236.

¹⁰ M.H. Cressey, ‘Miracles’, in *The Illustrated Bible Dictionary* (Leicester, IVP, 1980), p.1009.

At this point it is worth highlighting that the biblical world-view is one which ‘does not sharply distinguish between God’s constant sovereign providence and his particular acts’.¹¹ In Scripture, creation is seen as being continually sustained by God, and on that basis ‘scientific laws are regularities of the way God sustains the universe’.¹² Collins notes that ‘both ordinary and extraordinary (miraculous) providence are expressions of God’s active power’ and further points out that ‘the mode of that expression of power is different’.¹³ Therefore a miraculous event is simply when we notice God’s power at work in an extraordinary way.

When the plagues in Exodus are viewed in the light of ordinary and extraordinary providence, it is clear that the first nine plagues can be seen as God’s acting largely through nature, although the precise manner of this acting may never be known through scientific study. The extraordinary providence is in the ordering and timing of those plagues so as to occur exactly at God’s bidding. The final plague however cannot be seen as largely a natural event without compromising the biblical text, and must therefore be seen as the fulfilment of Exodus 7:3-4; a particular act of God’s providence, for the display of his power and sovereignty.

Miracles are part of God’s revelation to mankind. What then were God’s purposes in the plagues of Exodus? Firstly, the plagues can be seen in the light of God’s covenant promise in Genesis 12:1-3, and the progress towards the fulfilment of that promise as he led the nation of Israel towards Canaan.

Secondly, the plagues can be seen in the light of the conflict with false gods. In

¹¹ M.H. Cressey, ‘Miracles’, in *The Illustrated Bible Dictionary* (Leicester, IVP, 1980), p.1009.

¹² David Wilkinson and Rob Frost, *God and Science*, (London, Monarch Books, 1996), p.171.

¹³ Jack Collins, ‘Miracles, Intelligent Design, and God-of-the-Gaps’, *Perspectives on Science and Christian Faith*, 55(1) (March 2003).

Exodus 12:12 before the final plague God says 'I will bring judgment on all the gods of Egypt'. Kitchen notes that to a large extent God had already done so in the earlier plagues, as Egypt's gods were the spiritual embodiments of the Nile, the frogs, the sun, and so on.¹⁴ The final plague struck down the first-born of Pharaoh, regarded as a god by the Egyptians. Thirdly, the plagues can be seen as a revelation to the Israelites, so as to deepen their faith, and in turn to deepen the faith of the modern-day reader.

In summary, the plagues of Egypt should be seen as acts of the ordinary and extraordinary providences of God, for specific purposes in his plan of salvation, and for the display of his power and might. God's use of the normal scientific laws and phenomena of creation is consistent with this, and attempts to understand the miracles of Exodus in the light of scientific understanding can be helpful to an understanding of Scripture. However, God is not constrained to operate only within the boundaries of our scientific understanding of creation, and may choose to act in a miraculous way.

Postscript:

Studying this topic has contributed to my understanding of theology, in that it has focussed my thinking on how God interacts with his creation. I had previously subconsciously held a view of God as someone who set the world going and then sat back and watched it happen, maybe occasionally reaching out and stirring it with a stick! I have found that the biblical view is rather of God being

¹⁴ Kenneth A. Kitchen, 'Plagues of Egypt', in *The Illustrated Bible Dictionary* (IVP, 1980), p.1236.

intimately involved in all of creation all the time, sustaining and working out his purposes. Further, I have learned that God is not bound to operate only within the laws of nature (which of course he created), but is perfectly capable of working in a different way if he so chooses.

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