

Correspondence

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Emergence and time

Allow me to add a footnote to Dr Russell Manning's helpful overview of the concept of *emergence* in the philosophy of science and in theology. The footnote concerns the relation of emergence to time. The term emergence clearly has temporal significance, although it does not necessarily imply a tensed or tenseless view of time. Whereas biblical theology requires a tensed view with asymmetry between the past and the future, science is equivocal. The equations of science, including those based on probability do not embody the arrow of time. However, the discussion of emergence in terms of the properties of complex systems implies a preference for the tenseless view. Michael Polanyi suggests that it would be better to regard such properties as *operational principles*. That suggestion introduces an asymmetry. The components of a system can account for the failure of its operation but are insufficient to account for its success. Polanyi's terminology rules out the possibility of reductionism.

Although Polanyi had a low regard for engineering and technology, his usage evokes an engineering context. In engineering the notion that complexity provides explanation is abhorrent. Moreover Polanyi's stress on the need to regard all knowledge as personal suggests that tensed emergence may have teleological implications. In this there is the hint that scientific and philosophical approaches to emergence are necessarily incomplete.

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A 'Good' Creation

It is unfair of Peter Nelson to dismiss the views of modern commentators on Genesis 1 simply on the grounds that they may be influenced by the orthodox scientific picture of the origin of the earth, especially as he fails to produce any evidence that this has in fact influenced them. If any one is exhibiting bias it is Nelson himself. He simply assumes that the Hebrew adjective *tob* means 'morally good' and so reads the meaning he wants to into the text. The commentators are seeking to understand the meaning of this adjective in the light of the way it is used in the Hebrew Bible, the way it would have been understood by an ancient Israelite reader – an approach that is far more faithful to the Bible.

Consultation of some standard lexica of biblical Hebrew (Brown, Driver and Briggs; Köhler & Baumgartner; The Sheffield Dictionary of Classical Hebrew)

makes it clear that *tob* has a wide range of meanings. To save space and avoid boring readers I would sum these up under five main headings. It can refer to:

1. that which is pleasing to the senses, both physical and intellectual. In this sense it refers to aesthetic beauty;
2. that which is good of its kind;
3. that which is usable, effective, efficient, in other words 'fit for purpose'. This seems to be a development of meaning (2);
4. a quality of human character, which in many cases seems to be 'kindness' or 'friendliness'. This, too, can be seen as a development of meaning (2);
5. that which is morally good. This is, in fact a relatively uncommon use of the adjective.

There is a basic rule in semantics which says 'words mean what they mean in context'. One cannot simply pick and choose from among the attested meanings of a word and plug that meaning into any passage where it occurs. The context must be the guide as to which meaning is the appropriate one for that passage. Since morally responsible creatures are not created until Day Six in Genesis 1, and *tob* is used several times before this of creatures that are inanimate or not self-conscious, it is arguable that 'morally good' is the least appropriate meaning in this context, and that 'aesthetic beauty' would be more appropriate. However, if Genesis 1 is understood as an extended figure of speech, depicting God as a worker (the verb 'to make' that is the most common one used in Genesis 1 is a verb that is used of the work of artisans and craft workers) who reviews and comments on his work at the end of each day, 'fit for purpose' would be an even more appropriate meaning.

There is a danger of arrogance in deciding that we know fully what God's purpose for his creation is. However, there is a Christian tradition which goes back to Irenaeus in the late second century AD (well before modern science) that sees in Genesis 1-3 evidence that God did not intend the Garden of Eden, let alone the world as a whole, to be a paradise for pampered pets, but rather a training ground for the development of moral and spiritual beings. In this context the traditional 'freewill defence' argument in theodicy, which also goes back before the modern scientific understanding of the origin of the world, has been able to see a place for such things as earthquakes and disease in God's purpose.

Peter Nelson's concern about what this might mean with regard to the new creation is misplaced. That creation will also be 'fit for purpose', but as a home for the redeemed people of God, which is a different purpose from that of the old creation. It will be 'good' in a different way from the world whose creation is described in Genesis 1.

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