

same as that between Reason and Reality, although by a different name?

Let me not conclude, however, with an omission but with the deepest recurrent theme of our author's argument - the importance, as he sees it, of contingency. Botond is convinced that science would not be possible if the world were necessarily as it is. I have never understood this view, but I recognise that it is widely held. In the present book, it leads to some dark utterances for the non-specialist. Thus "it is the lack of contingency [in] the Newtonian dualistic approach [absolute space and time] which made it into a closed system unsuitable for further progress" (112). If this is your field, Botond Gaal's book is a "must", despite a translation which is regrettably not always good. If it is not your specialism, you will still find here, in modest compass, a racy, provocative overview of a massively important area of western thought, juxtaposing scientific and theological approaches from a perspective deeply versed in, yet subtly different from, that of the predominant British-German-American culture.

Copies may be obtained by sending a cheque for €15 (which covers book price plus post & packing) to:

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Neil Spurway

**EMERGENZ:
Von der Unvorhersagbarkeit zur
Selbstorganisation**

(EMERGENCE:
From unpredictability to self-organisation)

Achim Stephan

Dresden University Press (1999), xiv + 292 pp.
3 933168 09 0 (pbk) €44.99

The concept of emergence is widely used today in (popular) scientific works, as well as in neuroscience, sociology and the religion and science debate. Arthur Peacocke and John Haught point to emergent features in biological systems, noting the seeming purposiveness of

their evolution, and the possible connections this provides with theological reflections on nature as God's creation. Others, like Philip Clayton, point to processes of emergence in the human mind as a possible locus for divine action. However, what does 'emergence' mean, and where does the concept come from? This splendid book by Achim Stephan deals with exactly that question.

The book is a (modified?) version of his *Habilitationsschrift*, and was defended as such in 1998 at the University of Karlsruhe. Anyone familiar with German academic literature, and especially with the phenomenon of *Habilitationsschriften*, is likely to be surprised to find that Stephan is able to give a historical and systematic treatment in less than 300 pages (bibliography included!). Moreover, the book is crystal-clear, the writing style is sober, to the point and so similar to English that I didn't even consciously notice the transitions between the German main text and the many English quotes. Because of this, I believe the book is accessible to a wide range of readers.

The book starts with a short overview of the context in which the discussions about emergence took place at the beginning of the 20th century: the debate between a mechanist and a vitalist worldview. It was the achievement of Samuel Alexander, Conwy Lloyd Morgan, Roy Wood Sellars, and Charles Dunbar Broad to come up with emergence as a third way. What does their concept of emergence entail? Stephan identifies nine characteristics of emergence in the four authors' writings and systematically analyses their interrelations. Highly surprising to me was the fact that these early emergentist thinkers were also quite drastically committed to a deterministic worldview. How emergence and determinism fit together is lucidly described. The result of Stephan's analysis is a concise 'map', charting the different theories of emergence and their emphases. This map, I believe, is useful in critically assessing contemporary scientific and theological claims about emergent processes.

Next, Stephan traces the beginning of British emergentist thought in J.S. Mill's *A System of Logic*, but he also points to the presence of Continental theories of emergence. He outlines and analyses the arguments that critics of emergence advanced, and the answers they received. Thereafter, he expounds the

contemporary ‘renaissance’ of emergentist thought, especially in the philosophy of mind and in self-organization and chaos theory. (Stephan argues that, paradoxically, chaotic behavior may have more emergent characteristics than the self-organizing processes described in many contemporary complexity theories.)

To me, this book has become a primer on emergence. I was unable to detect serious flaws, unless perhaps that the author nowhere gives a good description of the difference between ‘emergence’ and ‘supervenience,’ and that he does not really develop a position of his own with regard to the usefulness of the concept of emergence in scientific literature. However, he does develop a critical and systematic apparatus with which to evaluate emergentist theories, and therefore, I believe, his book should be read by all those interested in the role of emergence in the science and religion debate.

So where is that wise publisher who will decide to publish it in English?

Taede A. Smedes

THE BIBLE AND ASTRONOMY:

The Magi and the Star in the Gospel

Gustav Teres, S.J.

Oslo: Solum Forlag (3rd ed, 2002), xvi + 340 pp
82-560-1341-9 (pbk) \$39.00

The title declares to whom this book is aimed, biblicists and scientists; to the former who are unfamiliar with astronomers’ terminology, and to the latter who likewise do not understand the language of the Bible. The author, Gustav Teres, is a Hungarian-born Jesuit, who has pursued studies in mathematics, the natural sciences, and of course philosophy and theology as part of his priestly training. So, whether we are more biblicist or scientist, we have a scholarly guide, fluent in the major European languages, to the relationship between the Bible and astronomy. That relationship, as is obvious from the subtitle, is worked out initially from the question of what might have been the star in the Nativity story.

Now, the details of documents and dates are exhaustive and will indeed be exhausting for the less star-curious among us. That is where Teres’s advice in his Preface is relevant: start with the chapter which seems of most interest. Since the chapters are long, I would modify that to, start with the section which most appeals to you. If you do that, you can quickly find that Teres follows David Hughes (1979, *The Star of Bethlehem Mystery*) in opting for the triple conjunction of the major planets, Jupiter and Saturn, in 7 BC as the Nativity “star” which brought the Magi to Bethlehem. That scholarly decision is backed by the discovery of K. Ferrari d’Occhieppo (1991, *Der Stern von Bethlehem aus der Sicht der Astronomie*) that a “standstill” for Jupiter and Saturn occurred in November 7 BC at the apex of an “A-frame” made by the zodiacal light. Have I lost you? If so, then read the clear explanations in the book and decide for yourself whether this celestial phenomenon would be sufficiently impressive, and sufficiently in tune with the biblical narrative and known facts, to be your “star” that leads to Bethlehem.

Perhaps that advice is a bit unfair to the authors of other books on the Nativity star, because their alternative theories do not get real discussion in Teres’s book. He shows such a passion for his own line, a “secure answer” (p. xi), that other options are not really presented. Curiously, that passion is typical of *The Star of Bethlehem* authors. There are recent books by Mark Kidger, Ernest Martin and Michael Molnar that present different astronomical explanations for the star. Of these, the first might be the best one with which to start, simply because it covers the possible phenomena by essentially opting for them all.

In turn, I should be fair to Teres’s book. To concentrate on his theory of the Nativity star would be to miss the main point, the overall relationship of the Bible and astronomy. So, after two substantial chapters dealing with the star, he launches into a multitude of topics that arise from biblical references to the sun, the planets, the stars, and the cosmos. Here is where dipping rather than solid reading is really recommended, lest one become bogged down in detail. (An index of all the biblical passages would help one’s selection.) Such dipping will strengthen the reader’s sense that there is no conflict between the biblical view of the