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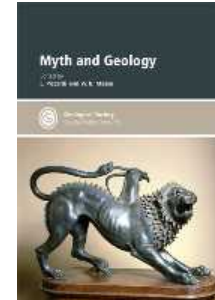
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Myth and Geology, edited by L. Piccardi & W.B. Masse, 2007. GSL Special Publication 273. The Geological Society of London, The Geological Society Publishing House, Unit 7, Brassmill Enterprise Centre, Brassmill Lane, Bath, BA1 3JN, United Kingdom., Hardback, 350 pages. Price GBP 90.00 (GSL members GBP 45.00; other eligible societies GBP 54.00). ISBN 978-1-86239-216-8.



Noah's Flood explained! New geodiscipline created! The idea that the flood legend traces to a eustatic inundation of the Black Sea, with the pace of the advancing waters up the deltaic Russian shores not quite so fast as to prevent the local oligarch with the best boat in town chucking two of each in and floating at mercy of wind and current over to the Turkish side, first gave me a taste for myth and geology sufficient to volunteer to review this book. Ryan and Pitman's 1999 account also convinced the doyenne of "geomythology"—Dorothy Vitaliano—that this is "the true explanation of the Flood." She overlooks the spoilsports who claim that the rate of water ingress at the Bosphorus could only have crept rather than raced up the steppes.

This volume stems from a session at IGC Florence 2004 and, although world-wide in scope, is somewhat slanted to the idiosyncratic Italian take on geoscience. It doesn't give me any more big-story headlines to match the Flood, although V.G. Trifonov convincingly relocates Sodom and Gomorrah to the Syrian highlands and destroys them volcanically. It does stretch my thinking on how we tell geo-stories to wider audiences.

Geomythology is the new discipline (as several authors over-excitedly proclaim), which, as the editors hastily make clear, is not about how errant scientists generate geological myths such as Neptunism, but about how we might learn from the knowledge-store contained in folklore, legend, and myth—the geo-branch of euhemerism, apparently (Euhemerus held that the gods were deified mortals, i.e. myth has a basis in fact). But if these 25 contributions are representative, only in a few isolated cases might geoscience learn very much from "unrecorded history", and then only as a scoping or corroboratory line of evidence among several. The discipline, such as it is, lies more within archaeology, anthropology, evolutionary biology, classical literature, and religious history, to which geology can contribute useful insights and grounding.

Too many contributions (including from authors in all these fields) come over as slight commentaries, mere inventories of legends and locations, or simple geotourism. Some authors provide proper geological underpinnings, and even some decent maps and figures, others just go straight into the folk-tales; only one is an original account of substantial and significant geological research informed by or relevant to myth—an outstanding paper by Patrick Nunn & Ma. Ronna Pastorizio (Fiji) on the Pacific Islands, self-deprecatingly billed as "unorthodox". Editor Piccardi contributes an original paper grounded in geology, but it is a cameo on a single locale in Turkey, where he identifies neotectonic ruptures and associates them with landscape changes and an apparition of the Archangel Michael—high-class geotourism.

The editors might usefully have grouped the papers in themes, but this would have exposed the looseness of the "discipline". Three papers address classical texts or history of science, which are matters of record, not myth. Five deal with fossils, rocks and minerals, where the geological component is trivial, such as Susan Hodgson's delightful account of the Californian obsidian

industry. Several tackle meteorites, which are astronomy, not geology, unless—as with editor Masse’s valuable study—myth is interpreted to distinguish cosmic impacts from Plinian eruptions in a large swathe of S America. Bryant’s excitable paper attributing a megatsunami in SE Australasia to a cosmic impact only invokes geomorphology fourth after myth and fire and blast; more substantial evidence is needed that the coastal landforms sketchily illustrated are of such origin.

From the core papers it would seem that myths accrete around three kinds of geological event:

- (1) geo-catastrophes—high-magnitude, low-frequency events, chiefly earthquakes, volcanic eruptions, and tsunamis, with consequent landslides, floods, climatic effects, disease, and famine. These events may be unique in one society’s experience, but if a pattern is observed or disseminated by travellers, it becomes a geohazard which can be warned against. Legends provide survival guidance—if the sky falls (= pyroclastic ash deposition), hide under the stoutest trees. We could learn from primitive societies: many Andaman Islanders escaped the Boxing Day tsunami because, myth-taught, they counter-intuitively ran away from a receding sea. Nunn & Pastorizio show that Pacific Islanders are aware that island flank collapse is a regular thing, but we are not yet organising to systematically dismantle La Palma island in the Canaries before its predicted collapse takes out low-lying SE USA and SW Great Britain (a logical conclusion that, surprisingly, had not occurred to geohazard expert Bill McGuire).
- (2) “sea changes”—slow eustatic drownings of coastal settlements. Chandrasekharam recounts Indian legends of submerged cities now attested by archaeology, and suggests with rather thin evidence that a coral-reef land bridge once linking to Sri Lanka is the basis of an invading-army legend. Vitaliano touches on the Atlantis conundrum: she helped to nail the Santorini myth (that’s one invented by geologists) but says dispiritingly that “Atlantis seems unlikely to find a sound explanation”.
- (3) creation, and Armageddon—some creation myths are intriguingly geo-aware, notably the Scandinavian memory of a land being created for settlement by thawing of frozen ground—in two cycles! Chandrasekharam stretches credibility though to suggest that the four Hindu yugas of ~ 1 Ma each equate to the four geological Eras, and if meant to be multiplied by 1000 would have shown remarkable prescience as to the age of the Earth. No authors take on the geological roots of differing imaginings of Judgement Day or of Hell, though the Nordic Ragnarök suggests some memory of violent earthquakes, and indeed enormous neotectonic fault scarps were recognised in N Sweden by Lagerbäck in 1979.

The Geological Society of London Special Publications are a distinguished imprint, and should not be diluted. This subject is out of its usual run of cutting-edge, hard-nosed geoscience. It would have better merited its slot had it had a more balanced overview paper, and more original or synthesising contributions. The publishers should have weeded out a 2 1/2 page paperette saying “see my earlier papers”, and ensured that Eugenia Shanklin’s interesting ethno-account of exploding lakes in Cameroon had more than one figure—a location map helpfully placed at the very end, presumably because she only refers to it in the Acknowledgements.

I was especially interested to see how good geoscientists might be at “story-telling” in a more relaxed format than usual, when this is the essence of myth. Lanza & Negrete indeed focus on the potential for working myth into science communication, and can recognise a “beautiful essay” when they see one, but can’t write one. Almost all the contributions are pedestrian, and would need a scriptwriter to find the storyline and make it resonate. This volume may have little to offer mainstream geoscientists, other than as an unindexed holiday guide, but it does suggest many themes for geointerpretation and geoconservation. The Mottas wittily link folk-myths about the giant erratics of Turin with new “myths” as they are adopted and named for bouldering with the case for protecting the few that survive development.

Only W.H. Berger gives himself the freedom to discourse on his subject, as if it were an article in the *New Yorker*, in the mellow tones of an Alastair Cooke. He is splendidly orotund, blithely bypassing the editors’ narrow definition to make the point that “those who reconstruct geological history are engaged in a kind of myth-making” ... “geologists are engaged in the sport of creating amazing stories” He unpicks the discovery by modern science of the Ice Age—

Agassiz was “promulgating a mixture of science and fantasy” —and then turns to its mythic parallel in the Norse Edda. He works in the still-contentious issue of large mammal extinction, pointing out that their demise is part of the creation myth, hence their supposed hunting-out by man is found nowhere in myth. He goes on to climatic cyclicality, recognised in myth, and thence to Hutton, who based his endless geological cycle on “ grand vision of mythological appeal and power rather than on observation” Intriguingly Werner, dismissed for his Neptunian myth, saw Earth as a cyclically evolving system.

There is great scope here for a companion volume on “Myths in Geology” although tackling living perpetrators may require some finesse (invited self-critiques?). Errors are of course valuable in paving the way for better interpretations—Berger shows how Lyell’s myth of glacial “drift” borne by icebergs led to recognition that ice-eroded material had been transported long distances.

As Masse et al. point out, we have lost sight of the origins of “myth” when it was considered true and indeed useful by its tellers. Today the popular connotation is “false” as they demonstrate from the listings in Nature and Science! The public, and business, and even some governments, brand (geo)science as myth when it exposes inconvenient truths after we have become accustomed to atypical climatic and eustatic stability. And we have great difficulty comprehending catastrophic events with return periods longer than a generation or two. Lanza & Negrete usefully remind us that James Lovelock has had recourse to mythic conventions in invoking Gaia, the beneficent earth mother—although they miss his update, the Revenge of Gaia, which still adheres to the self-healing tendency of Earth’s biosphere, but now doubts that man will be on board the next Ark.

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