

abstract

On the trail of the turbulent Aptian world: a geological *Forbrydelsen*



THE HUGELY SUCCESSFUL DANISH thriller serial, *Forbrydelsen*, shown as 'The Killing' on UK television, began with an horrific murder and then teased the audience with a string of suspects, each successively dismissed in the face of new evidence. We knew that something dreadful had occurred, but working out exactly what was hard enough, and how it happened, even harder – just like our attempts to untangle the troubled history of the Aptian world.

The marine rock record of the stage testifies to episodic carbonate platform growth and organic burial in basins, with dramatic turnover of their respective biota, played out against a backdrop of copious oceanic volcanism, while isotopic chemostratigraphy reveals the fingerprints of massive perturbations of the global carbon cycle. We indeed know that many dreadful things occurred, but sorting out exactly what, where and, especially, in what sequence remains unfinished business, waiting upon improved correlation between various stratigraphical scales. Meanwhile, our desire to understand the 'how' of these tandem histories leads us to speculate beyond the current evidence, like the detectives of the Danish thriller, and to haul in one suspect after another for questioning, only to have to release them in a subsequent episode. For some time, a favoured suspect for the demise (at least, regionally) of carbonate platforms, as well as oceanic anoxia and large-scale organic burial, has been eutrophication, fuelled by increased nutrient flux from hinterlands subjected to weathering in an extreme greenhouse climate. However, an accumulation of inconvenient evidence concerning

the timing and geographical distribution of effects has progressively weakened that case, and the suspect may at most have been merely an accessory to the crime. Now, suspicion is increasingly falling on another player with more sinister networking powers - already familiar to us as a leading 'Mr. Nasty' in our present global environmental drama – ocean acidification. Is this where the trail will end? Wait until the last episode, to see!

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The poster has a blue background. At the top, the title 'On the trail of the turbulent Aptian world: a geological Forbrydelsen' is written in white. Below the title is a photograph of a coastal town with white buildings and a large rock formation in the background. A small caption 'La Rocca de Cefalù, Sicily' is at the bottom of the photo. Below the photo, the speaker's name 'Dr. Peter Skelton' is written in large white letters, followed by the date and time '7.30 pm 16th February 2012'. At the bottom, it says 'DEPARTMENT OF EARTH SCIENCES OXFORD' and includes the Oxford Geology Group logo.