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The End is Nigh: a History of Natural Disasters

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When reviewing books one's expectations can be raised by the title. In the case of *The End is Nigh* one could be forgiven for assuming that it must relate to the End of Time and the various ways in which the world might end – cosmic impact; neighbouring supernova; nuclear apocalypse; unstoppable virus; runaway global warming, i.e. large scale global catastrophes. Unfortunately this expectation is diluted by the sub-title which informs us that the book is merely a *history of natural disasters*; disasters somewhat short of the sterilization of the planet.

Turning to the inside of the dust jacket we find that Svensen's natural disasters include the Lisbon and San Francisco earthquakes, the 2004 Boxing Day Tsunami and the 2005 Hurricane Katrina. Surprisingly, we are told that these locally destructive events 'changed the course of history, influencing our reactions to, and perspectives on, disasters ever since. It seems that the scope of the book, and our expectations, are reduced to issues of human perception and planning. The end is clearly *not* nigh and the scope is more along the lines of 'don't sleep on the beach, or under anything that might fall down?.

Thus, even before embarking on the text there is a feeling that it may be providing a mixed message. While the examples given are undoubted disasters – indeed tragedies for those killed, bereaved and rendered homeless – they have nothing to do with The End being nigh. Only Hurricane Katrina gives a hint of the direction the book will take. The author, we are told, is going to consider 'whether our current climate

change is creating an environment in which natural disasters will be more frequent and more deadly? (dust jacket). Katrina might be a consequence of climate change, but that is certainly not proven and there is reasonable evidence that the scale of the disaster was largely the product of human failings; the hurricane itself being exceptional only in that it happened to arrive on a piece of coast occupied by a major city. So let's see if Svensen can defuse the annoyance induced by the cover.

Unfortunately the contents page fails to help, being needlessly opaque; what might a chapter entitled 'The Day of the Dead' relate to, or indeed another, entitled 'Problem Children'? In fact the former relates to the Lisbon disaster of 1755 and the latter to volcanic eruptions. So, let's try the preface, entitled 'When Climate Becomes Disaster?'. Here we are told that since 2007 'climate change is a reality' and lots of people 'will probably thus be affected by more extreme weather and natural hazards linked to floods, landslides and storms' (p. 7). Probably! You would think that if climate change is a reality then 'certainly' might have been more appropriate. With these first two sentences the author enters one of the greatest debates in modern times, namely the question whether man-made climate change is driving the world into uncharted territory, or not. But remember the debate is about whether *man* is responsible for climate change outside the bounds of natural variation; that is not conveyed by Svensen's 'climate change is a reality?'. There has always been climate change and humans have always been affected by it; failing to properly define your terms does not endear you to the reader. But worse is to follow. The next sentence states 'Since 1970 almost five billion people have been hit by natural disasters' (p. 7). Sorry, how does that work? Five out of every six people on the planet have been hit by natural disasters since 1970 'surely not'? Thus by line six of the book one is forced to check the source of the information. Surprisingly, five billion is the figure suggested by the source, though the wording is subtly different. The source www.em-dat.net [2] tells us that these numbers were of those *affected* by the disasters. Being *affected* is subtly different from being *hit*; you could be affected by a disaster by seeing it on television.

At least this time the annoyance is tempered by the fact of learning something new. Did you know that in 2002 some 650 million people were affected by disasters 'a tenth of the world's population' while some 25,000 people were killed. That, at least, gives some perspective; only one person in 26,000 *affected* by disaster in 2002 was actually *killed*. At last the book is becoming interesting because we can now begin to see the lack of perspective. For example, each year in Britain 3000 people die on the roads out of a population of 60 million; that is one death in 20,000. So natural disasters are not even doing as well as road users. I wonder if Svensen paused to ask himself just how many people die each year on the planet as a whole? If he had done he would have discovered that for every person who dies in a 'natural disaster' more than 5000 die from some other cause, be it age, disease or malnutrition.

In many ways this sums up the book. We are told about disasters 'apparently' 'between one and two natural disasters occur on the earth every day' (p. 14) 'but either statements like this make us bristle or their interpretation leaves us wanting to argue; there is a lack of convincing argument in the text. To take just one example from the introduction; why are the losses of human life in natural disasters in recent years classed as *incomprehensible*? In fact they are *completely comprehensible*; history tells us that major natural disasters tend to kill a lot of people.

The text is packed full of information but perhaps lacks structure. There are many observations both on disasters and on human responses but it is not altogether clear where the book is heading. There are extensive references to human populations, both past and present, blaming God or Allah, but beyond the too numerous observations on the subject, there is little serious discussion of how authorities are to cope with the obvious tension between science and belief when it comes to planning for natural disasters in the future. If anything Svensen's tone is despairing. The basic content of the book is not the problem; if all you want is some anecdotal information on a selection of ancient and modern disasters you may be happy enough reading it. The problem is with points of detail like this: we are told that in 2003 72,000 people died in southern Europe as a result of a heatwave (p. 157). In recent times Europe usually escapes large disasters, so heat, a likely symptom of global warming, brings Europe into the firing line; if things get warmer more people will die. However due to a typographical error the 2003 heatwave is also assigned to 2006 making for confusion with the other heatwave that recently affected *northern* Europe. This is then followed by a

statement sufficiently bizarre to suggest the text was not adequately proofed. Talking of Europe since 1970, it states: 'A total of 45 per cent of all deaths have been caused by natural hazards' (p. 157). I very much doubt Svensen meant to write that! Maybe something got lost in translation. So let's take a look through the main text.

The first chapter, *Mythologies*, looks at ancient attitudes to disasters and the near universal blaming of the gods, with the logical extension of placating those same gods to prevent disasters. By medieval times the Christian God was the instrument of disaster (in Europe presumably) and could apparently be placated by processions and other ceremonies, where previously sacrifice may have been necessary. However, with God came the refinement that although He might send the tribulation, the blame actually lay with human sin; so for much of recorded history it seems that it was people who actually *caused* natural disasters by displeasing God, i.e. the victims were to blame. This is well exemplified by a short discussion of the Black Death disaster. Which is fine, but a lack of perspective soon appears. We know that one third of the population of Europe dies in the 14th-century catastrophe (indeed for all anyone knows it could have been one third of the world's population, though Svensen doesn't look beyond Europe). Then we are told that since the Black Death 'plagues and virus illnesses have ravaged the world repeatedly' (p. 28). The examples given are that in the 1470s 15 percent of Northern Europe's population died in an epidemic, while 'even today thousands of cases of bubonic plague are reported annually' (p. 28). You can't compare a few thousand modern cases of a disease, many of whom were presumably curable, with earlier major pandemics. A better example of *ravaging* would have been the death-toll from the flu pandemic of 1918-19, which is mentioned later in the text.

The chapter concludes with a discussion about the changing role of God in disasters as the Enlightenment proceeded in the 18th century and thereafter. We are given details of panic caused by minor quakes in England shortly before the real disaster of the Lisbon earthquake of 1755 (the subject of chapter 2). If you work hard at this last section you can see that the 18th century saw the start of the questioning of the ancient wisdom; the idea of *natural* causes for disasters started to become acceptable for the more scientifically minded. Yet we are also told that until at least the early 20th century superstition and apocalyptic thinking still ruled. What we are not told is that later in the book such beliefs will hold sway right to the present.

The 'Day of the Dead' chapter starts by placing the Lisbon earthquake in historical context and outlining the character of the Marquis de Pombal, who was to lead the reconstruction. It is after three pages that we are told 'The course of events is well known' (p. 36); certainly something true of specialists who know the course of events; most readers might have appreciated being told the details at the start! The earthquake and tsunami are treated rather cursorily in order to get to the socio-religious aspects of the aftermath. This was, after all, the first earthquake disaster to provide serious records, happening at a critical time in the early stages of the development of rational explanations. The earthquake itself raised questions about the benevolence of a God who would send such a chastisement, giving rise to Voltaire's famous line 'If this is the best of all possible worlds, what are the others?' (p. 47) There is plenty of interesting detail, not least how Pombal, who was pivotal in sorting out the mess left by the quake, drove out the Jesuits who were claiming that human sin was to blame and that the earthquake was punishment from God. One aged Jesuit, Gabriel Malagrida who wrote a pamphlet to this effect was publicly tortured and executed. It sounds almost as if science was winning.

Unfortunately there is only a brief mention of the distant physical effects of the Lisbon earthquake. Svensen ignores the reports of seiches and other effects from Europe, the British Isles and the Caribbean, and refers only to a minor tsunami that struck a Norwegian fjord. This failure to fully address the physical symptoms serves to disguise some of the most interesting oddities of the event. Svensen discounts another Norwegian account that mentions "flames and balls of fire careering through inland lakes" (p. 49). Ironically, something very similar was described by a British sea captain on the same afternoon, out in the Atlantic. He felt a strange agitation of his ship and raced up on deck in time to see "three craggy pointed rocks throwing up water of various colours resembling liquid fire" (1); thereafter a black cloud ascended. Perhaps the Norwegian flames and balls of fire shouldn't be so readily discounted. Perhaps the quake caused the release of gas hydrates from ocean and lake beds; something that it would actually be worth knowing about!

Instead, Svensen spends pages on the Danish Bishop Pontoppidan and the issue of Creationism. Yet he tells us that the Bishop was a top notch natural historian who wrote a dissertation on phenomena before the Lisbon quake, and produced a list of the natural disasters from 1750-75. Surely a decantation of that list would have served a book on natural disasters better than a discussion on blaming God. However by this stage it is becoming apparent that religion and human reactions to disasters interest Svensen more than the disasters themselves. This is where the book continues to annoy; if we don't fully understand the nature and causes of previous natural disasters how are we to prepare for future examples. You would expect the author, as a geologist, to take a more *scientific* stance.

Now I can understand why Lisbon got a lot of coverage because of its pivotal position, and the fact that it may have killed 100,000 people. However, in the overall scheme of historical disasters it is surprising that the San Francisco quake, and its 3000 death-toll, even gets a mention. The discussion is partly on religion, but this time the real thrust is on denial; the playing down of the disaster for economic reasons. Politicians demanded that the destruction of the city be blamed on *the fire* rather than on *the earthquake*; after all if the area was earthquake prone no-one might want to build there. No, sorry, there is a lot more about religion than I first thought; *seven* pages are devoted to the Pentecostal Movement that flourished after the San Francisco quake. So the pattern is set for the book; people blame God for natural disasters. By this stage I was starting to hope that that would be enough on this topic, though I had a nasty feeling it was going to recur.

As the book is titled as a history I was hoping that attention would shift back in time; what about those ancient disasters like the earthquake and tsunami that caused two Greek cities, Buris and Helice, to vanish in a single afternoon in 373-2 BC? No, chapter 4 on cities starts with the mega-disaster that destroyed the city of Tangshan, China, in 1976, before moving to the 1972 earthquake that destroyed the Nicaraguan capital Managua - which did at least lead to some political change. However it turns out that the real aim of the chapter is a six-page discussion of Hurricane Katrina and New Orleans in 2005. In a history of *natural* disasters I find it hard to see why Katrina is mentioned at all. Only about 3000 people died and it could be argued that all the deaths were due to human failures, after all the city could have been evacuated, given the warnings. In contrast, Svensen manages to dismiss Pompeii and Herculaneum in three lines and gives away his perspective with this line: "There are examples of cities actually disappearing for good, but they are few and are way back in history" (p. 86). Way back in history! It would seem that there is no place for time depth in a book on the *history* of natural disasters. Of course, Katrina is in there because it just might be a symptom of "climate change".

We next turn to a parochial chapter about Norwegian rock falls and tsunamis. The reader may wonder why they have never heard of such things, and the reason is simple. Norwegian natural disasters sometimes kill as many people as a car crash (ok to be fair let's say a bus crash). We are told that "as many as 2,000 people have lost their lives in landslides since 1850 alone" (p. 92) - making Norwegian fjords practically the safest places on the planet. Svensen does try hard to convince us that there is an issue with serious rock falls and local tsunamis, I think he fails; these happenings just don't appear on the radar. But not to worry, religion makes its mandatory appearance. There was the old woman who recounted a vision at an evangelical meeting in 1904. A Christ-like figure had appeared to her and warned of a major rockfall at a mountain

called Ramnefjell. A year later she had the same vision, and *the very next day* a section of Ramnefjell collapsed causing a tsunami that killed 61 people. I'd like to see the definitive evidence that that was documented before the event! Then, in 1936 after an identical rock fall and tsunami in which 73 died, God was back in the front line still taking the blame, despite the fact that few lessons had been learned about the dangers of living up steep sided fjords. Fortunately after 1936 lessons were learned and by 1950 you could have identical happenings with no death toll. God is presumably smarting at the fickleness of people for finally learning not to live in dangerous locations.

This all leads to ten pages on the psychological consequences of living with risk. Why do people continue to live in places that are dangerous? We don't get an answer except of course that most people are fatalistic; either that or they claim to have premonitions of disasters. Svensen finishes the chapter with a recent *fictional* premonition (p. 113), though it reads exactly like the rest of the text.

What might a chapter on 'Problem Children' be about? Well, as it turns out it is about volcanoes, and starts with another example of denial. Apparently the president of Guatemala couldn't be having active volcanoes as they might detract from economic progress, so he decreed that there were no active volcanoes despite physical evidence to the contrary. It seems that prayer is the chief defence mechanism for people who feel inclined to live dangerously close to active volcanoes. Maybe this is what is coming out of Svensen's book, evidence that prayer sometimes works. It seems that is successfully stopped lava flows on Etna in AD 253 and at Laki in 1783. Or again, there is *wishful thinking*, which seems to have replaced religious sentiment in modern day Iceland. But what is Svensen's point? Suddenly he switches to super eruptions. Permian flood basalts 253 million years ago, Yellowstone 600,000 years ago and Toba around 71,000 years ago lead to the point that 'Natural disasters can be important 'engines' of evolution' (p. 136). This fundamentally important issue gets a whole page and a half, followed immediately by two pages on Tolkien's fictional Mount Doom and the pilgrimage sites on Japan's Mt Fuji.

The chapter on the 'Politics of Disaster' well exemplifies the lack of direction in the overall text. First there is the dramatic cold affecting Europe in the early 1740s. It is not clear what caused this specific incident, so in theory it should have been in a separate section 'natural disasters of unknown cause'. The discussion then moves to Eastern Asia and the huge famines of the later 19th century that are clearly, according to the text, caused by maladministration and globalization of markets. What this has to do with *natural disasters* is not at all clear. However, the huge death tolls apparently made it easy for developed nations to acquire new land and for aggressive missionary activity to attempt to bring Christianity to affected areas (presumably they needed God to take the blame). Thereafter the chapter loses its way with a jump to El Niño and droughts, through Stalin to Mao and the deaths of 20-40 million people in China as recently as 1959-61. Such disasters are at best part natural and part man-made.

By the end of the chapter we are being told that famines always have complex causes involving 'natural, economic, political and social conditions' (p. 152). What is also clear is that failing to define *natural disasters* at the beginning of the book has left Svensen floundering in a maelstrom of complexity. Finally he adds to this by telling us that 'in principle we can prevent climate changes and droughts from developing into disasters'. Personally I would have defined 'natural disasters' as 'disasters caused by natural forces over which humans have no control'. Again defining terms might have helped in the chapter on 'Climatic Disasters'. We are told that 'The possibility of the ice-caps returning constitutes the 'ultimate' climate threat' (p. 153). The simple answer to this is 'No, it doesn't'. A lot of life on earth would survive an ice age even if most humans wouldn't; life has survived large numbers of ice ages in the past. The ultimate climate threat is where human induced global warming causes a run-away greenhouse effect leaving a planet with all the life sustaining qualities of Venus! We don't know that this will happen but it is without doubt the *ultimate climate threat*. But, of course, Svensen only mentioned the ultimate ice-age threat to dismiss it and move to the issue of global warming. Here he is really out of his depth. There is no doubt that the planet is warmer than it was a century ago; part of this is due to the fact that we are still coming out of the Little Ice Age. The raging debates are on the issue of just how much of the warming might be due to human influence, and indeed, on what any consequences might be. Svensen ends the first section with the question 'Can specific natural disasters of recent years be direct consequences of global warming?' (p. 155) He doesn't

know and neither does anyone else. This general lack of credibility has already been covered above in the discussion on European heat waves.

I suppose in a history of natural disasters the Boxing Day tsunami of 2004 has to be addressed. But there are interesting precedents that are ignored, while the issue of blaming God surfaces yet again. We learn that ?Religious attitudes are seldom taken seriously by disaster researchers ? [yet] the religious dimension can be pivotal for an understanding of how ?disasters affect us afterwards? (p. 167). Apparently some religious leaders see in any catastrophe signs of the End being Nigh; hence the title. Thus, after a couple of sparing pages on the tsunami disaster itself, the author devotes a dozen pages to religious reactions!

In the concluding chapter the issue is vulnerability. It is the under-resourced who tend to suffer most in natural disasters. In the best of all possible worlds people would be well fed and resourced; they would be educated and would have the ability to relocate away from hazardous situations. Unfortunately people don't learn from past experiences. Take Vesuvius; why does anyone live close to it, especially when even those responsible don't think 600,000 people could be evacuated successfully in a crisis? The answer is in the human condition: *it won't happen to me*. Even if it does happen, it seems that most people would be fatalistic: *it was God/Allah's will*. And this seems to be Svensen's problem. By taking this approach to discussing natural hazards he has painted himself into a corner; he fails to come up with any worthwhile conclusions. He tells us that natural disasters will arise whatever we do, and:

Adaption to future changes and natural hazards, whether they are the results of climate changes or not, will strengthen the ability of societies to withstand changes. If we succeed in this, it will represent a great victory. (p. 196)

In summary, *The End is Nigh* fails to deliver much of what at least this reviewer was hoping for. It makes no attempt to define or categorize natural disasters; the fate of a few Norwegians gets as much coverage as events that killed millions. The environmental downturn and plague at the time of Justinian is wrongly dated to AD 530 (p. 186). That this event probably killed as many as the 14th-century Black Death makes it strange that it doesn't make it onto the list of major natural disasters (p. 197). The book fails to suggest how we might solve the issue of blaming deities and it fails to identify the fundamental factor in the modern world, namely that it is exponential population growth that forces more people to live at increased risk in vulnerable areas.

Notes

1. D. Niddrie, *When the Earth Shook* (London, 1961), p. 53. [Back to \(1\)](#)

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