

## PART 1 Speculation

Nothing feebler does earth nurture than man,  
of all things that on earth breathe and move.  
For he thinks that he will never suffer evil in time to come,  
so long as the gods give him success and his knees are quick;  
but when again the blessed gods decree him misfortune,  
this too he bears in sorrow with such patience as he can,  
for the spirit of men upon the earth is just such as the day  
which the father of gods and men brings upon them.

*Odyssey* 18.130–7 (transl. Murray)

## CHAPTER 1 Catastrophe

*A bad earthquake at once destroys our oldest associations: the earth, the very emblem of solidity, has moved beneath our feet like a thin crust over fluid; – one second of time has created in the mind a strange idea of insecurity, which hours of reflection would not have produced.*

*Charles Darwin (1839)<sup>1</sup>*

**Midnight in Manhattan:** Andreas Delaportas awakens bolt upright in his bed. Sleep-shot ears have not yet learnt the noises of his new home but this is a sound that he can never forget. The deep rumble grows louder and the room begins to shake. A shrill keening bursts from his dry throat and he curls into a foetal knot back under the bedclothes. The roar comes yet closer and now Andreas knows that he cannot escape. Poseidon has followed him across the ocean, he has followed him across the land, he has found out where he is living and he is coming for him again from five thousand miles away. Awakening is not an end to this nightmare: it is only the beginning. As the crescendo builds his screams pierce the night and now his sister is beside him: 'Don't worry Andreas. That's just the subway train: it passes right underneath us. It's not the earthquake.'

*Cephalonia, 22 May 2003: In 1953 I was six years old when we had the earthquake. 80% of the houses on the island were destroyed. All the rocks came tumbling down the mountainside (Figure 1.1): it was a terrible thing to see. I remember it from that day: I will remember it all my life. It was something for which your mind wakes up, when you realise the power of nature. I was in the village: we were lucky because we were having lunch outside, it was the summertime. If it had been night-time with people asleep in the houses there would have been a lot more deaths.*

*And we saw all the stones – big stones, they were loose at the top of the mountain and we saw them just rolling down the mountainside into the ocean. It started on the Sunday with the small earthquakes and then there was the big one.*

*I tell you that it is a strange experience for your life to find out how weak the human being is. Very few people have experienced a catastrophe like this. You might think that living near a volcano would be similar, but it's not. Because with a volcano you see it's coming, and it's coming in one spot, and you have plenty of time to protect yourself. But with an earthquake, you don't have any time and you don't see it: it happens too fast.*

*And everyone was so frightened: nearly everyone left. The population of Cephalonia was 125,000 before the earthquake and about 90% of the people left. Even now it is still only about 25,000 people.*



**FIGURE 1.1**  
 The mountains of  
 Kondogourata  
 Andreas Delaportas was born  
 in the village of Livadi in the  
 foreground.

*Look – we had the Second World War. Then we had the Civil War. Then we had the earthquake. Put those three things together: how are you going to survive? It was impossible to survive on the island. The economy was hopeless: you have no work, you have no home: how can you survive? So we all left: 100,000 of us left.<sup>2</sup>*

1953 has already been a memorable year. On 20 January Dwight Eisenhower is sworn in as US President, the first such ceremony to be broadcast live on television. Stalin dies on 23 February at his Black Sea dacha and on 26 February Francis Crick and James Watson discover the structure of DNA. In South Africa Nelson Mandela is organising his first anti-government protests and on 29 May Edmund Hillary and Tenzing Norgay reach the summit of Mount Everest. On 2 June Queen Elizabeth is crowned before another live television audience and on 25 June *The Times* devotes a leading article to Michael Ventris' achievement in deciphering Mycenaean tablets written in a language called Linear B.<sup>3</sup>



**FIGURE 1.2**  
Andreas Delaportas  
*Photographed on the  
Livadi–Atheras road: the  
Mesovouni quarry lies behind  
him and the summit of  
Kastelli is to the right.*

The southern Ionian Islands lie off the western coast of Greece (Figure 1.3: for their location in the Mediterranean see Figure 3.1). At 07:41 GMT on Sunday 9 August seismographs record an earthquake with a surface magnitude of 6.4 at latitude 38.43N, longitude 20.50E, a location in the sea off the north-western peninsula of the largest of these islands, Cephalonia.<sup>4</sup> Over the next few days many smaller earthquakes impact the same area in quick succession, but the next major quake strikes on Tuesday 11 August at 03:32 with a magnitude of 6.8 at 37.85N 20.45E: this time its epicentre is off the north-west coast of the neighbouring island of Zacynthos (also known as Zante). Throughout that day the islands continue to be shaken by further tremors.

These are very serious earthquakes, but how much do these numbers matter? The Richter magnitude is based on the amount of ground motion recorded by a seismograph, using a logarithmic scale. This means that a gap of 1.0 between two earthquake magnitudes corresponds to a tenfold increase in the movement of the ground where the seismograph is located, which is typically many kilometres away from the earthquake's actual epicentre. Although ground motion is an important indicator, the actual energy released by an earthquake increases even faster: there is thirty-three times more energy for every 1.0 increase on the scale. To put this in perspective, the 6.4 magnitude quake of 9 August released the equivalent of about 4 million tons of TNT high explosive, while the 6.8 magnitude quake of 11 August was comparable to an explosion of 16 million tons.<sup>5</sup>

The citizens of Ithaca and Cephalonia were used to frequent seismic movements. The earthquake catalogue shows that there had already been significant tremors that year, just as there had been for most of the years in living memory and throughout history. Although these earthquakes created very

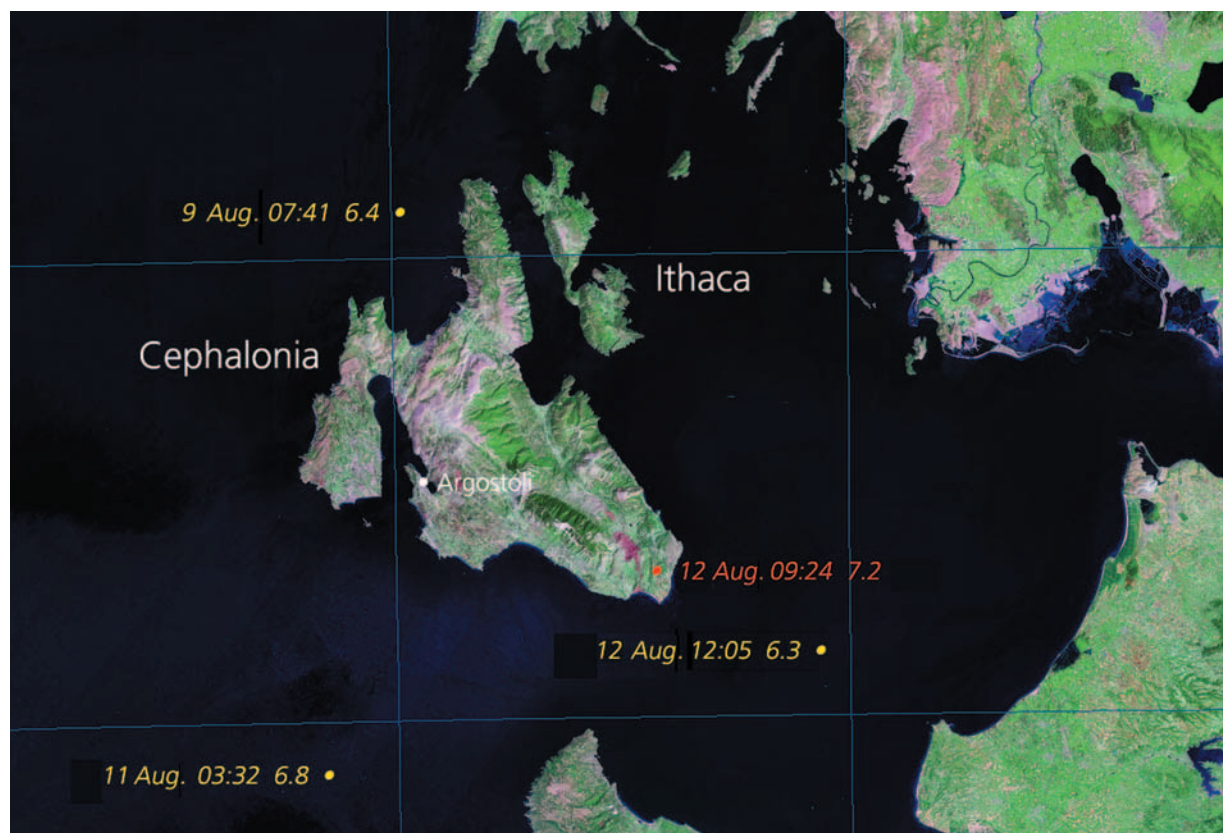
**FIGURE 1.3**  
 The southern Ionian  
 Islands  
*Colour interpretation:*  
 vegetation → green; water →  
 black or dark blue; urban  
 areas → lavender; bare  
 soil → magenta. Grid: 50 km.  
 [Image credits: Landsat-7  
 false colour satellite  
 mosaic (SWIR 7,4,2)  
 courtesy of NASA Applied  
 Sciences Directorate –  
 John C. Stennis Space  
 Centre. Processing:  
 OziExplorer. Websites:  
[https://zulu.ssc.nasa.gov/  
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[www.ozieplorer.com/](http://www.ozieplorer.com/)]



significant damage, the Greeks had long since adopted the philosophy of their ancestor Zeno and learnt to be stoic: to accept the power of nature, to endure hardship without complaint and without trying to circumvent whatever the future might hold.

But at 09:24 GMT on Wednesday 12 August 1953 something happens to Cephalonia that is both unthinkable and unendurable. To understand this we need to consider the geography of the island (Figure 1.4). The central land mass is shaped roughly like a tilted rectangle with sides of about 30 km by 20 km and with two long peninsulas to the north and the west. Much of this terrain is mountainous, with height varying from sea level to the peak of Mount Ainos at 1,640 m (Figure 4.2). A very conservative estimate based on an average height above sea level of not less than 200 m results in a volume of rock (mainly limestone) above the waterline of at least 120 billion cubic metres. Using a similarly conservative figure for the density of limestone at 2,000 kg per cubic metre, this equates to a mass above sea level in excess of 240 trillion kilograms, although obviously this mass also extends below sea level in order to join up with the earth's crust.

Running through Cephalonia there is a complex system of fault lines. On that day an earthquake of magnitude 7.2 pushes this mass upwards by about



**FIGURE 1.4**  
 Epicentres of the major August 1953 earthquakes  
*Colour interpretation: as Figure 1.3. Grid: 50 km.*  
 [Data source: Papazachos et al. (2000); also see endnote 4. Image credits: as Figure 1.3.]

60 cm within the space of a few seconds and with the force of 63 million tons of high explosive. Most of the island is now simply that much higher than it was before, as the rock markings of the previous waterline all over the island reveal (Figure 1.5).

When you look at Figure 1.5 your immediate perception is that the sea level has lowered, but that is because your brain initially rejects the outrageous alternative that it is not the sea that has gone down but the land that has risen up. And by this I do not mean just the mass of this particular rock, which resides in a rather interesting bay near the capital town of Argostoli that we shall visit later, but the land mass of the entire island that is visible in the background as well. To add shocking insult to terrible injury, later that same day at 12:05 another earthquake struck off the eastern coast of the island with a magnitude of 6.3 – a mere 3 million tons of explosive.

The effect of the magnitude 7.2 earthquake is literally catastrophic: it is as if a thermonuclear bomb were to be modified so that instead of exploding at a single point, its energy is radiated evenly from the surface of a huge blanket lying underneath the island. In fact the largest H-bomb ever exploded



**FIGURE 1.5**

Cephalonian land level prior to August 1953  
*The boundary between the light and dark rock marks the former sea level. On 12 August 1953 the island was uplifted by about 60 cm.*

had an energy of only 15 million tons of TNT and it created a crater over a mile across and 240 feet deep in Bikini Atoll the following year,<sup>6</sup> so it is as if four such modified bombs were simultaneously detonated under Cephalonia. In his eyewitness report 'The Drama of the Ionian Islands' Jean Savant said:

*At 9.40 the ground shakes. Corfu and Paxos are not affected, but Lefkada, Ithaca, Cephalonia and Zante are in dire straits. The ground continues to tremble. The houses and the cafes are emptied. The roofs fly off and are crushed on the ground. Whole sections of wall fall down. Within the space of a few minutes, entire districts are no more than a pile of rubble. Suffocating dust is everywhere. The cries of terror and horror, of wounded and trapped people resound: 'Dipso, Dipso' (Water, Water), the same cry as of Jesus on the Cross. We hear it, this pitiful cry, on the days that follow, and always louder and louder.*

*From the top of the mountains (because these islands on volcanic ground are very mountainous) blocks of rock detach themselves, start to roll and then hurtle down and crush into pieces the farms in the villages, the public buildings and the pretty low-lying houses in the towns. And simultaneously, the sea stirs. A tidal wave submerges the interior of Cephalonia over a distance of three hundred metres inland. In Ithaca and in Zante, the spectacle is the same. The reckless sudden advance of the sea makes the islanders believe that their island is being swallowed up by the ocean.<sup>7</sup>*

A journalist on board the troop transport *Alpheios* in Argostoli harbour observed that 'the people on the bridge of the ship jumped up by 30–40 cm'; the ship 'rolled heavily, broke its mooring ropes and seriously damaged its radar installation'.<sup>8</sup> Newspapers the next day said that 'the bedraggled survivors, with pitifully few possessions, reported that the quake caused hundreds of huge landslides which blocked the roads and trapped many islanders . . . Landslips sent whole neighbourhoods crumbling into the sea. Some reports said entire inland villages were swallowed up by huge fissures. Tidal waves swept the port of Vathy, capital of Ithaca.' Eyewitnesses said that the disaster scene 'looked like the end of the world. Tremors shook up geysers of dust like bomb explosions. Wells were muddied. Seas and inland streams were shipped to a steady boil.' The Cephalonian police transmitted the frantic radio message 'We are all sinking. Send the navy to take off the inhabitants. They are mad with fear. All is crumbling down.'<sup>9</sup>

Around 450 lives were lost and when the rescue ships arrived to help the survivors they were met by a surreal spectacle. Captain P. D. Gick of the destroyer *Daring*, the first British ship to reach the island, radioed that 'the tremors were shaking its hull like depth charges'. He described his experiences on the BBC Home Service while launching the Greek Earthquake Appeal four days after the disaster struck:

*We anchored off the little town of Argostoli – there was not a building standing, and I could see thousands of people clustered in the open space by the jetty . . . I went ashore at once, and as my boat came alongside, none of them moved. They sat in little groups, with a few belongings salvaged from their homes. Then a few men came slowly towards me, they shook me by the hand and said nothing. The whole situation was quite uncanny, the people were alive but absolutely stunned. Gradually more people came forward and started to talk.*

*For three days the earthquake had gone on, destroying their homes, killing their relations and friends and even as I stood there you could feel the tremors still shaking the ground. They felt no need for food or water, or anything else – all they really wanted was to get to a piece of land that stayed still. I had to explain to them that I couldn't take them away. My first job was to care for the wounded and to land all the*





**FIGURE 1.6**  
 Argostoli after the  
 earthquake  
*Photographed looking west  
 from above the town bridge.*  
*For a modern comparison see  
 Figures 15.2 and 15.5.*  
 [Image credits: Gerasimos  
 Galanos, reprinted in  
*Odusseia* (2000) p. 39.  
 Reproduced here courtesy  
 of Evridiki Livada-Duca,  
 Argostoli.]

*supplies that I had. They turned sadly aside, and walked back to their family groups and sat down to go on waiting as they had done for days.*

*During that morning sailors poured supplies ashore. They set up a hospital in tents and rescue squads went into the town and worked furiously to drag anyone they could find alive out of the wreckage of the buildings. All through the first day and those that followed more and more ships arrived, Greek ships laden with supplies, Israeli, American, Italian, French and New Zealand ships – all offering everything they had to help; it became perhaps one of the most wonderful combined operations in history.*

*The sailors and marines set up field kitchens to feed the townspeople, and on foot or in whatever transport they could find, battled and blasted their way along broken roads to bring help to isolated villagers.*

*There were and still are tens of thousands of people without homes of any kind and with all their possessions lost. They must have, and have as soon as possible, the tools and the materials with which to rebuild their houses, their farms, and their shops, and in doing so, their lives. And this help must come before the winter.*

*The Greek nation alone, recovering as they are from the devastation of the last war, can't hope to provide everything that is needed. And that's why the National Greek Earthquake Appeal has been started in this country, to get money with which to buy supplies which these people need so urgently. The Navies have done all they can. And now it's up to you, every one of you, to give all you can to the Greek Earthquake Appeal.*

*Most of you are sitting comfortably in your own homes, and soon you'll be going to bed – before you do, think of all the people in the Ionian Islands with no roof but the branches of an olive tree, and no bed but the hard earth – no light but the moon, or the stub of a candle left by a passing sailor – and please send every penny you can spare, and please send it now – they need it.*<sup>10</sup>

Fifty years later the island still bears the scars. Because almost every building was destroyed, the houses are now mainly of modern construction, with the exception of the northern peninsula (Erissos) which was much less affected for reasons that we shall discuss later. Elsewhere a casual walk along a village path often leads the tourist past the abandoned shell of a pre-1953 building that was uneconomical to rebuild or remove.

Some important questions are raised by this terrible tragedy. Why did this earthquake happen? Has it happened before and, if so, how often? Do these earthquakes always raise the island? What are the main effects, apart from death and the destruction of buildings? Will a similar earthquake happen again and, if so, when? Apart from our natural sympathy for loss of life and livelihood, why should an earthquake in Cephalonia have any wider implications than an earthquake anywhere else in the world? Questions such as these are usually rhetorical: we ask them without expecting an immediate answer, or indeed any answer at all. But as it happens the answers to all of them are now known with some precision.<sup>11</sup>

The earthquake happened because Cephalonia is poised precariously at the edge of the continental plate where Europe collides with Africa. An earthquake of this magnitude has occurred in the Ionian Islands on average every fifty years since records began in 1444 and very probably for many centuries beforehand as well. The only earthquake that is known with certainty to have raised the land mass of Cephalonia itself is that of 1953 but there is evidence that several others before this also did so. One of the main effects of earthquakes in mountainous regions is to dislodge large quantities of rock and earth which fall down on to the land or sea below. Other effects can include tidal waves.

Statistically speaking the next major earthquake in Cephalonia is not due until about 2048, but there is a very wide degree of variation in these predictions.<sup>12</sup> For example, there was one major quake in 1766 and another in 1767, then a gap of 100 years until 1867, then a 86-year gap to 1953 and then a major offshore quake in 1983 which did much less damage to the island. But the underlying mechanism indicates that these earthquakes have taken place for many millennia and that they will continue into the indefinite future.

In later chapters we will be looking at the rationale behind these answers since there is indeed a special significance to earthquakes in Cephalonia. In terms of their impact upon Western civilisation they are perhaps the most