THE MOUNTAIN ERUPTS

UNDER THE STYLUS

Although most people need no intermediary to sense a powerful earthquake, the human body is not a very sensitive earthquake detector. In a tectonically active area this is a real disadvantage, and people have long sought ways to predict earthquakes and determine their origin and direction. About two thousand years ago a mechanism was developed in China which appears to have had the ability to indicate the intensity and direction of tremors, even those that were too small for humans to feel. According to a twentieth-century description based on ancient texts, the invention and the design of mathematician, astronomer, and geographer Zhang Heng (78–139 CE) consisted of “a vessel of fine bronze, resembling a wine-jar”:

It had a domed cover, and the outer surface was ornamented with antique seal-characters, and designs of mountains, tortoises, birds and animals. Inside there was a central column capable of lateral displacement along tracks […] and so arranged (that it would operate) a closing and opening mechanism […] Outside the vessel there were eight dragon heads, each one holding a bronze ball in its mouth, while round the base there sat eight (corresponding) toads with their mouths
open, ready to receive any ball which the dragons might drop. [...] When an earthquake occurred the dragon mechanism of the vessel was caused to vibrate so that a ball was vomited out of a dragon-mouth and caught by the toad underneath. At the same time instant a sharp sound was made which called the attention of the observers.¹

You could call this the first seismometer, originating from the Greek word seiō, to shake or quake.

Seismometers remind us that the boundaries between us and the environment are indistinct and unstable. When anthropologist Gregory Bateson tried to put himself in the shoes of a visually impaired person, feeling his way forward with a white cane, he exclaimed: “Where do I start? Is my mental system bounded at the handle of the stick? Is it bounded by my skin? Does it start halfway up the stick? But these are nonsense questions.”² Bateson pointed out that people are shaped by their environment, and that all our implements and tools are part of ourselves, like our fellow citizens and the ground beneath our feet. The white cane and the seismometer are related, both indicative of humanity’s desire to sense the environment and adapt to it. We feel our way forward in the shifting and living land with all kinds of sensory aids.

Iceland is an extremely tectonically active area, straddling the boundary of two tectonic plates that are spreading apart. The first modern seismometer was installed here in 1909, for researchers from abroad, in the Navigation School in Reykjavík. The school’s principal supervised its operations for six years, until readings ceased during World War I because the seismograms could no longer be sent to Strasbourg for processing.³

² Gregory Bateson, Steps to an Ecology of Mind (Frogmore: Paladin, 1972), 459.
³ Páll Einarsson and Sveinbjörn Björnsson, “Jarðskjaldfamælingar á Raunvisindastofnun Háskólan,” in Í hlutarins eðli, ed. Þorsteinn Ingi Sigfússson
Information about these early observations is limited (but in 1912 a big, magnitude 7 earthquake in South Iceland was conscientiously recorded). The seismometer introduced in Iceland in the 1970s had a large rotating cylinder covered with paper. It was arranged so that its mounting, or frame, faithfully followed the movements in the earth, just as a house and other buildings do. A flexible arm, attached to the frame, followed along when the Earth trembled. On the end of the arm was a stylus, which scratched a clear mark in the soot, or carbon, coating on the paper wrapped around the cylinder.

What was the meaning of the strange hieroglyphics produced by such machines? Most people in Iceland probably saw the earliest seismometers as an intriguing new toy which might be useful in teaching. Few suspected that they would go on to play a hugely important role in society — as the inhabitants of earthquake zones around the world now know so well — or that their paper seismograms would indisputably become part of the fabric of history. Reading seismograms was a tedious process, and there were so many other phenomena in nature which were just as interesting as the undulations of the Earth’s crust.

The Surtsey eruption had an important influence on the course of seismology in Iceland. It was the longest uninterrupted eruption since Iceland was settled, beginning in November 1963 and not ending until June 1967. Here, for the first time, people had the opportunity to closely monitor a long series of major and minor earthquakes. Soon after the eruption, regular and systematic measurements of earthquakes began, particularly on the Reykjanes peninsula in southwest Iceland and in other high-temperature geothermal areas. Earthquakes and volcanoes were high on the agenda for some time. In autumn 1972, for example, the Icelandic newspaper Vísin published an article headlined “Predicting eruptions: No more surprise eruptions but ‘false alarms’ possible,” in which it was pointed out that many of the world’s big cities are in danger from volcanic eruptions. No one can predict exactly when an eruption will begin,

(Reykjavík: Menningarsjóður, 1987), 251–78.
the newspaper wrote, but with progress in reading the signs it is “to a large extent possible to reassure people with logic […] People struggle with so much uncertainty in life that we do not need to lie awake over thoughts of a mega-eruption on the Reykjanes peninsula, never mind Esja or other mountains in urban areas.” The time of the seismometer appeared to have arrived. It was inevitable that the Age of Humans, which was making itself at home, would call for instruments of this kind. The Earth demanded attention.

Among the students at Laugarvatn Menntaskóli Junior College on the mainland in south Iceland were quite a number of Westman Islanders, and most of them, me included, joined the science program. We studied physics, chemistry, and geology. We walked in the mountains with our teachers and explored important historical sites, studying their rock formations, fossils, and glacial moraines, among other features. In the dark winter evenings, we observed constellations. But it was only after I had graduated that Þórir Ólafsson, my physics teacher and later professor and rector of the Teachers Training College, was put in charge of a soot-seismometer. Þórir was a patient and painstaking educator who often took an innovative approach, using his talent for opening students’ eyes to the wonders of nature, whether to the structure of atoms or the universe itself. He was well-versed in physics theory and laboratory methods, introducing experiments on gravity, light, electricity, and the like to the classroom.

Greek polymath Archimedes (circa 287–212 BCE) imagined looking at the Earth from afar with the eyes of the gods, from a place that has been named Punctum Archimedes in his honor. There was no opportunity here for an Archimedean viewpoint, from which it would be possible to objectively view the planet’s earthquakes. Instead, the seismometer at the Laugarvatn school

was undeniably attached to the earth that it monitored and described, and danced faithfully in step with it, like everything else that shook on the plate boundary, and it was worth listening to for precisely that reason. The seismometer and the man who tended it were firmly grounded, completely down to earth.

**In the Moment**

Þórir’s seismometer measured many sorts of movement as they happened. The seismometer’s stylus was similar to those used in record-players. The paper strip was coated with tangible soot, into which the stylus cut grooves, so that it was possible to trace the path of the stylus as the movements in the Earth’s crust shook the mechanism. Þórir had to insert new paper in the seismometer every day — having first coated it with soot so the stylus could make its mark — and ensure that the mechanism was working properly. If that was not done, vital news from the bowels of the Earth might be lost. The previous day’s intriguing paper seismograms had to be dipped in a special solution and cleaned, so that the record they kept would not end up “blowing in the wind,” as Bob Dylan had sung and recorded on vinyl at the time of the Surtsey eruption, about a decade before.

Those were the days of vinyl. Black vinyl, made from crude oil and salt, ultimately recorded all sorts of upheavals of the time, quite apart from the rhythms and tunes of the musicians: a whole range of happenings, cultural revolutions, political movements, and student revolts. During my years at Laugarvatn, our record-players were playing the music of Herb Alpert and the Tijuana Brass, mostly the album *What Now My Love*. The album cover shows the trumpeter with his instrument, with a beautiful woman leaning against him, while the musician himself gazes straight into the lens. The theme is repeated on the cover of Dylan’s *The Freewheelin’ Bob Dylan*, which I acquired later. They were cool dudes, and a symbol of the times.

The principal of Laugarvatn Menntaskóli, Jóhann S. Hannesson, had been curator of the Fiske Icelandic Collection at Cornell University, named after linguist Daniel Willard Fiske, who had built an extensive library of Icelandic literature. Jóhann had
been summoned home to Iceland to deal with the challenges of disorderly rural youth. His addresses to the assembled students were memorable, speculating aloud with great inspiration and thundering over us teenagers about what matters in life. He urged us to make our dreams come true and to put ourselves first. We had never heard anything like it. My interest in social affairs was stirred. Everything important in life had to do with people’s interactions and ideas, with equality and fraternity, meetings and protests, with building a new world; the Earth could look to itself, I thought.

In the summer of 1972, three years after I graduated, however, I was passing through a corridor of my old school, Laugarvatn High, when something made me pause: the soot-seismometer. I had never seen it, or any seismometer, before. It was set up in a glass cabinet so that the students and others could observe it at work. My interests were fixed on anthropology by now, but I couldn’t not look at the Laugarvatn seismometer. I examined the instrument and the traces on paper and listened to the tick of the stylus. Perhaps this encounter laid the foundation for my later interest in instruments, equipment, and the natural sciences, but I don’t suppose it occurred to me then that such research was relevant to an anthropologist. The opposites within the academic world, two companies arrayed on either side of a major divide, two tectonic plates drawing apart, the humanities on one side, the sciences on the other, were taken for granted, and mostly they still are, though tremors of change are felt sometimes, as elsewhere on Earth.

*Sea Shells and Seismograms*

Geophysicist Páll Einarsson, now, like me, a professor at the University of Iceland, was studying in the US from 1970 to 1975. It was he who built, with his colleagues in America, the seismometer I saw at Laugarvatn, and installed it in the school, in the care of my physics teacher, in 1972. Another seismometer was installed at Sigalda in the highlands of south Iceland, the location of a major hydroelectric power station. The third went
to the farm of Skammadalshóll in the south, and was to play a vital part in the story of the Heimaey eruption (fig. 10).

A farmer may seem an unexpected choice to take charge of a scientific instrument like a seismometer, but was he? Páll Einarsson didn’t think so. As a youngster, he had himself spent the summers on a farm in Hornafjörður, in southeast Iceland. From an early age he had displayed an interest in geology and zoology, and as a boy, during his summer in the country in 1958, he discovered a new species of mollusc, *Mya arenaria*, the softshell clam or sand gaper, which was colonizing Iceland’s shores. The following summer the farmer at Skammadalshóll, Einar H. Einarsson, found an exemplar of the same species at the Dyrhólaós estuary, some distance west of Hornafjörður. Both Einar and Páll sent samples to a natural scientist in the capital, whose job it

*Fig. 10.* Geophysicist Páll Einarsson standing next to a seismometer similar to those that he installed before the Heimaey eruption. Photo by the author.
was to keep track of such discoveries. He filed official records of their findings. The softshell clam spread around Iceland’s shores, to become known as “a mouthwatering newcomer” to Iceland.6

It was this little-known shared discovery of the softshell clam that ultimately brought Einar and Páll together to work with seismography and marked a turning-point in the earth sciences in Iceland and predicted the historic eruption on Heimaey in January 1973. At the age of 19, Páll made his way east by bus to pitch his tent next to the farmhouse at Skammadalshóll. Einar and his wife, Steinunn Stefánsdóttir, were cattle farmers and, in addition, Einar was nationally known as a poet and painter. Einar welcomed his young visitor, and the two discussed molluscs and other mutual interests in the natural world. Some years later, when Páll returned to Iceland with his new soot-seismometers, he asked Einar to take responsibility for one of them. He was quite sure that Einar would take good care of the equipment and he felt that looking after the seismometer could readily be combined with work on the farm.

Einar agreed without hesitation. He was keen to take on the seismometer, having carried out his own studies of the geology of the Mýrdalur region surrounding his farm, sometimes in collaboration with volcanology professor Sigurður Þórarinsson and other professional geologists. Einar and Steinunn at Skammadalshóll took conscientious care of the seismometer for many years. It became so important to them that when they moved into an old people’s home in 1990, they took it with them, like a cherished ornament. The instrument had become so much a part of their lives that they could not bear to leave it behind or to dispose of it, although by that time it had, of course, long become obsolete.7 The original plan had been to return the three seismometers to New York in the fall, when the Icelandic ex-

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periment was completed, but somehow that idea was conveniently “forgotten.”

The seismometer at Skammadalshóll was highly sensitive and recorded various phenomena that had nothing to do with geology or the Westman Islands. Einar read all sorts of signals from his seismograms, such as when the milk truck passed through the district to pick up milk from the dairy farms. Sometimes he made an explanatory note on the strip of paper before he sent it to Reykjavík for analysis and storage. He mentioned, for example, “a storm,” “holes in the road,” and “horses” passing close by the farmstead. At the Laugarvatn school, too, Þórir noted some earth-shaking events, such as “skiers 20 meters from the seismometer.”

Such events registered as tremors, and while they are easily distinguished from bigger occurrences in geological history, the microhistories of the human world are most likely related to the larger strokes of geology. The custodians of these seismometers did not fail to notice real earthquake tremors or earthquake swarms either. Sometimes Einar made little sketches on a seismogram of an erupting volcano, for instance.

During the days preceding the Heimaey eruption, the seismometers at Skammadalshóll and Laugarvatn were functioning perfectly. The ever-vigilant mechanism traced out a line with historic significance. Einar and Þórir must have seized these seismograms as they emerged from under the stylus and scrutinized the lines with a magnifying glass. Reading and understanding a seismogram is a delicate skill that demands extensive training and experience. What is up? What is down? Where is the time axis? How can you tell a real swarm of earthquake tremors from the shocks caused by a herd of passing horses or a milk truck in a pothole?

After several months with the seismometers in their care, Einar and Þórir knew what they were doing, but they had never

8 Seismographs from Laugarvatn (box ER 099), National Archives of Iceland, January 1973; Seismographs from Skammadalshóll (box ER 144), National Archives of Iceland, January 1973.
before watched the build-up to an eruption by means of seismography. The drums rotated endlessly, and the delicate stylus cut a clear line though the layer of soot, but perhaps initially, as they observed the first tremors, they may not have been quite sure what they were seeing.

The Tales They Tell
Einar at Skammadalshóll kept a diary, in which he made notes about the weather and his daily activities. On occasion he writes about his tasks around the farm: “This evening I took about half a trailer of muck from the cowshed out to Eyri.”9 But, reading Einar’s diaries, it’s clear to me that he was far less interested in his work on the farm than in the natural sciences. “ Didn’t do much today,” he writes. “Didn’t get much done today”; “was lazy, walked up into the valley and around, and then guests arrived.” Much more of the diary is devoted to observations and figures of various kinds.

On Sunday, January 21, 1973, two days before the eruption commenced on Heimaey, for example, Einar noted: “Calm weather, mostly dry in the early part of the day, then a stiff easterly breeze and showers in the afternoon. Temperature +3 +4 +2.” In Celsius, of course, so a little above freezing. He continued: “In the valley I saw about 200 fulmars, two wrens, five redwings, and one blackbird. This evening at 20:19:50, a swarm of earthquakes began at a distance of about 60 kilometers.”

In a later report, Einar wrote:

Nothing happened for nearly an hour, but then the earthquakes recommenced with increasing intensity. That night I looked up a paper by Robert W. Decker about research on Kilauea, Hawaii in 1965 and other years. It seemed to me that the earthquake swarm we were experiencing was so similar to what he described that there could scarcely be any doubt that it presaged a volcanic eruption. I tried to count

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the tremors on the drum, but that is difficult, especially on a soot-seismometer when the paper strip is in place. I counted to about 250. But when I counted them again after the paper had been removed, it transpired that there had been more than 300.10

Robert W. Decker was a well-known volcanologist who established a Center for the Study of Active Volcanoes in Hawai‘i and, with his wife, Barbara Decker, wrote many books about volcanoes.11 Reading them was a favorite pastime of the farmer at Skæmmadalshöll, in between animal husbandry, monitoring the weather, and counting wild birds. It was clear to Einar that things were heating up. We know now that the red-hot magma was flowing gradually upwards from about 15 or 20 kilometers beneath the Earth’s surface, impatient after ten years of inactivity since the Surtsey eruption — although in geological time ten years is just a fleeting moment.

The following day Einar wrote in his diary: “Spoke to Þórir today. His reading of the earthquake swarm was the same as mine […]. The swarm that started yesterday evening went on until 9 this morning […] it looks as if the main swarm starts 64 km away and ends 60 km away.” After a long telephone conversation with Þórir, Einar wrote: “The focus is either on the west side of Eldgjá, or in the Westman Islands. We really need a third seismometer.” The circles around Laugarvatn and Skæmmadalshöll, indicating the distance from the epicenter based on the seismometer readings, intersected at two points. But without a third reading the location could not be pinpointed by triangulation. Several more seismometers were in use in Iceland at the time, but those which might have provided the necessary

information were either malfunctioning, or their readings were not immediately accessible.

Over at Sigalda, the third soot-seismometer Páll Einarsson had set up was not, strictly speaking, out of order. Reynir Bóðvarsson, now a professor of seismology at Uppsala University in Sweden, spoke to Einar and Þórir about their readings. In order to try to pinpoint the epicenter, in the late afternoon of January 22, Reynir called the person in charge of the seismometer at Sigalda, but was informed that it was not operating, because the ethanol supplied for it had run out. Seismologists would later cynically remark that the seismometer at Sigalda consumed far more ethanol than the others. The stylus on the Sigalda machine could not be relied on and contributed nothing. Perhaps the human element had lost touch with the Earth.

Einar and Þórir were both convinced that an eruption was imminent. In the dark of evening Þórir made his way up the slopes of Mount Laugarvatnsfjall, looking out eastward to Eldgjá, while at Skammadalshóll Einar went out to look west, toward the Westman Islands. He could not see the islands from his farmhouse, but he did not have far to go and knew exactly where to find a lookout point. No doubt he had climbed up adjacent hills and mountains to observe the Surtsey eruption ten years earlier. Visibility was good, but neither Einar nor Þórir could discern any glow of volcanic activity. Yet they were right, all the same. Had Einar kept a lookout for a few hours longer that night, he would have witnessed the beginnings of the eruption he had predicted and seen an unforgettable sight: Iceland’s first, and so far, only, volcanic eruption in the vicinity of an inhabited area was about to begin.

The seismometer at Skammadalshóll tended to malfunction, but Einar could usually keep it going, with help from various people. He wrote in his report: “Since the seismometer was not working properly — but could be kept going with care and attention — I stayed by it for most of the night, as I didn’t want to miss anything it might detect. When it was getting on towards

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12 Reynir Bóðvarsson, email, October 4, 2016.
one that night (January 23), I was taken aback, because sometimes there were two tremors in the same minute. Somehow I had a feeling that something was happening, and that kept me awake.” About an hour later Einar checked on the seismometer once again, and concluded that “something serious had happened, because at 01:56:07 there had been a very odd quake, clearly shallow — but it had continued at a constant intensity far longer than a quake of that magnitude would generally do.”

Einar at Skammadalshóll could not get to sleep, even though he had hardly slept for several nights due to his attentions to the ailing seismometer. Should he and Þórir, and their colleagues in Reykjavík, make it known that an eruption could be expected, either at Eldgjá or in the Westman Islands? At around 3 a.m. a car pulled up at Skammadalshóll. Einar wrote in his report:

Mount Helgafell in the Westman Islands had started to erupt just before 2 a.m. I was not entirely surprised, because after the tremors started again yesterday evening I was expecting an eruption in the night. We drove straight out to Litla-Hvammsklif, and it was a fearsome sight we saw on Heimaey Island. We could not see the actual source of the eruption clearly, but there was a continuous wall of fire south of the summit of Helgafell, and it seemed to stretch northwards, and we could be quite sure that appalling things were happening there. Before long rain moved in and cut off our view of the islands, and so we went home.

Over the following days Einar and Þórir continued to confer by phone about the seismograms and the progress of the eruption.13 Einar wrote in his report that the earthquake swarm that had commenced on the Sunday evening had presaged “this huge event.” When he later read reports about readings from seismometers at Laugarvatn, Sigalda, and Skammadalshóll, sent to him by Páll Einarsson, he noticed that Páll had made a note of

13 Páll Einarsson, Þórir Ólafsson, and Sveinbjörn Björnsson, interview, 2015.
two earthquakes off the Westman Islands as far back as October. “And I think that taught us a lesson,” Einar observes.

These events marked a turning point. In a 2013 book on natural disasters in Iceland, Ármann Höskuldsson and his co-authors maintain, with reference to the seismographic observations leading up to the Heimaey eruption, that it is hardly “possible to avoid the conclusion that these events predicted the eruption.”

“That was the first time,” they continue, “that an eruption was predicted on the basis of geological observations in Iceland.” Attitudes toward predictions based on seismography would change in the years ahead, with research and development in the field making huge strides, including the advent of GPS technology. On February 26, 2000, for instance, the Icelandic Meteorological Office warned, correctly, that Mount Hekla would begin to erupt within twenty-five minutes.

The Organist
While hundreds of tremors were picked up by Einar’s and Þórir’s seismometers in the days preceding the fateful night of the eruption on Heimaey (until about 10 p.m. on January 22), news of these events did not reach the Westman Islanders. No quakes were perceptible on the islands, because they took place at great depth. What difference might it have made if a read-out from a third seismometer had been available, and if the implications of those readings had been widely known?

Ironically enough, there had once been a seismometer on Heimaey itself, installed in December 1963 shortly after the Surtsey eruption began. It was a mechanism with an ink stylus, an older type than the soot-seismometer. The seismometer had been installed in order to monitor the risk that the eruption on

the sea floor might spread to Heimaey. It soon transpired that
the Surtsey eruption was unlikely to continue in the long term
and posed no threat to Heimaey. Hence, the use of the seisnom-
eter was discontinued, as it appeared to be an unnecessary ex-
pense in view of the minimal risk.

A surveyor who worked on the newborn island of Surtsey
while it was still erupting recounted a remarkable sight. He was
standing up on a hill, looking toward the mainland of Iceland.
The sun was shining, the sky was clear, and the distant moun-
tains were a beautiful sight. He spotted three unusual puffs of
cloud, in a straight line. He assumed that these were heat clouds.
One was directly over Surtsey, one over Mount Hekla, and a
third over Heimaey. Many years later, it transpired that magma
from Surtsey had been slowly flowing towards Heimaey. Hekla
erupted five years after those puffs of cloud appeared in a clear
blue sky — and Heimaey eight years later.\textsuperscript{16}

Organist Guðmundur H. Guðjónsson had been put in charge
of the seismometer on Heimaey during the Surtsey eruption. He
had to change the paper and observe the progress of the erup-
tion. He had studied music in Germany, but now it was his job
to monitor the dramatic rhythms of the Earth itself. What did
he read from the seismograms? Symphonies of nature? Celestial
psalms? The geologist who had entrusted the seismometer to
the organist asked him to go to the outer part of the island from
time to time, to observe what was happening on the nascent
Surtsey island. The organist was to describe individual explosive
events and note their exact timing and then correlate these with
the timings recorded by the seismometer. In between, the musi-
cian did his usual day job, playing the organ in the eighteenth-
century stone church, for funerals and other ceremonies.

In January 1973, a seismometer would have been useful on
Heimaey. There would have been no room for doubt that the
epicenter of the quakes was directly under the island. Had the
radio news on January 22 reported, perhaps even within a few
hours, that there was a great likelihood of an eruption on Hei-

\textsuperscript{16} Ágúst Guðmundsson, interview, 2016.
maey, the Westman Islanders and Icelandic Civil Defense would no doubt have taken action. There were, however, no precedents for such a situation. Would the predictions have been believed? And perhaps there would not have been enough time to act, in any case.

Today almost anyone can take part in measuring earthquakes: An app called MyShake that detects and identifies earth tremors is available for smartphones and tablets. The public can monitor the movements of the Earth’s crust directly, using the phone in their pockets, and share their knowledge instantly on the internet. This is one more example of our closeness to the Earth in the Age of Humans. As I write this, I download the app on my phone. Soon it sends me messages about mild quakes in South Iceland. These are commonplace but I am sensitive to the Richter scale, only higher figures make me worried.

PREMONITIONS OF AN ERUPTION

What did people do in the absence of actual seismometers? My grandmother Auðbjörg experienced the “greatest earthquake disaster since the country was settled” in South Iceland in 1896, as it was reported in the Icelandic–Canadian newspaper Lögberg that year.\(^\text{17}\) The youngest of thirteen siblings, Auðbjörg was only three years old when the tremors shook her family’s farm, Tún-ga. Much later, she described the terror when the farmhouse, built of stone and turf, collapsed. Ravens had lured the children out to the meadow before the worst occurred, and thus saved them from being buried by the ruined farm. Icelandic folklore abounds in such tales of ravens saving humans from natural disasters. Judging by Grandmother’s description, ravens functioned as natural seismometers.

It has often been said that domestic animals and livestock can sense coming eruptions. About two hours before Hekla erupted in 1947, a dog on the farm of Skarð became agitated. The inhabitants woke sometime after 2 a.m., without realizing what

had woken them. Drawing upon interviews, geologist Sigurður Þórarinsson observed that

the housewife goes into the kitchen […] and when she turns on the light she sees that an old dog, which usually lay and slept at night in front of the kitchen’s outside door, is standing on the floor there, and he seems to be terrified of something, and very glad to see his mistress. Then she says […] that she is not the only one to be affected.18

In his account of the terrible Laki eruption in 1783, generally known as The Book of Fires, pastor Jón Steingrímsson tells of portents that preceded the cataclysm. Thus, “a great number of monsters of various shapes” were seen a few years earlier at a place that was later covered by lava.19 Near one farm “fireballs lay in heaps like foxfire. A bolt of lightning struck the lamb shed […], killing lambs and splitting one of the supports from end to end, leaving its inner sides blackened as if scorched by red-hot iron.” Elsewhere “the noise of musical instruments underground and the sound of bells ringing in the air was reported by many reliable people. That same spring the rainstorms had been unusually heavy. Dark red, yellow, and black striped flying insects were also seen here, as long and thick around as the end-joint of a full-grown man’s thumb.”20

Although the Westman Islanders were not conscious of any tremors until just before the Heimaey eruption, many of them had noticed disturbances similar to the ravens in Túnga and the dog at Skarð. Afterwards, many recalled premonitions of a great natural disaster, although generally no more notice had been taken of them than of the seismometers on the mainland in January 1973, and sometimes they had not been spoken out

20 Ibid.
loud. Some of these prophecies had lengthy histories. They were like long-term forecasts.

**Helgafell’s Revenge**

In the mid-twentieth century, Mount Helgafell had been the focus of environmental activism in the Westman Islands. Travel to and from the mainland had always been a problem; for centuries the sea was the only route. But at the end of World War II, air travel opened up new possibilities. A little airport was built on a strip of land just south of Helgafell. Construction and maintenance of the runway required quantities of gravel, and the only practical option appeared to be to quarry scoria from the slopes of Helgafell itself. Within a few years the mountainside was marred by a large and ugly scar which was clearly visible to every passenger who flew in or out. The quarry had deliberately been located on the south side of the mountain where it would not be visible from the village, in order not to offend local sensibilities.

The first major critique of the damage done to Helgafell appeared in an article by geologist Sigurður Þórarinsson, published in an Icelandic environmental journal in 1950:

> I believe that Westman Islanders should, for their own sakes, think twice before they disfigure the jewel of the island, Helgafell, any further […]. Undoubtedly, the Westman Islands will become an important tourist destination […]; Helgafell is the first mountain seen by most foreigners who come to Iceland by sea […]. Slovenly treatment of it is therefore a disgrace not only to Westman Islanders but also the nation as a whole.\(^{21}\)

The Westman Islanders did not fail to heed Sigurður Þórarinsson’s warning. Some suggested Helgafell and its vicinity should become a national park.

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I remember vigorous debate in the press about the wounded volcano during my teenage years, when I was home on Heimaey between terms at school. These were the first environmental controversies I encountered, although at the time I didn’t think much about them. Grown-ups debated a lot of issues, usually on strict party lines, sometimes arguing for the sake of arguing. The subject was addressed in the spring of 1965 at a meeting of the local Environmental Committee, established in 1957. One of the members had this recorded in the minutes:

Helgafell is the pride of the Islanders and many of us would be deeply saddened if this key pride of the Islands were to be destroyed or further damaged […]. And surely the same will be true for future generations. The name of the mountain is indicative of the attitude of the generation that gave it its name.\textsuperscript{22}

It was a time for radical action.

On November 4, 1971, a group from the local art school organized a peaceful demonstration up on Helgafell, where cranes and trucks were extracting scoria for the airport (fig. 11). Waving placards demanding protection of the mountain and cessation of quarrying, they blocked the road for a while and stopped work on the site. After some shouting and negotiations, the trucks were turned away, empty. The truck drivers, friends and former colleagues of my father, were divided on the issue. Some supported the protesters, while others offered critical remarks. One of them wryly commented: “Are we into war now? Am I a prisoner of war? You must have learned this from the bloody TV!” The times they were a-changin’.

One of those who took part in the protest was Guðni A. Hermansen, a well-known artist and musician in the Westman Islands. He was a quiet, peaceful person, and this was probably his only protest. No doubt over the years the debates about Helgafell had a profound impact on the artist, who had painted a number of works that showcased Helgafell and its beautiful symmetry in varied light conditions. None of them showed the
mountain erupting. Shortly after the protest of 1971, however, Guðni began to paint his masterpiece, *Helgafell’s Revenge* (fig. 12). No one had ever witnessed an eruption of Helgafell, but he now felt compelled to give this extinct volcano new life on canvas with the mountain spewing glowing lava out of its belly in all directions. Was Guðni’s work perhaps a prediction? He worked long and hard on his painting. Less than a year after he finished, the Heimaey eruption began.

Guðni’s painting is not unlike the oldest pictures of eruptions that were painted in caves in southern France. Had the cave-dwellers, like Guðni, predicted a future eruption, vengeance for misdeeds, or despoiling of nature? Bearing in mind that the Age of Humans was gathering steam, maybe Guðni’s work could just as well have been called “The Earth Strikes Back?” When the actual eruption came, however, some geologists said that Helgafell had in fact spared the village. Sigurður Þórarínsson remarked that the fissure was amazingly “well placed”: “It is as though Helgafell has served as a barrier and a buffer, so that the fissure formed in its side and did not go straight through it. In fact it’s a not-uncommon phenomenon.”

The mountain tempered justice with mercy so the punishment was a mild one.

*Helgafell’s Revenge* has been owned for many years by Jóhanna Hermannsdóttir, who lives in Whiting, New Jersey. She was born and raised in the Westman Islands and knew Guðni well. On a visit home to the islands the year before the eruption, she bought the painting and took it back with her to the US. In January 1973 she received a phone call and was told that Helgafell had in fact begun to erupt. Guðni’s work gained a new significance, there on the living room wall in New Jersey. When Jóhanna and her friends looked at the painting more closely over the next few days it seemed as though it were weeping. The canvas opened up and tiny drops poured out of it, as if the painting itself had begun to erupt. Jóhanna tried to dry the canvas carefully with a soft cloth. Then she consulted an expert. He said to her: “Jóhan-

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24 Jóhanna Hermannsdóttir, interview, August 13, 2016.
na, are you sure that it shouldn’t just be like that!?" Probably, he added, the canvas had not been sealed correctly. She phoned Guðni, who told her that this was completely wrong. He had finished the painting quite correctly. Then the canvas stopped weeping. Recently, some people admiring the painting have spotted an angel in the fumes and ashes above the crater.

The title of Guðni’s painting, which has come to symbolize the Heimaey eruption, evokes the religious undertones in Pastor Jón Steingrímsson’s account of the Laki eruption of 1783. Writing more than four years after the eruption ended, the pastor referred to “volcanic chastisement” and “God’s angry fire.” The eruptions from the numerous Laki craters, he wrote, “far exceed any others that we have records of, both in the extent of the destruction caused and the activity itself, in the form of earthquakes […] as well as the withering of grass, and an epidemic which caused the death of many a man and animals by the thousands.”

Jón witnessed the eruption and described it as precisely as he could: “Oh, how fearsome it was to look upon such tokens and manifestations of God’s wrath!” Here geology and theology coalesce, with repeated reference to the Almighty, sacred scriptures, and human behavior.

_Dreams and Déjà Vu_

Guðjón Ármann Eyjólfsson, a writer from the Westman Islands, dreamed about the Heimaey eruption. In the early morning of January 23, as he was forced to evacuate, he suddenly broke the silence by saying, “I have experienced this before. The evacuation of all the Westman Islanders happened in a dream of mine long ago.” Later, he wrote:

I dreamed that the moon was above the Heimaklettur cliffs. The weather was calm, very similar to that on the eruption night. Then suddenly it’s as though the moon explodes and shatters in all directions, and golden fragments are all across

26 Ibid., 45.
the sky, as if a stone were thrown into a still, mirror-like pool, creating ripples. [...] I thought I could clearly hear the hoofbeats from riders on the village quay. Everyone was fleeing the island. The atmosphere in the dream was the same as I experienced on the night of the eruption.27

Guðjón Ármann said it was a dream. But perhaps it has something in common with *déjà vu*, that peculiar and intense feeling of having experienced the identical event some time previously, even though this could not possibly have happened.

Elderly people’s recollections of the months before the eruption, according to Guðjón Ármann’s interviews later that year, typically link the natural disaster with high seas and surf. Lovísa Gísladóttir, a 78-year-old woman who lived in the Westman Islands when the eruption happened, revealed that she had “imagined something spectacular would happen. It was a year with thirteen full moons, and she had noticed an unusual amount of surf and spray at Urðir [on the west coast] [...] in January.”28 Some people clearly feared volcanic activity in the islands, though even the oldest islanders had never heard of any such event, let alone witnessed an eruption.

Children’s narratives were also seen as presaging an eruption. Shortly before Christmas, Klara Tryggvadóttir, aged eleven, dreamt that Helgafell was erupting. No one took any notice of her, and she was asked to kindly stop “this nonsense.” In an interview she said she had been out below Helgafell, and had had a very strange experience:

When Dad, Grandpa, and I went for a drive round Helgafell last Sunday, and he drove along the road above Þorbjörn’s meadow at Kirkjubær farm [...] I was suddenly horribly afraid, just all of a sudden, and told Dad that he should be as quick as he could because Helgafell was erupting [...] He just laughed and said that I could run home if I wanted. And

28 Ibid., 236.
Grandpa didn’t believe it either. He said I shouldn’t talk nonsense. I heard about a similar story told by Sigríður H. Theodórsdóttir, an old friend of my younger brother Karl. I vaguely remembered her, a cheerful kid on the playground close to my second home on Heimaey and decided to interview her. She was ten years old when the eruption happened, living with her family on the east side of the village. Her experiences pre-eruption were unusually clear, and the events in January 1973 are still fresh in her mind, as if they happened yesterday. One day, early in the month, before school had begun again after the Christmas break, she was sitting and reading newspapers at the kitchen table in her home. Her father Theodór was at sea, but her mother, Kristin, was at home.

Sigríður was suddenly overwhelmed, “something just comes over me,” she said. She called her mother. “Mum, Mum, there’s going to be an eruption!” She was very upset, sensing great danger was at hand and that it would be best to hurry to the mainland, as far away as possible, preferably to the remote West Fjords. She had delivered the daily newspaper to the eastern part of the village and knew the area like the back of her hand; she knew which people were at risk. She had not dreamed about this and she had not seen anything at all reminiscent of an eruption, but the feeling of danger was overwhelming. Nothing like this had ever happened to her before.

The next three weeks or so, until the eruption, were difficult for Sigríður. She cried all day. Her mother was very concerned about her and discussed Sigríður’s state and behavior with older, more experienced people. She made an effort to talk with her and calm her and tried to convince her that there was no danger. When her father came home from the sea and heard Sigríður’s story, he got angry and begged her not to talk about it: “Such

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THE MOUNTAIN ERUPTS

nonsense scared people, no need to behave like that even if she
did want a trip to the Icelandic mainland.”

Sigríður actually preferred staying at home, and had no par-
ticular interest in travelling right then, but now she felt she had
no option. She did not keep quiet about her experience, quite
the opposite. She told people in the neighborhood and the kids
at school when term began about the danger of the coming
eruption. After school she usually hurried home with her school
bag on her back and a knot in her stomach: Her family must get
a move on and leave, before it was too late.

Normally Sigríður fell asleep easily, early in the evening. But
the day before the eruption she absolutely refused to go to bed,
even though she needed to rest before a history test first thing
in the morning. This was not because of the test; she was con-
scientious and didn’t worry about exams. The ceiling light in
the living room swung back and forth, and the TV signal failed
now and then. She did not connect it to the anticipated eruption
though, and nobody mentioned earthquakes. It was just the bad
weather.

In a way, Sigríður was relieved when the Heimaey eruption
began. The fear was gone, and she was in no rush. She went to
a house nearby, to wake a friend and her parents. The father of
the family, Eiríkur, came to the door in his pajamas, with sleep
in his eyes. Sigríður said to him, “You have to get out, the erup-
tion has started!” He snorted and said this was the final straw;
the girl had started walking in her sleep! Then he realized it was
light outside — in the middle of the night.

What did Sigríður base her prediction on? Physicists have
long argued about what they call “spooky action at a distance,”
distant events that might be expected to be unrelated, since they
seem to have nothing obvious in common.31 Sigríður’s forebod-

articles/2016/11/10/something-faster-than-light-what-is-it/. Also, for an
anthropological perspective, see Marisol de la Cadena, Earth Beings: Ecolo-
gies of Practice across Andean Worlds (Durham: Duke University Press,
2015).
ing was certainly peculiar. Sigríður, who later studied business administration, says that although she has always been “sensitive,” she never again had such a feeling as on that January day when she emphatically predicted an eruption.

One Westman Islander, ship’s engineer Jón Ó.E. Jónsson, appears to have foreseen the volcanic event a year before the eruption, and based his prediction on his own observations. After a heart attack he was unable to work, so he started reading geology books for pleasure, and thinking about nature on Heimaey island. More than a month before the eruption, Jón told a young friend that “something very strange was happening on the eastern side of the island.” A fracture was opening up, which ran northwest to southeast, and it seemed to him that “either a dyke was opening or it was the precursor of a big event — an eruption, for example.” “I haven’t told a soul about it,” said Jón, “because they all say Jón Ó.E. is crazy and can’t be bothered to work anymore.”

Nowadays it is urgent to seek out all sorts of news from the Earth, whatever we call it: observations, insights, dreams, omens, or actions at a distance. It is no good disconnecting our sensory equipment just because we don’t understand how it works.

THE EARTH SPEAKS

Andy Warhol, as he is frequently quoted, forecasted that in the future everyone would have their fifteen minutes of fame. Now the furnace in the basement of the Westman Islanders was ready for its fifteen minutes — or more.

Monday, January 22, 1973 was windy on the Westman Islands, with a howling gale from the southeast. The anemometers measuring wind-speed on the Stórhöfði headland went wild. People ran between houses in the dusk, with the storm in their faces. Some drove, even though it was such a short distance. In

the evening my cousins met with friends to play their regular Monday evening bridge game, this time at Birna’s home not far from the foot of Mount Helgafell.\textsuperscript{33} They were novices but were getting practice in the complicated rules for taking tricks.

When two or more members of this family met up, laughter and fun were always on the agenda, and so it was this Monday evening between bids. It was getting late and darkness was descending. When the game was at its most exciting, Birna’s house began to vibrate and she thought that something must be wrong with the central heating. Her bridge partners became concerned. The furnace in this house, as in many others in the Westman Islands, could be fractious; the boiler was capable of anything, and it was best to check the fuel supply and the pump system. If the radiators in the whole house started singing, something was wrong. Birna nudged her husband, Theodór, who went to check. Nothing was wrong with the furnace, but the vibrations continued.

Now one of the women phoned the Westman Islands Radio Station, which acted as the civil defense service connected to the fishing fleet, the mainland, and the outside world. “Are they earthquakes?” “No, no,” was the reply. More people had seen reason to call that evening and ask about the strange vibrations and droning sounds, but it was safe to go to bed: Nothing was happening. Perhaps the women had picked up some sort of radio transmission. They continued to play cards, but the low-level vibration persisted.

They finally threw down their cards when a new day had begun, around 1:30 a.m., even though four hands were left in the rubber. The tremors were making them uncomfortable, and they also needed to rest before the work day. Lilla, Birna’s sister, was going to give a lift to the other bridge players on the way home. When they had left and Birna was getting ready for bed, the window in the bathroom started vibrating. Birna closed it,

\textsuperscript{33} Aðalbjörg Jóhanna Bernóðusdóttir, interview, Hafnarfjörður, February 2016.
but then the mirror took over, shivering as though it were terri-
fied. What on earth was happening?

Lilla tells me she was driving a sleek saloon, a light grey 1972
Sunbeam, with four headlights. The eastern part of town was
dark; east of the village were only fields and rocks, and beyond
them the deep Atlantic Ocean. The women drove past two
young men that they knew well. They considered offering them
a lift home, but thought it wasn't worth it, as it was such a short
distance home for them to go. The young men were in no rush,
coming back from an evening stroll. They had obviously not no-
ticed anything odd.

Suddenly, the women saw a glow of fire towards the east, ap-
parently on the slope of Helgafell. Birna's house was silhouetted
against the fire, and they were filled with terror. It was as though
the house were aflame. Had the furnace, in spite of everything,
blown the house up? Lilla was half ashamed of her first reaction,
“Thank goodness we got out in time and avoided this trouble,”
knowing that her sister Birna and family seemed to be directly
between them and the blaze. They hurried back towards Birna's
house. The beam of the car headlights swept between houses.
Would they be able to help if the house were on fire? It was just
as well that no one else was on the road right now.

"It's an Eruption"

They got closer to the glow, and just before they reached Birna's
house, her friend Sjöfn suddenly exclaimed: “It's an eruption!”
There was no need to continue east and Lilla stopped the car.
Now they could see that Birna's home and family were safe, for
the time being at least, but behind the house was a huge conflag-
ration. The incandescent glare spread and moved northwards.
The ground opened suddenly, with a thundering noise, releas-
ing fountains of fire and glowing lava. The women didn't ap-
proach close enough to see the fissure itself because houses and
hills partially obstructed their view, but they could see one lava-
fountain after another spouting up in front of them, six or seven
glowing jets. They thought that the eruption was in Helgafell's
crater, the same thing that most Westman Islanders initially as-
sumed that night. In the history of Iceland there are few examples of people witnessing the start of an eruption, and this was the first time a volcano had erupted in an inhabited area.

The village was strangely silent in spite of this momentous event happening right on its doorstep. No one was around now except the women, but there were lights in many windows all the same. Many people were attending to their furnaces, checking the weather, or puzzling over the changes in atmospheric pressure and vibrations, or the glare of light farther east on the island. Before long, most of the locals would be astir, in the middle of the night, with a new and urgent task.

They made haste. Lilla was terrified that the island would split in two. She turned abruptly west, wanting to stay in the western part of the village, on the right side of the divide if the worst happened. She wanted to get home and be with her family, whatever happened. When the car approached her house, Sjöfn opened the door and practically jumped out before it came to a halt. Lilla continued to her own home. Her husband Jóí was standing in the doorway and asked what was happening. He had been sleeping restlessly and was thinking of checking his fishing nets first thing in the morning, even though the weather prospects were not good. He had been awoken by the vibrations in the house just before Lilla came home. When Lilla told him there was an eruption, Jóí jumped into the car to go “take a look,” leaving Lilla at home on her own. He drove around the south of Helgafell, by the airport, where he saw the eruption in all its glory. The ground was still ripping open, and it seemed to him that the fissure was heading towards him. When the crack opened it was like a zipper slowly being unzipped along the ground. In his panic he couldn’t tell if it was safer to run the shortest way home in the glow from the eruption, or to drive back the same way he had come. He chose the latter option.

Shoulder Stone

The eruption began by Axlarstein, “Shoulder Stone,” a man-high rocky cliff on the northeast shoulder of Helgafell just above the road that circled the mountain (fig. 13). It used to be a popular
place for kids to practice their sprang technique, in preparation for gathering seabirds’ eggs from the cliffs when they got older. Around the mid-twentieth century, before the rapidly growing village approached the foot of Helgafell, the dell below Shoulder Stone was a popular campsite for youngsters, at a convenient distance from home. People spoke of a bare patch around here, popular with teenagers in wintry conditions, where natural heat in the earth prevented the snow from settling. Not far from the cliff was a cave, which also attracted youngsters in search of adventure.

The old tales about Shoulder Stone sometimes have fantastical overtones. According to a 1906 newspaper article, a certain Einar from Eyjafjöll, who lived early in the nineteenth century, is said to have recounted that once, when he was on his way from the mainland, “the sea seized the boat and drove it past Klettaskor (in the Westman Islands) and into the high ground.
east of Helgafell, and drove it there into Shoulder Stone as far as the second thwart.”34 The rock clearly had a powerful attraction.

I remember the annual New Year bonfires at Shoulder Stone well. In the final weeks of the year, kids in the east part of town started to collect old timber and other stuff that to burn. Sometimes they even stole the wooden formwork for concrete from building sites. They sneaked from house to house taking a little here, a little there, not removing too much from any one site. Then all the firewood was stacked up on New Year’s Eve. Oil was thrown over it and the pile was set on fire. Some kids experimented, with varying success, with firecrackers when they were on bonfire duty, dividing them into smaller units to have more fun and get more out of them.

The kids, mostly boys, who built the bonfire at Shoulder Stone were in competition with groups from other parts of the village. During the last few nights of the year the bonfire had to be guarded. Björn Th. Björnsson, in his book about growing up in the Westman Islands between the wars, writes:

They daren’t come, the bastards, I said and struck the stick against the pile of barrels […] The year before last they managed to light our bonfire the night before New Year, or almost. Even though the boys were on guard — Ási, Nonni from Sjólyst, and Daddi-the-Turd. That was the fight when Daddi-the-Turd got the nail in his head. Right into his brain, or nearly.35

Things have often become heated below Shoulder Stone, and some accounts are reminiscent of the blood-curdling deeds of the medieval Icelandic sagas. But the sheets of flame by Shoulder Stone that January night were bigger than any bonfire.

34 Björn Jónsson, “Eftir tíu ár: Úr ferð um landskjálftasvædið frá 1898,” Ísafold 67 (1906): 266.
What Was To Be Done?

Many Westman Islanders thought at first that the volcano Katla, a well-known monster on the mainland, long overdue for an eruption, was stirring. They couldn’t believe their own eyes when they looked out and saw the glow of fire, so close, in the east. Some thought that dry grass was burning, or something else had caught fire. Others wondered if a new underwater eruption had started near Bjarnarey, an out-island just east of Heimaey. But the wail of sirens and the fire klaxon that the police switched on suggested otherwise. Now the radio station, which earlier that night had refused to admit there were any unusual tremors, sent out a call for help on the international distress frequency 2182 kHz:

MAYDAY, MAYDAY, MAYDAY. THIS IS WESTMAN ISLANDS RADIO. ERUPTION IN THE WESTMAN ISLANDS. WE NEED HELP FOR 5000 PEOPLE. WESTMAN ISLANDS RADIO.\(^\text{36}\)

Here, all sorts of earthly factors were in the mix, including the volcano and humanity in desperate straits. The islanders hurried down to the harbor, not knowing what would happen next. On the mainland, people sat speechless by their radios.

Skippers on the fishing grounds off the Westman Islands who heard the Mayday call thought they should do something but did not know what. Soon after the eruption began, the Icelandic Coast Guard vessel Tyr cut one of the net wires of a British trawler, the Ross Altair from Hull. From 1972 to 1973, Britain and Iceland were engaged in a territorial dispute known in Iceland as the Second Cod War. The net cutters were the Icelanders’ most effective weapon, causing great consternation, taking the British by surprise, and working better than many other weapons. The British trawlermen claimed that the Coast Guard crew had snipped the wire without warning as they sailed at speed toward Heimaey while the British skipper had intended to offer aid because of the eruption. Icelandic wits retorted that it was

\(^{36}\) Jón Kr. Óskarsson, interview, October 4, 2016.
highly unusual for a trawler to speed to the rescue with its fishing nets out.\textsuperscript{37}

Fortunately, the weather was favorable. The storm had died down, and the wind had dropped. The police went house-to-house, woke the residents, and explained what was happening. Many people checked that their neighbors were up or called relatives and friends who might have slept through it all, not forgetting the elderly and sick. Urgent questions sprang to mind. There were no clear answers or any organized plans. All the same, most people seemed calm and composed—probably dazed or in shock. Some older people refused to leave their homes. Some yielded to persuasion, while others stuck to their guns and were left alone for the time being.

At the police station in Reykjavík, just before three o’clock in the morning on Tuesday, January 23, the Icelandic civil defense committee met to make arrangements for receiving the five thousand Westman Islanders on the mainland. The state broadcasting station \textit{RUV} went on air just before 4 a.m. and delivered news of the eruption. The mayor of the Westman Islands was interviewed. He said that no one was in immediate danger, but that people were being encouraged to make their way to the harbor.

The few farmers on the Westman Islands would not consider leaving without first taking care of their livestock. A few hundred meters from the eruption was a corral full of horses. They became so agitated they had to be released. One horse bolted into the lava flow and had to be put down. A few others were safely led to the harbor to be transported to the mainland. About fifty cattle from the farm of Kirkjubær were taken to one of the fishing plants to be slaughtered and soon their bodies were transported to the mainland for the meat market. It was strange to watch them being herded down to the harbor. When the farmer at Kirkjubær, Þorbjörn Guðjónsson, was asked if it was hard to lose his cows, he said, “I’ve got nothing to complain

\textsuperscript{37} “Írú náttúruöflin að kenna okkur að standa saman?” \textit{Tíminn}, January 24, 1973.
about; my forebears fled here, escaping from the Laki eruption, with everything they owned in a single chest.”

A LONG NIGHT UNDER THE VOLCANO

In the first few hours of the eruption few people thought to photograph what they saw. One exception was Kristján H. Kristjánsson, a student at the secondary school. When the eruption began, Kristján woke from a deep sleep at his home in the pharmacy his parents ran in the village center. Kristján was an amateur photographer, and when he was told about the eruption his first thought was to hurry out with his camera. He was relieved, in spite of the strange and terrifying sight in front of him, as he was supposed to be taking an Icelandic literature exam that morning on the Saga of Gísli. He had exam nerves and felt he had not studied properly. Many other students were worried about exams that night. Some were sure they would not avoid the exam even if they were evacuated to the mainland; the teacher would be waiting there with the exam papers.

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38 Information relayed by Svavar Steingrímsson, interview, January 2017.
few years after the eruption, Kristján attended classes I taught in my first teaching post, although it wasn’t until decades later, however, as I began writing this book, that I learned about his photographs of the eruption (fig. 14).

A relative of mine, Sigurgeir Jónasson, was considered the unofficial public photographer for the Westman Islands. He had recorded human life and human–earth relationships on Heimaey with incredible diligence and resourcefulness for decades, and later photographed the eruption and its victims from various angles. But on the eruption night itself he was fully occupied saving himself and his family, with no time to think of his camera.

They and the other Westman Islanders would soon become refugees, cut off from their habitat. No wonder there was uncertainty about when the eruption had actually started, time had little meaning. It either flew unaccountably fast or seemed to stand still. Modern science speaks of “geological time,” an almost infinite time scale, extending millions or billions of years, but now the geological history of Heimaey somersaulted forward in just a few minutes.

In the pitch dark of the early morning Icelandair, together with helicopters and planes from the US military base at Keflavík in southwest Iceland, began operating an airlift between Heimaey and the mainland. The weather made flying possible, which was not always the case in the Westman Islands. Geologists, reporters, and photographers arrived from the mainland, while pregnant women and the old and infirm were carried back.

At the same time, the Westman Islands’ rescue service began preparing a plan to station rescue boats on the northern coast of Heimaey, in case the fishing fleet should be trapped in the harbor by the rivers of lava, and people had to be ferried to the mainland or to boats from other fishing ports. But the local skippers, undeterred by the ash and flames at the harbor’s mouth, decided to board their boats and sail out that night with their families and friends.
Many people drove eastward on Heimaey first, as close as possible to the eruption, to comprehend the enormity of it all and to convince themselves that they really had to leave. Some thought they should wait a while, in case the volcano should be kind enough to complete its work within a few hours. Perhaps there was no need to say farewell to Heimaey. But soon nearly everyone reached the conclusion that it would be best to sail to Þorlákshöfn on the mainland. It was the closest harbor that could receive several large boats at the same time.

Tempest Tossed

Earlier in the century, when many motorized smacks were longline-fishing at this season of the year, the Westman Islands’ boats would line up in the harbor mouth and wait for the signal or “green light” that authorized sailing to the fishing grounds. This was done to avoid line-disputes. Now there was no squabbling about the best area of sea. Instead it was necessary to allocate the passengers, around five thousand people, places on seventy boats, and make arrangements for them at Þorlákshöfn, an hour’s drive over the mountains from the city of Reykjavík.

When my uncle Magnús Bjarnason came down to the harbor, he went to the motorboat *Bergur* which had a 170-ton capacity. Magnus’s wife was studying in Norway, and her mother Sólveig had been taking care of the home and their two children in her absence. Sólveig’s son was one of the skippers, and Magnús was reassured to see him and his family on deck and to have their company: “There was no need to ask to be taken along, instead outstretched hands greeted us.”

The engineer had started the engine, and it was clear that they would soon depart, because the boat was filling up. Over one hundred and sixty passengers were on board.

Magnús put Sólveig and the children on board, but was conflicted about going with them himself. His parents, grandmother, sister, and her two children were still on the island — and

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there was his home, all that his family owned. Then he made the decision:

As I stood there on deck, and looked at the eruption, I sensed that I needed to stay behind. I didn’t know how I could be of help, but something told me that I just couldn’t leave. […] I was obsessed by some indefinable sense of responsibility that I also felt on a different level could be against all common sense. But still I decided not to go. It reinforced my decision that the children and my mother-in-law were in safe hands. I told them what I was planning. Later Sólveig told me that she practically froze at my words, but did not want to stop me. 40

What was the “indefinable sense of responsibility” that Magnús referred to? Probably his decision to remain was a sign of the power that the human habitat—and its intimate connection with the earth—has over us.

Naturally enough, there was no advanced planning for assigning places in the boats. The boats tied up at the quay, several vessels deep. Those who were unused to sea travel tried to get on one of the larger ships, hoping that the journey would be safer and less turbulent. When a signal was given on the radio, the boats sailed one after another out of the harbor mouth, with the volcanic fire on one side and the cliffs on the other.

It was hardly possible to stay on deck because of the ashfall. The eruption had produced a huge quantity of ash from the start, first blowing it out to sea, but when the wind changed it piled up, it soon engulfed dozens of houses. Some passengers still remember the noise and stench of the eruption. The temperature of the sea had risen rapidly, and clouds of steam rose from the water. A glowing lava river cascaded off the edge of the ancient lava field and flowed along the sea floor. This unusual submarine floodlighting was certainly magnificent to look at, at least for those on the deck or the bridge who dared to look over the side of the boat. During the crossing, the passengers on

40 Ibid.
the way to Þorlákshöfn looked back to observe the glow from the volcano. There seemed no end to the eruption and nobody knew what would happen to their homes or to the people who had stayed behind.

The vessel Ísleifur, with a 216-ton capacity, transported 109 people that night, including the crew’s families and many of their neighbors. In the summer season the ship’s crew sometimes went on long and rigorous tours fishing for herring in the North Sea. One time, the crew sent their wives greetings over the radio, on the Seamen’s Requests program, with the Beatles’ song “Help!” The next program had a greeting from their wives—a song made popular by Tom Jones, “Help Yourself.”41 Now it was time for the Westman Islanders to give their famous sarcastic humor a rest.

The passengers were of all ages, and most were not used to fishing boats. The inhabitants from the east end of the village and the houses closest to the eruption site felt the worst, well aware that their homes would not be spared. The swell was strong. The convoy of boats sailed slowly on in the dark for the four-hour passage to the mainland. The pilots in the airlift said it was spectacular to observe the convoy from the air, like traffic on a highway at night in a big city. Many men were on the deck of the boats at first, rolling with the waves and watching the eruption, while most women and children went below. They lay packed together, under the whaleback, in the mess room, the wheelhouse, and the fo’c’sle. Seasick passengers found there was nowhere to vomit except the sink, the saucepans, and on the floor.

That day, January 23, 1973, the sun rose at about ten-thirty. Most of the boats reached land at Þorlákshöfn well before then, between seven and eight in the morning, still in inky darkness. Despite the discomfort and anxiety, the crossing itself went off without incident, with a few exceptions. My bridge-playing

cousin Lilla set off for the mainland with her family aboard the _Andvari_, which her husband Jói skippered. It so happened that the engine of the _Hrönn_, which he and his partner Hörður had recently bought, had failed. The men were keen to get both boats safely out of the harbor, so the _Andvari_ set off with the _Hrönn_ in tow. About forty passengers were on the _Andvari_ and twenty on the _Hrönn_.

When Jói got out of the harbor, he didn’t like the look of the swell. The _Andvari_ was a medium-sized wooden boat, with a 100-ton capacity, and the _Hrönn_ — a large steel vessel, with a 200-ton capacity — was a bit large for the _Andvari_ to manage. Jói contacted the skipper of the nearby _Gjafar_, with a 200-ton capacity, and asked him if he could take _Hrönn_ in tow. The skipper declined, as he had a boat full of people. That night, the _Gjafar_ transported more passengers to land than any other Heimaey boat, close to four hundred people. Jói then cast off the tow line, left the _Hrönn_ behind, with skipper Hörður in charge, and sailed back into the harbor. He said that he must pick up more crew and his parents and would not go to the mainland without them. The _Hrönn_ tossed helplessly around in the waves, until the _Andvari_ returned.

Some people feared a bad ending for _Hrönn_, and even questioned Jói’s decision not to head straight for Þorlákshöfn with the forty people he had on board. Lilla, who was with her husband on the bridge of the _Andvari_, was terrified. When she protested, Jói told her to “get below.”

Around 4 a.m., about two hours after Jói’s operation had begun, he left the harbor again with his father and some of his crew. He took the _Hrönn_ in tow once more as planned, but unfortunately the line broke soon afterwards. The boats danced in

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the waves, almost side by side and full of people. The two ships’ crews fought to get a new tow line between them, but the tow-line broke over and over. Sometimes the people on the wooden Andvari feared that the prow of the steel Hrönn was going to smash into them in the heaving seas. Rubber tires were hung from the gunwales to cushion the impact if the boats were to collide. The crews of the Andvari and Hrönn battled until nine o’clock in the morning, while the two ships made slow headway. Then additional boats came to the rescue from the mainland, and one of them took the Hrönn in tow. The three vessels finally sailed into Þorlákshöfn about two in the afternoon. Many passengers were feeling very unwell and shaken after their long sea voyage (fig. 15).

Although I was not on any of the boats that night, being far away at graduate school in England, I can easily put myself in their shoes. In my years at Laugarvatn, I sometimes had to sail on the Reykjavík ferry when I travelled to or from Heimaey. The sea journey took all night, and when I took the ferry at the last
minute all the berths were taken, so I had to make do with lying on the floor, under tables, and between bunks. In all the rolling when the ship sailed through the infamous Reykjanes Race, the churning water between the Reykjanes peninsula and Eldey island, it was hard not to throw up, and vomit flew in all directions. At the end of this ordeal by water, I would step ashore in the early hours of the morning with vomit on my face and the unsteady legs of *mal de débarquement*. It must have been an exhausted and anxious group that stepped onto land at Þorlákshöfn after eleven tempest-tossed hours.

When the boats arrived at Þorlákshöfn after a long and difficult overnight journey, they had to wait in line until they were given a signal on the radio. Only a few boats at a time could dock so their exhausted passengers could be helped ashore. Parents lifted their children over the gunwales. In no time the boats pushed off the quay to free up a berth, making way for the next boat. Sometimes there were ten boats at a time maneuvering into the harbor or proceeding out of it, heading for a different port now that they couldn’t go back, or, like the practical Icelanders they were, they took their boats out to sea, as if it were an ordinary workday, to fish. The boats would find other harbors, at least as a temporary base, occasionally visiting Heimaey as the crews checked on their houses and friends. For the time being, and perhaps for good, there was no fish processing on Heimaey. The harbor was no longer secure.

*Raining Ash*

The few people left behind on Heimaey, perhaps one hundred, were in the thick of it. One of the mainland photographers, Gunnar M. Andrésson, took a memorable photo of the volcanic fissure as it headed for the harbor while a group of people watch in astonishment from the slopes of Helgafell and the Coast Guard ship lies just outside the harbor. The ground is still ripping open (fig. 16).

When Magnús Bjarnason had escorted his family to the boat, he hurried towards his brother-in-law’s house. He had promised to look after it, but the intensity of the eruption seemed to be
steadily increasing: “Once I was indoors I realized more clearly than before what a devastating force it was — the whole house was shaking and the noise was deafening. I shut the windows, turned the lights off, and locked the outside door, which had stood ajar when I arrived.”43 He hurried off to his own house. On his way Magnús met people heading in the opposite direction, towards the harbor. Magnús, who is an unusually tall, powerfully built, and authoritative figure, slowed down so as not to attract attention: “I didn’t feel it was right for me to be seen running as fast as I could, to get away from the volcanic ash raining down on us. That was no time to show fear.” When he reached home, he put his car in the garage, brewed some coffee, and poured himself a cup: “I sat down in the living room and tried to collect my thoughts. Of course nothing sensible came of that.” Then he phoned his wife in Norway and told her the news. When the Norwegian broadcasting service announced, soon afterwards, that half of Heimaey island had sunk into the ocean

Fig. 16. The eruptive fissure on the first morning. Photo by Gunnar M. Andrésson.

43 Bjarnason, “Privatissimo.”
and all the inhabitants had been evacuated, at least she knew that was not precisely true.

A rain of ash, to any Icelander, brings to mind Pastor Jón Steingrímsson’s precise account of the catastrophic Laki eruption of 1783. Immediately on the first day of the “Fires,” he wrote, “a black haze of sand appeared […]. The cloud […] was so thick that it caused darkness indoors and coated the earth so that tracks could be seen. The powder which fell to earth looked like the burnt ash from hard coal.”\textsuperscript{44} A few days later “the entire area around here was covered by the fall of cinders […]. They were blue-black and shiny, as long and thick around as a seal’s hair […]. They formed a continuous blanket over the ground and where they fell on bare patches of sand and gravel and the winds tossed them about, they were twined together to form long hollow rolls.”\textsuperscript{45}

Along with the ash, the Laki eruption emitted toxic gases that killed livestock and tainted vegetation, and the fine volcanic dust in the air blocked out the sun for months, leading to a prolonged period of hardship known as the Haze Famine. Three-quarters of Iceland’s livestock died, as did one-fifth of the human population. In Pastor Jón’s parish, which was in close proximity to the volcano, 225 people, over a third of the inhabitants, died. Farms by the coast came off better than many others, showing “how much the juices of the sea can do to counteract pestilence on land,” wrote Jón in his account of the eruption. He continued: “The same is true of the Westman Islands, where the scourge did not kill a single beast. But as things turned out the people of these areas lost much of, and some of them all of, their livestock the following year, just as we did, due both to the pestilence and lack of sufficient hay.”\textsuperscript{46}

Humans played no part in events leading up to the Laki eruption, even though Pastor Jón, traditionally known as the Fire Priest, saw the volcanic fires as divine retribution for the sins of

\textsuperscript{44} Steingrímsson, \textit{Fires of the Earth: The Laki Eruption 1783–1784}, 25.
\textsuperscript{45} Ibid., 27.
\textsuperscript{46} Ibid., 75–76.
fallible men and women in his county. But the huge global impact of that eruption calls to mind the environmental problems of the current age. That first night, as the ash rained down, no one knew the Heimaey eruption would not be accompanied by a global environmental impact equivalent to that of Laki, and the news that instantly travelled around the world, like that of the Norwegian broadcasters, often assumed the worst.

*News from Iceland*

At Manchester University, where I was studying, the weekend had been uneventful. We students were gradually settling back in after our Christmas break. A group of Icelanders at the university were in the habit of meeting up for lunch now and then to exchange views and share news of home. Sitting down to lunch that day, Tuesday, January 23, someone announced that, according to the BBC news that morning, a volcano was erupting on the island of Heimaey. The island might even split apart and sink into the sea, said the BBC.

I was taken aback. Most of the other Icelanders took the news calmly: Surely even the ever-reliable British Broadcasting Corporation made mistakes? I was the only Westman Islander there, and it seemed to me unlikely that the eruption could really be taking place on Heimaey itself. Mount Helgafell, the only volcano on the island, was extinct, I protested, or at least had been dormant for thousands of years. Children on the island used the crater as a playground, I told them. Surely the BBC must mean Surtsey island, I speculated, recalling the eruption there only ten years earlier.

Although I had my reservations, I was deeply unsettled and the matter warranted further investigation. So, after lunch I made my way to a student reading room nearby, which offered such newspapers as *The Guardian*, the *Times*, and the *Manchester Evening News*. I had often gone there to read the latest news about the Second Cod War between Britain and Iceland, then at its height. Despite its name, the *Manchester Evening News* rolled off the presses in early afternoon. Would it have something to
say about an alleged eruption on an archipelago far away in the north Atlantic?

I glanced around in search of the Evening News and saw that there was only one copy in the reading room. A young student lolled, reading the paper at his leisure. I took the seat facing him, hoping that it would soon be my turn. Although students here, as elsewhere, were politically conscious and active at that time, there was rarely any competition for access to the papers. I tried to conceal how eagerly I was waiting, to avoid embarrassing him. He had every right to read the paper for as long as he liked. The Evening News was a large-format broadsheet, so it is quite possible that, engrossed in his reading, he did not even notice my impatient presence, hidden as I was behind the pages, even though I had unconsciously inched forward to the edge of my seat and was gazing at the front page, aghast.

At the top was a report on the heavyweight boxing match between George Foreman and Joe Frazier. Foreman had won the encounter and was now officially world champion. All I could read was the headline: “Foreman kos Frazier.” I couldn’t decipher the small print, but that didn’t matter. I’m not a boxing fan. Nor did I pay much attention to the report on the death the previous day of former us President Lyndon B. Johnson. My eyes were inexorably drawn to an item in large print on the middle of the front page, the news I had hoped was an invention, or a misunderstanding, “VOLCANO BLAST SPLITS ISLAND: 5,000 SAVED.” It was the paper’s lead story. Had Heimaey island truly sunk beneath the waves? That thought was unthinkable.

I have no idea how long it took for the young man to finally finish reading the paper. As he tossed it down, I snatched it up and devoured the report:

A mini-Dunkirk rescue operation today carried 5,000 people to safety after a volcano, inactive for 7,000 years, erupted on a small Icelandic island, almost splitting it in half. It was 2:30 am when the volcano blew open tearing a mile rift in the main Westman Island, 10 miles off the island’s coast. [...] Experts thought it may explode and disappear into the sea.
Terrified inhabitants, dressed only in nightclothes, crowded the streets as the lava first spurted from Helgafell mountain, just two miles south of the village, lighting up the whole island. Mercifully, it flowed down into the sea, missing the village except for one house, which was burnt out. […] British trawlers […] offered help but Icelandic Coast Guard said there were enough boats there already. […] A horse had been seen to fall into the glowing rift when the ground opened beneath it.47

The eruption coverage continued on the inside pages, under the headline “River of Flames.” There were two photographs: one of the blazing lava in the darkness of the night, the other of a woman and child — the first evacuees arriving on the mainland. There was no mistake, an eruption had started on Heimaey. I was hugely relieved to learn that no lives had been lost to the flowing lava.

Likening the overnight evacuation of the islanders to the famous Dunkirk operation during World War II was entirely apt. When the British Expeditionary Force in northern France found itself trapped by rapidly advancing German forces in the summer of 1940, volunteers had set off across the Channel on vessels of all sizes to rescue thousands of stranded men from the beaches at Dunkirk. “We shall fight on the beaches, we shall fight on the landing grounds, we shall fight in the fields and in the streets, we shall fight in the hills; we shall never surrender,” declared Prime Minister Winston Churchill in those dark days of war, when the Dunkirk rescue restored faith in what ordinary people could do. Likewise, the local fishing fleet transporting Heimaey’s inhabitants to the mainland in rough seas restored my faith in my countrymen. But although I had learned a lot from the Evening News, I still had many questions. The university campus offered no other sources of information about

events in Iceland, and I was too restless to sit and focus on my anthropology texts.

As twilight fell, I strolled down Oxford Street toward the railway station and the train home to my residence hall. I lived in the Sale district on the outskirts of Manchester with my fiancée, Guðný, whom I had met at school in Laugarvatn. Guðný was also a graduate student at the university, and we lived in a multinational community of students. On the way to the station, however, I was brought to an abrupt halt opposite an electrical-goods shop. In the window were big color TV screens, turned on to capture the attention of passers-by. Color TV was a recent innovation, dismissed by some as unnecessarily fancy — after all, black-and-white had been good enough until now. But many people believed that color TV would be a revolutionary change, and a bonanza for sellers of electrical equipment. Regular broadcasts in color had begun around 1969, although the first color TV broadcast in the UK had taken place in 1967, from the Wimbledon tennis championships.48 As I passed the shop window that Tuesday evening, the film footage being broadcast was of the eruption in Iceland. I was transfixed. The colorful spectacle made an extraordinary impression, repeated across dozens of color TVs. Molten lava and ash were flung high into the air from the crater, and a river of red-hot glowing lava flowed down the fissure, from the crater toward the sea.

That may have been the first time that a volcanic eruption was televised in color, practically live, all around the world. In the moment, it was hard for me to register its historical importance or even to define what I was feeling. I stood there for a long time, mesmerized by the TV, trying to imagine what was happening back home on Heimaey, and what these events would mean for the community, particularly the members of my own family. My parents and siblings were, thankfully, in no danger, as they had moved to the mainland four years before. But the house I had

grown up in, Bólstaður, my first habitat, was still there. Or was it? I had to call Iceland.

The train trundled out of the city center, passing the Old Trafford football ground on the way to Sale. The residence hall had a public telephone. It was much in demand, and on this occasion it was hard to get through to Iceland. All the international lines were busy. Late in the evening I finally reached my parents. I told my dad what had been reported in England, and asked him whether it was true that Heimaey might sink, or explode? He reassured me with a laugh that the news reports were somewhat exaggerated. Heimaey island was not about to disappear. There had been no fatalities, and all our people were safe. He told me that the evacuated islanders would all be provided with shelter on the mainland, but it remained to be seen whether they would ever be able to go back. It looked as if the flowing lava might fill up the harbor, the heart of this busy fishing port.

The international operator interrupted to ask for more coins if I wanted to continue. Sometimes this phone’s coinbox filled up, and then we international students would talk for hours on a single coin that had gotten stuck in the slot. But tonight, I inserted a river of coins, so that we would not be cut off.

When we finally hung up, I sat down and tried to make sense of this conversation with home and the awful news that had turned out to be mostly true. Asleep for thousands of years, Mount Helgafell had woken up with a bang, right on the doorstep of Bólstaður, my first habitat. The Westman Islanders’ connection with the Earth was in question and under review. My friends and neighbors might have to find new habitats on the mainland, perhaps for the rest of their lives. Looking back on that night now, my feelings were like those of many people today who are reluctant to acknowledge that we have entered into an unprecedented period of human influence on the Earth — the Age of Humans, or Anthropocene — and that it is necessary to take radical actions to reverse disastrous environmental changes or else we will lose our homes. While to those on Heimaey that night in 1973 it was blindingly obvious that their relationship
with the Earth had changed, to me, at a little distance, it simply seemed surreal.