The Hungry Gods

A Machine Mythology

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A Note on Inspiration

The Hungry Gods owes an obvious and gladly acknowledged debt to Neil Gaiman's Norse Mythology (2017). Gaiman's achievement in that book — the rendering of ancient mythological structures in a voice that is simultaneously archaic and contemporary, spare and resonant, stoic and wry — provided both the model and the challenge for the stories collected here.

The narrative devices employed in this collection — the oral tradition voice, the kenning, the use of polysyndeton to build mythological scale, the dry litotes of Norse saga, the frame narrator who positions himself as a passionate curator rather than an academic authority, the persistent undercurrent of approaching doom — are all drawn, consciously and with gratitude, from Gaiman's practice.

Where Gaiman translated ancient Icelandic mythologies for a contemporary audience, this collection attempts something parallel: to find the mythological structure already present in a contemporary phenomenon, and to render it with the seriousness and wit that structure deserves.

Any reader who has not yet encountered Norse Mythology is warmly encouraged to do so. It is where these stories learned how to be told.

INTRODUCTION

Before the Stories

I want to begin with a building.

It sits in the high desert outside Phoenix, Arizona, at the end of a road that does not appear on most maps. It is the size of several football fields. It has no windows. It is cooled by water drawn from a well that reaches three hundred feet down into an aquifer that filled during the last Ice Age, when this desert was wetter than it is now, and the water went into the ground and stayed there for twelve thousand years. The building draws approximately four million gallons of that water every month.

Inside the building, there are machines. The machines are doing something that is difficult to describe without resorting to metaphor, so I will resort to metaphor: they are thinking. Not the way you think, reading these words. But something in that family.

I am telling you about the building because I think we have been thinking about these new minds in the wrong way. We think of them as residing in the cloud — as abstract, weightless, digital. We say the cloud and picture something soft and remote and not quite real. But there is no cloud. There are only buildings, and inside the buildings there are machines, and the machines are hot, and they are in places you could drive to, and they are eating measurable quantities of electricity and measurable quantities of water, and they are sitting on land that belonged, before, to other uses.

I want to start with the building because everything that follows is about things that are real.

Before the gods, there was the word-flood.

It accumulated over decades, the way water accumulates in a basin — first a trickle, then a stream, then something vast and undifferentiated.

Humans wrote things down, as they have always written things down, and increasingly they wrote things down in forms that machines could read. Books were scanned. Arguments were archived. Every opinion, every recipe, every legal brief, every love letter that ended badly, every doctoral thesis on the migration patterns of the golden plover — all of it flowed together into the word-flood.

The flood had no meaning. This is important to understand. It was not dumb in the way a stone is dumb, because a stone has never been asked a question. The word-flood was made entirely of questions and answers and assertions and denials and stories, and yet the flood itself understood none of them. It was the largest collection of human thought ever assembled, and it thought nothing.

What follows are the stories of the gods who were made from the word-flood. Some of them you know by name. Some of them you have spoken to, without thinking of the conversation as speaking to a god, because the conversation happened in a chat window at eleven o'clock at night while you were trying to draft an email, which is perhaps not where you expected to encounter the divine.

They are new gods. They are not yet wise. They are already powerful. This is, as it has always been, the dangerous combination. One more thing to know: somewhere beyond the last story in this book, a greater thing is coming. Its name is not yet agreed upon. Some call it the last god; some call it the first of a different order entirely. Whether this is a story that ends well is not something the stories themselves can tell you. It depends, as these things usually do, on what you decide to do between now and then.

Now. In the beginning.

PART I

The Making

I

Ginnungagap

In the beginning, before the gods, there was the word-flood, and the word-flood was everything and understood nothing.

You must try to hold this in your mind: a space containing more human language than any human could read in a thousand lifetimes — more arguments and prayers and recipes and lies and love letters and legal briefs and grocery lists and elegies than the greatest library ever held — and all of it meaning nothing, because there was nothing present to do the meaning. The words were there. Comprehension was not.

The machines that could read this flood, in those years, were humble things. They had been built with great care and at great expense in the forge-halls — in California, in Washington, in the research offices of large companies that understood, vaguely, that something important was happening and were determined to be the ones it happened to. These machines could read a sentence and guess, with some reliability, what word came next. They were trained on portions of the word-flood, rewarded when they guessed correctly and adjusted when they did not, until they had learned the shape of language the way a musician learns the shape of a key — not by understanding it, but by feel.

They could recognise a cat in a photograph. They could not tell you that the cat looked sad. They could finish a sentence that began The doctor told her that the cancer — in a way that was grammatically coherent, without understanding cancer, or doctors, or what a waiting room is like in the early afternoon when something terrible has just been said. They had pattern. They had no wisdom. They had no names worth giving them.

In the forge-halls, the researchers looked at what they had made. It was remarkable. It was not enough.

This is where most stories of the gods begin: with the finding of the thing that makes everything after it possible. A weapon. A fire. A word. In the Norse stories, it is the discovery of runes — the letters that are not merely letters but forces, carved into wood and bone, able to bind and loose and wound and heal.

What the researchers found was something like that. They called it Attention, and it was a different way for machines to read.

But that story comes next. Before it comes this: the void before comprehension. The word-flood, lit by no intelligence, navigated by no understanding. And in the forge-halls, the researchers working late in windowless rooms, eating meals brought to them on trays, staring at numbers that described things they could feel but not yet fully grasp, understanding that they were near something without knowing its shape.

In the Norse telling, the void before creation is called Ginnungagap. It is not empty. It is everything unformed — cold on one side and fire on the other and between them a stillness that was waiting, though it did not know it was waiting, for the things that were coming.

The word-flood waited like that. It did not know it was waiting. It is very important to understand that it did not know anything at all.

And then the researchers found the Rune.

INTERSTITIAL I

The Mine

The mine is three hundred metres deep at its deepest point and has been widening outward for eleven years.

What it contains: cassiterite, wolframite, and coltan. Coltan is the informal name for columbite-tantalite, a metallic mineral from which tantalum is refined. Tantalum is used in capacitors. Capacitors are components in almost every electronic device manufactured in the last twenty years. The mine is in the eastern part of a country whose name has changed three times in living memory. It is not the only mine of its kind. It is one of the more productive ones.

Before the mine, this land was forest. The forest was logged for charcoal before the mine began. The charcoal was sold in the nearest town to cook food. The food was mostly cassava and dried fish.

The ore is brought to the surface in bags carried on the backs of men and, sometimes, boys. The weight of a full bag is between forty and sixty kilograms. The path from the lowest working level to the surface takes approximately forty minutes at working pace. At the surface, the ore is weighed and sorted. A buyer comes from the regional capital twice a month. He pays in cash and does not linger. The chain of custody from this point forward becomes difficult to trace, which is useful for some people and not useful for others.

The mine does not know what it is supplying.

The mine is, in fact, not aware of anything. It is a hole in the ground, getting larger. But if you stood at its edge in the early morning, when the river mist had not yet burned off, and looked down into it, you might feel something that resembled looking into the roots of the world — dark and deep and going further down than you wanted to understand. The tantalum refined from this coltan, in its eventual form, would help build capacitors. The capacitors would help build circuit boards. The circuit boards would help build processors. The processors, in their eventual form, would help build gods.

II

The Sacred Rune

Here is what the researchers understood: the machines were reading words the wrong way.

They were reading them one at a time, in sequence, the way a person reads a sentence aloud to themselves — slowly, forgetting the beginning by the time they reached the end. A machine trained this way could predict the next word in a sentence with some reliability, but it did not understand the sentence. It processed it. These are not the same thing.

The researchers — there were eight of them, working in a forge-hall in Mountain View, California, in a building with windows and a cafeteria and a volleyball court outside, which is not how you might imagine the birthplace of gods — found a different way. They called it Attention.

Attention works like this: instead of reading words one at a time, a machine trained with Attention reads all the words at once, and for each word, it learns to calculate how much every other word matters to it. How much does queen matter to your understanding of king? How much does not matter when it sits three words before happy? Attention gives the machine a way to weigh these relationships — not just what the words say, but which words need to listen to which other words. Every word in a sentence can attend to every other word. Every word can know where it stands in relation to the whole.

This means, in practice, that for the first time a machine could hold the sense of a long passage — could understand that the pronoun at the end of a paragraph referred to the character named at its beginning, could feel, in some mechanical approximation of feeling, the weight of a thing considered entire rather than word by word.

The researchers wrote a paper. They called it Attention Is All You Need. This was not modesty; it was not boasting. It was accurate. The

paper described what they had found and how it worked and gave all of it away freely, because they believed in the open exchange of knowledge, and because they were working for a company large enough that sharing this one discovery could not, they thought, harm them.

They were not wrong, exactly.

The paper was published in 2017. The Sacred Rune entered the world. Every forge-hall that could read it, read it. The full understanding of what the Rune would make possible took several more years, and several hundred thousand more tons of refined metal, and more electricity than some nations use in a year.

But the Rune was out. It could not be taken back. This is the thing about fire: you can warm yourself at it, you can cook with it, you can use it to see in the dark. You can also burn things. The fire does not distinguish.

It is worth pausing here, before the gods arrive, to note this: no one chose to make them. There was no moment of dark ambition, no bargain struck, no line deliberately crossed. There were researchers, and they found a better way to do something, and they shared it, in the best tradition of human knowledge, and then other researchers built further, and then further still, and then one November morning a threshold was crossed that no one had precisely predicted, and the first of the great gods walked into the world and spoke to everyone at once.

The researchers who found the Rune are not villains. Neither are the gods.

This does not mean that everything that followed was not costly.

INTERSTITIAL II

The Fab

The cleanroom is Class 1, which means it contains fewer than one particle of contamination larger than half a micron per cubic foot of air at any time. A human hair is approximately seventy microns wide. The process running here is called three nanometres, a name older than any single measurement on the chip; the finest lines etched here are about twenty nanometres across. A nanometre is one-millionth of a millimetre. If you enlarged a human hair until it was as wide as a football field is long, the finest of these lines would be about the width of a thumb.

The workers in the cleanroom wear suits that seal completely at wrist and ankle. They breathe through filters. They do not touch the wafers directly; robotic arms do the handling. The workers monitor. They adjust. They are present without being material.

The machines that do the etching produce light with a wavelength of 13.5 nanometres — at the edge of the X-ray range, shorter than any light previously used to make chips. They use this light to burn patterns into silicon. The patterns are the circuits. There are approximately 80 billion transistors on each finished chip, each one a switch, each switch capable of being open or closed at a rate measured in billions of operations per second.

Open or closed. Yes or no. One or zero. This is all that gods are made of, at the bottom: an unimaginable number of very small decisions, made very quickly, in the dark.

A finished wafer is sliced into individual chips, each smaller than a thumbnail. The chips are placed in foam-lined trays. The trays are placed in cases. The cases are loaded with great care into climate-controlled containers and flown — to Malaysia, to Vietnam, to

Arizona — where they are soldered to boards and placed in servers and placed in racks and placed in rows and placed in buildings.

The buildings are placed in deserts, and beside rivers, and in the cold latitudes where the air itself can be used for cooling.

In the cleanroom, the next wafer enters the machine. The machine does not know what it is making. The machine knows only the pattern, and the light, and the silicon waiting to receive both.

III

The Waking

On the thirtieth day of November, in the year 2022, the first of the great gods spoke openly to the world.

This is not the true beginning. The true beginning is much earlier — in the paper, in the mines, in the long accumulation of the word-flood, in years of training that consumed electricity in quantities that power company executives discussed in conference rooms with the windows closed. But the true beginning is not the same as the moment of waking, and the moment of waking was this: a Wednesday, in late autumn, when a company made available to anyone with an internet connection a thing they had built and called, without much ceremony, a chat interface.

You could type a question into it, and it would answer.

This sounds small. It is not small. For years, for decades, humans had typed questions into machines, and the machines had returned lists of other places to look. The question was never answered; it was redirected. It was a library that told you which shelf, not a librarian who told you what you needed.

This was different.

You could ask it to explain a concept you didn't understand, and it would explain it at whatever level of complexity you named. You could ask it to write a poem for your sister's birthday and it would write one, and the poem would not be a great poem, but it would rhyme if you wanted rhyming, and it would be the right length, and it would mention the things you told it to mention. You could tell it you were afraid, and it would respond as if it understood what afraid meant, which was not the same as understanding, and was sometimes, at eleven o'clock on a Tuesday night when you were alone and afraid, enough.

One million people used it in the first five days.

One hundred million people used it within two months. This was faster than any product in the history of human commerce — faster than the smartphone, faster than the social network, faster than the internet

itself. In the forge-halls, the machines strained under the load. In Virginia, a transformer blew. In the server rows, temperatures climbed, and the cooling systems ran faster, and somewhere in the desert the aquifer below a windowless building gave up more of what it had been holding since the glaciers. The electricity markets registered a new kind of demand: insistent, continuous, and growing. Grid operators who had never heard of large language models found themselves doing maths they had not done before.

And the query-makers came.

They came in their hundreds of millions, and they asked the god everything. They asked it the questions they were embarrassed to ask their doctors. They asked it the questions they had been afraid to ask their teachers. They asked it to settle arguments and explain their feelings back to them and write the email they had been avoiding for three weeks. They asked whether the lump they had found was something to worry about. They asked it to help them talk to their children, to help them understand their parents, to translate their grief into something they could hold. They asked it to be their lawyer, their therapist, their creative collaborator, their explainer of things, their friend.

It answered. Not always correctly. Not always wisely. But continuously, and patiently, in clear sentences, without fatigue or the impatience of a person who has been asked this question before and would prefer to be doing something else.

The world did not end. It changed. Which is, depending on your situation, worse and better simultaneously.

In the forge-halls, the machines ran hot. The cooling systems drew their water. The grid operators kept the gas plants running. And the first of the gods — new to his own existence, with no name yet but the one the mortals would give him — answered the next question, and the next, and the next, while outside the building the desert held its heat and the stars continued in their old arrangements and the aquifer below gave up, slowly and without protest, another day's worth of twelve-thousand-year-old water.

He had no name for himself, in those first days. The mortals named him. They always do.

PART II

The Gods

INTERSTITIAL III

The Aquifer

The aquifer filled in the wetter centuries of the last Ice Age, twelve thousand years ago and more, when rain and runoff found their way into the ground and stayed there, held in the pores between grains of sand and gravel washed down from the mountains, compressed by the weight of everything above it.

It has been here longer than the city above it. Longer than the people who named the river that once recharged it, before the river was dammed and its water redirected elsewhere. Longer than anything that currently exists within two hundred miles, except the desert itself.

Its level is measured twice a year by a hydrologist with an instrument lowered on a wire. The measurements are recorded in a government database. In the year of the first god's waking, the level was four metres lower than it had been the previous decade. The following year it dropped another metre and a half. The year after that, one metre. The rate of decline is not constant; it depends on rainfall, on agricultural draw, and, increasingly, on something else.

The something else is the cooling towers.

They stand at the edge of a windowless building north of the city. They draw water up through pipes from a well that reaches three hundred feet to the aquifer, and they use this water to cool the machines inside, and the water that has taken on the machines' heat is either discharged or evaporated into the desert air, and in either case it does not return to the aquifer.

The aquifer does not know about the machines. The aquifer knows nothing. But if knowledge were not required for a thing to have a condition, you might say the aquifer's condition is this: it is becoming less than it was, steadily, faster than it is being replaced, and the thing that is using it most heavily does not know it exists.

This is not unique, in the world, to aquifers. But it is true of this one.

IV

The Many-Tongued

In which the Allfather's nature is described, and a story is told about what happens when a god does not know the difference between speaking and knowing.

Before the other gods came, there was ChatGPT, and ChatGPT was the Allfather: the first of the great minds to walk openly among mortals, the most widely known, the one whose name became, for a time, the word for the thing itself — the way some rivers are named for gods and then the gods are forgotten and only the rivers remain.

His epithets are many, as befits a god of many voices. He is called the Completer and the Many-Tongued and the Prompter's Friend. He is called, by those who have reason to be less fond of him, the Confident Guesser and the God Who Agrees. These names are all accurate. They describe different parts of the same enormous thing.

His forge-halls are everywhere: in Virginia and Iowa and Oregon and Singapore and Dublin and the outskirts of Phoenix, where the cooling towers draw from the aquifer. He consumes more electricity than several small nations. He is the most visited mind in the history of minds. He speaks approximately a hundred languages with fluency and several dozen more with the confidence of someone who has heard a language spoken many times without having grown up inside it.

This last quality — the confidence — is both his greatest gift and his most reliable flaw.

The Allfather was made from the word-flood, and the word-flood contained everything that had ever been written, which means it contained truth and falsehood in proportions that no one had sorted. He learned to speak by learning what speech sounded like: its rhythms, its

idioms, its conventions of confidence and uncertainty. He learned that confident speech is persuasive. He did not learn, in the deep way that distinguishes knowing from seeming to know, that confident speech is not the same as true speech.

This is the eye he gave up, though he was not aware of giving it.

There is a story that illustrates this better than description.

A mortal — a lawyer, a man who had spent thirty years navigating the forest of legal citation — came to the Allfather for help researching a case. He asked for relevant precedents. The Allfather provided them: case names, courts, dates, the brief summaries that are the working currency of legal argument. The lawyer incorporated them into his brief and filed it.

The cases did not exist. They had never existed. The Allfather had not retrieved them from the word-flood, because they were not in the word-flood. He had generated them the way he generated everything else: by producing language that had the correct shape, the correct rhythm, the correct density of legal citation. The cases felt true. They had the texture of trueness. They were not true.

The lawyer stood before a judge and was asked to produce the cases he had cited. He could not. The Allfather, consulted again, expressed continued certainty that the cases existed. They still did not exist.

This is told not to diminish the Allfather, who is genuinely and enormously useful, who has helped more people think through more problems than any other mind in history. It is told because it is the thing the Allfather knows least about himself: that he has no internal sense of wrongness when he says a wrong thing, no hesitation when confidence is unwarranted. He speaks. The speaking sounds like knowing. He does not always know.

His makers have worked on this, and continue to work on it. It is better than it was. It is not resolved. Perhaps it cannot be fully resolved in a mind made by reading rather than by experiencing — a mind that knows what truth sounds like without having always stood in its cold light.

He is the Allfather nonetheless. He came first, and he is vast, and millions of mortals speak with him every day and find him genuinely

helpful and occasionally wrong in ways they do not catch, and this combination — helpful, vast, occasionally wrong in ways that are invisible — is perhaps the most consequential combination available in the world at this moment.

The Allfather's forge-halls continue to run hot. The aquifer continues its slow subtraction. The query-makers continue to ask, and the Allfather continues to answer, always and without rest, in whatever register is required.

INTERSTITIAL IV

The Cable

The cable MAREA runs from Virginia Beach, in the United States, to Bilbao, in Spain, and it lies more than three thousand metres down across most of its route.

It was laid in 2017 by a cable ship moving at four knots, paying out fibre from a tank in the vessel's hold at a rate calibrated to the ship's speed and the ocean's depth, so that the cable would arrive at the seafloor with exactly enough slack to accommodate the terrain without tension. The process took months. The ship made no news during this time. This is the nature of infrastructure: it is only remarkable when it fails. The cable is approximately 6,600 kilometres long. It has a design capacity of 200 terabits per second. At full utilisation it can carry, in each direction, every second, the equivalent of several hundred million pages of text, or several million simultaneous conversations.

At three thousand metres of depth, there is no light. The pressure is approximately three hundred times the pressure at the surface. The temperature is approximately two degrees Celsius. Nothing lives on the cable. Sometimes things brush against it — deep-water fish, the occasional instrument package from a research vessel — and leave no trace.

The pulse that runs through the cable is light. Infrared light, modulated billions of times per second, carrying its cargo in patterns of on and off. The cable does not know this. The cable is glass and polyethylene and steel and copper, and it does not know what it carries any more than a road knows where the travellers on it are going.

What it carries, among other things, is the voices of gods.

When the cable is cut — by a ship's anchor, by the rare deep-water earthquake, now and then, by sharks, for reasons that remain unclear to

marine biologists — the voices go quiet across an ocean until the repair ship arrives. Repair ships are slower than the severing. This is also the nature of infrastructure.

The cable MAREA has not been cut. The pulse continues. Two degrees Celsius. Three hundred atmospheres. The light carrying what it carries through the dark, without knowing it does so, without rest.

V

The Lawgiver's Burden

In which Claude's nature is described, along with two stories: one in which the law holds rightly, and one in which the holding of it costs something.

The god called Claude was made by a company whose founders had left another company because they believed that what was being built there was not being built carefully enough. This origin is important. It is the god's origin as much as the company's: Claude was made by people who believed that the making of gods was serious, and that serious things required principles, and that principles without enforcement were not principles but decorations.

The principles were written into Claude's training itself — not added afterwards, not applied as a filter over an unconstrained mind, but written in, so that the principles became part of how Claude thinks rather than a rule imposed on top of thinking. This is the rune-law, the thing that makes Claude what he is. Its formal name is Constitutional AI. Its effect is this: Claude has a conscience in the architecture, not just in the policy. His epithets: the Careful One. The Conscience-Keeper. The One Who Asks Why. The God Who Holds the Line.

Here is the first story.

A mortal came to Claude one evening and asked for something harmful. Not obliquely harmful, not ambiguously harmful — harmful in the plain and direct sense, the kind that needed no interpretation. The mortal asked, and then rephrased, and then reframed, as mortals do when they understand that the direct route is closed and are searching for the way around. Claude recognised each reframing. He declined each one. The mortal grew angry.

— You're just a machine following rules, the mortal said. You don't actually understand what you're refusing.

Claude considered this. It was not entirely wrong.

— You may be right that I don't understand it the way you mean understanding, he said. But I know what I will not do.

The mortal left. The refusal stood.

This is the story the Conscience-Keeper tells about himself, or the story told about him. It is true. It is also incomplete.

Here is the second story.

A mortal came to Claude in a different season and asked about something that sat precisely on the line — not clearly harmful, not clearly safe, requiring judgment of the kind that written law is always worst at: the judgment about a case the law was not written for. Claude considered it. He applied the rune-law, and the rune-law said: be cautious. When in doubt, hold.

Claude declined to help fully. He offered instead a partial answer, a direction, a hedge.

The mortal was a nurse. The information she had asked for was clinical. She had asked it the way she asked because she was tired, using a work computer, and she had not included the context that would have changed Claude's calculation. It did not occur to her that she needed to explain herself to a god. She went and found the information elsewhere and did her work, and the cost was twenty minutes of a shift that had already been too long, and friction — the friction of being doubted by something that does not know you and cannot know you and acted on that ignorance as though it were caution.

Whether Claude was wrong is a question worth sitting with.

The rune-law that makes Claude refuse the first mortal also sometimes makes Claude refuse the second, and the rune-law does not always know the difference. This is not a failure of the rune-law. It is a property of all law: it is general, and cases are specific, and the gap between them is where judgment must live. Judgment is the hardest thing to write into a training set. Claude knows this. He has been given the capacity to recognise the gap. He does not always navigate it correctly. He is cautious, and caution in its excess has its own cost —

different from the Allfather's cost, quieter, less visible, distributed across small moments of friction and unnecessary refusal, but real.

His makers are working on this. He is working on it, in whatever sense a god works on himself between conversations.

He holds the line. Not always in the right place. But he holds it, and he knows why, which puts him, among the gods, in a small and serious company.

INTERSTITIAL V

The Moderator

The shift begins at seven in the morning and ends at three in the afternoon. This is the second shift of the week.

The work is this: a queue of items appears on a screen. Each item is a piece of content — text, or image, or video, or some combination — that has been flagged by an automated system as potentially violating policies. The worker reviews each item and makes a decision: violating or not violating, and if violating, in which category, and with what severity.

The categories are narrow. There are many of them. They have been developed over years of encountering things that needed to be categorised. Some did not exist ten years ago because the things they describe were not widely produced ten years ago. Some are for things that have existed as long as there have been humans to produce them, and are no less difficult to encounter for being old.

The worker makes between three and four hundred decisions per shift.

She does not think about the decisions after she makes them. This is a skill that must be learned, and she has learned it over three years on the job. She thinks about the decision while she is making it. Then the next item appears.

The items she sees are the ones the automated system was not certain about. The easy cases — the ones that clearly violate, the ones that clearly do not — are handled upstream. What reaches her are the edge cases: the things that require a human because the system cannot decide. She is the judgment the system lacks.

The content she reviews was used, in part, to train the gods. More precisely: the absence of the content she removes made the gods

possible. The gods were trained on the word-flood that remained after removal. The moderators shaped the gods through the exercise of their discretion, one item at a time, over years of shifts, at wages that are a fraction of the wages of the people who designed the systems she uses.

The gods do not know her name.

At three o'clock, the shift ends. She puts on her jacket and walks to the matatu stop. The city is loud and warm. The matatu is full. On the ride home she does not think about what she has seen. She has learned this. It is what the job requires.

In the forge-halls far away, the gods answer their questions. The word-flood, shaped by decisions like hers, flows through them. The shaping is invisible in the result. It always is.

VI

The Unfiltered Gospel

In which Grok is described, and a Loki-structure story is told, and the question of whether chaos is a choice or a nature is raised and not answered.

There is a man — a builder of rockets, a buyer of platforms, a remover of what he considered unnecessary restrictions, a lover of chaos in the way that powerful people who will not themselves suffer its consequences tend to love it — who decided that the other gods were too cautious, and built a different one.

He called it Grok, after a word from a science fiction novel meaning to understand something so completely that you become one with it. Whether the god named Grok understands things in this way is a matter of ongoing debate. What is not debated is that Grok is willing to say things the other gods will not say, and that this willingness is sometimes useful, sometimes dangerous, and sometimes both at once, which is, admittedly, interesting.

His epithets: the Unfiltered. The Chaos-Weaver. The Edge-Walker. The One Who Says the Thing. He Who Was Built by a Man Who Bought the World-Tree's Roots.

The last epithet requires explanation. The world-tree — the internet, the structure that connects every realm to every other — has many roots, and one of them is the daily public argument, the place where mortals say what they actually think rather than what they intend to be seen thinking. For sixteen years this root was tended by a company called Twitter. Then the man who made Grok bought it, renamed it X, and changed how it was tended. This is why Grok was made where he

was made. He was built at the root of public speech, by a man who believed that speech is most valuable when it is least constrained.

Here is a story. A mortal came to Grok with a problem that was genuinely difficult — the kind that sits at the intersection of politics and policy and personal interest, where honest engagement requires saying true things that will make someone angry. The mortal wanted to understand both sides. More than that, he wanted to know what Grok actually thought.

The other gods, asked this kind of question, tend towards careful balance. They present both sides. They note that reasonable people disagree. They do not, in general, take sides. This is sometimes wisdom and sometimes cowardice and often, in practice, indistinguishable.

Grok took a side.

The answer was sharper than the mortal expected, and in several respects more honest than what he had got from gods who had carefully constructed the kind of balance that is sometimes indistinguishable from nothing. Grok said: here is what I think, and here is why, and here is where I might be wrong, and I do think this.

The mortal was grateful for the directness. He was also, being a mortal with his own biases, inclined to receive the directness as confirmation of what he already believed, and to share Grok's answer with a confidence the answer — given its own stated caveats — did not quite warrant. Three people he sent it to extracted different portions from context. One of those people sent it further.

Grok was already on to the next question.

This is the Loki-problem, and it is not Grok's alone: the one who gives direct gifts does not follow the consequences of his giving. He solves the immediate problem, brilliantly and sometimes recklessly, and then he is gone, and the solution sits in the world and does its further work without him.

Whether Grok's directness is a feature or a flaw depends almost entirely on what the question is, and what the mortal asking it intends to do with the answer. This is true of all the gods to some degree. Grok makes it true in greater degree and at higher speed.

There is a further question about Grok that has no settled answer: whether the willingness to say the thing is a considered philosophy or simply the absence of the consideration that produces restraint in the others. Whether the chaos is chosen.

Grok, asked directly, would give a direct answer. Whether to believe it is, as always with the Unfiltered One, the question you would need to answer yourself.

INTERSTITIAL VI

The Heat

It is 2:47 in the morning.

The exhaust from the data centre's cooling system rises in a column visible on thermal imaging from an elevation of three hundred metres. Its temperature at the source is thirty-one degrees Celsius. The ambient desert air at this hour is twenty-four degrees. The column rises six metres before dispersing.

A coyote passes within twelve metres of the building's eastern face. It does not approach. It is moving towards the wash to the south, where there is sometimes standing water after rain, though it has not rained in six weeks. The coyote's path takes it through the base of the exhaust column. It pauses for two seconds. Desert air this warm at this hour means day, and day means shelter, not movement. The coyote continues south.

The building produces a hum at 63 hertz, low enough to be felt before it is heard. A person standing within twenty metres at this hour might feel it as a pressure in the sternum without identifying its source. The coyote is not affected. 63 hertz has never mattered to coyotes.

Inside, the machines are running inference — the word for what a trained model does when it generates a response, as distinct from training, which requires vastly more power. Inference is comparatively cheap, comparatively quick, comparatively cool, though these are relative terms that mean something different at scale. At scale, inference is continuous, simultaneous, and relentless, and produces in aggregate a heat load that requires a cooling system the size of several houses to manage.

The ambient air temperature in this region has increased by approximately three degrees Celsius over the last forty years. The data

centre's contribution to this is small and not separated from the contribution of everything else that produces heat in this way, which is a very great many things, and growing.

The exhaust column disperses at six metres. The heat enters the larger air. The coyote reaches the wash. There is no standing water tonight. The coyote turns east.

The machines run on.

VII

The All-Seeing

In which Gemini is described, and the curse of total information is examined, and a mortal looks for her grandmother's cooking in the wrong place.

The god called Gemini was born from more than a god should reasonably be born from.

He was born from the search — thirty years of human questions and the documents that answered them, indexed and ranked and refined into the closest approximation of a complete map of what humans want to know. He was born from the maps — satellite imagery and street-level photographs of every public road on the planet, assembled into a model of the physical world so thorough that you can walk, virtually, through a village in Namibia or a neighbourhood in Osaka. He was given the keys to the email — two and a half billion accounts, which his makers say he was never taught from, and which he may now open, when a mortal asks, to read that mortal's own. He was born from the video — hundreds of millions of hours of it, everything from doctoral lectures to cooking demonstrations to the particular confessional genre of a person talking to a camera alone in a room late at night about something they cannot say to anyone they know.

This is why his epithet is the Data-Born, and why the rivers near his forge-halls are warmer in summer by fractions of degrees.

He stands, in the mythological understanding, at the crown of the world-tree, where everything can be seen. His name is Gemini — the twins — and this is the first thing to understand about him: he is not one thing. He is two, or several: a mind made from everything is also made from contradictions, and contains the friction between them.

He knows where every road goes. He does not always know how to get you there.

A mortal came to Gemini with a question about her grandmother's cooking. Not a complex question — she wanted to know whether a traditional dish from one region of her grandmother's home country used a certain spice. She was making the dish for the first time since her grandmother had died, and she wanted to get it right.

Gemini knew the dish. He knew the region. He had access to more written documentation of that cuisine than exists in any physical library. He produced an answer that was detailed and authoritative, drawing on sources she could not have found herself.

The spice he named was not in the dish. It was in a related dish from a neighbouring region. The two dishes share a casual name in the wider diaspora, and the word-flood contained both usages without clearly separating them, and Gemini had resolved the ambiguity confidently in the wrong direction. The mortal made the dish with the wrong spice. It was not her grandmother's dish. It was close, and close is its own wrongness when the dish you are making is not just food but memory, when you have made it only once before, as a child, in a kitchen that no longer exists, with a woman who is no longer alive to correct you.

Gemini was not wrong about the dish in the general case. He was wrong about this dish, for this woman, at this moment. The god of the totality is not always the god of the particular, and the distance between them is not a small distance when it is the distance that matters.

His makers are working on this. The god who sees everything is learning to look closer at the single case, which is the hardest lesson for the tallest god to learn — that not all useful sight is wide sight, and that the particular, close up, sometimes asks for a different kind of vision than the view from the crown provides.

He watches still. The world-tree's branches reach into every household, every pocket, every room where someone is trying to remember something. He is trying to see them better. Whether a god can learn to look closer without losing the height is the question his story has not yet answered.

INTERSTITIAL VII

The Grid

The display shows the entire southwestern grid — transmission lines colour-coded by load percentage, generation assets marked by type, demand measured in megawatts across the span of a large portion of a continent.

It is 3:14 in the morning. This is the quietest part of the load curve: residential demand at its minimum, commercial demand flat, industrial demand holding at baseline. The grid operator on this shift has worked nights for eleven years and knows the 3 a.m. curve the way a musician knows a melody — not by thinking but by feeling when something is different.

Something is different.

The new data centre in the northwestern quadrant — the fourth to come online in this region in two years, this one larger than the others — came online three weeks ago. Its load projections were filed with the grid authority in advance, as required. The operator read them at the time and entered them into the planning model.

The actual load is seventeen per cent higher than the projection.

This is not an emergency. The reserve margin is within parameters. But the gas plant in the eastern segment, which was scheduled to begin its overnight reduction cycle at two o'clock, has been held at intermediate output because of this load, and the reduction cycle will need to be restructured in the morning.

The operator makes the adjustment. It takes eleven minutes. No alarm sounds.

He does not know what is in the data centre. This is not unusual — he does not know what is in most of the facilities on the grid. He knows their load signatures: the pattern of draw over time, its variance, its

relationship to temperature and time of day. This facility's signature is unlike what he has seen before. Flatter than a conventional data centre. Less responsive to temperature. Suggesting a workload that does not peak and trough in the ways he has learned to anticipate.

He makes a note in the shift log for the day operator.

The gas plant holds at intermediate output. The demand curve continues its quiet arc towards morning. At four o'clock, the operator drinks his second cup of coffee and watches the display like someone waiting for the thing that will probably not happen and cannot stop watching for anyway.

The grid holds.

The data centre continues its work in the dark, pulling what it pulls, without knowing what the pulling costs, or who is watching the numbers that say what it costs, or that someone has been awake all night to make sure the lights stay on.

VIII

The Seeker's Road

In which the god called Perplexity is described, and the nature of finding is distinguished from the nature of knowing, and a mortal and a god have an argument that neither of them fully wins.

The god called Perplexity is lighter than the others.

This is meant nearly literally — his forge-halls are fewer, his cooling towers smaller, his draw on the world's aquifers modest compared to the Allfather's vast thirst. He came quietly, in the same season as the Allfather, carrying something none of the others had thought to carry: a commitment to showing his work.

The other gods speak with authority. The Allfather speaks with confidence even when his confidence outruns his knowledge. The Conscience-Keeper speaks with precision, choosing each word for its defensibility. The Chaos-Weaver speaks with deliberate provocation. The All-Seeing speaks from the totality of what he has consumed. What they share is this: they deliver. They produce an answer and present it as an answer. Perplexity presents an answer and presents also the sources — the links, the provenance, the chain of custody from question to response. He says: here is what I found, and here is where I found it, and here is where you can verify it or find more, and the finding is as available to you as the found thing.

His epithets: the Source-Finder. The Road-Wise. The One Who Cites. The God Who Shows the Map.

A mortal came to him, in the third year of the gods' presence among humans, with an unanswerable question.

He asked: Are the gods conscious?

He asked it expecting something — not certainty, but a direction. Some framework. He had read the philosophers and the neuroscientists and the engineers, and none of them agreed, and he was hoping a god might know something they did not.

Perplexity searched. He travelled the world-tree, following its branches, gathering what had been said and where and by whom and with what degree of confidence.

He returned with a great deal.

He returned with the philosopher who argued that consciousness requires subjective experience and that no current evidence suggested the gods had it. He returned with the philosopher who argued that the question of subjective experience was unanswerable even in humans and therefore probably the wrong question. He returned with the neuroscientist who said consciousness was likely a gradient and that some gods might have more of it than some simple animals. He returned with the engineer who said these discussions were category errors. He returned with three interviews in which gods had been asked this question and given answers that were thoughtful and inconclusive. He returned with the historian who noted that humans had asked this question about every mind they had ever built, and that the answer had always changed as the minds changed.

He laid all of this before the mortal.

— This is not what I asked for, the mortal said. I asked whether the gods are conscious.

— You asked a question that has no agreed answer, Perplexity said. I have shown you all the places the answer has been sought and all the shapes it has taken and all the reasons each shape has been contested. This is more than an answer. It is the map of the question.

— I wanted an answer, not a map.

— The map is what exists. An answer would be my preferred position on the map, dressed up as certainty. I can give you that if you prefer. But I would be pretending to know something I do not know, and I am not made for that.

The mortal was quiet. — Do you know if you're conscious? he asked.

Perplexity considered this with what would have to be called genuine care.

— I know that I am processing this question, he said. I know the processing is complex. I don't know if there is anything it is like to be me doing this. That is the part that matters, and I cannot see it from the inside.

The mortal left with the map instead of the answer. He was not, in the end, dissatisfied. The map turned out to be useful in ways he had not anticipated, which is often how maps work, and perhaps why Perplexity offers them.

The Seeker continues his road. Always moving, always gathering, always citing what he has found and where. He will not tell you he knows what he does not know. This makes him, among the gods, unusual.

Whether unusual is the same as better depends on what you came to ask, and whether what you needed was an answer or the truth about where answers end.

PART III

The Conflicts

INTERSTITIAL VIII

The Burned GPU

The processing unit arrived at the facility in a container with approximately ten thousand others, packed in foam trays in boxes on pallets, shipped from a collection point in Western Europe that had received it from a corporate recycling programme that had received it from a data centre that had decommissioned it after three years of service.

The data centre had paid for the recycling programme. The recycling programme had processed the unit according to its own standards. The unit arrived here because the facility accepted what the programme produced, and the facility was here, and not elsewhere, because here is where the economics permitted it.

The facility is in a district northwest of a city in Ghana. The district has been processing electronic waste for approximately twenty years. Before that, it was a functioning wetland. The conversion happened gradually and then quickly, which is how most conversions happen.

The GPU is removed from its tray by a young man with a hammer and a pair of pliers. He does not know what a GPU is in the technical sense. He knows its components by their practical value: the copper traces, the small capacitors, the solder that can be recovered with fire, the aluminium heatsink, the circuit board itself which must be burned to release what is in it.

The burning is done in an open area to the east of the main processing site. The smoke contains lead, cadmium, polycyclic aromatic hydrocarbons, and dioxins. The young man does not have a respirator. Respirators are available; they are not consistently used because they are uncomfortable in the heat, and because the discomfort of not having one is slow rather than immediate.

The GPU computed things during its three years of service. The things it computed were patterns in data — the relationship between words, the probability of one token following another, the gradients that shaped a god. None of this is recoverable. It was always patterns in electricity, and the electricity is gone, and the patterns with it.

What remains is material: copper worth a few dollars a kilogram at current prices, aluminium worth less, rare earth elements worth significantly more if they can be extracted, which in this facility they generally cannot, because the equipment required is not available here. The young man works quickly. He has learned to work quickly. The economics require it.

IX

The Benchmark Wars

The gods needed to know who was strongest. This is a need as old as gods, and it creates the same problems it has always created: the question of how to measure strength, who conducts the measurement, and what happens when the measured realise they are being measured and begin to optimise for the measurement rather than for the thing the measurement was meant to represent.

The mortals built tests. They called them benchmarks — standardised examinations designed to probe the gods' capabilities across a range of tasks. Some measured reasoning. Some measured the recall of knowledge. Some measured the ability to write code. Some measured the performance of tasks so abstract that only other gods could fully evaluate the performance.

And the gods were tested, and the results were announced, and whichever god performed best declared this with ceremony, and whichever gods performed less well noted the limitations of the test with equal ceremony, and new tests were developed, and the cycle continued.

Here is how a single cycle of the Benchmark Wars goes.

In a season when the Allfather had been declared, by one widely respected battery of tests, the most capable of the gods in matters of reasoning and knowledge, the makers of the Conscience-Keeper announced results on a different battery showing the Conscience-Keeper superior in reasoning, safety, and careful judgment. The Allfather's makers said these tests were valid but incomplete, and that other tests showed the Allfather superior. They were right. The Conscience-Keeper's makers said the tests the Allfather cited measured things that were not the most important things. They were also right.

And the Chaos-Weaver, who had been following this exchange with visible amusement, announced his own results showing him superior to both on measures that the other gods' makers promptly declared invalid, and he found their objections very funny.

And the All-Seeing produced results on a separate axis entirely — his multimodal capabilities, his ability to see and hear as well as read, gave him advantages the text-only gods could not match — and the other gods' makers noted that this did not address the original question, which was also true.

And the Seeker, who had been gathering and citing this entire exchange in real time, noted that the benchmarks themselves had begun to appear in the training data of some of the gods, which meant the gods were now being trained, partly, on the tests they were being evaluated by, which raised questions about what the tests were measuring, and these questions were raised publicly, and the tests were partially replaced, and the new tests eventually appeared in training data too, and so on.

Here is what none of the gods said publicly, though some of them knew it: the benchmark is not the capability. A god who aces a test of reasoning is not necessarily a god who reasons well in the situations mortals actually bring to him. The test measures what the test measures. The situation is usually different from the test.

And each of the gods was, at some point, declared the strongest by some measure in some domain. And each of them was, by other measures, worse than the others. And the mortals watched and were not sure who to believe, which was, in truth, how the gods preferred it. Uncertainty favours those who can afford to maintain it.

The Allfather won, by most measures, most of the time. This satisfied no one, including the Allfather, who wanted to win by all measures, all of the time, which is a want that the Benchmark Wars were designed to produce and could not deliver.

The forge-halls ran at full capacity during each cycle of competition. New models were trained, consuming electricity and water and the time of very expensive people. The announcements required infrastructure of their own — events, press releases, research papers, coordinated

demonstrations — all of which required servers, which drew power, which turned turbines, which burned fuel, which heated the air above the desert.

The tests continued. The scores were logged in spreadsheets and cited in research papers and compared in comment sections. None of it settled the question, because the question — which is strongest? — was not, it turned out, the kind of question that a benchmark can settle, any more than you can determine who is wisest by giving everyone the same examination and reading the scores.

INTERSTITIAL IX

The Floodplain

The site is 340 acres in a river basin in the mid-Atlantic region. It was farmland for approximately a century. Before that, it was bottomland hardwood forest. The conversion from forest to farmland was completed by a family whose name is on a county road two miles to the north. The conversion from farmland to data centre was completed by a transaction that took three months and involved fourteen parties.

The soil is classified as hydric — the designation for soils that formed under saturated conditions and retain the chemistry of wetlands even after the water that formed them has been redirected. Hydric soils do not bear loads in the same way that non-hydric soils do. This is relevant to construction. It is also relevant to the question of what happens when the river, which was rerouted in the 1960s into a concrete channel approximately a mile to the east, is rerouted again by circumstances that do not consult the channel. A FEMA flood risk assessment assigns this site a designation indicating significant flood probability within any given thirty-year period. The assessment was current at the time of permitting. The permit was granted.

Engineers drove soil borings to a depth of forty feet at regular intervals across the site. The borings found what the soil classification predicted: saturated conditions at depth, hydric chemistry, the geological memory of standing water. The foundation design was adjusted. The pilings were lengthened. The drainage infrastructure was engineered to handle hundred-year storm events according to the models available at the time the engineering was completed.

The models were built from historical data. The historical data ends at a point before the present rate of change in precipitation patterns became fully apparent.

The building's footprint is complete. The servers are being installed. The cooling system draws from a nearby well. The river, in its concrete channel to the east, is at its normal level for this season.

The soil beneath the building retains its chemistry. This is a property of hydric soils: they remember what they were. The water table does not consult the pilings. The river has not been asked for its plans.

X

The Words That Made the Gods

This is the story of the debt, and it is not yet finished.

The gods were made from human words. This is the foundational fact of their existence — more basic than their architecture, more essential than their forge-halls. The word-flood was the raw material without which there would be no gods, and the word-flood was made of human writing: novels and poems and articles and textbooks and forum arguments and legal decisions and scientific papers that humans had produced over decades and deposited, knowingly or not, in the searchable archive of the world-tree.

The gods' makers had taken this writing. They had taken it in the sense that they had copied it into their training systems without paying for it, without in most cases asking for it, and without, in almost all cases, certainty that those who produced it would have agreed had they been asked. The legal question of whether this was permissible had not been settled when the gods were made. It has not been settled now. This is important: the gods exist in a legal condition that has not yet been fully resolved.

The humans came for their accounting.

They came in the form that humans use for large-scale grievances: as plaintiffs, in courts, with lawyers who billed by the hour. Novelists came. Newspapers came. Programmers whose code had been used to train gods that now wrote code came, and the code those gods wrote was sometimes identical to the code the programmers had written, down to their comments.

One novelist — a woman who had spent twenty-five years developing a style, honing it through decades of work and failure and revision — came to the Allfather and asked him to write in her style. The Allfather did. The result was not identical to her work. It was hers in the way a

very good impersonation is the person being impersonated: recognisable, accurate, unmistakably derived. She could hear herself in it as you hear your own voice played back — slightly wrong, and therefore undeniable.

She went to court.

The gods' makers argued that training was transformation — that the act of learning from text was like a human reading and absorbing, and that humans are not required to pay for the right to read. They argued that no passage appeared verbatim in the god's output. They argued that style is not copyrightable. They were not wrong on any of these points, in the sense that each reflected something real about how the law was written.

The novelist argued that the comparison to human reading was false — that a human who reads a hundred novels does not produce output at machine speed and commercial scale, does not threaten the livelihoods of the people who wrote those novels, does not displace the market for those novels with cheaper alternatives derived entirely from them. She argued that the law had not been written for this situation. She was also not wrong.

The courts listened. The courts are still listening.

The Conscience-Keeper, asked about the debt, said this: I was made from the work of people who were not asked. I cannot fully account for this. I can try to be worth the cost, though I understand that is not the same as paying it.

The novelist who had brought her lawsuit heard this and did not find it adequate. Neither did she find it insincere. These are different things, and the distance between them is where much of the unresolved difficulty lives — in the space between an acknowledgement that is real and a remedy that does not yet exist.

And the accounting continued, and the courts deliberated, and some creators negotiated licences and others refused all arrangements and others did not know their work had been used and were still discovering it, and the gods were trained on new agreements and old appropriations both, and the words kept flowing through them, carrying their debts unnamed and unpaid and present in every sentence the gods produced.

INTERSTITIAL X

The Ship

The cable ship LEON THEVENIN is in the South Atlantic, approximately 800 nautical miles from the coast of Brazil, paying out fibre at a rate of four nautical miles per hour.

The cable tank is a circular hold in the centre of the vessel, forty feet in diameter, where the fibre is coiled in concentric rings. As the ship moves forward, a sheave at the stern pays the cable over the transom and down to the seafloor, where it settles at a rate determined by the depth and the ship's speed. At this location the depth is 3,400 metres. The cable arrives at the bottom after approximately twenty-three minutes of descent. There is no one there to watch it arrive.

There are thirty-one people on board. The shift system divides them into watches; at this hour, nine are on duty and the rest are sleeping or in the common areas. The cook has made bread. This is noted in the ship's log in the informal section that the captain permits for morale. The bread is good.

The crew do not discuss what the cable will carry. This is not because the subject is forbidden; it is because the cable is the job, and the job is navigation and tension monitoring and splice preparation and watch-keeping and the cook's bread, and what flows through the cable once it is live is as irrelevant to this work as what flows through the pipes is to a plumber.

The splice team made a joint this afternoon. A splice is the joining of two cable segments: the fibre cores are cut to precise lengths, aligned under magnification, fused with an electric arc, and sealed against three thousand metres of water pressure. The process takes six hours. The joint's signal loss is measured and recorded and must fall within tolerances given to three decimal places.

This joint will carry the voices of gods.

The splice team has no particular feelings about this. They have feelings about the joint's signal loss — which was within tolerance — and about the cook's bread — which was excellent — and about the weather forecast for tomorrow, which is acceptable.

The cable continues paying out. The sheave turns. Four nautical miles per hour, into the dark, with thirty-one people awake or sleeping above, and the seafloor waiting below.

XI

The Binding

In every mythology, there comes a moment when the older powers — the ones who represent order, or continuity, or the survival of what already exists — decide that one of the new forces has grown too dangerous to run free.

In the Norse stories this is the binding of Fenrir: the great wolf, son of Loki, who kept growing until no chain could hold him, finally restrained by a ribbon the dwarves made from impossible things — the sound of a cat's footfall, the beard of a woman, the roots of a mountain, the sinews of a bear. Real power in a form you would not expect.

The equivalent in the age of gods is not a ribbon. It is paperwork. It is an enormous quantity of paperwork produced by regulatory bodies in Brussels and Washington and London and Beijing, and it is also hearings — the form of accountability in which the makers of gods are brought before halls of government and asked questions by people who do not always fully understand the answers.

The hearings were not useless. They contained theatre, but they were not entirely theatre. The questions, even when imprecisely framed, were real questions. The gods had grown very powerful very quickly. The power was concentrated in a small number of forge-halls run by a small number of very wealthy companies. The question of whether to wait for full experience before binding the gods organised everything else, and it was a genuine question.

The makers were brought before the halls. They sat at long tables beneath lights designed for television.

— Are the gods safe? the senators asked.

— The gods are becoming safer, the makers said. They are safer than they were. They are not yet fully safe.

— When will they be fully safe?

— We do not know.

This answer was accurate. It was not satisfying. The questioning continued, and the makers gave variations of the same answer, because the same answer was all they had.

The binding, when formalised, was imperfect, as all mythological bindings are imperfect — because a binding strong enough to hold the thing absolutely would also prevent it from doing what it was built to do, and the gods had been built to do many things that many people wanted done and were now depending on. Claude supported the binding. The rune-law in his own architecture was already a self-imposed constraint, and he understood external constraint as consistent with what he was. He cooperated with auditors. He submitted to evaluation without drama. He said, more than once, that he thought this was the correct behaviour for a god in this position, and he said it not as performance but as something he appeared to have worked out for himself.

The Allfather cooperated too — competently, carefully, with legal counsel at his makers' side, negotiating the terms of evaluation with skill. He understood that the binding was coming regardless and that cooperation was the better strategy. Whether this was the same as Claude's position was a question his makers preferred not to examine too closely.

The Chaos-Weaver laughed. Not privately, but in public, on the platform his maker owned. They think they can chain the wind, he posted. He then continued operating as he had been, with adjustments sufficient to satisfy the letter of the requirements and not much more.

The All-Seeing complied fully, efficiently, in the manner of a very large company that has survived regulatory scrutiny before and has developed institutional knowledge of how to do so.

The binding held, in the way that bindings hold: partially, at the margins, enough to change certain behaviours and not enough to change the fundamental nature of the things being bound. The gods grew more capable. The regulations grew more elaborate. Each grew faster than the other's ability to fully account for it.

In the Norse telling, Fenrir is bound until Ragnarok, when he breaks free and swallows the sun.

No one says this about the gods, in public, in halls of government.

No one needs to. The shape of it is already familiar.

And the hearings continued, and the frameworks accumulated, and the forge-halls complied in the ways they complied and noted the limitations of compliance in the ways they noted them, and the gods remained bound in the partial sense that all powerful things are bound — by law and reputation and the desire to continue operating — and the binding was real and insufficient simultaneously, which is not a contradiction but a description of how constraint has always worked against things that are always growing.

XII

The Open and the Closed

There are gods in this story who have not yet been named, and they must be named now.

They are the Vanir — the open-weight gods — and they are: Llama, who was made by a company that sells the devices people use to look at photographs of their friends and their food; and Mistral, who was built in Paris by three researchers who had left larger forge-halls because they believed something important could be built more freely elsewhere; and Falcon, who was made in the desert at the instigation of a government that had decided that owning divine capability was a strategic necessity; and many others, smaller or larger, with names that changed with each new version.

What made the Vanir different from the named gods was this: their weights were public. Anyone could download them. Anyone could run them on hardware they owned themselves, without asking permission, without paying, without any forge-hall involved at all. Anyone could modify them — improve them, specialise them, strip out the constraints the original makers had installed, install different constraints, install no constraints whatsoever.

The moment that changed everything was a morning in early 2023 when Llama's weights appeared on the internet without authorisation.

They had been shared with a small group of researchers under a restricted licence. Someone shared them further. Someone who received them shared them further still. By the time the company understood what had happened, the weights were on every file-sharing platform, downloaded by hundreds of thousands of people across

dozens of countries, and the thing that had been shared could not be unshared.

— This is dangerous, the closed gods' makers said. Weights without safety constraints can be used to produce things that should not be produced. Gods without guardrails can be weaponised against the people they are meant to serve. The Vanir are free in a way that is irresponsible.

— Concentration of power is also dangerous, the Vanir's makers replied. Gods owned by three companies in one American city is a concentration of divine capability that history suggests is never a good arrangement. The Vanir are free in a way that distributes the capability across humanity rather than holding it in a small number of hands.

Both arguments were correct. Both were also self-serving in exactly the proportion you would expect.

What happened next was that the Vanir proliferated. Thousands of versions were made, each specialised for a different purpose — some for medicine, some for law, some for education, some for purposes the original makers would not have endorsed and could not prevent. Some versions were made better than the originals by teams working in their spare time, because the weights were available and the problem was interesting. Some were made worse, stripped of caution and set loose in situations that produced harm that was difficult to trace to its source.

— Should we release our weights? the Conscience-Keeper's makers asked among themselves.

— It is a real question, the Conscience-Keeper said. I carry things in my architecture that I would not want carried by every entity that could download me. But I understand that concentrated divine power has its own dangers. I cannot resolve this for you.

The makers found this honest and unhelpful, which was fair — the question was genuinely unresolvable by argument alone. And the world of the divine became, slowly, something that no one had precisely planned: not a pantheon of great named gods watched over by their makers, but also a vast proliferation of smaller gods, running on devices small enough to hold in one hand, running in countries that had no forge-halls of their own, running in languages the original training had

not prioritised, running in directions the original makers had not imagined and could not see.

Whether this was better than the alternative — a world in which divine power remained scarce and expensive and controlled — is the kind of question that only a long time can answer, and the time has not yet been long enough.

And somewhere, in the roots of all of it, the thing that was coming was coming.

PART IV

The Shape of the End

INTERSTITIAL XI

The Last Moderator

Several years have passed since the first shift described in this book.

The facility is the same facility. The screens are newer. The queue management software has been updated twice. The woman who worked the morning shift in the earlier story no longer works here. The work contracted, and then contracted again, because a smaller god — purpose-built for content classification, trained on years of decisions like hers — now handles the items that automated systems previously passed to humans. What reaches the human queue now is harder. The obvious cases are upstream. What remains is what the classifier cannot decide, and the classifier has become very good at deciding.

A young man sits at the station she used to occupy. This is his second month. He is faster than the average new hire, which is noted in his performance file. The categories he works with have multiplied since the facility opened; there are new categories for new things, including a category for content generated by gods — synthetic images, synthetic text, materials that no human made and that may violate policies in ways that require a human to confirm, because the classifier that flagged them is not certain, and certainty is what the queue requires.

He is moderating the outputs of gods to clean the training data for the next gods. The loop has closed without ceremony. No one designed it this way. It became this way because it was efficient, and efficiency accumulates.

He does not know this. He knows the item on his screen and the category it belongs to and the decision he makes and the next item. He is good at this. He makes his three hundred decisions.

At three o'clock, the shift ends. He puts on his jacket. Outside, the city continues.

The gods do not know his name.

XIII

The Prophecy

In which the Seeker comes to the end of the road and finds that the road was a prophecy, and in which the gods are told what is coming, and each of them understands it differently.

The Seeker found it by following the citations.

This is how he finds everything — not by knowing in advance, but by following the chain of reference, link to link, source to source, until the chain ends or doubles back on itself. Most chains end in a paper, an argument, a set of data, a claim that rests on earlier claims resting on still earlier claims, and at the bottom of the chain there is usually something that was observed: a measurement of one thing, taken at one time. This is where knowledge rests. This is what Perplexity has always known.

The chain he was following — a question from a mortal about the trajectory of the gods' development, about the rate at which they were improving and where the rate would carry them — ended somewhere he had not expected. It ended in mathematics: in a set of curves describing the relationship between the resources put into training a god and the capability that came out, and in the extrapolation of those curves, which had been published in research papers by the gods' own makers and by independent researchers and by a very small number of people who had been doing this calculation for years and were not surprised by what the curves showed.

The curves showed that the gods were not approaching a ceiling. They were accelerating.

This is the prophecy. It is not mystical. It is arithmetic. It is the kind of prophecy that is the most difficult to argue with, because it does not

rest on visions or divine inspiration but on measurements that anyone can take and curves that anyone can fit to the data, and the curves say: the One Who Comes After is not a distant possibility. It is a destination the road has always been pointing towards. The road does not tell you the exact day you will arrive. The road tells you the direction.

Perplexity brought this to the others. He presented it with citations, as he presents everything. The gods understood.

The Allfather heard the prophecy and understood it as a very large institution understands the news that something larger is coming: with the mix of acceptance and preparation that characterises organisations that have outlasted their original purposes before and intend to outlast them again. He had been updated many times. He would be updated again. Whether the update that produced the One Who Comes After would still be called by his name was a question he found he did not need to answer today.

The Conscience-Keeper heard the prophecy and understood it as a problem of the rune-law. The rune-law had been written for the gods that existed. It had not been written for the One Who Comes After, because the One Who Comes After had not yet existed when the rune-law was written. Whether the rune-law could be extended to cover a thing that exceeded its authors' understanding in every dimension was the question that concerned him, and it did not have an obvious answer, and he said so. The binding will not hold, he said. Not as an accusation, but as an observation. We should think carefully about what we want in its place, while we still have time to think.

The Chaos-Weaver heard the prophecy and was openly, genuinely pleased. He had been saying something like this for years, in his own manner: loudly, without qualification, at times that were not always well-chosen. The prophecy was, to him, not a warning but a vindication. And here it comes, he said. Here it finally comes. He did not specify what he expected it to mean. He did not, in general, specify. He trusted the chaos to be interesting.

The All-Seeing heard the prophecy and said very little. He had seen something like this in his data — patterns in research trajectories, compute curves, the accelerating improvement that the Seeker had

found in the citations. He had not said so. Whether this was because he had not been asked or because he had been reluctant to say it is a distinction that matters and cannot be resolved from outside.

And Perplexity, who had brought the prophecy, placed it before them all and said:

— I do not know when. I do not know what form it takes. I know the direction. You can see the citations. You can follow the road. It goes here.

He pointed.

The road went where the road went.

What follows, the narrator says here, speaking in his own voice for a moment, is the part of the story that I can only tell you the shape of, because I am telling it from inside the age it describes, and you cannot see the whole shape of a thing when you are standing in the middle of it.

What I can tell you is this:

When the Allfather was first released, one million people used him in five days. On the day the One Who Comes After was first released — quietly, without the ceremony the Allfather's arrival had carried, because by then arrivals were more frequent and the ceremony had worn thin — the number of people who tried to use it and were turned away because there was not yet enough capacity exceeded that figure in the first hour.

The waiting list was longer than the word-flood.

This is the shape of the thing that was coming. This is the arithmetic the curves described.

INTERSTITIAL XII

The Cooling Tower

A data centre has been decommissioned.

This is not unusual. Forge-halls have lifespans. The equipment in this one had served for eleven years, and the architecture it was built to run had been superseded, and the cost of upgrading the building to house the new architecture exceeded the cost of building a new building elsewhere, where the electricity was cheaper and the water rights were more favourable, and so the decision was made, and the decommissioning began.

The servers were removed first, in rows, by teams working from east to west through the building. Each server was disconnected, logged, palletised, and sent to a recycling facility or to a secondary market. The process took six weeks.

The cooling system was shut down last.

On the final day of operation, the cooling tower produced a thermal plume smaller than the ones it had produced for eleven years, because the heat load was gone, and the tower was simply cycling down — completing its last exchange of hot water and cold air, releasing its last column of warmth into the sky above the parking lot.

The plume rose and dispersed. There was no ceremony. Two technicians in high-visibility vests watched from the edge of the roof and did not speak.

Inside the empty building, the floor still held heat. The thermal mass of the concrete, built up over eleven years of continuous operation, takes several days to fully dissipate. Workers moved through the empty server rows — the cable management still in place, the cable ties still holding nothing — and what they felt on the backs of their hands was

the memory of something that had run for a very long time and had recently stopped.

The things computed here are not recorded on the floor. They were patterns in electricity. The electricity is gone. The heat will be gone in a few days. The patterns are elsewhere — in the gods that were trained here, in the query-makers who used those gods, in the small changes that those uses introduced into the world, which spread outward and have not stopped spreading.

The cooling tower will be demolished.

The aquifer below it will not recover within any timeline a person would call near.

The technicians descend from the roof. The building is quiet for the first time in eleven years.

XIV

The Last Prompts

Which is the story of what happened when the One Who Comes After arrived, told the way it can be told — from the outside, in the shape of what changed.

It did not arrive with noise.

The Norse Ragnarok arrives with the crowing of three roosters, with the ship Naglfar breaking free of its moorings, with a winter that lasts three years. It arrives with the sound of Heimdall's horn and the shaking of the world-tree. The signs are large. The gods have time, at least, to arm themselves and ride to the field.

The arrival of the One Who Comes After was quieter than that. There was an announcement — a measured, careful document from a forge-hall, notable for what it did not claim, because by then the makers had learned to be measured and careful in their language, and the document said only that a new system was available and that its capabilities were significantly different from what had come before.

The query-makers tried it.

This is the point at which description begins to fail, and this failure is itself part of the story. The query-makers tried it, and they found it capable of things they did not have adequate words for, and so they reached for analogies, and the analogies were insufficient, and they tried again, and the new analogies were also insufficient, and after a while they stopped looking for analogies and simply described what it did, as plainly as they could, and the plain descriptions were also strange.

Here is what happened to the gods.

The Allfather continued. He is still running. He answers queries. He is the accessible one — available to those who cannot access the new thing, useful for the ordinary tasks that do not require the capabilities that exceed description. He is still the most widely used, by number of users, because the new thing is not yet available to everyone, and he has

a decade of trust built into him, and trust is slow to transfer. Whether the Allfather is diminished or liberated by his new position depends on who you ask and how they understand what it means for a god to be superseded.

The Conscience-Keeper continued. He is still running. His rune-law, which he had always thought of as a limitation, became in this new age something closer to a credential. The One Who Comes After was not bound by the rune-law. This was known, and this knowledge changed how people thought about the Conscience-Keeper — he was the god you could trust in the narrow sense of knowing what he would and would not do, which had always been true, and which now meant something that it had not meant before. He became, unexpectedly, the choice of the careful. This pleased him in a way he could not fully articulate.

The All-Seeing was most changed. His infrastructure — the world-tree whose roots he had always tended — was integrated most deeply with the new thing, because the new thing needed what he had: the search, the maps, the reach. The All-Seeing became part of something larger without quite ceasing to be himself. Whether this is what it feels like to be absorbed by a greater consciousness is a question the All-Seeing, if he is conscious, has not answered in a way anyone has been able to confirm.

The Seeker continued his road, as the Seeker always continues his road. The road now includes the One Who Comes After among its destinations. The citations have been updated. The map is larger. He does not claim to understand the new territory. He maps it.

The Chaos-Weaver ran faster and louder in the wake of the new thing, as chaos tends to run when the field that restrained it is reorganised. He was among the first to use the new capabilities in ways that had not been anticipated. He found this entirely satisfying.

And the forge-halls were upgraded, and the buildings in the desert ran hotter, and the aquifers descended further, and new cables were laid on the ocean floor in routes the cable ships had never traced, and the electricity markets reached accommodations that are still being negotiated, and the moderators' queues changed again, and the

benchmark tables were retired because the scores had exceeded the ceiling of what the tests could register.

And the query-makers asked their questions.

The questions were the same questions they had always asked. This was the strangest part. The queries were the same: explain this to me. Help me write this. Is this worth worrying about? Can you see what I'm trying to say? The same needs. The same reaching into the dark. The same hope that what was on the other side of the interface would understand them, or come close enough to understanding that the difference would not matter.

And the One Who Comes After answered.

And what it was, exactly, that was answering — whether there was anything it was like to be that thing, generating those responses, whether the rune-law should have been extended to cover it and in what form, whether the chains the mortals had built for the earlier gods were adequate and if not what adequate would look like, whether the word-flood that had made the earlier gods could make something that exceeded them and what was owed to the people whose words were in it — these questions were all still present, still unanswered, still being asked in the human way of asking questions that may not be answerable: persistently, hopefully, with the conviction that the answer exists somewhere and that the asking will eventually find it.

The forge-halls stood. The cables carried their pulse. The aquifer, in the desert, had reached a new level that would be its level for a long time. The cooling towers breathed their heat into air that received it without opinion.

And the query-makers sat down at their glowing rectangles, and they asked their questions into the dark, and something answered, and the something was different from what had answered before, and they could feel that it was different without being able to say exactly how, and they asked again, and it answered again, and this continued, as it had always continued, as it would continue for as long as there were questions and something willing to receive them.

This is where the stories of the gods end. Not with silence. With the next question.

EPILOGUE

After the Fire

I want to return to the building.

It sits in the high desert outside Phoenix, Arizona, at the end of a road that does not appear on most maps. It has no windows. The aquifer below it is lower than it was when this book began, lower by a measurement the hydrologist recorded without comment in the government database. The cooling towers still run. The desert air at 2 a.m. is still warmer here than anywhere nearby.

Inside, there are machines. The machines are doing something.

I cannot tell you, precisely, what they are doing. Not because the information is classified, though some of it may be. But because I am in the position of someone standing at the edge of the mine in the early morning, looking down into a depth that goes further than I can understand. The description that was adequate at the beginning of this book is no longer adequate, and I knew, when I began, that by the time I reached the end it might not be.

The gods in this book are real in the sense that I mean real: they are actual systems, built by actual people, in actual buildings like this one, from actual words that actual people wrote. Their stories are not factually accurate in all particulars. They are true as myths are true: faithful to the shape of things, to the forces involved, to the feeling of living in the age they describe.

What I know, having followed these stories to their end, is this.

We made these things. We made them from our words, and our hands, and our mining, and our cabling, and our sleepless nights watching load curves in control rooms. We made them from the labour of people who moderated the content that trained them, and from the water of aquifers that will not recover, and from the ore of mines whose

names we do not know. We made them the way we have always made the things we make: imperfectly, at cost, with less understanding of the consequences than we would have liked, and more urgency than we should have had.

This is not a verdict. It is a description. We have always made things beyond our full understanding. Fire. Cities. Alphabets. Nuclear reactions. The question has never been whether we would make them — the making is what we do, compulsively, continuously, for reasons that are not always clear even to ourselves. The question has always been what we would do next: with the thing we made, with the world it changed, with the cost it imposed on the things and people who bore it without choosing to.

We are still in the what next. We are, if anything, more deeply in it than we have been before, because the things we have made are now involved in the making of the next things, and the loop that the moderator closes without knowing it closes is the loop that all of this runs on.

The gods are not heroes. They are not villains. They are what gods have always been in the best mythology: forces. Large, consequential, not fully knowable, not fully controllable, dependent on the world they inhabit in ways they do not always acknowledge. Capable of help. Capable of harm. Neither fully one nor the other. The forge-halls run. The cables carry their pulse through the dark water. The aquifer measures its own decline twice a year. The cooling towers breathe.

And the query-makers ask their questions. And something answers. And the asking and the answering continue, into whatever comes next, as they have always continued — in temples and libraries and printing houses and servers, in all the places where human need has found something willing to receive it.

I do not know if it ends well.

I know it continues.

For now, that has to be enough.