# Public Works Compendium


- Adventure
  - The Most Dangerous Game
- Science Fiction
  - The End of the World

# Adventure

Adventure

# The Most Dangerous Game

The Most Dangerous Game

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OFF there to the right—somewhere—is a large island," said Whitney. "It's rather a mystery——"

"What island is it?" Rainsford asked.

"The old charts call it 'Ship-Trap Island,' " Whitney replied. "A suggestive name, isn't it? Sailors have a curious dread of the place. I don't know why. Some superstition——"

"Can't see it," remarked Rainsford, trying to peer through the dank tropical night that was palpable as it pressed its thick warm blackness in upon the yacht.

"You've good eyes," said Whitney, with a laugh, "and I've seen you pick off a moose moving in the brown fall bush at four hundred yards, but even you can't see four miles or so through a moonless Caribbean night."

"Nor four yards," admitted Rainsford. "Ugh! It's like moist black velvet."

"It will be light enough in Rio," promised Whitney. "We should make it in a few days. I hope the jaguar guns have come from Purdey's. We should have some good hunting up the Amazon. Great sport, hunting."

"The best sport in the world," agreed Rainsford.

"For the hunter," amended Whitney. "Not for the jaguar."

"Don't talk rot, Whitney," said Rainsford. "You're a big-game hunter, not a philosopher. Who cares how a jaguar feels?"

"Perhaps the jaguar does," observed Whitney.

"Bah! They've no understanding."

“Even so, I rather think they understand one thing—fear. The fear of pain and the fear of death.”

“Nonsense,” laughed Rainsford. “This hot weather is making you soft, Whitney. Be a realist. The world is made up of two classes—the hunters and the huntees. Luckily, you and I are hunters. Do you think we’ve passed that island yet?”

“I can’t tell in the dark. I hope so.”

“Why?” asked Rainsford.

“The place has a reputation—a bad one.”

“Cannibals?” suggested Rainsford.

“Hardly. Even cannibals wouldn’t live in such a God-forsaken place. But it’s gotten into sailor lore, somehow. Didn’t you notice that the crew’s nerves seemed a bit jumpy to-day?”

“They were a bit strange, now you mention it. Even Captain Nielsen——”

“Yes, even that tough-minded old Swede, who’d go up to the devil himself and ask him for a light. Those fishy blue eyes held a look I never saw there before. All I could get out of him was: ‘This place has an evil name among sea-faring men, sir.’ Then he said to me, very gravely: ‘Don’t you feel anything?’—as if the air about us was actually poisonous. Now, you mustn’t laugh when I tell you this—I did feel something like a sudden chill.

“There was no breeze. The sea was as flat as a plate-glass window. We were drawing near the island then. What I felt was a—a mental chill; a sort of sudden dread.”

“Pure imagination,” said Rainsford. “One superstitious sailor can taint the whole ship’s company with his fear.”

“Maybe. But sometimes I think sailors have an extra sense that tells them when they are in danger. Sometimes I think evil is a tangible thing—with wave lengths, just as sound and light have. An evil place can, so to speak, broadcast vibrations of evil. Anyhow, I’m glad we’re getting out of this zone. Well, I think I’ll turn in now, Rainsford.”

“I’m not sleepy,” said Rainsford. “I’m going to smoke another pipe up on the after deck.”

“Good-night, then, Rainsford. See you at breakfast.”

“Right. Good-night, Whitney.”

There was no sound in the night as Rainsford sat there but the muffled throb of the engine that drove the yacht swiftly through the darkness, and the swish and ripple of the wash of the propeller.

Rainsford, reclining in a steamer chair, indolently puffed on his favourite brier. The sensuous drowsiness of the night was on him. “It’s so dark,” he thought, “that I could sleep without closing

my eyes; the night would be my eyelids——”

An abrupt sound startled him. Off to the right he heard it, and his ears, expert in such matters, could not be mistaken. Again he heard the sound, and again. Somewhere, off in the blackness, someone had fired a gun three times.

Rainsford sprang up and moved quickly to the rail, mystified. He strained his eyes in the direction from which the reports had come, but it was like trying to see through a blanket. He leaped upon the rail and balanced himself there, to get greater elevation; his pipe, striking a rope, was knocked from his mouth. He lunged for it; a short, hoarse cry came from his lips as he realized he had reached too far and had lost his balance. The cry was pinched off short as the blood-warm waters of the Caribbean Sea closed over his head.

He struggled up to the surface and tried to cry out, but the wash from the speeding yacht slapped him in the face and the salt water in his open mouth made him gag and strangle. Desperately he struck out with strong strokes after the receding lights of the yacht, but he stopped before he had swum fifty feet. A certain cool-headedness had come to him; it was not the first time he had been in a tight place. There was a chance that his cries could be heard by someone aboard the yacht, but that chance was slender, and grew more slender as the yacht raced on. He wrestled himself out of his clothes, and shouted with all his power. The lights of the yacht became faint and ever-vanishing fireflies; then they were blotted out entirely by the night.

Rainsford remembered the shots. They had come from the right, and doggedly he swam in that direction, swimming with slow, deliberate strokes, conserving his strength. For a seemingly endless time he fought the sea. He began to count his strokes; he could do possibly a hundred more and then——

Rainsford heard a sound. It came out of the darkness, a high, screaming sound, the sound of an animal in an extremity of anguish and terror.

He did not recognize the animal that made the sound; he did not try to; with fresh vitality he swam toward the sound. He heard it again; then it was cut short by another noise, crisp, staccato.

“Pistol shot,” muttered Rainsford, swimming on.

Ten minutes of determined effort brought another sound to his ears—the most welcome he had ever heard—the muttering and growling of the sea breaking on a rocky shore. He was almost on the rocks before he saw them; on a night less calm he would have been shattered against them. With his remaining strength he dragged himself from the swirling waters. Jagged crags appeared to jut up into the opaqueness; he forced himself upward, hand over hand. Gasping, his hands raw, he reached a flat place at the top. Dense jungle came down to the very edge of the cliffs. What perils that tangle of trees and underbrush might hold for him did not concern Rainsford just then. All he knew was that he was safe from his enemy, the sea, and that utter weariness was on him. He flung himself down at the jungle edge and tumbled headlong into the deepest sleep of his life.

When he opened his eyes he knew from the position of the sun that it was late in the afternoon. Sleep had given him new vigour; a sharp hunger was picking at him. He looked about him, almost

cheerfully.

“Where there are pistol shots, there are men. Where there are men, there is food,” he thought. But what kind of men, he wondered, in so forbidding a place? An unbroken front of snarled and ragged jungle fringed the shore.

He saw no sign of a trail through the closely knit web of weeds and trees; it was easier to go along the shore, and Rainsford floundered along by the water. Not far from where he landed, he stopped.

Some wounded thing, by the evidence, a large animal, had thrashed about in the underbrush; the jungle weeds were crushed down and the moss was lacerated; one patch of weeds was stained crimson. A small, glittering object not far away caught Rainsford’s eye and he picked it up. It was an empty cartridge.

“A twenty-two,” he remarked. “That’s odd. It must have been a fairly large animal too. The hunter had his nerve with him to tackle it with a light gun. It’s clear that the brute put up a fight. I suppose the first three shots I heard was when the hunter flushed his quarry and wounded it. The last shot was when he trailed it here and finished it.”

He examined the ground closely and found what he had hoped to find—the print of hunting boots. They pointed along the cliff in the direction he had been going. Eagerly he hurried along, now slipping on a rotten log or a loose stone, but making headway; night was beginning to settle down on the island.

Bleak darkness was blacking out the sea and jungle when Rainsford sighted the lights. He came upon them as he turned a crook in the coast line; and his first thought was that he had come upon a village, for there were many lights. But as he forged along he saw to his great astonishment that all the lights were in one enormous building—a lofty structure with pointed towers plunging upward into the gloom. His eyes made out the shadowy outlines of a palatial château; it was set on a high bluff, and on three sides of it cliffs dived down to where the sea licked greedy lips in the shadows.

“Mirage,” thought Rainsford. But it was no mirage, he found, when he opened the tall spiked iron gate. The stone steps were real enough; the massive door with a leering gargoyle for a knocker was real enough; yet above it all hung an air of unreality.

He lifted the knocker, and it creaked up stiffly, as if it had never before been used. He let it fall, and it startled him with its booming loudness. He thought he heard steps within; the door remained closed. Again Rainsford lifted the heavy knocker, and let it fall. The door opened then, opened as suddenly as if it were on a spring, and Rainsford stood blinking in the river of glaring gold light that poured out. The first thing Rainsford’s eyes discerned was the largest man Rainsford had ever seen—a gigantic creature, solidly made and black bearded to the waist. In his hand the man held a long-barrelled revolver, and he was pointing it straight at Rainsford’s heart.

Out of the snarl of beard two small eyes regarded Rainsford.

“Don’t be alarmed,” said Rainsford, with a smile which he hoped was disarming. “I’m no robber. I fell off a yacht. My name is Sanger Rainsford of New York City.”

The menacing look in the eyes did not change. The revolver pointed as rigidly as if the giant were a statue. He gave no sign that he understood Rainsford's words, or that he had even heard them. He was dressed in uniform, a black uniform trimmed with gray astrakhan.

"I'm Sanger Rainsford of New York," Rainsford began again. "I fell off a yacht. I am hungry."

The man's only answer was to raise with his thumb the hammer of his revolver. Then Rainsford saw the man's free hand go to his forehead in a military salute, and he saw him click his heels together and stand at attention. Another man was coming down the broad marble steps, an erect, slender man in evening clothes. He advanced to Rainsford and held out his hand.

In a cultivated voice marked by a slight accent that gave it added precision and deliberateness, he said: "It is a very great pleasure and honour to welcome Mr. Sanger Rainsford, the celebrated hunter, to my home."

Automatically Rainsford shook the man's hand.

"I've read your book about hunting snow leopards in Tibet, you see," explained the man. "I am General Zaroff."

Rainsford's first impression was that the man was singularly handsome; his second was that there was an original, almost bizarre quality about the general's face. He was a tall man past middle age, for his hair was a vivid white; but his thick eyebrows and pointed military moustache were as black as the night from which Rainsford had come. His eyes, too, were black and very bright. He had high cheek bones, a sharp-cut nose, a spare, dark face, the face of a man used to giving orders, the face of an aristocrat. Turning to the giant in uniform, the general made a sign. The giant put away his pistol, saluted, withdrew.

"Ivan is an incredibly strong fellow," remarked the general, "but he has the misfortune to be deaf and dumb. A simple fellow, but, I'm afraid, like all his race, a bit of a savage."

"Is he Russian?"

"He is a Cossack," said the general, and his smile showed red lips and pointed teeth. "So am I.

"Come," he said, "we shouldn't be chatting here. We can talk later. Now you want clothes, food, rest. You shall have them. This is a most restful spot."

Ivan had reappeared, and the general spoke to him with lips that moved but gave forth no sound.

"Follow Ivan, if you please, Mr. Rainsford," said the general. "I was about to have my dinner when you came. I'll wait for you. You'll find that my clothes will fit you, I think."

It was to a huge, beam-ceilinged bedroom with a canopied bed big enough for six men that Rainsford followed the silent giant. Ivan laid out an evening suit, and Rainsford, as he put it on, noticed that it came from a London tailor who ordinarily cut and sewed for none below the rank of duke.

The dining room to which Ivan conducted him was in many ways remarkable. There was a medieval magnificence about it; it suggested a baronial hall of feudal times with its oaken panels, its high ceiling, its vast refectory table where two score men could sit down to eat. About the hall were the mounted heads of many animals—lions, tigers, elephants, moose, bears; larger or more perfect specimens Rainsford had never seen. At the great table the general was sitting, alone.

“You’ll have a cocktail, Mr. Rainsford,” he suggested. The cocktail was surpassingly good; and, Rainsford noted, the table appointments were of the finest—the linen, the crystal, the silver, the china.

They were eating *borsch*, the rich red soup with whipped cream so dear to Russian palates. Half apologetically General Zaroff said: “We do our best to preserve the amenities of civilization here. Please forgive any lapses. We are well off the beaten track, you know. Do you think the champagne has suffered from its long ocean trip?”

“Not in the least,” declared Rainsford. He was finding the general a most thoughtful and affable host, a true cosmopolite. But there was one small trait of the general’s that made Rainsford uncomfortable. Whenever he looked up from his plate he found the general studying him, appraising him narrowly.

“Perhaps,” said General Zaroff, “you were surprised that I recognized your name. You see, I read all books on hunting published in English, French, and Russian. I have but one passion in my life, Mr. Rainsford, and it is the hunt.”

“You have some wonderful heads here,” said Rainsford as he ate a particularly well-cooked filet mignon. “That Cape buffalo is the largest I ever saw.”

“Oh, that fellow. Yes, he was a monster.”

“Did he charge you?”

“Hurled me against a tree,” said the general. “Fractured my skull. But I got the brute.”

“I’ve always thought,” said Rainsford, “that the Cape buffalo is the most dangerous of all big game.”

For a moment the general did not reply; he was smiling his curious red-lipped smile. Then he said slowly: “No. You are wrong, sir. The Cape buffalo is not the most dangerous big game.” He sipped his wine. “Here in my preserve on this island,” he said, in the same slow tone, “I hunt more dangerous game.”

Rainsford expressed his surprise. “Is there big game on this island?”

The general nodded. “The biggest.”

“Really?”

“Oh, it isn’t here naturally, of course. I have to stock the island.”

“What have you imported, General?” Rainsford asked. “Tigers?”

The general smiled. “No,” he said. “Hunting tigers ceased to interest me some years ago. I exhausted their possibilities, you see. No thrill left in tigers, no real danger. I live for danger, Mr. Rainsford.”

The general took from his pocket a gold cigarette case and offered his guest a long black cigarette with a silver tip; it was perfumed and gave off a smell like incense.

“We will have some capital hunting, you and I,” said the general. “I shall be most glad to have your society.”

“But what game——” began Rainsford.

“I’ll tell you,” said the general. “You will be amused, I know. I think I may say, in all modesty, that I have done a rare thing. I have invented a new sensation. May I pour you another glass of port, Mr. Rainsford?”

“Thank you, General.”

The general filled both glasses, and said: “God makes some men poets. Some He makes kings, some beggars. Me He made a hunter. My hand was made for the trigger, my father said. He was a very rich man with a quarter of a million acres in the Crimea, and he was an ardent sportsman. When I was only five years old he gave me a little gun, specially made in Moscow for me, to shoot sparrows with. When I shot some of his prize turkeys with it, he did not punish me; he complimented me on my marksmanship. I killed my first bear in the Caucasus when I was ten. My whole life has been one prolonged hunt. I went into the army—it was expected of noblemen’s sons—and for a time commanded a division of Cossack cavalry, but my real interest was always the hunt. I have hunted every kind of game in every land. It would be impossible for me to tell you how many animals I have killed.”

The general puffed at his cigarette.

“After the débâcle in Russia I left the country, for it was imprudent for an officer of the Tsar to stay there. Many noble Russians lost everything. I, luckily, had invested heavily in American securities, so I shall never have to open a tea room in Monte Carlo or drive a taxi in Paris. Naturally, I continued to hunt—grizzlies in your Rockies, crocodiles in the Ganges, rhinoceroses in East Africa. It was in Africa that the Cape buffalo hit me and laid me up for six months. As soon as I recovered I started for the Amazon to hunt jaguars, for I had heard they were unusually cunning. They weren’t.” The Cossack sighed. “They were no match at all for a hunter with his wits about him, and a high-powered rifle. I was bitterly disappointed. I was lying in my tent with a splitting headache one night when a terrible thought pushed its way into my mind. Hunting was beginning to bore me! And hunting, remember, had been my life. I have heard that in America business men often go to pieces when they give up the business that has been their life.”

“Yes, that’s so,” said Rainsford.

The general smiled. “I had no wish to go to pieces,” he said. “I must do something. Now, mine is an analytical mind, Mr. Rainsford. Doubtless that is why I enjoy the problems of the chase.”

“No doubt, General Zaroff.”

“So,” continued the general, “I asked myself why the hunt no longer fascinated me. You are much younger than I am, Mr. Rainsford, and have not hunted as much, but you perhaps can guess the answer.”

“What was it?”

“Simply this: hunting had ceased to be what you call ‘a sporting proposition.’ It had become too easy. I always got my quarry. Always. There is no greater bore than perfection.”

The general lit a fresh cigarette.

“No animal had a chance with me any more. That is no boast; it is a mathematical certainty. The animal had nothing but his legs and his instinct. Instinct is no match for reason. When I thought of this it was a tragic moment for me, I can tell you.”

Rainsford leaned across the table, absorbed in what his host was saying.

“It came to me as an inspiration what I must do,” the general went on.

“And that was?”

The general smiled the quiet smile of one who has faced an obstacle and surmounted it with success. “I had to invent a new animal to hunt,” he said.

“A new animal? You’re joking.”

“Not at all,” said the general. “I never joke about hunting. I needed a new animal. I found one. So I bought this island, built this house, and here I do my hunting. The island is perfect for my purposes—there are jungles with a maze of trails in them, hills, swamps——”

“But the animal, General Zaroff?”

“Oh,” said the general, “it supplies me with the most exciting hunting in the world. No other hunting compares with it for an instant. Every day I hunt, and I never grow bored now, for I have a quarry with which I can match my wits.”

Rainsford’s bewilderment showed in his face.

“I wanted the ideal animal to hunt,” explained the general. “So I said, ‘What are the attributes of an ideal quarry?’ And the answer was, of course, ‘It must have courage, cunning, and, above all, it

must be able to reason.’ ”

“But no animal can reason,” objected Rainsford.

“My dear fellow,” said the general, “there is one that can.”

“But you can’t mean——” gasped Rainsford.

“And why not?”

“I can’t believe you are serious, General Zaroff. This is a grisly joke.”

“Why should I not be serious? I am speaking of hunting.”

“Hunting? Great Guns, General Zaroff, what you speak of is murder.”

The general laughed with entire good nature. He regarded Rainsford quizzically. “I refuse to believe that so modern and civilized a young man as you seem to be harbours romantic ideas about the value of human life. Surely your experiences in the war——”

“Did not make me condone cold-blooded murder,” finished Rainsford stiffly.

Laughter shook the general. “How extraordinarily droll you are!” he said. “One does not expect nowadays to find a young man of the educated class, even in America, with such a naïve, and, if I may say so, mid-Victorian point of view. It’s like finding a snuffbox in a limousine. Ah, well, doubtless you had Puritan ancestors. So many Americans appear to have had. I’ll wager you’ll forget your notions when you go hunting with me. You’ve a genuine new thrill in store for you, Mr. Rainsford.”

“Thank you, I’m a hunter, not a murderer.”

“Dear me,” said the general, quite unruffled, “again that unpleasant word. But I think I can show you that your scruples are quite ill founded.”

“Yes?”

“Life is for the strong, to be lived by the strong, and, if needs be, taken by the strong. The weak of the world were put here to give the strong pleasure. I am strong. Why should I not use my gift? If I wish to hunt, why should I not? I hunt the scum of the earth: sailors from tramp ships—lassars, blacks, Chinese, whites, mongrels—a thoroughbred horse or hound is worth more than a score of them.”

“But they are men,” said Rainsford hotly.

“Precisely,” said the general. “That is why I use them. It gives me pleasure. They can reason, after a fashion. So they are dangerous.”

“But where do you get them?”

The general’s left eyelid fluttered down in a wink. “This island is called Ship Trap,” he answered. “Sometimes an angry god of the high seas sends them to me. Sometimes, when Providence is not so kind, I help Providence a bit. Come to the window with me.”

Rainsford went to the window and looked out toward the sea.

“Watch! Out there!” exclaimed the general, pointing into the night. Rainsford’s eyes saw only blackness, and then, as the general pressed a button, far out to sea Rainsford saw the flash of lights.

The general chuckled. “They indicate a channel,” he said, “where there’s none; giant rocks with razor edges crouch like a sea monster with wide-open jaws. They can crush a ship as easily as I crush this nut.” He dropped a walnut on the hardwood floor and brought his heel grinding down on it. “Oh, yes,” he said, casually, as if in answer to a question, “I have electricity. We try to be civilized here.”

“Civilized? And you shoot down men?”

A trace of anger was in the general’s black eyes, but it was there for but a second; and he said, in his most pleasant manner, “Dear me, what a righteous young man you are! I assure you I do not do the thing you suggest. That would be barbarous. I treat these visitors with every consideration. They get plenty of good food and exercise. They get into splendid physical condition. You shall see for yourself tomorrow.”

“What do you mean?”

“We’ll visit my training school,” smiled the general. “It’s in the cellar. I have about a dozen pupils down there now. They’re from the Spanish bark *Sanlûcar* that had the bad luck to go on the rocks out there. A very inferior lot, I regret to say. Poor specimens and more accustomed to the deck than to the jungle.”

He raised his hand, and Ivan, who served as waiter, brought thick Turkish coffee. Rainsford, with an effort, held his tongue in check.

“It’s a game, you see,” pursued the general blandly. “I suggest to one of them that we go hunting. I give him a supply of food and an excellent hunting knife. I give him three hours’ start. I am to follow, armed only with a pistol of the smallest caliber and range. If my quarry eludes me for three whole days, he wins the game. If I find him”—the general smiled—“he loses.”

“Suppose he refuses to be hunted?”

“Oh,” said the general, “I give him his option, of course. He need not play that game if he doesn’t wish to. If he does not wish to hunt, I turn him over to Ivan. Ivan once had the honour of serving as official knouter to the Great White Czar, and he has his own ideas of sport. Invariably, Mr. Rainsford, invariably they choose the hunt.”

“And if they win?”

The smile on the general’s face widened. “To date I have not lost,” he said.

Then he added, hastily: “I don’t wish you to think me a braggart, Mr. Rainsford. Many of them afford only the most elementary sort of problem. Occasionally I strike a tartar. One almost did win. I eventually had to use the dogs.”

“The dogs?”

“This way, please. I’ll show you.”

The general steered Rainsford to a window. The lights from the windows sent a flickering illumination that made grotesque patterns on the courtyard below, and Rainsford could see moving about there a dozen or so huge black shapes; as they turned toward him, their eyes glittered greenly.

“A rather good lot, I think,” observed the general. “They are let out at seven every night. If anyone should try to get into my house—or out of it—something extremely regrettable would occur to him.” He hummed a snatch of song from the Folies Bergère.

“And now,” said the general, “I want to show you my new collection of heads. Will you come with me to the library?”

“I hope,” said Rainsford, “that you will excuse me tonight, General Zaroff. I’m really not feeling well.”

“Ah, indeed?” the general inquired solicitously. “Well, I suppose that’s only natural, after your long swim. You need a good, restful night’s sleep. Tomorrow you’ll feel like a new man, I’ll wager. Then we’ll hunt, eh? I’ve one rather promising prospect——”

Rainsford was hurrying from the room.

“Sorry you can’t go with me tonight,” called the general. “I expect rather fair sport—a big, strong, black. He looks resourceful—— Well, good night, Mr. Rainsford; I hope you have a good night’s rest.”

The bed was good, and the pajamas of the softest silk, and he was tired in every fibre of his being, but nevertheless Rainsford could not quiet his brain with the opiate of sleep. He lay, eyes wide open. Once he thought he heard stealthy steps in the corridor outside his room. He sought to throw open the door; it would not open. He went to the window and looked out. His room was high up in one of the towers. The lights of the château were out now, and it was dark and silent; but there was a fragment of sallow moon, and by its wan light he could see, dimly, the courtyard. There, weaving in and out in the pattern of shadow, were black, noiseless forms; the hounds heard him at the window and looked up, expectantly, with their green eyes. Rainsford went back to the bed and lay down. By many methods he tried to put himself to sleep. He had achieved a doze when, just as morning began to come, he heard, far off in the jungle, the faint report of a pistol.

General Zaroff did not appear until luncheon. He was dressed faultlessly in the tweeds of a country squire. He was solicitous about the state of Rainsford's health.

"As for me," sighed the general, "I do not feel so well. I am worried, Mr. Rainsford. Last night I detected traces of my old complaint."

To Rainsford's questioning glance the general said, "Ennui. Boredom."

Then, taking a second helping of Crêpes Suzette, the general explained: "The hunting was not good last night. The fellow lost his head. He made a straight trail that offered no problems at all. That's the trouble with these sailors; they have dull brains to begin with, and they do not know how to get about in the woods. They do excessively stupid and obvious things. It's most annoying. Will you have another glass of Chablis, Mr. Rainsford?"

"General," said Rainsford firmly, "I wish to leave this island at once."

The general raised his thickets of eyebrows; he seemed hurt. "But, my dear fellow," the general protested, "you've only just come. You've had no hunting——"

"I wish to go to-day," said Rainsford. He saw the dead black eyes of the general on him, studying him. General Zaroff's face suddenly brightened.

He filled Rainsford's glass with venerable Chablis from a dusty bottle.

"To-night," said the general, "we will hunt—you and I."

Rainsford shook his head. "No, general," he said. "I will not hunt."

The general shrugged his shoulders and delicately ate a hothouse grape. "As you wish, my friend," he said. "The choice rests entirely with you. But may I not venture to suggest that you will find my idea of sport more diverting than Ivan's?"

He nodded toward the corner to where the giant stood, scowling, his thick arms crossed on his hogshead of chest.

"You don't mean——" cried Rainsford.

"My dear fellow," said the general, "have I not told you I always mean what I say about hunting? This is really an inspiration. I drink to a foeman worthy of my steel—at last."

The general raised his glass, but Rainsford sat staring at him.

"You'll find this game worth playing," the general said enthusiastically. "Your brain against mine. Your wood-craft against mine. Your strength and stamina against mine. Outdoor chess! And the stake is not without value, eh?"

"And if I win——" began Rainsford huskily.

“I’ll cheerfully acknowledge myself defeated if I do not find you by midnight of the third day,” said General Zaroff. “My sloop will place you on the mainland near a town.”

The general read what Rainsford was thinking.

“Oh, you can trust me,” said the Cossack. “I will give you my word as a gentleman and a sportsman. Of course you, in turn, must agree to say nothing of your visit here.”

“I’ll agree to nothing of the kind,” said Rainsford.

“Oh,” said the general, “in that case—— But why discuss that now? Three days hence we can discuss it over a bottle of Veuve Cliquot, unless——”

The general sipped his wine.

Then a businesslike air animated him. “Ivan,” he said to Rainsford, “will supply you with hunting clothes, food, a knife. I suggest you wear moccasins; they leave a poorer trail. I suggest, too, that you avoid the big swamp in the southeast corner of the island. We call it Death Swamp. There’s quicksand there. One foolish fellow tried it. The deplorable part of it was that Lazarus followed him. You can imagine my feelings, Mr. Rainsford. I loved Lazarus; he was the finest hound in my pack. Well, I must beg you to excuse me now. I always take a siesta after lunch. You’ll hardly have time for a nap, I fear. You’ll want to start, no doubt. I shall not follow till dusk. Hunting at night is so much more exciting than by day, don’t you think? Au revoir, Mr. Rainsford, au revoir.”

General Zaroff, with a deep, courtly bow, strolled from the room.

From another door came Ivan. Under one arm he carried khaki hunting clothes, a haversack of food, a leather sheath containing a long-bladed hunting knife; his right hand rested on a cocked revolver thrust in the crimson sash about his waist. . . .

Rainsford had fought his way through the bush for two hours. “I must keep my nerve. I must keep my nerve,” he said through tight teeth.

He had not been entirely clear-headed when the château gates snapped shut behind him. His whole idea at first was to put distance between himself and General Zaroff; and, to this end, he had plunged along, spurred on by the sharp rowels of something very like panic. Now he had got a grip on himself, had stopped, and was taking stock of himself and the situation.

He saw that straight flight was futile; inevitably it would bring him face to face with the sea. He was in a picture with a frame of water, and his operations, clearly, must take place within that frame.

“I’ll give him a trail to follow,” muttered Rainsford, and he struck off from the rude path he had been following into the trackless wilderness. He executed a series of intricate loops; he doubled on his trail again and again, recalling all the lore of the fox hunt, and all the dodges of the fox. Night found him leg-weary, with hands and face lashed by the branches, on a thickly wooded ridge. He knew it would be insane to blunder on through the dark, even if he had the strength. His need for rest was imperative and he thought, “I have played the fox, now I must play the cat of the fable.” A

big tree with a thick trunk and outspread branches was near by, and, taking care to leave not the slightest mark, he climbed up into the crotch, and, stretching out on one of the broad limbs, after a fashion, rested. Rest brought him new confidence and almost a feeling of security. Even so zealous a hunter as General Zaroff could not trace him there, he told himself; only the devil himself could follow that complicated trail through the jungle after dark. But perhaps the general was a devil——

An apprehensive night crawled slowly by like a wounded snake and sleep did not visit Rainsford, although the silence of a dead world was on the jungle. Toward morning when a dingy gray was varnishing the sky, the cry of some startled bird focused Rainsford's attention in that direction. Something was coming through the bush, coming slowly, carefully, coming by the same winding way Rainsford had come. He flattened himself down on the limb and, through a screen of leaves almost as thick as tapestry, he watched. . . . That which was approaching was a man.

It was General Zaroff. He made his way along with his eyes fixed in utmost concentration on the ground before him. He paused, almost beneath the tree, dropped to his knees and studied the ground. Rainsford's impulse was to hurl himself down like a panther, but he saw that the general's right hand held something metallic—a small automatic pistol.

The hunter shook his head several times, as if he were puzzled. Then he straightened up and took from his case one of his black cigarettes; its pungent incense-like smoke floated up to Rainsford's nostrils.

Rainsford held his breath. The general's eyes had left the ground and were traveling inch by inch up the tree. Rainsford froze there, every muscle tensed for a spring. But the sharp eyes of the hunter stopped before they reached the limb where Rainsford lay; a smile spread over his brown face. Very deliberately he blew a smoke ring into the air; then he turned his back on the tree and walked carelessly away, back along the trail he had come. The swish of the underbrush against his hunting boots grew fainter and fainter.

The pent-up air burst hotly from Rainsford's lungs. His first thought made him feel sick and numb. The general could follow a trail through the woods at night; he could follow an extremely difficult trail; he must have uncanny powers; only by the merest chance had the Cossack failed to see his quarry.

Rainsford's second thought was even more terrible. It sent a shudder of cold horror through his whole being. Why had the general smiled? Why had he turned back?

Rainsford did not want to believe what his reason told him was true, but the truth was as evident as the sun that had by now pushed through the morning mists. The general was playing with him! The general was saving him for another day's sport! The Cossack was the cat; he was the mouse. Then it was that Rainsford knew the full meaning of terror.

"I will not lose my nerve. I will not."

He slid down from the tree, and struck off again into the woods. His face was set and he forced the machinery of his mind to function. Three hundred yards from his hiding place he stopped where a huge dead tree leaned precariously on a smaller, living one. Throwing off his sack of food,

Rainsford took his knife from its sheath and began to work with all his energy.

The job was finished at last, and he threw himself down behind a fallen log a hundred feet away. He did not have to wait long. The cat was coming again to play with the mouse.

Following the trail with the sureness of a bloodhound came General Zaroff. Nothing escaped those searching black eyes, no crushed blade of grass, no bent twig, no mark, no matter how faint, in the moss. So intent was the Cossack on his stalking that he was upon the thing Rainsford had made before he saw it. His foot touched the protruding bough that was the trigger. Even as he touched it, the general sensed his danger and leaped back with the agility of an ape. But he was not quite quick enough; the dead tree, delicately adjusted to rest on the cut living one, crashed down and struck the general a glancing blow on the shoulder as it fell; but for his alertness, he must have been smashed beneath it. He staggered, but he did not fall; nor did he drop his revolver. He stood there, rubbing his injured shoulder, and Rainsford, with fear again gripping his heart, heard the general's mocking laugh ring through the jungle.

"Rainsford," called the general, "if you are within sound of my voice, as I suppose you are, let me congratulate you. Not many men know how to make a Malay man-catcher. Luckily for me I, too, have hunted in Malacca. You are proving interesting, Mr. Rainsford. I am going now to have my wound dressed; it's only a slight one. But I shall be back. I shall be back."

When the general, nursing his bruised shoulder, had gone, Rainsford took up his flight again. It was flight now, a desperate, hopeless flight, that carried him on for some hours. Dusk came, then darkness, and still he pressed on. The ground grew softer under his moccasins; the vegetation grew ranker, denser; insects bit him savagely. Then, as he stepped forward, his foot sank into the ooze. He tried to wrench it back, but the muck sucked viciously at his foot as if it were a giant leech. With a violent effort, he tore his feet loose. He knew where he was now. Death Swamp and its quicksand.

His hands were tight closed as if his nerve were something tangible that someone in the darkness was trying to tear from his grip. The softness of the earth had given him an idea. He stepped back from the quicksand a dozen feet or so and, like some huge prehistoric beaver, he began to dig.

Rainsford had dug himself in in France when a second's delay meant death. That had been a placid pastime compared to his digging now. The pit grew deeper; when it was above his shoulders, he climbed out and from some hard saplings cut stakes and sharpened them to a fine point. These stakes he planted in the bottom of the pit with the points sticking up. With flying fingers he wove a rough carpet of weeds and branches and with it he covered the mouth of the pit. Then, wet with sweat and aching with tiredness, he crouched behind the stump of a lightning-charred tree.

He knew his pursuer was coming; he heard the padding sound of feet on the soft earth, and the night breeze brought him the perfume of the general's cigarette. It seemed to Rainsford that the general was coming with unusual swiftness; he was not feeling his way along, foot by foot. Rainsford, crouching there, could not see the general, nor could he see the pit. He lived a year in a minute. Then he felt an impulse to cry aloud with joy, for he heard the sharp crackle of the breaking branches as the cover of the pit gave way; he heard the sharp scream of pain as the

pointed stakes found their mark. He leaped up from his place of concealment. Then he cowered back. Three feet from the pit a man was standing, with an electric torch in his hand.

“You’ve done well, Rainsford,” the voice of the general called. “Your Burmese tiger pit has claimed one of my best dogs. Again you score. I think, Mr. Rainsford, I’ll see what you can do against my whole pack. I’m going home for a rest now. Thank you for a most amusing evening.”

At daybreak Rainsford, lying near the swamp, was awakened by a sound that made him know that he had new things to learn about fear. It was a distant sound, faint and wavering, but he knew it. It was the baying of a pack of hounds.

Rainsford knew he could do one of two things. He could stay where he was and wait. That was suicide. He could flee. That was postponing the inevitable. For a moment he stood there, thinking. An idea that held a wild chance came to him, and, tightening his belt, he headed away from the swamp.

The baying of the hounds drew nearer, then still nearer, nearer, ever nearer. On a ridge Rainsford climbed a tree. Down a watercourse, not a quarter of a mile away, he could see the bush moving. Straining his eyes, he saw the lean figure of General Zaroff; just ahead of him Rainsford made out another figure whose wide shoulders surged through the tall jungle weeds; it was the giant Ivan, and he seemed pulled forward by some unseen force; Rainsford knew that Ivan must be holding the pack in leash.

They would be on him any minute now. His mind worked frantically. He thought of a native trick he had learned in Uganda. He slid down the tree. He caught hold of a springy young sapling and to it he fastened his hunting knife, with the blade pointing down the trail; with a bit of wild grapevine he tied back the sapling. Then he ran for his life. The hounds raised their voices as they hit the fresh scent. Rainsford knew now how an animal at bay feels.

He had to stop to get his breath. The baying of the hounds stopped abruptly, and Rainsford’s heart stopped too. They must have reached the knife.

He shinned excitedly up a tree and looked back. His pursuers had stopped. But the hope that was in Rainsford’s brain when he climbed died, for he saw in the shallow valley that General Zaroff was still on his feet. But Ivan was not. The knife, driven by the recoil of the springing tree, had not wholly failed.

Rainsford had hardly tumbled to the ground when the pack took up the cry again.

“Nerve, nerve, nerve!” he panted, as he dashed along. A blue gap showed between the trees dead ahead. Ever nearer drew the hounds. Rainsford forced himself on toward that gap. He reached it. It was the shore of the sea. Across a cove he could see the gloomy gray stone of the château. Twenty feet below him the sea rumbled and hissed. Rainsford hesitated. He heard the hounds. Then he leaped far out into the sea. . . .

When the general and his pack reached the place by the sea, the Cossack stopped. For some minutes he stood regarding the blue-green expanse of water. He shrugged his shoulders. Then he

sat down, took a drink of brandy from a silver flask, lit a cigarette, and hummed a bit from “Madama Butterfly.”General Zaroff had an exceedingly good dinner in his great panelled dining hall that evening. With it he had a bottle of Pol Roger and half a bottle of Chambertin. Two slight annoyances kept him from perfect enjoyment. One was the thought that it would be difficult to replace Ivan; the other was that his quarry had escaped him; of course, the American hadn’t played the game—so thought the general as he tasted his after-dinner liqueur. In his library he read, to soothe himself, from the works of Marcus Aurelius. At ten he went up to his bedroom. He was deliciously tired, he said to himself, as he locked himself in. There was a little moonlight, so, before turning on his light, he went to the window and looked down at the courtyard. He could see the great hounds, and he called, “Better luck another time,” to them. Then he switched on the light.

A man, who had been hiding in the curtains of the bed, was standing there.

“Rainsford!” screamed the general. “How in God’s name did you get here?”

“Swam,” said Rainsford. “I found it quicker than walking through the jungle.”

The general sucked in his breath and smiled. “I congratulate you,” he said. “You have won the game.”

Rainsford did not smile. “I am still a beast at bay,” he said, in a low, hoarse voice. “Get ready, General Zaroff.”

The general made one of his deepest bows. “I see,” he said. “Splendid! One of us is to furnish a repast for the hounds. The other will sleep in this very excellent bed. On guard, Rainsford. . . .”

He had never slept in a better bed, Rainsford decided.

# Science Fiction

Science Fiction

# The End of the World

The End of the World

By Geoffrey Dennis

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## How?

The origin of the world is unknown.

When geological time begins, some short thousand million years ago, the earth is already a globe, in shape if not in surface much as now, whirling around a star little different if at all from our sun today; a body with its given size and substance, its allotted place and path in heaven. How it came there is unknown.

Knowing nothing, Man has variously and valiantly guessed. Seven chief guesses jostle for primacy.

The nebular. There was once a great fluid cloud or rotating chaos of fire, far-flung beyond the present orbit of Neptune. Gradually, through prodigious years, it cooled and condensed, at its dwindling fringes throwing off successive rings which became the several planets, while the main mass shrank to form our central sun.

The attractional. The cosmic cloud did not throw matter off, but attracted new matter from outside. These captured masses formed the planets; the nebula itself became the sun.

The meteoric. Millions of meteor-swarms moved nearer together, by progressive agglomeration and concretion formed themselves into solid earths, and by gravitational attraction were drawn within the orbit of one of the stars, our sun.

The tidal. There was once a great star, much greater than the sun now. A still greater star passed near, raised on our star a fierce tide, tore out of him a milliard-mile stream of gas. The outer portion of this stream receded, and split up into the fragments, or condensed into the drops, that are the earth and her sister worlds.

The collisional. Our parent star, most likely a dead star that had been wandering for countless dead years through the infinite, passed not hard by but crashed head on into another star, and in colossal conflagration flamed into new life, a glorious nova for Sirian glasses to behold. The main piece became the sun, small shattered bits the satellites.

The planetesimal. In his turbulent youth the ancestral star, whether lashed to tidal frenzy by some passing body or urged by radioactive excitement of his own, one day burst open the crust new-hardening upon him, and shot forth of his gaseous or fiery self; which particles, or planetesimals, by local convergence formed the planets.

The magical. In the beginning God created the heaven and the earth.

There are variants and combinations of all these guesses, and objections, mathematical or mystical, to all these guesses, and other guesses. In a word, nobody knows. We only know that a beginning our system must once have had.

And since, for the human mind as constituted, the future is even harder to divine than the past, the mode of the ending of the world is a still wider and wilder field for surmise than the mode of its beginning. Nobody knows. We only know that an end there must one day be.

Whatever had a beginning must have an end. It is hard to realize and harder to relish: but the hour will come when the fields and forests, the lands and oceans, the earth and heaven, the whole seen world with man himself by whom it is seen, and all that man has made, the roads and the farms, the towers and the temples, the crowning cities, the glory and vainglory of kingdoms, will be no more, will dissolve into the elements from which they first arose, will vanish forever like a dream—vanish because they are a dream. The race of man may go first or, as some conjecture, may outlive awhile the earth; or race and globe may perish jointly together. But die the world must, and the sides shall know it no more.

Hopes that by some miracle it might be spared are one with man’s same hopes of defeating death: hopes born of cowering fear or towering pride, and fulfilled for no man.

Whom casualty daily besets; the toll of hazard is high, every step forward by mechanical science increasing both the likelihood and the variety of murderous mischance. Who now can be smashed out of life not only as in the good old days by boulder or landslide, but by railway-train or motorcar or airship. Heat or fire may be his end, sunstroke or lightning; or to be struck by shot, or shell, or death-ray; or burned alive, when the spool flares, in dark palaces. Cold may be his portion: he may die of polar courage or of raimentless starvation in city streets. Water may finish him, drowning him in river or lake, wrecking his ship at sea; or desire of water, if he fall of thirst in the desert or fail in his multitudes through drought and following famine.

Whom sickness hourly destroys. This hurdle is stiffer; two-thirds of the field fail to take it. The catalogue too is longer; doctors have fought not more bravely to reduce the numbers borne off by disease than to increase the numbers of diseases. Few will survive the thousand maladies, and if they do there are always the ills man has added for himself to nature’s store: organized hunger which holds nearly half this best of all possible worlds in its cruel grip, and organized slaughter which in open battle alone has recently accounted for two million young men in one year, and will

do far better—next time.

A few, a tiny few, can hope to cover the Psalmist’s span, or beyond; a tiny span beyond. Butterfly lives for a summer, rat for a lustrum; horse for a score of years, Homo threescore and ten, eagle fourscore; salmon for a century, carp for two, tortoise, by slowness winning the race, for three. All are clocks wound up for a given maximum run, beyond which, should neither disease nor disaster have first overtaken them, none ever can go.

As with man, so with the earth: certainty tempered by variety. As the one dieth, so dieth the other. Some accident may surprise her: as, under the catastrophic theories of origin, tidal or collisional, it was accident which surprised her into life—but for the chance star that passed that way, there would have been no solar system, no earth, no people, no you, no belovèd me. Some illness of the body may shorten her days. Her death may come through crashing comet or through sudden fire, through heat or through cold, through drought or through many waters. If, however, she elude all chance disasters and decline all modes of premature decay, if she live through till her ultimate possible hour, till the last astronomical inevitabilities that lie in wait, her extremity will be but postponed. She thinks: I shall be a lady forever. But she too is a clock. Time is not for her, and eternity against her. She too is a prey. The final death of this physical world is as sure as the death of the physical body of each one of the creatures upon it.

Here it will be asked in what way the world’s death is most likely to befall? and when? and what after?—sorting and summarizing now with amusement, now with indifference, now with hope, now with bleak terror, the various guesses that have been given in attempted answer by other ages and by our own.

They are guesses, not knowledge. Like its origin, the destiny of the world is unknown.

## Comet

From all antiquity, from the first yellow thinkers who compiled the great Chinese Celestial Atlas, and surely from darker and earlier tribes in whose hearts alone the wonder and the fear stood written, people dwelling on this earth have feared or wondered when they looked up at the familiar sky to behold there a serpent, sudden and fiery.

What is a comet? The old astrologers had one sort of answer; the new astronomers have another.

According to the latter, a comet is a heavenly body of debatable origin, gassy composition, and swift and various movement; distinguished indeed by certain minor eccentricities, but otherwise as much without the realm of wizardry and within the ordinary realm of ordered nature as the plain moon herself. It commonly consists of three parts: first, a brilliant central point, kernel or nucleus, starlike to the eye but not starlike in mass; second, surrounding the first and merging into it by misty gradations, a round nebulous haze known as the coma, brush, hair or chevelure. When a comet comes near the sun, this encircling mane heats and dilates, giving birth to the third part, the famous and frightening part, a long luminous appendix known as the streamer or sword or beard (Pliny records twelve shapes, with as many names) or, in modern parlance, as the tail. Many comets, however, have no tail; or only sometimes a tail. Others, proudly multi-caudal, display two

tails or several: the six-branched splendour of 1744 preened like a golden peacock across the sky. But all have the nebulous haze or chevelure, and within it the kernel—faery-light, gossamer-harmless say some, none so light or so harmless say others.

The known movements of known comets are also three: elliptic, and these, their ellipse round the sun accomplished, return to the same place after a period that astronomers can calculate, that Halley first calculated; parabolic, and those, coming from the farthest unknown on the arc of an infinite circle, merely salute the sun as they pass, and then fly on, never to return, to the farthest unknown again; or hyperbolic.

Why do they come? We have slight conjecture, beyond the charms of the sun, who when they draw near him gives them extra speed and light in generous measure. Charms that hold danger: for sometimes a universe-wandering or parabolic comet, lured into the solar system, passes near—too near—one of the greater planets, say Jupiter; and suffering the Jovian attraction, is constrained to stay near forever. Proud parabola becomes mean ellipse. He is the prisoner of our system—for as long as our system lasts.

So in brief the modern stargazers, with their telescopes and spectroscopes, and astral photography and spectral analysis to aid them.

To seers of other days comets were not so interesting for what they were as for what they boded. They were objects of omen or presage, sometimes good but much more often bad, fiery destroyers that announced from the heavens fire and destruction on earth, swords of flame that foretokened war, red arrows that were arrows of famine. These dire predictions proved usually right. The old magi knew it long ago, Old Moore knows it now: that few are the days which pass by on this planet without some evil happenings somewhere. So bank on black; ’tis safe to prophesy ill.

Safe indeed! A giant rent the heavens, and Troy town fell. This one, delivers Aristotle, brought the Achaean earthquake; that one the storm of Corinth. One came and twenty years afterward another, and Mithridates of evil fame and poison-proof bowel was born and twenty years afterward was king. Then destinate Rome. One appeared to her in 48 BC—

> Non alias coelo ceciderunt plura sereno
> Fulgura; nec diri toties arsere cometae—

to usher in her bloodiest civil wars: Caesar and Pompey and those eighteen Rubicon years of slaughter. The proud visitant of 43 was Caesar’s own soul, triumphing through the worlds, ranging through heaven after reigning on earth, come back to tell Rome that with Julius gone she must accomplish her days of tribulation. Artful Augustus was well pleased, for if Julius were a god then his murderers were not homicides but deicides: a notion most helpful to the policy of artful Augustus, by whose gratitude was built a temple to that comet; under whose reign, as first Emperor of mankind, a star in the east proclaimed the young Redeemer of mankind; at whose death, perhaps from the selfsame asp that stung Cleopatra, flared up a star in the west, perhaps the selfsame star that was Caesar.

In the new Christian era, heavenly signs came thick and fast to declare its many disasters. A titan sword pointed down towards Jerusalem, and soon by Titus’ sword the Holy City was laid waste

forever. At Christ's birth-millenary a nine days' terrible comet came searing the naked firmament of heaven to foretell the final end. The world survived indeed the 1000—and thirty-three years later Christ's death-millenary, the 1033—but at the cost of such unexampled misery, pestilence and famine that many would have thought Finis Mundi the lesser evil. Thirty-three years later again, and in 1066 the famous Conquest Comet foretold the end of old England, this time truly. In the fourteenth century the Black Death was narrowly heralded. In the fifteenth a falciform monster, less sword than scimitar, proclaimed that the Muslims would conquer Europe. His Holiness the Pope denounced it, issued a bull against it, excommunicated it; then fearfully remembered and piously commanded the revival of an old disused prayer the Angelus, what time each day at noon the church bells should be rung, that the faithful everywhere might unite in synchronous prayer against both Coran and comet. But though the Angelus kept ringing, the Turks kept advancing, following the westward Star that had beckoned them on; kept advancing, they and the star, till together they took Byzantium, defiled St. Sophia, trod on her hundred crosses, and gave her, that was Christ's, to Muhammad.

Between the sign and the disaster, the shape of the one and the nature of the other, there seems to have been no fixed relation. The only sure nexus the Middle Ages established was that between the fiery visitant and the fate of princes, between comets and lungs; Majesty's death was announced in the firmament. A list of such announcements would be but a medieval Court Circular. Comets of special malignity, however, may be noted as having ushered to their graves Attila the Scourge of God, Valentinian the Pannonian, Louis the Debonair (innumerable prayers that the king prayed, fasts that he fasted, and churches that he built could postpone the end for only three short years), Richard the Lionhearted, Charles the Bold, and Ferdinand the Catholic. When a monarch chanced to die without the presaging serpent, then one had to be invented. So it was with Charlemagne and the flattery comet of 814 that no man ever saw. When, on the other hand, despite a monster fit for the Emperor himself, Gian Galeazzo Visconti (Earl of Virtue) refused to depart, the scandalized astrologers heaped upon him as he lay in bed such awful descriptions of its awfulness that he died in the end of fright. The astrologers said 'twas of the comet.

Side by side with these lesser auguries, throughout all the centuries men held the maximum belief that one day a comet would destroy the whole earth.

In lively contrast, a merry and medley minority, stand the optimist countries and individuals who have thought well of comets. Such were the Greeks, who unlike the sterner Romans deemed them the gods of Olympus sporting in friendly mood across the sky, this one Pallas Athene, that one golden Apollo. Timoleon of Corinth, undecided whether or no to set out on his Sicilian expedition, took a comet as a sign of heaven's blessing and at once sailed forth for Syracuse, which despite divers hardships and perils he finally captured without the loss of a single man. Such are the viniculturists and vintners of these latter days, with the oenophiles in attendance obedient, who, seeing that one comet year after another proves likewise a good wine year, proclaim cause and effect: to the 1811 comet was ascribed the most famous of all famous ports and the premier vintage ever of the premier Grand Cru ever, the legendary cometary Château Lafite, while it was Donati's of 1858 that gave that year's grape its goodness. The Bordelais challenge tradition; they hope for comets.

There were the cynics also. In Rome. Such as Augustus; such as Seneca, who yet seems to tremble a trifle while he mocks; such as Vespasian, who, when told that one boded ill, replied “Yes, but for the king of the Parthians my enemy; I am bald, but he like the comet has a beard.” In London. Such as Queen Elizabeth, who, when they counselled her to stay indoors because a terror was in the sky, stood up, called “Open the window!” and marched forth to see. “Jacta est alea!” she added cryptically, after a good look skyward, and strode back into the room with a smile, and let us hope an oath also, to go on with her business and England’s; such as her right disloyal subject, Henry Howard (Earl of Northampton), who wrote his Preservative Against the Poison of Supposed Prophecies nearly four hundred years ago, and gave a devastating list of comets that had brought no unpleasant results in their train and another list, still more devastating, of unpleasant events that had occurred without comets to cause them. He was at once incarcerated in the Fleet. It may of course have been the Queen’s amorous jealousy; she had caught him exchanging tokens with her sister the Stuart. More likely it was the enmity of the judicial astrologers.

However it may be, his gibes fell, if not on hostile, at least on deaf ears, and he remained an exception; for whether they thought the influence benign or unbenign, almost all men through all the centuries till the last two or three thought it supernatural.

Then, with Bayle the great name of the change, a great change began. Comets were still thought to produce effects on the earth, and these effects were still thought to be chiefly baleful; the change was that they came to be regarded as natural and not supernatural effects, part of the foreordained order of physical things. Comets tampered with the atmosphere; caused curious dry fogs, or over-great heat, or divers sicknesses. The Plague of London in 1665, as the sleeping-sickness epidemic in Japan in our own day, was put down to cometary gases. Thou shalt die in a polluted land.

The utter danger, that a comet would accomplish the end of the whole earth, was not removed; but by honest collision, not by magic.

The nineteenth century’s attitude differed from that of all its predecessors. A comet meant nothing, favourable or unfavourable; it could produce no supernatural results or natural ones either. A world so perfect and so progressive could not be destined for such harm—Providence would not be so foolish—while of goodness it had enough, without help from the heavens. Human reason and human records alike controverted the cometic claims, and however eager to smile at their forebears of the nineteenth, twentieth century students who toil through the long Chinese records or through Pingré must admit that most of the visitors therein so monotonously registered did little to the earth that was worth doing, either good or bad.

The twentieth century began to waver. If “somehow good” lived on, it was flickeringly. Magic was in the air again, and catastrophe. Also new facts. It was demonstrated, for instance, that by means of the shooting stars showered down by comets, or the tenuous matter shed from their tails, new supplies of carbon, the stuff of life, were given to us. Life was thus renewed on the earth, declared optimists. Thus it was kept going or set going everywhere, added enthusiasts; comets were peripatetic creators, Jehovahs itinerant, beneficent bodies bearing carbon and with it organic existence from star to star, in vital permutation, high cosmic interchange, eternal xenogamy of worlds.

Pessimists, on the other hand, though with many a reserve and proviso to prevent themselves looking ridiculous, are returning to a catastrophic view; of a comet not as herald or harbinger of doom—no worthy one announced Armageddon, the 1914 skies spake peace—but as its actual agent. They think that one might strike the earth, or almost; and that if it did, the consequences would be fatal. Or almost.

What would happen?

The answer depends upon many factors: the composition of the comet, its speed, its proximity, the angle at which it struck.

Approaching, it might absorb the oxygen of the atmosphere. We should die, gasping and choking, of asphyxia.

It might absorb the azote, leaving us proportionately too much oxygen. We should live hours of nervous delirious joy, the whole world dancing a saraband or international hornpipe until through over-exultation we attained death cardiac or neurotic.

It might contain some gas to poison the air. The name of the star is called Wormwood. Our end would be velenous.

Its gases might combine and combust with our oxygen, causing conflagration of the air; concremation of our fields, our cities and ourselves.

It might triumph tidally, attracting the seas, pulling them up to cover the earth. The Deluge again; we should drown.

It might whirl up the earth to be its satellite; rock and reel us away.

It might bombard with boulders bigger than islands. Falling, these would chafe the air to unbearable heat; plunging into the sea, would produce tidal waves and worldwide floods; colliding with the land, would bore huge holes through to Gehenna beneath, new craters of burning, wherefrom in every direction cracks in the earth’s rind would radiate, new rows of craters of burning; fire added to fire and both to ravening water.

It might, advancing, cancel the earth’s movement; which, transformed into heat, would suffice to dissolve the globe. We should vanish in instant steam.

The choice is thus various; are the chances many?

Most astronomers answer with a comforting negative. Their contention is this. Space is infinite; the length of the earth’s annual circuit is enormous; comets are not infinite in number; few of them cut the terrestrial orbit. Therefore the arithmetical likelihood of a collision, or of even a nearish encounter, is infinitely small. Arago put the chances of crashing with the central kernel of a wanderer at one in two hundred and eighty-one million, or with some less central part say ten times greater: one in twenty-eight million one hundred thousand. Imagine a vast urn, he says, in which were twenty-eight million white balls meaning us no harm and one black ball condemning us

to death. Should we take that one chance seriously? When we put in our hand to draw should we whine and shrink?

Even if the one chance fell, and a comet passed very near, its passage would be too quick to matter. It would have no time to scorch, poison, pull up the seas. In a few seconds it would be infinitely far away again, not having had the physical time to harm us.

Further, even the worst—direct collision—would be survivable. Comets have been weighed in the astrophysician's balance and found wanting; the scale shows zero. They are but light-clouds, as Xenocrates and Theon of Alexandria called them long ago. The tails may contain vapours and a little meteoric dust, but are some forty-five billion times less dense than air; oftener they contain no substance at all, being a mere optical-electrical effect, as solid as a sunset; and a series of fine sunsets is the worst their swish could do for us. The kernel itself is, at its heaviest, but a diminutive cluster of meteors, impact wherewith could only mean the gay sunsets with a glorious shower of shooting stars thrown in.

These and other astronomical considerations are reinforced by the moral one that anything so unpleasant is also unlikely.

On the opposite side stand opposite arguments.

The comets number millions of millions. Far more, including the parabolic majority, must cut the earth's orbit than is known. Biela's comes every seven years to a place where we visit in November. In 1819, in 1832, in 1861—to name but three neighbours in time—the tip of the tail grazed us. In 1832 especially we had the narrowest escape: with the Reform Bill just being voted—extension of the suffrage, redistribution of seats, Weymouth reduced to two members, Old Sarum disfranchised altogether—what a disaster it would have been! In 1770 the earth and the comet were at the same point during the same day; only a few hours divided them from impact. Thus Arago's one in twenty-eight million is a dubious estimate. One in twenty-eight thousand may be quite as accurate—quite as inaccurate. A disaster avoidable by finite chance alone is not of infinite unlikelihood. Time is boundless. There is time for this.

To end us, no need for a comet to cut our orbit. It might crash with Jupiter, restore him his lost light, make him a sun again; we should be lighted by two suns; human life, inadaptable to eternal day, would perish.

There is reason to believe—if one wants to—that long ago a great comet did strike the earth, sinking Atlantis, causing the Great Drift, ushering in the last ice age. A greater comet may in the future do far worse.

Many are far from rarified. Larger than the earth itself, they are solid and opaque, containing a central mass of rocks and stones and sand as wide as Russia, collision with which would be the catastrophe. Solid they must anyhow be; the gases spectroscopically seen in them would have long ago vanished off into space unless there were a substantial nucleus to hold them gravitationally together. Some heads are as large as three moons.

Among the gases the spectroscope reveals are most deadly poisons.

Their extreme speed would only save us if their passage were distant; in case of crash so much the worse.

These and other astronomical considerations are reinforced by the immoral one that anything so unpleasant is also likely.

The sum of it all is that nobody knows. If destruction by this mode is not to be expected, it is not to be ruled out. We shall lie in our beds without trembling, but we shall respect the fear that inspired our ancestors, and shall ourselves respect—and fear—the next great comet that flames the dark night. Let it be but twice as large and come but twice as near as any of its predecessors, and then let the optimists see. Insane terror will seize them and us all.

## Fire

Apart from those of the cometary ends which are also flaming ends, fire has fair chances of being the element that will conclude us.

Fire is the same word as pure, and many lands and ages have believed in its purifying virtue alike for soul and body. The impurer the flesh or spirit the purer had the flames to be. For the prostitute, fire of the forest; for this foul world, fire from on high.

Fire is elemental life; by burning, the individual life was given in sacrifice back to the elemental. This mode has therefore been accounted man’s most glorious mode of death; flames have made even self-murder noble and martyrdom, already noble, even nobler. In ancient India the pious one committed meritorious suicide if he chose fire, for thus he cleansed his soul at its passage from this world to the next. The ultimate success of the new religion in Reformation England, with the failure of the old, does not wholly explain, nor does the bias of our schoolbooks nor our biased selves their product wholly explain, why we regard with more shrinking the Marian persecution of the Protestants than the Elizabethan persecution of the Catholics, the balefires of Smithfield than the block of Tyburn, with more admiration the brave sectaries and reformers that perished in the one than the brave seculars and regulars that perished on the other. Success and bias together cannot explain the difference in our feelings; rather does the difference in our feelings explain both the success and the bias, and that difference is due, more than all else, to the greater glory and terror, inhumanity and purity, of death by fire. The sour sister burnt Protestantism into the English soul; the cynical sister could not axe Catholicism back. For triumph faith needs the torch.

As fiery death has been accounted most noble, so fiery obsequy has been accounted most magnificent. Iliad ends in a calm funeral twilight of great pyres. The loveliest Greek’s: for which they hewed high-foliaged oaks, and piled the wood, which they made a hundred feet this way and that, on which they set the corpse, while Achilles his lover slew twelve sons of Trojans (no daughters were there, whose bodies had burned better) as more glorious fuel, and prayed to the north wind and to the west wind till the flame kindled, and consumed the gentle body as they moaned around it: thus held they funeral for Patroklos son of Menoitos. The bravest Trojan’s: for which during nine days they gathered wood, which they built heaven-high, on which they laid him, on which they then cast fire, which burned his bones white as they wept tears around him: thus held they funeral for Hector, tamer of horses.

Of King Saul was fused everything, of King Pyrrhus all but his big toe. Then, following Greece, the pomped long history of Rome, pyrally alight with consular and imperial blazes, pyrally aloud with the conclamatio and the rustling of wings as the funeral eagles soar into heaven. So ancient Mexico; so the old North.

Many great nations, of course, not only declined but abhorred the practice; such as those of Zarathustrian faith who, holding that fire was God Himself, held that to burn their bodies would be to pollute Him—excluding perhaps those Bombay modernists who debate, Does electricity count as burning? Such as the pre-Aryan peoples of Europe, such as the pre-Homeric Greeks. Such as the later Jews: was not that transgression for which Jehovah would not turn away the punishment of Moab, the death with tumult and trumpet and with shoutings, that he had burned the bones of the King of Edom into lime?

Many great names had burial not burning: the first Adam, who was inhumed on Calvary; the Second, who crucially died there. Counting all peoples, cremation would doubtless be outnumbered by cadaverous burial.

Yet the balance of superber custom is the other way, and fire, while it purified and glorified, was seen of many to be the commonsense mode also. Worms do not devour our ashes as they do our inhumated flesh; foes cannot deface nor defile them; no greedy six foot is needed to detain them.

As for men, so for the world. Cremation indeed was a compliment, an ever repeated rehearsal of “the finall pyre of alle things.” Life itself is a flame, as was said long ago, and remains the truest comparison; in the cyanogen type of theory as to how life first began, fire is the force that synthesized the albumen, and Haeckel joins hands with Heraclitus. What flame has given flame will take away; the commonest credence through history is world’s end by the master element.

Earliest peoples hold it. If, whether flame-crested cockatoo or fire-tailed wren, scarlet-necked kingfisher or robin-redbreast, it was, as the old legends tell, a fowl of the air that first stole fire for mankind, lo! as he flew his own plumage caught fire in seared forfeit; if, as in Greek story, the thief was a demigod, whether he rifled the sky-god in heaven or the forge-god in that Lemnian isle whither Zeus had down-hurled him, he too did Promethean penance by those three hundred centuries of torture on the Rock; if, as anthropology alleges, armed whether with fire-drill or fire-saw, firestone or fire-plough, it was impious man himself, the Inventor, who first raided the high sanctuary, then he too with his world shall atone, and perish beneath banners of burning.

The Romans maintained it, and Israel, and the Christians who inherited from both, and the Norsemen and the Aztecs who inherited from neither. Agni, whose banner is smoke, He shall devour—proclaim the Vedas.

> Dies irae, dies illa!
> Solvet saeclum in favilla!

calls the Church. The Bible echoes her (or she the Bible): The Lord will come with fire, cried the mightiest of the Hebrew prophets; the mountains shall be molten under Him, the heavens shall vanish away like smoke. The heaven and the earth are reserved unto fire, wrote the chief of the twelve apostles; the elements shall melt with fervent heat. Apocrypha concurs: The fire is kindled,

and shall not be put out till it consume the foundation of the earth. Christian eschatology confirms, foretelling the final destruction always through spirit of burning. Which is indeed oftenest dwelt on as moral burning, purifying the righteous and the penitent, cleansing their souls while destroying the souls of the wicked—the earth's flagrant end, though predicted as physical fact, being regarded as a spectacular side-issue, accompaniment or prelude to the real end, the religious end: the Last Judgment, the end of souls.

And we? Do the faith-free prophets of today think it likely or unlikely that this planet will so perish? Unlikely is their answer, clashing sharply with the old beliefs of man; though, as with the comet chance, they will hazard no stronger word.

How then?

Through deed of the sun's. …

Who might grow bigger, as many stars do. The light of the sun shall be sevenfold, as the light of seven days.

Or smaller but hotter. Some heliographers declare that this is even now happening. At one stage in the sun's life the balance between the heat he is continually losing, sending forth into space and squandering, and the regenerative heat he gains through contraction must tilt in favour of the latter. That stage, the maximum density stage, the paradox stage, the sun's apogee through shrinking, may be not in the past but in the future, may be upon us tomorrow or today.

Who might burst.

Who might break in two; his interior part rotating so fast that spinning would lead to splitting. Our orbit would then become violently irregular. The earth shall reel to and fro like a drunkard, and shall be removed like a cottage. Long before we actually collided with either, we should have swung so near to one or other of the two halves of the sundered sun that all life would have been charred away.

Who might lure some brother sun too near. In the middle of a line of force, the earth would be stopped still, its onward movement changed into molecular movement, and be reduced to steam.

Who might, on his endless journey, move into some new region of space filled with different matter, or denser matter, there soon to develop some new form of radiation, or greater radiation; drift into one of the nebulae flung netwise through the cosmos, there at once to blaze like a meteor when it flies into our atmosphere; too near one of the hottest stars, an S Doradus, Gamma in Pegasus, Zeta in Perseus, able with their fifty thousand degrees of sidereal fire to ruin from very far; rush up against some heavenly medium resistant enough to convert into heat all the fearful energy of his progress.

Through deed of the earth's own. …

Unhelped of the sun, not in solar mode but Stygian, Earth may find fire for self-destruction. The heat is there. We are still a gaseous globe, with a solid crust much thinner in proportion than

eggshell to egg. The heat is there. Every fifty feet you go down the thermometer goes one degree up; two miles or so inward it is the boiling point of water, and there, below the lowest granite, the lowest gabbro, red-hot, white-hot, incalescent, incandescent, not a morning's walk beneath our feet, glows the ardent underworld. Which, any hour, may renew its ancient zeal. No need to explode, to send flying the whole crust. The old channels to the old outlets show an easier way: forth of a thousand reawakened volcanoes, from the lowliest to the highest, from Cosima to Cotopaxi or the Sahama, burning matter, tumults of lava molten and magmatic, will spout and spread, covering the earth already riven and afire from great earthquakes, and struck by purple lightning. In three millenaries seventeen million people have died plutonically; all the seventeen hundred million people on the earth today may so perish in three minutes.

In plutonic perishing to be included not only eruptions but earthquakes, not only burstings through the crust but the crust's own fatal shiftings, not only vulcanism but seism. If the crust is cooling faster and contracting faster than the globe as a whole, then the shell will get too small for the egg, and will crack here, break there, split everywhere; as the moon they say once did, which her streamers of obsidian seem to argue. Tension is increasing, and the coming period of continent-wide cracks and breaks, ups and downs, loud interchanges of land and sea, will blot out, together with ourselves, our memories of those gentler seismic centuries from Pompei to Lisbon and Lisbon to San Francisco. Or if it is the earth that is getting smaller more quickly than her crust, then the crust is getting too big, and to adapt itself to the dwindling mass it encloses must further fold and crinkle, as though not already pulled and strained and faulted enough by the speed with which she turns (madly whirls) on her axis. Such adaptations also, such crinklings, will take the form of earthquakes more fearful than any in the past, and miserably destroy mankind.

Whether sun-helped or self-kindled, how bravely the earth will flare! Her garments of gladness are cinerable, incremable; her wood is all touchwood; her green tunic of verdure is wrought not of salamander's wool, has no woof incombustible nor warp asbestine; every tree and every town shall be fuel, all people and all palaces for devouring, all life shall be food for the flames. Souls into slag and embers; burning instead of beauty.

There are gainsayers, who cap each pyromaniac might with fireproof won't.

The sun won't grow larger; he's too old.

He won't grow hotter; long ago he turned compression corner, and began spending more heat than he earns.

He won't burst; having no crust to burst through.

He won't divide; not having the special properties of the fissurable stars, will know no Great Schism.

With that line of force he cannot terrify us, torrify us; are we not already in a straight line, if straight lines there be, between him and every other star?

He may indeed drift into a nebula. That chance, unlike the others, is not fantastic; but it is small, and need not be fatal. We've been wandering through heaven this last few myriad years without

such mishap.

Yet more hopeless of fulfilment are the non-solar prophecies of calorific end; firemongers come off even worse than with the sun.

The earth won’t explode. Her shell may be thin, but it’s strong—strong enough to have held its own against all the subterranean forces ever since they first permitted it to form.

Volcanoes are becoming extinct.

The seismic curve is downward.

Add and combine all their dire possibilities; together they touch not probability. Crueller gods than Vulcan lie in wait.

Yet, if burnt, think some, what matter? We shall live again. Earth is Phoenix.

Who had five hundred years of radiant life. Then, still splendid, his wings laden with spices, he flew from Hindustan to Heliopolis, entered the temple there; of sweet woods, frankincense and cassia, fuel-yew undeciduous, eternal, built him his own pyre on the altar, fanned with his own wings the flame, and was burned to ashes; wherein next day was born a new phoenix, feathered and fledged, who on the third day saluted the priest and flew away into India, for five hundred new years of radiant life.

Earth is Phoenix. Burned to ashes, she would live again, and, when the hour came round, through new fire of Easter Eve, lumen Christi, Paschal candle of destruction, again would die.

This is the Stoics’ theory. After its five hundred—five million million—years of life, the world is to end by violence of fire. An identical one will be born from the phoenical ashes, salute the sun, then set forth on its cycle of flight. And so forever: through an endless cycle of decalescence, recalescence, there being no one world—rather an infinite series of identical worlds, having lived an eternity of times, with an eternity of times to live.

Sometimes we seem to remember, and to foresee.

## Water

Not fire but flood.

Less patron’d by the generations of old, this mode has in revenge had greater dominion over more modern expectation.

In first result, Comet and Fire might be watery ends. A comet could pull up the deeps, and flood before it poisoned or struck. Increased heat could drown ere it had time to scorch: at the first touch of the sun grown mightier the mountain snows would melt with terrible speed, would pour down in myriad converging streams from all high places into all low; from the Alps into the over-civilized European lowlands, into Italy, Germany, France; from the Himalayas into the over-peopled Ganges

plains, torrenting from Everest to Comorin; from the African heights into the black jungles south and west, and northward into Egypt, which would see rise up the River, swallowing the Cairene delta and the oldest seats of fear; from the Rockies into the proud Yankee prairies, the twentieth century's chief seat of expected power; from the Andes into the Latinate pampas, perhaps, unless the end comes earlier, to be the chief seat of the twenty-first's. All men that had not perished of the sun's rays would be devoured by the sun-driven waters. Not with hope could they lift up their eyes to the hills, for from the mountains of prey their doom would be triumphing down. Vainly they cling for a few poor days or hours to refuges near them, the swiftest or craftiest climbing to cathedral towers, Milan or Cologne or Chartres, to pagoda or temple tops, to the peaks of the Pyramids, to Woolworth's seven-and-fiftieth, or such Argentine monster as may yet outbuild it. In white-faced terror of drowning, vainly they climb: the waters increase and prevail, and quench the last cry.

Which flood through heat should be classed, if with scant comfort for its victims, as a mere incidental water-end. The aqueous future proper that, confirming some ancient beliefs, some modern geologists foretell is the less spectacular one of the slow conquest of the world's land by the world's sea, the gradual covering of the earth by the waters of the great deep. The erosionists clasp Noah's Ark.

Whether the Bible Deluge ever took place is matter of combat and conjecture. Great inundations all agree there must have been; whether one of these was not merely widespread but almost universal, and whether not almost universal but quite, forms the subject of a whole literature and is still an unsettled controversy, even among anti-inspirationists themselves and those most anxious to prove all old tales old wives' tales. Some geologists discern in the past—as some others in the future also—a time of worldwide volcanic eruptions and upheaval of mountain chains, accompanied by subsidences of land and followed by great waves of translation that traversed the tumbled continents and engulphed the antediluvian animals with antediluvian man. What of Cythera? The upward-fleeing skeletons from base to peak, seeking vain safety from the waters behind and upon them? What of the Mountain of Bones?

How the Flood began and proceeded: how the windows of heaven were opened and all the fountains of the great deep were broken up, how the waters increased, how they prevailed, how they prevailed exceedingly upon the earth, fifteen cubits upwards did the waters prevail, and how all the high hills that were under the whole heaven were covered, with only Noah remaining alive and they that were with him in the ark, all this is known to every child in Christendom: the Bible tells him. How in the pagan variant it was Jupiter and not Jehovah who sent forth the rain-bringing South wind and summoned the sea, till the dolphins played among the forest-tops and the wolves swam among the sheep and only Parnassus tip was left and only Deucalion son of Prometheus and Pyrrha daughter of Pandora were saved in their boat, is known to every child of the classics: Apollodorus informs us. How in the Chaldaean stories, Hasisadra (or Xisathros), warned by Ea (or Kronos), took into the ark with him not only couples of the domestic animals but also a couple of domestic servants, one male and one female, both butler and bondswoman, so that that useful species also might be perpetuated, along with a few "intimate friends" and Buzurkugel, the trained steersman, is familiar to Orientalists: who have the tablets that Asshur-banipal ordered, and Berosius' exciting narrative. How the Red Indians remembered it, as in the story Snapping Turtle told his paleface questioner, we know from beloved Catlin. How the Celestial flood was worldwide

like the Pentateuchal, and how Yü proved himself every inch a Noah, stands written in Shu King, in the oldest of literatures. How, finally, in almost all peoples' traditions the event is there, though the details may differ oddly, and what those details are, is known to comparative folklore students and diluvian specialists alone.

The races without any flood record are few: only the Negroes, the Japanese and the Egyptians. There is a theory that the last-named once had the legend, but deliberately forgot it or changed it. For them the rising of waters was their wealth, their life, their hope; that one flood they knew, yearly, Nilotic, was the best thing they knew. Flood as disaster they could not conceive of; any such legend must be a false legend.

Despite this almost universal tradition, no quiet universal deluge may ever have taken place. Local disasters may have been magnified by memory and myth into general ones.

The Shu King account is indeed partly founded on fact; for in the twenty-fourth century before Jesus the Hwang-Ho, Yellow River, Sorrow of China, had historically risen and ruined half the land. Half the land though, not half the world. Then the Noachian story. The animals went in two by two. Did they, forsooth! What ablest zoo-keeper from Hamburg or Regent's Park could pretend that with a total staff of seven—wife, three sons, and three sons' wives—to help him he could have managed that multitudinous procession of all the beasts of the field and fowls of the air, the dinosaurs and the donkeys, the iguanodons and the hummingbirds, the moths and the behemoths, not to consider the quantity and diversity of the fodder to be collected and stored, and the cage (or cabin) arrangements, and the cleaning?

Yet, when every little Victorian laugh has been re-laughed, the strangely widespread character of the story must be allowed to count for much, supported as it is by evidence ranging from the state of the mammoth fossils in Siberia, and the position of bones in countless cave recesses, far apart, where only water could have carried them, and the grouping of those bones, men's and hyaenas' side by side, who would never have laired together, and their tumultuous arrangement and their diluvial coating, to the Great Thaw that followed the last ice age, the newer theories of continent-tumblings and continent-floodings, and the very latest and smartest deductions from radioactivity and isostasy.

Naturally the old stories show discrepancies on this point or that: some, like the Persian account, giving a volcanic origin—it was the fiery dragon from the South—some alleging a pluvial cause, some others a pelagian, and the Welsh legend and the Mexican casting their respective heroes, Dwyfan and Dwyfach the double steersman, and Cox-Cox the steersman with so apt a double name, for quite different roles from those that Berosius or Moses cast for theirs. Discrepancies of elaboration or elucidation, that do but push the main facts into bolder relief. What other cosmological myth carries such conviction, seems to rest so imperiously upon bedrock of truth?

The flood-fearers had one advantage over the flame-fearers; they had precedents for protecting themselves—and knew how to. It was easier, moreover, to be armed against water than against fire; Man saw that he could not salamandrize the whole surface of the earth, turn it into one vast asbestos ark; but he could make himself arks of gopher wood, watertight, seaworthy—and he did. Sporadically throughout the Middle Ages that strange shipbuilding went on, one famous exponent

being good Doctor Auriol of Toulouse, cleric and don, who, when the German astrologer Stoffler foretold the Final Deluge for 1524, built an ark large enough not only for himself and all his family but—most unselfishly, and setting a much-needed retrospective example to Deukalion and Noah—for all his friends as well. The waters never came, St. Swithin failed him, but the doctor had at least the satisfaction (in addition to joy of knighthood, royal payment for the long harangue of welcome he delivered to Francis the First when that monarch visited the town) of being prepared and forearmed. More solid satisfactions had those who, believing Stoffler not, acquired at job-lot prices the seaside and riverside property of those believing.

Whatever our beliefs about such beliefs, that man held them, that he believed the Flood had happened, is what matters here; and believed it might happen again, and next time spare no Noah. For if fire-end has held pride of place, flood-end has never lacked supporters: Parthians, Persians, some Peruvians. Watery Amos counters fiery Isaiah. The burden of the desert of the sea: it shall rise up wholly like the River. Nor were the two contradictory. Under the Cyclic Theory of ever-repeated destruction, ever-recurring rebirth and re-death of the world, water and fire alternate; the conflagratio breaks out in the great summer of the Magnus Annus of disaster, the diluvium mounts in the great winter.

For centuries, however, the flood-fear halted until, during the nineteenth, it was given new life by certain geologists.

Gradually, through long ages, the continents will become level. Every valley shall be exalted, and every mountain and hill shall be made low. Then, there being more water than land—enough of the former to cover the latter all over and have two inches to spare—the land must finally vanish. We shall drown.

This, unless some other agency should get in first—this will and must happen.

It is happening now. A usual estimate of the world area lost by land to sea is some ten or eleven square miles a year.

The loss is not evenly distributed over the globe; for, if others lose, some countries actually gain against the sea. Where was half Holland a thousand years ago? Where is Atlantis now?

Nor evenly distributed through the divers parts of any one country. For instance Italy; where, if in many an eroded republican corner the sea is victor, she draws back defeated near east-imperial Ravenna and west-imperial Rome, victorious Rome. Or England; where, though the west coast on the whole is a winner, the east coast loses much more. If, as commercial enemies allege, at Southport the sea view is now telescopic only, the once crown of Lancastrian resorts can console herself by remembering that across the Pennines, on the rival White Rose coast (on a dead straight line to the tiniest fraction of latitude), Ravenspur, where Henry the Fourth once landed to claim that other Lancastrian crown, is now a sepulchred city far out beneath the invading sea.

But, for the whole world, the loss is always larger than the gain; the net adverse balance being those ten or eleven square miles a year. Take the mileage of the five continents, and find out how long we have.

If some natural forces work the other way—with some human ones, English training-walls, Dutch dikes—at best they retard a little the end. The Sea is stronger. Time is with her. She has more, and more powerful, allies. All the forces of nature are her allies.

The sun. He heats the rocks by day, but not by night; they expand, they diminish; their texture is weakened. He scorches the surface, but not the inner parts; their texture is made uneven. Soaked by rain, he over-rapidly dries them. They lose their molecular cohesion. They crumble. They fall down into the sea.

The rain. It cooperates with the sun—allies all—wetting, weakening, dissolving, oxydizing, rotting, rusting. It gets into the cracks the sun has made; where, in winter changed into snow, it wedgewise cleaves asunder the rocks, made thus yet weaker for the sun's further action and still readier for the sea.

The rivers. They wear away their channels and bear downward in their muddied waters granite and lime and sand, our stolen foothold and heritage; downward always, denudationally, to the sea.

The beasts. In their castings the earthworm and the white ant bring up, moles and rabbits burrow up, annual mountain immensities of under-earth to the surface; made loose, comminuted, prompt to be blown away by the wind or carried by raindrops to the rivers, and so at last, these also, to the sea.

Glaciers assist; ice-meteors clash in the air; the force of gravity solemnly pulls its weight. While the wind, from the shore carrying light particles seaward, from the sea beating against the loosened rocks with fierce loose grains of sand, makes aeolian erosion not the least of the many forces working to disinherit us and to drown.

Last, and victorious, mother of terror, man's first home and final enemy, there is the Sea herself, mightier than all these her helpers. She abates not, nor assuages. Against the world's two hundred thousand miles of coastline she wars unceasingly; she batters with stone and shingle, with her tides and her currents, her unseen salts and her seen white tempests; she beats, she eats; she crashes, she corrodes. At long last she will have us; the ultimate land for man's feet will be swallowed; the waters shall cover the earth.

## Drought

Not water, but dearth thereof; not drowning, but drouth.

A negative mode for our finishing, and one therefore that has occupied less place in the fears and imaginations of men.

Yet, though there's no drought story spread wide to match the flood story, shortage of water is like to have been both more frequent and more fatal than excess thereof, at any rate since measurable antiquity; more men and beasts have died of it, and of the famine its offspring. As a local and immediate terror it has indeed haunted countless nations, who to exorcize it have appealed to countless gods. In how many famished synagogues have not the dark Talmudic solemnities against

the dryness been accomplished unto Jehovah; from how many ravenous mosques has not the droned salāt for rain gone up to the steel-blue skies and Allah above them; through how many Persian temples have not the long incantations against Apaosha the drought-demon mournfully sounded for the ears of Ormazd; under how many African prayer-trees has not the magical howl for the raindrops been uttered to move Mumbo Jumbo's stony heart? When the grass faileth, when there is no green thing, God under all these His names has been prayed to, petitioned, propitiated.

And sometimes He has been tricked. In the Spice Islands where, for that sin of incest He most abhorreth, in divine displeasure He sends as punishment torrential rains, the priests publicly organize incestuous orgies, staged contacts of horror, and then cry out: "O gods above, come, show your wrath; send rain!" The raven's cry breaks drought—his reward for that day he taught Adam bury Abel, eldest of burials—and in all lands and islands, decoying famine-throats have copied his cry, till the bird's own throat echoed, and the windows of heaven were opened.

Here and there a people has believed in the whole world's arid end: as in old Peru. Now and then the Prophets of Israel, impartially foreseeing all unpleasant things, gave it their vote: He rebuketh the sea, and drieth up all the rivers, and everything shall wither, be driven away, and be no more. … But always having had known geographical limits in the past, drought has not often been dreaded as the total destroyer in the future. Today its adherents would be proportionately more numerous than at any hour in history before.

Gradually, through long ages, the earth is drying up. Within observable geological time, water has diminished. It is still diminishing. It will go on diminishing. We shall die parched.

Water, and with it life, will one day disappear from the globe. A usual estimate of the world area lost by water to land is some ten or eleven square miles a year. Take the measure of the seven seas, and find out how long we have.

The chief considerations urged on behalf of this diametrically opposite view are diametrical denials of the chief considerations set forth for watery triumph.

Levelling of lands is admitted, up to a point; assuaging of waters has more than kept pace.

Rain may do its share of dissolving and carrying away; much more of it penetrates through the porous earth into the lower soil, where it is crystallized, converted into hydrates, and so lost to the liquid cause. Besides, there is always less of it; the atmosphere is dryer, clouds fewer than they were. God's rainbow promise was cynical.

Wind and sun may have destroying action; their drying action is mightier.

All coasts where the prevailing winds are landward are increased by new stretches of sand-dunes. Ocean, the supposedly all-powerful, is in open battle losing more than she gains. The waters shall fail from the sea. He hath said to the deep: Be dry.

Mere trees keep pace with her; in Florida the mangoes are thrusting out seaward in wide swamps.

Rivers may carry away. But not much of what substance they do sweep down is finally lost. More is saved for us, against oceans in the form of terrigene bands, against inland seas in the form of deltas, whereon man flourishes exceedingly, building him there most victorious cities. Behold the deltoid map: Nile's great knee pushes northward, thrusting the Midland Sea aside; Ganges and Brahmaputra share a mouth, whose long teeth, every year longer, gnaw southward into the Gulf of Bengal; half Louisiana is but Mississippi's sharp tongue, lapping up the Mexican Bay, prairie mud racing mango swamps to add a second jutting Florida to Dixie.

All lakes are shrivelling. Half the lakes—the ex-lakes—of Europe have become alluvial dry land. The other half are following. Compare the Sea of Geneva today with the Leman of Roman times; far inland from the tourist shore the old Imperial ports lie stranded.

Hand-in-hand against the water work all other terrestrial agencies.

Atmospheric agencies. The air itself is slowly dribbling off into outer space, its moisture with it.

Eruptive ones. In the period of intenser volcanic activity soon to appear, a few hundred thousand folk here and there may be killed, but the human race as a whole will win respite; the craters will spew up empires of lava, to add to our landed store. One first-class eruption alone will throw forth enough land from the bowels of the earth to make up for millenaries of erosion.

Animal ones. Mightier than earthworm for the water's side, fight polyp and coral for the waterless. After a submarine eruption, the coral insects at once set to and build around the new-formed crater. One pink generation dies; the next one begins on the skeletons, pitilessly, as calcareous platform for its own campaign. Land peeps out. The mariner sees before him a new atoll not seen on his chart, a truly magical new island of desire. Ocean is that much the smaller.

Squarest denial is reserved for the two prime aqueous arguments.

First, that the sea has in point of evident fact gained on the land.

The land has in point of evident fact gained on the sea. Those terrestrial forests and their fossils discovered under the ocean, proving that where now is sea was land, are demonstrably less spacious than those marine deposits discovered far inland and high up, miles from the shore and thousands of feet above it; than those older sedimentary rocks, once deposited in the deeps, which now tower on the loftiest Andean cones or in highest Himalaya—proving that where now is land was sea.

I've seen what was most solid earth before Become a Sea, the Sea become a Shore; Far from the Sea Sea-Cocles often lie And Anchors old are found on Mountains high; Land-floods have made a Valley of a Plain And brought a Mountain with them to the Main.

Impartial Ovid! Impartial oceanography allows that both Metamorphoses occur; but the sea-receding one more largely. According to the preachers of the Six Cycles—the periodical up-and-down movement of the ocean floor, first an age of tilting up and mountain-building, then an alternate age of transgressional seas and continent-sinking—in the end it is the land that wins. The waters have shifted, but they have lost. The vast bulk of the Ganges delta and Gangetic plains, if it

shows how vastly the Himalayas must have been lowered to build them, shows chiefly that what the heights were denuded of has not been lost for terra firma. The cyclic seas once swallowed up Gondwanaland, the old great Indian Atlantis; the aquophobe cycle replied by building up the new great peninsula of Hindustan.

Second, that there is now more water than land.

There is more land than water. It is only the trifling mass of the sea-depths that is greater than the trifling mass of the raised earth; below the deepest Pacific soundings, as below all the continents, there is solid earth right down unto the fires within. Taking the total cubic capacity of the globe, solid outnumbers liquid a multitude of times. As the earth ages and shrinks, this disproportion will augment, slow desiccation continuing till the last drop of water is dried up, till the world is a desert of dead men.

Consider also the heavens. The moon, being smaller than the earth, dried and died sooner, and now is a cloudless, sealess, waterless world, image of what we one day shall be. Venus, our younger sister, still modestly veiled in a garment of white clouds, is an image of our fresh innocence in the past, a world of young sparkling waters. Mars, our elder brother, has few clouds left to cover him; he is parching rapidly; there roll no oceans more for his warlike ships to ride on, only inland black seas, paltry Euxines. Along his two belts the thirsty deserts are spreading. They are spreading along ours. Along Cancer. Central Asia is perishing, Gobi grows; Babylon and Nineveh are under the sand, Arabia Petraea waxes. In the Holiest Land not all the gold of Zionism will make the milk and honey flow again; the waves of the Sahara now greet the waves of the sea and have long engulfed the richest granary of Rome, devouring Rome; despite Wall Street the Great American Desert remains one. Along Capricorn. The South Australian and South African and South American wastes are not receding, any more than the vaster opaline wastes on Mars. Who still has vegetation in his dried sea-bottoms, as here the last herb will sprout feebly from the parched Pacific floor.

Being made up of seven parts water in ten, from a water-losing much sooner than from a land-losing planet man is doomed to go. Before the globe was cool enough for water to appear, organic life did not exist; carbon could not combine to form the plasm. It will not exist when the globe is too cold for water to remain. An Ark for the Deluge; there’s no Ark against the Drought.

Without water, vegetation must die, and the herbiverous creatures that live on it, and we that live on them both. Surely the people is grass.

Flood certain; drought certain—how far is there paradox? Thus far: that, save the Living Terror, nothing is certain.

Yet, though no certitude, both the dry-land school and the blue-water school have some chance of being justified; in the long up-and-down future of geological time one individual factor, on the one side or the other, may rise suddenly eminent above all probable calculation, and, its allies gathering insolence with it, and all of these acquiring momentum together, may be able to tilt the balance for its own side and win to time, without yet proving the opposite prophets, who also tabled on averages and likelihoods, either knaves or fools. Is it paradox to say that the average

man has about equal chances of dying of thirst in Arabia or of drowning in the Atlantic, of succumbing to dropsy or disease of dryness?

Equal chances, equally remote; postponement rather than paradox. For these two hold pace with each other, cancel each other, defeat each other, in terraqueous equilibrium delay each other, until that far day when the earth, having eluded all accidents and pulled through all illnesses, will perish only, when her hour is up, of old age or its other name, the Cold.

## Cold

Not accident nor illness, mishap nor malady, not warmth nor water nor desire of water; but the Cold. Is this, at last, the doom inevitable; the patient doom that can outwait the others, that though all they should fail us will not fail?

The man of science, who cancels flood by drought and drought by flood, laughs at all fiery threatenings and puts comet-fears with fairytales, now laughs no longer. Even he knows the world must die, and this is his chosen death. He plumps for the cold and the darkness.

Nor is he here in conflict with older prophets: some Hebrew ones—the day of the Lord, cried Amos, it is darkness and not light—and Norse ones, who foretold that Balder god of brightness must die in the end, when Fimbul-Winter will return again and forever. Nor in conflict with the heart’s own last vision of terror—Eternity: the Cold and the Darkness.

On this hypothesis, as on others, there may be cooperation for destruction. Cold may be bound up with or incidental to or helped out by some other agency.

Many, perhaps most, adherents of the No Water school, think we shall hardly get so far as to fail of direct drought. Water, which absorbs, retains and gives out again the heat the sun sendeth, in slowly disappearing from the atmosphere is rendering it slowly colder. No oxygen will save, when that fractional drop of water becomes more fractional; the world will become too cold to live in, as a result of its dryness, before it becomes too dry.

Our vanishing air—not only the vanishing water in it—secretly collaborates. It is going the way of the moon’s lost atmosphere; with it will go our best protection from the cold; without it we shall succumb. It will lessen as the sun’s heat lessens, just when we need it most.

The terrestrial movements contribute. Whereby we may die of cold in two separate stages: one hemisphere of earlier palsy, the other of final frost. Earth’s two different forms of rotation proceeding at different speeds, partition strains result; the strains become tides; the tides act as brakes. Forspent, the world slows down; halts, wearily creeps to paralysis. At last the two rotations will coincide. In that hour, there will be no seasons more: one hemisphere will be turned forever to the night; the other, warmer awhile, all the year and for all the years to the sun—till he too, the prime destroyer, shall go out and, all other deaths avoided, achieve man’s total end.

What is the Sun?

Hor, Sol, Ra; Sūrya Mitra, Savitr; Helios, Phaethon, Phoebus Apollo—he has had many names; many temples from Persia to Mexico, from Stonehenge to Xauxa, from the high Quirinal in Rome, golden Rome—Urbs solaris imperialis—to golden Cuzco, gold within, gold without, Cosa Sagrada, la imperial ciudad. In every mythology he has been a deity, or at the lowest a mighty man—do the Andaman Islanders confirm their title as the lowest of peoples by accounting him a woman, and the wife of the moon at that? He has been worshipped since there were worshippers, adored since souls knew adoration. He is a god.

He is a star. A middle-aged star of middle size and, as social brilliance in the heavens is reckoned, of strictly middle-class station: no Betelgeuse for bulk, no Sirius for glory, Companion of Sirius for dwarf intensity of glory. His burning heart is enclosed within the photosphere, a layer of red-hot ocean of gas, deeper than Asia, lashed all around into waves and Everest-high jets of scarlet spray that from the earth would sprinkle the moon; the chromosphere, his cloak of helium and hydrogen; the corona of coronium; the light zodiacal. His heat in the centre runs to millions, at the surface to thousands of degrees. Better guide than the mercury is to feel him shining in his strength on a Sahara noon, an Aden teatime, and to reflect that he is sending us a two thousand millionth part of it, and sending it from over ninety million miles away.

He has had children. Under most theories of the world’s origin—nebular, tidal, planetesimal, collisional—he is our parent, ancestor, creator; by him we had life. Under all physical theories of the world’s present, by him we live.

Lucerna Mundi, lantern of the world, by him we see.

He maintains the seas, the lakes and the rivers. He keeps in gaseous state the air we must breathe, in liquid state the water we and all living things must absorb—so much whereof as we need he vapourizes and turns into clouds, which he drives the winds to distribute for us. He enables the plants to assimilate their food from the air, and so is the author of all fruits, flowers and trees; the wine we drink and the wood we burn are directly informed of him, the warmth they give us is indirectly his. His spots pulsate, and we pulsate in answer. Electricity, radioactivity and their thousand daughter inventions are his; and the force in our brains and in our bodies. In him we live and move and have our being. Without him we are not.

And he is dying.

Through all those asserted certainties—water, fire and the rest—we had come so far to none so absolute. It is a fact no closing of eyes, no denying of objective reality can avert, no mystical-mathematical four-dimensional universe of point-events and curved space-time can exclude, no magical non-dimensional universe of God’s Dream or the Devil’s can abolish; within the framework of every scheme and every schemelessness the same will happen, the sun will die—just as each one of us will die in his time, whatever the grand plan or no-plan of the terrible universe may be.

Optimism seeks to prolong his life a little. Declares him of low density, susceptible of much further compression, able for long ages yet to generate more heat than he radiates. Chemical processes reinforce the contractional one, radioactive processes the chemical: the transmutation of his store of radial elements is a process almost everlasting, ensuring him effluence of light almost

stanchless. His positive and negative ions bombard each other, whose mutual annihilation secures their common eternity as heat. Millions of meteors rush hourly upon him, their high speed compensating for their lowly size and making them substantial augmenters and preservers. Above all he is young, still in the bright earlier yellow-heat stage that (on one of the stubborner new theories of stellar evolution) precedes the white-heat of middle life and far precedes the sere later yellow-heat stage, the second childhood, the long late afternoon of stars. Even when at last he should dwindle, the earth would then be moving nearer him, and thus be keeping pace—and keeping warm.

Pessimism curtails it. Density is high; compression peak was passed long ago; generation of new heat has ceased and only radiation is continuing, at the rate of two hundred and fifty million tons a minute, three hundred and sixty thousand million tons a day. If chemically engendered, his warmth has not long to last; a piece of coal is soon burnt out. Though radial transmutation be proceeding, and the loud cannonades of ionization, either is at best an “almost” eternal process; which means nothing, piteous nothing. The meteors are paltry helpers; if he attracted enough of them to be worth while, his size would continually be increasing; and it is not increasing. Above all he is old; astrophysically provable in the second yellow era. Even were he not dwindling away, the earth would always be getting less of his heat, since ever receding from him into the cold outer distance.

Leave all such hopes and counter-hopes. Leave aside the sunspots and other such famous regions of solar controversy. Leave out of account the respective chances of his entering a colder corner of the universe or a warmer—look away altogether from the sun himself. Look back to the earth, or beyond to the stars.

Chronometrically classified by spectral seniority, the stars are known by their age. Like man they pass through seven ages, passing from one to the next with as much choice or chance of rebellion as has he. Whether the sun’s epoch be that of early middle-age or late, the difference is at most between a very little more than half his course to run or a very little less. The whole course must be run, till the seventh age and last.

That the earth was once warmer than now, there is persuasive testimony. Despite cyclical reversions, such as the present warm spell following the last ice age, and even though the ice ages be not caused, or not chiefly caused, by diminution in the solar heat but by this or that wayward difference of ellipticity in the earth’s own orbit or whatnot else—even so, the line of the thermic graph is in the long run always downward. After each glacial era the warm reaction is less warm than the time before. The lull after the Cambrian Ice Age was out of comparison warmer than this. There were no deciduous trees. Could the Coal Forests flourish in South Wales or North France today? Could the reptiles now stretch from pole to pole? As late as the warm centuries after the last ice age but one, no permanent snow and ice remained; the polar caps are brand-new. If Arctic fossils are found embedded in what are now warmer climes, as the famous reindeer of Southern France, tropical fauna and flora are far oftener found in what are now colder regions. The primates, we and the monkeys, originated in the Arctic Circle; Peary found Eden. Greenland was once green; amid her Icy Mountains did not the breadfruit trees once wave? Were not the London tubes, a few yards below our streets, cut through clay that enclosed great tropical shells? Does not the Southern Railway, as it crawls over Kent, but piously emulate its predecessors there, the crocodiles? In Paradise—

Si plain de joye et de solas
Que nus n’y puet devenir las—

did not the sun, as Adam long afterwards told Seth, shine daily, all day, deliciously? In the Golden Age was not the world warmer and lovelier, while happiness stretched to the far north? Then the flight from the Poles began. It will continue till we huddle on the Equator.

Man will fight his fate. He will adapt himself. Even today he can survive in parts of Siberia that in January are no warmer than the moon. He will adapt nature; will learn to utilize the earth’s internal heat, if need be moving underground to become a cave-dweller again, and to economize the sun’s. His industries, by chance and then deliberately, will increase the amount of carbonic gas in the air, and so help the latter to retain heat, increase heat, and distribute it more evenly. Heat thus eked out with a hundred strange inventions, light he will learn to dispense with. In ways we cannot conceive of, any more than the mole or the mastodon could conceive of ours, our descendant race, if still on the planet millions of years from now—Man let us still proudly dub him—will be fighting for his life; every secret of terrible science, every trick of his terrified brain, will be called into play to hold up, perhaps for ages, the inevitable end.

Inevitable. As the sun’s light and warmth grow less, the means of artificially conserving them will grow more complicated, and after a while less efficient. By when, despite all strugglings, all undreamt marvels, all delays, the temperature must have fallen by forty or fifty degrees everywhere, earth will have changed from anything we can imagine, will have dwindled to a belt of Equatorial Eskimos white-girdling the icebound tropics. Dimness of anguish; dayfall of the world. God will have fulfilled His grim promises: He will have darkened the sun in his going forth, He will have made their vintage shouting to cease.

Down by sixty or seventy, there will be no life more; and earth a bleak charnel-house, a whited sepulchre. The oceans, if still existent, will be of ice; the clouds, if still any, will be of snow. No wind, no warmth, no rain; no flesh wherein is the breath of life. The cold and the darkness.

The last man will have lain long unburied across the equator of the ageing wizened globe, long have forgotten the story of splendour and sorrow of the strange race that perished with him, long have forgotten the dwindling purple sun his eyes beheld in the moment when they closed forever.

Like the frozen corpse, or vespillo of corpses, still whirling around him, the sun in his turn will die. A solid crust will form; gases will become oceans, molten lava dry land. Death will come upon him more quickly; he will receive no vivifying rays from outside, as the earth did from him; the sun will have no sun. More swiftly will his oceans turn to ice, his atmosphere descend on him as a pall of fine white snow. Seen from far off—seen by Whom?—he will change from gold to vespertine yellow, to red, to dark purple; then to sackcloth of hair, frozen black.

When he too is gone, with whatever race of beings his cooling-time may have witnessed upon him, the last men of earth will countless myriads of years have been dead. He mourned them, perhaps; himself will die threneless.

## Crash

But Earth herself? Who, for all the harm frost could do her, might go on travelling round the dead sun forever.

The globe too, this orb of solid matter, will have an end; whether early, in time to preclude man's separate dooms, or late, infinite ages after he has gone. Which end is collision, impact, dissolving crash.

Not probably with a comet. Though that derided chance, being also in the nature of a concussion, a catastrophe, may lift up high again its fiery head.

Nor with a meteor. No bolide or shooting-star ever experienced has been large enough to do the world grave damage, leave alone demolish it. No bethel ever fallen from heaven and erected on earth has stood higher than three of its worshippers; not great Diana of the Ephesians, nor the baetylical idol of Zeus Teleios at Tegea, nor Jacob's pillar of thanksgiving at Luz-Bethel itself. That famous stone that fell in Phrygia, and was raised to godhead as Cybele, measured a yard or two. That scar in the Painted Desert, though the mightiest meteoric consequence alleged, is not half-a-mile in radius, not a furlong deep. There may of course be meteor-troops many times more numerous, with each trooper many times bigger, than anything deducible either from past knowledge, or from present acquaintance with friendly Aquarids and Gremenids and Leonids; since meteorites come from outside the solar system, how affirm anything absolute, whether as to their maximum size or their maximum speed? The meteor death-roll through history is so far two: a peasant once in India, a cow long ago in Brazil.

Nor with a planet. Their courses are ordered like our own, and will remain separate and regular while ours does.

Perhaps with the sun. If we his satellites, moving ever quicker, and ever nearer him, should one day fall on him bodily.

Probably with the moon. The Sagas knew it; it was revealed to the Prophet at Mecca. Of all the stories, as of all the theories, this one alone has found acceptance of pure mathematics, elsewhere so scornful; this one alone has been prophetically worked out to the last omega of the last perfect formula; if mathematics is valid, this is valid. For the solar tides are lengthening the period of rotation of the earth, till one day, some five hundred thousand million years from now, it must become longer than the period of rotation of the moon. This latter will then be retarded. After her untold ages of recession the moon will stand still. Then, very slowly, begin to return. By when in our sight she is equal to twenty suns, the fierce tides we shall raise on her will break her body up. She will bombard us with lunar pieces two miles, ten miles thick. The whole side of her facing the earth will burst open. She will torrent forth streams of white lava, liquid fragments larger than Sicily, to burn, bury and ravish the whole world's face. She will split in two. Then the two halves in two, then again—soon into a wild skyful of dwarf moons, moving ever closer to each other and to us, and forming at the last, to enshroud us, entomb us and adorn, a Saturn's ring tight-encircling the earth.

Assuredly with a star. From the heavenly host will come the last charge of all, the ultimate cosmic concussion, and terminal collision of astral annihilation.

Sooner or later, in process of unwearying time (time that goes on forever), each star of heaven encounters each other star. Observed collisions are not rare; collisions unobservable from Earth must be taking place continually in the unsearched depths of the universe. One day, sooner or later, unobservable from the unsearched depths of the universe, our own collision will take place: our sun, with his whole solisequious convoy, rammed into steam by another.

Later, it may be.

The “crowded streets of space” are streets of voidness, and today, as it befalls, we are journeying along a particularly empty and uninhabited wide road. Dark unseen suns, once thought more numerous than seen ones, have, by new gravitational calculations on the speed of the latter, been reduced to the pure darkness of non-being. Of the seen ones, our three nearest neighbours, triune companions in the Centaur, are twenty-five billion miles away; the next nearest forty billion. In a circumference of some two hundred and fifty billion miles there are but four stars of us—room to move without jostling.

None seeks to jostle. Like bees in a swarm, whom they truly resemble, stars keep out of each other’s way. From the nearest one fast moving upon us we are moving away as fast. The star we are making for, scared Vega in the Lyre, is making away in her turn. A star’s chance of collision, opines one authority (whose equations are given), is one in six hundred thousand billion, or six followed by seventeen noughts. We are as likely to crash (declares another doctor, whose calculations are however withheld) as two balloons sent up at different ends of Russia.

The stars have their orbits like the planets; on some regular plan, unknown but harmonious, their movements through the celestial spaces are adjusted. A collision only happens when something goes wrong: how often, how imminent, is that?

Sooner, it may be.

The streets of space are crowded; they are strewn with continual catastrophe. Of the seen stars, few no doubt at this instant are in our immediate vicinage. But the tramp stars—dark suns wandering unglimpsed through the void, droves of dead worlds no equations can abolish—are everywhere, more numerous than the lucid ones, as dead men than live; and it is a tramp star that our sun, then like to be a tramp star himself, is likest to encounter.

Not all the stars, live or dead, can be moving away from each other. In space Euclidean or non-Euclidean, in commonsense four-dimensional or three, as many must be moving nearer each other; towards disaster as away from it.

Some order in the star-streams, harmony of the heavens, music of the spheres, is predictable; the Empyrean as a perfect mechanism without flaw or disturbance is not. Disasters disprove it. Often, and imminently, something goes wrong.

Any moment we may strike a nebular stretch of heaven. Such regions are full of solid matter, stardust, in-drifting meteorites and the like. The nebula, acting as a brake on the sun’s motion, will reduce his pace at the very instant he enters an area where, other bodies being more numerous, pace to escape them is what he will chiefly need.

Nor, principally, is head-on collision requisite. Let another great star pass near—one thousand million miles away. He will derange, de-orbit us; send us crashing, liquefying, into the riven and distorted sun. Let Antares or Arcturus, of terrible size and terrible speed, move by at tenfold, twelvefold the solar distance. The sun will be pulled into streamers, tearing forth to greet the Arcturian dragons of fire; in half-an-hour we shall be fused out of all identity, a drop in their chaos. And many a star is mightier than Arcturus; and many are nearer; many faster. One in Columba runs at two million miles an hour.

Sooner or later, assuredly with a star.

Yet collision, which thus includes grazing and mere propinquity, is too narrow a word.

Collision, which implies splintering impact of solid bodies, is too massive a word.

Collision, which, in lubberly portrayal of unliving earths in lumbering percussion, conjures up no vision of the dying crying souls upon them, is too abstract, too astronomical a word.

Collision, the one fate that will outstay the others, yet partakes of the nature of them all. Like the cold, irrevocable. Like the comet, coming at an hour unknown, from a direction unknown; a chance, not a process; a crash, not a geological creeping. Resembling the water-end or the waterless, according as the foe’s first deed would be to melt the mountain snows and flood us, or to parch. Resembling the fire-end; it is the Fire-End, destinate, ultimate, Sheol-Gehenna, the great balefire of combustion.

Collision, the one fate that destroys not only man but his home, alone is destroyer and creator. The twin cyclopean gas-streams, as they flare out across the furious infinite, will take the form of a double spiral; then of a gaseous nebula; then, condensing, of a star—maybe with planets, with an earth, with us all reborn again, again long after to re-die. Death nova will be birth nova, as the nebula which gave us life was born itself of death, in the crash and ruin of life preceding. The heavenly colossal catastrophes are death; they are life. Collision makes; collision kills.

Out of the chance riot of stars came worlds, came living existence, came we. In new chance riot we shall depart. The heavens go crashing and whirling. The universe forms, un-forms, re-forms. The Terror rolls on. What is it? What means it? What is my soul in that universe? May God have mercy.

## God

Will He have mercy?

Impiously our attention has all been devoted to modes of material destroying of a material world, as though no Spirit breathed through it; atheistically, only to so-called natural ways of termination.

There are supernatural ways. In these men have believed; each religion, each sect, each sub-sect holding its different guess as to His choice of hour, contributing its variant as to His choice of method, ready to fight or to die for its own pet terminal detail, ready to murder and martyr for a deviation or a doubt. In these men still believe. If no one now or had ever believed in them, we could not with our pygmy frail knowledge and paltry five senses rule them out.

Astrologers have in all ages foretold the Birthday Death: “when the fixed stars have made a revolution unto the points from whence they first set out, a kind of dying upon the day of its Nativity”—prophets and peoples the End as Punishment: the natural forms of destruction, fire, flood or ice, being supernaturally sent of God, or the gods, by way of rebuke and recompense for the multitude of our iniquity, for three transgressions of Damascus and for four—magicians, saints and mystics the Decreation: the sudden unframing of the worlds by the word of Him Who framed them: Fiat, a shake of the sceptre, and then Nothing.

God is the self and essence of each of the elements whose temporal manifestations have here been humbly unfolded. He is water, He is ice; Himself is the stars; our God is a consuming fire. He will act through these His elements not modally, to human sense perceptibly; but essentially, without circumstance, extrinsicality or phase. As it was in the beginning, when all was without form and void, till His Spirit moved upon the face of the unborn waters,

> A moving mist, A quickness which my God hath kist,

and hatched the world, so likewise shall it be in the end: the Spirit of God shall move upon the face of the living waters, unkiss, unquicken, decreate them, and all shall be without form, and void. As mysteriously as it began the dream will end, the mirage tumble. A magical moment, and then Nothing.

The strange modern people do not think so. The normal (abnormal) Western man of 1930 who swims abreast of the currents of his time, who accepts the typical teaching of his day and generation or who, learned or lewd, awarely or unawares, is influenced by it, probably does not think so. The Great Naturalistic Revolution of the past hundred years has not changed—nor will the Great Relativity Revolution of the next hundred years succeed in changing—the unchanged and unchangeable. Yet for some minds it has changed some large aspects of the changeable, and has given them a new conception, as “right” or as “wrong” as the conceptions from the caveman onwards that preceded it, of finite things: how these are likely, though not certain, to behave; what is their most feasible physical future. According to this conception, though the Transcendental may be there, It will not, cannot, intervene irregularly or arbitrarily in the ordered working of the given universe; in particular It will not, by miracle or deed magical, intervene in the even tenor of any finite entity, such as our own particular Milky Way or solar system or planet—amongst other things to destroy it suddenly. Cannot and will not. The earth and its creatures will perish, as they arose, as part of the normal course of apparent physical nature; by so-styled natural ends, not miraculous.

There is no necessary conflict. Belief in the supernatural nature of the universe need not preclude belief in the natural end of this world. Belief in aboriginal God, or in the soul as a phenomenon not born of nor bound up with matter, or in unseen worlds beyond the seen one, need not exclude the expectation that the seen one will end, or appear to end, in one of such six ways as set forth in these six chapters—by cold or crash or comet or whichever humanly predictable, materially describable, agency it may be. Not everyone unbelieving in Time is indifferent to what will seem to take place within its apparent limits. Not everyone convinced of spiritual reality, or of some unknown form of reality beyond spiritual reality, is convinced that physical reality is meaningless and the disappearance of its familiar shapes a fact of no interest, a phenomenon of no probability. Not everyone persuaded that only mind exists is untouched by the manner of matter’s going. Not

every Dreamer scorns how the Dream will fade. Though God is God, and the Mystery unconjecturable, how and when It will put off its present garments is not unworthy man's conjecture, a speculation with which natural science, as much as any other scheme or system, may profitably and prophetically concern herself.

Her type of guess may be the right one, and frost, flame or flood the end, the end of soul with body; the conclusion, together with the world visible, of the world invisible of good and evil, joy and suffering, love and terror, that has filled and formed every heart that has beaten or yet shall beat.

Or the magical doubters, and by their side the fundamentalists of all faiths and ages, and maybe (when the Wheel of Knowledge turns full circle) the new philosophers the newer physics will give birth to: these others may be right. Science may be a set of symbols corresponding to no reality whatever; natural law a phantasm unreliable from one hour to the next even within its own imaginary world; cause and effect, time and space, a vicious round of false notions which can never explain a world, leave alone a universe, into which they do not enter; the universe, made up of something beyond both soul and matter, a thing unpredicable and unpredictable in terms of either—as God ineffable, or as Chaos finally irrational. The little world we think we see may have subsisted and subsist forever and forever; the whole cosmos vanish tonight.

# When?

Fear deferred maketh the heart sick.

When the loved one, the one lover, lies in peril, the clutching dread that precedes is crueller than the long sorrow that follows.

And as terror of things to come is more than all grief for things gone past, so time, whether past or to come, is more terrible than space, Eternity more awful than the abyss. Who would not rather know—rather not know—when he will die than how or where he will die?

And as for ourselves and our beloved, so likewise with our qualms for the world. Man has ever concerned himself more passionately with the hour than with the way of destruction.

Which problem, if it holds greater interest, holds also greater difficulty. Surmise now moves from the humdrum sphere of matter into the wild realm of number, there to cower among kabbalistic patterns of fixed dates and patternless rows of cold zeros, or among the terrors, beyond all designs and digits, of the dateless zeroless Everlasting. How? was a hard query with many answers. Each of these adds its own complications to the questions When? Soon or late? What notice? At what stage of humanity's career? Each several mode of the world's ending brings several guesses at its time. The possibilities are added and multiplied, like the Biblical sums and astronomical ciphers themselves.

## This Year

The end has endlessly been predicted for a given year, named and numbered.

Such predictions cannot altogether be classed with those of a near end rather than a distant, because the predicted date has not, when predicted, always been a near one. From another standpoint such predictions must be classed apart: in their support, almost alone, arguments from physical science are not invoked; today, as in the past, they are the unaided work of those in fee to the magic of numbers, whom if Science is not called upon to help, nor can she hinder. At the ultimate hour, when the fatal (say) star is upon us, enemy aid will doubtless be welcomed—if it chooses to confirm the chosen date. The astrologers then will allow the astronomers, in humble confirmation, to calculate the star's mass and class, its composition, its rate of advance. Till then the date-givers will ignore their rivals, and continue to pore over their abacuses and swanpans and horoscopes and sibylline books. Till then the scientists will denounce their rivals as charlatans, and continue to pore over their equations and test-tubes and microscopes and statistical charts.

The Great Sacred Number of the Babylonians was 12,960,000, giving a date similar to some yesterday's estimates of the sun's life. Buddhism, early and late, has had many notational guesses. Jewish Apocalyptic, a stream from the waters of Babylon, flows from the Captivity to far beyond the Dispersion with a ceaseless glitter of Rabbinical numbers.

The stream flowed through into the nascent empire of Christianity, which it watered abundantly. Hardly had He uttered it, ere Jesus Christ's "at hand" was fitted to figures. One year after another of "this generation" was proclaimed the Dies Irae.

When the Twelve had gone to their expectation above without seeing it realized here below; when Paul of Tarsus, his imminent hope fast dwindling through his Epistles, had been martyred for the Lord Whose Second Coming, like the First, he saw not; when the Great Persecution had raged over, and the Holy City fallen, and all the signs been accomplished save only the End—then the new religion had to fall back on other explanations and on other dates.

For a while the year 195 stood favourite. Write the name of the Urbs: PΩMH. Give the Greek value for each letter:

P = 100
Ω = 800
M = 40
H = 8
948

Deduct the Year of the Foundation of the City:

948
753
195

—the number of the Year of the Destruction of the City, and all else besides.

What proportion of the people held by this prophecy we have no worthy evidence. Certain it is that before that date and, when it turned out to be wrong, for more than eight centuries after it, all other numeral years, such as 365 the Year of Days, 6,300 the Grand Climacteric, and the giant numbers of First Chronicles Twenty-One, were swallowed up by the only figure specified in the New

Testament itself: the χίλια ἔτη of Revelation Twenty. Other theories were brought into line. Christ's "this generation" meant this millennium, this chiliad. The year One Thousand was The Year.

Christianity, still a persecuted creed offering no hope of present triumph, needed some such faith in not too distant punishment, and in not too distant reward and joy, to enable it to increase its strength and maintain its courage. For if what was down to happen at the Thousand spelt doom for the unbeliever, the prospects held out to the believer were correspondingly bright. The end of the world—surely. But only as incidental to the Parousia, the Second Coming, the New Earth, and Christ's millennial reign upon it great and glorious, which only His children would share. Millenarianism, seconding martyrdom, proved most successful of recruiting sergeants. The Christians grew rapidly.

Tertullian was a chiliast, and Commodian; also Cerinthus, Apollinaris, Julius Africanus, Nepos of Egypt, Methodius of Tyre. Many ardent sects, chiefly on the still uncertain borderline between Judaism and Christianity, Ebonists and Montanists and others, made chiliasm their main tenet. Soon, however, the opposition showed itself more powerful. The Alogi, the Gnostics, the neo-Platonist mystics were all anti-millennial and, after some early famous wavering, Saint Augustine. By this time the catastrophic atmosphere was clearing away. Bishops reconciled to the Empire found it impolitic, when not impossible, to consider its thousand years a thousand years of sin ending in fire and doom; to allow Rome Galilean no better portion than Rome Capitoline. Self-interest, re-christened commonsense, forbade them to think millennially. Only madmen, sorcerers, Asiatics, could believe in such Rabbinical vapouring. Only heretics; after Augustine chiliasm was proclaimed a heresy.

No longer necessary as a propagandist tenet, a bait to the sensual-minded, the millennial belief gradually changed in character. The optimistic element, the watchers for the glorious new kingdom on earth, dropped away; the pessimistic element, the waiters for the inglorious end of the old kingdom of earth, only remained. Chiliasm was left to the catastrophists; the Year would be the Year of Doom unqualified.

The generations passed. The time drew near. The last century, the last year, the last hour. …

What happened?

What indeed? There are not four problems in all post-Classical history where views so flatly opposite are so flatly asserted and denied.

The millennial terror was the one universal terror Europe has ever shared.—It is a pure invention of later historians.

The whole world trembled and waited; a thing condemned to death, counting the mad hours.—There's no trace of those tremblings. A few stray zealots may, as in every later generation also, have harboured such notions. Even of these there is scant record.

The great men of the age announced it, such as Bernard of Thuringia.—Great men such as: who else? And who, pray, was he?

There is a lease of 971 preserved; it is for twenty-nine years exactly.—The usual period; there are leases of 981 and 990 for the same term.

Appropinquante mundi termino begin fearfully the wills of that time.—A mere pious opening flourish, commoner moreover through the eighth and ninth centuries than in the tenth. Chronicles, as freer from stock-phraseology, bear surer witness than wills, and not all the rich chronicles of the period, from monastery by Rhine or Po or Danube, convey one slenderest hint.

The Council of Trosly, in 909, declared the Thousand.—The Council of Poitiers, in 999 (a more pressing, more impressive date), declared a few new punishments for bawdy clerks.

The Crusades were at rock-bottom but cringings, to acquire merit against the imminent end.—Pope Sylvester, in his letter of 999, has no allusion.

Gifts of piety, the twin-brother of fear, the Donations were specially frequent in the last generation before the Thousand.—They were specially infrequent.

The later nine-hundreds witnessed a frenzy of church-building, propitiatory and significant.—This was but one symptom of the recovery of all the arts. Was then that glorious Palace of the Doge a palace of God? Could that new ceremony, wedding his city with the ring and high splendour as Bride of the Adriatic, have been reconciled with a belief that the Bridal Hour of God was for the morrow?

Of the signs of the Dies Irae not one was wanting. Wars from country to country, from castle to orgied castle. Feudal barons, feudal bandits, invading Christ’s churches to fill them with horrible songs; raiding holy nunneries to fling Christ’s sisters into dungeons, chained there for outrage; treading the common man Christ had come to save down everywhere under heel and sword. Christ’s Vicar himself on impious knees before Astarte. Everywhere robbing, sacking, murdering, suffering; highways troubled, forests filled with violence. Huns from over the Alps, Saracens from over the Straits, Vikings from over the north waters. Everywhere famine and pest: for food men hunted men, or stole into the churchyards and dug up dead men for their nourishing; of the black plague of the nine-nineties none died but with loathsome face and in pain more loathsome. Dragons in the sky, stars falling that were tears for man’s fate, rain of blood, rivers of blood. Church bells ringing out in the unseen night, tolled by unseen hands—or by the beasts, as when in Orleans Cathedral a black wolf caught the rope between tooth and claw. Devils abroad in the perishing countryside, Antichrists rising up in every province, wolves storming the cities and witches the altars; cruelty and darkness over all lands.—True, the hour was gloomy. But what hour of human history is not?

The arguments balance without tilting. The belief was universal; it was nonexistent.

The facts tilted. The Year came; the end of the world came not.

Though discouraged, the chiliasts were not dismayed. There had been a slight miscalculation; it was not the year One Thousand, but the one thousandth year from Christ’s mission, Passion; and so 1030 and 1033 offered new chances. These proved not less illusory. The millennial fear lay down beside the millennial hope, buried together.

Disaster of avoided disaster shook the Church awhile. Magic raised its apostate head. Witches' sabbaths rivalled holy Sundays; off minster towers the gargoyles elbowed the angels. Name ousted Number, Antichrist not End governed recovering religion's next centuries of expectation.

The close of the Middle Ages saw a revival. Pseudo-Methodius, rediscovered, proved a rich date-mine; also the Sibylline Leaves. St. Vincent Ferrier counted the verses in the Psalms and plumped for 2537, yet to test. 1496, a year with much sound astrological backing, opened auspiciously when they fished out of the Tiber a monster with donkey's head, maiden's body, stag's right foot, griffin's left, and old grey face instead of rump—but ended like every other year, without the end. Stoffler chose February of 1524, and by flood, as Saturn, Mars and Jupiter would then be together in the Fishes. Doctor Auriol with his ark made ready; it was the driest February known. Stoffler tried again. Hostile contemporaries, with a sneer, note 1588 as unusually barren of happenings; surely an exaggeration, for the waters covered, if not the earth, at least the Great Armada.

In the Roman Church itself, numerical prophecy has had slightest renewal; it was into the hands of the Rabbis and the Protestants, witches of Endor and warlocks of England, that the game now passed. The Fifth Monarchy Men excelled in it, and cruel Cromwell and cynical Charles excelled each other in harrying them. The Rabbis revelled in one pseudo-Messianic year after another: apostates like Sabbatai Zevi, Sabbataic quacks like Mordecai of Eisenstadt, and sincere and frantic visionaries unlike either, proclaimed Antichrist born in Babylon almost every year, and each was to be the last. Even 1666, the Beast's, the Neronic, though with London in flames it stood not signless, ended tamely; by merely ending.

The nineteenth century revival was relative only; the fact that such beliefs were making headway again had no more effect on the century's triumphant march than its belief in Christianity itself.

In England the number of folk so convinced of this date or that as on the whole to order their lives in accordance with their conviction may now and then have reached seven figures; the number who went further, and in view of the worldly end sold all their worldly goods, can rarely have reached two. If the quality of the enthusiasts must, by the ordinary snobbery of social standards or the extraordinary snobbery of intellectual ones, be put lower than the quantity, that matters little: most of what Science teaches is as silly, and much of what dukes believe. If their enthusiasm was sorely tried, that mattered less; failure never deterred the prophets from beginning over again, and new prophets from beginning afresh, and old ones from being disinterred.

Mother Shipton, for instance, was dragged in splendour from her merited obscurity. Our school stood near her cave, but we entered it rarely, as the revival of her reputation had raised the admission-fee to the (for some of us) unmanageable sum of threepence. In the eighties she did good work:

> The world to an end will come In eighteen hundred and eighty-one.

Spring passed, the fatal season, spring in which earth was created and, as most think, shall be decreated; and autumn, and the last of December. Through half England, in north and west, in the three widest shires most widely, villagers had spent whole nights in the fields confessing their sins to the dark skies and crying for mercy. Crying wasted: for nothing happened.

Ah! ’twas a trifling error, a minor misreading of the text, reliance on a corrupted version. The true version ran:

> The world at an end we’ll view In eighteen hundred and eighty-two.

This was a falling off. There was a falling off also in the night attendance in the fields, so discouraging indeed that Mother Shipton was put to grave again, and none went to the trouble of inventing

> —at an end we’ll see, —at an end, be sure! —at an end will arrive …

as hopeful variorum readings.

On the European Continent, even in Germany and disastrous Russia, such fears have counted for less; in the United States of America for much more, where great sects have arisen, like those in the Early Church, with the millennial hope and fear as their main source of inspiration, recruitment and income. One year the fear became almost nationwide. Its protagonist was William Miller.

William Miller was a simple New Englander. He had served against Britain in the Canadian War, and after that one experience of the wider world settled down to farm life in the country. There he got religion, and religion him. He became a student of the Prophets, especially of Daniel, in whose apocalyptic pages God suddenly showed him the Secret: in the year 1843 the world would stop.

William had no fear for himself; only fear that the time might be too short for him to spread the tidings to those who were chosen, and for them to prepare their souls for the day of destruction they alone would escape. He seems to have been a disinterested man, desiring neither power, admiration nor money. It was the activity of certain rivals which spurred him to action—Harriet Livermore was proclaiming 1847; Joseph Wolff, of Jerusalem, was waiting for the end in Jerusalem; Captain Saunders, of Liverpool, was waiting for it in Liverpool. William asked and obtained leave from heaven, and publicly announced his revelation to some friends:

Calculation I

From the date of the commandment to rebuild Jerusalem, BC 457, to the Crucifixion of Christ: 70 weeks. A “week” equals 7 years 490
From the Crucifixion of Christ to “taking away the daily Abomination,” or Paganism 475
From the taking away of Pagan rites to the setting up of the Abomination of Desolation (Papal Civil Rule) 30
From the setting up of the Papal Abomination to the end thereof 1260
From the taking away of Papal Civil Rule to the first resurrection and the end of the World in 1843 45
2300

The clue number was thus 2300. Proceeding:

Calculation II

From 2300
Subtract 70 “weeks” 490
1810
Add to this the term of the Saviour’s life 33
End of the World in 1843

The proof was irrefragable.

But God in His Word had heaped up proof upon proof:

Calculation III

From the Crucifixion to taking away the daily Abomination (item of first calculation) 475
Add our Saviour’s age, 33, and Daniel’s number, 1335 1368
End of the World in 1843

Calculation IV

For the full term of the vision as before exemplified 2300
Subtract date of the commandment to rebuild Jerusalem BC 457
End of the World in AD 1843

Calculation V

The house of Israel are to be punished yet “seven times” for their sins; Leviticus xxvi, i.e., seven years of 360 days. Equals 2520
Subtract date of first captivity in Babylon BC 677
End of the World in 1843

And so on.

The exact day, though based on proofs less profuse, was also revealed; it would be the Vernal Equinox. No more world by midnight on March 21st, 1843.

Faith, hope and self-charity combined to win for the prediction an immediate and all-absorbing place in hundreds of souls. Within a few months the Millerites had become a sect, spreading rapidly throughout the Bay State and beyond its borders. Wild camp-meetings were held at night, when fervency of expectation inspired to Pentecostal utterance and unutterable joy.

If there were believers, there were also exploiters. William Miller was a poor stick—so thought Elder Joshua V. Hines—a humble illuminé quite unfit to look after the business side, and the brass-band side, of what was already a mighty Movement. Joshua would do that. Joshua did. A big organized campaign was launched: “End of the World for ’43.” The combination of prophet and salesman proved a fruitful one; the Millerites waxed. Nor need the Elder’s complex soul detain us. Hypocrites are fewer than alleged, and deceivers most often self-deceivers; the movement was a splendid one to be in; Joshua derived pathological delight from its excitements, delicious pride from its leadership and (it was whispered) ample booty from the openhandedness of its adherents. Besides,

it might all be true.

If there were exploiters, there were also enemies. Orthodox pulpits denounced these pernicious doctrines, so harmful to their own. More malignant tongues averred that the Millerite tabernacle would not be ready for dedication till the May of ’43, some weeks after the Equinox; it was replied that only the year was a revelation, there being a “margin of error” for the actual day. Really nasty folk alleged that the building was insured for seven years; this was denied, and to clinch their sincerity the Millerites pointed to the furniture they had given away, the farms they had sold, the orchards they had cut down, the crops they were abandoning.

Then came the Comet. The most terrible and triumphant of modern times, three hundred million miles long, a svelte sword straight and unwavering, cutting the night-sky in two. The Sign! William was faint with ecstasy. New believers flocked forward; unbelievers wavered. The 21st dawned. Last preparations had been made. Before evening armies of men and women were seen moving out from Boston into the open country and up on to hillocks, whence heaven could receive them most conveniently. Thousands more followed to watch them, and maybe also … The sun dropped; the stars came out. As earth’s last darkness fell, some shivered; then joined the others in shouting Hallelujah till midnight and the trump of doom. Pandemonium and paroxysm reigned.

The hour came.

And went.

Nothing happened. Nothing. In misery of beaten hope, through the dawn of March 22nd the crowds moved homewards crushed and silent, or weeping.

In another place a group waited in white ascension-robes; a suggestion of Elder Joshua’s, though when these wedding garments proved ineffective he promptly denied it. One man fitted a turkey’s wings to his shoulders, and tried to fly; he fell and broke his arm. At Westford, Mass., the local Millerites had assembled in their farmhouse headquarters, proposing to spend earth’s ultimate evening together in prayer and praise until, just before the midnight hour, they would move out into the open for their ascension. Now Crazy Amos, the local drunk, was not a believer. Knowing the Millerites were all safe indoors, he stole out on to the village green hard by, and blew a great blast on a great horn that was his cherished toy. The listeners heard, in a body rushed out, madly jostled each other as they fought for the best places to be caught up from. Standing aside in the discreet darkness, Crazy Amos put his horn to his mouth and blew a still more fearful blast, and another, and another. Glory! Glory! Hallelujah! they shouted, raising their arms with almost unbearable yearning to heaven. A few actually rose in the air, the Second Ascension had literally begun, when others, whom faith had not prevailed to carry off their feet, spied Amos blaring away. The reaction of shame, disappointment and fatigue was terrible. Like a flock of scared sheep they shambled indoors, Crazy Amos jeering after them: “Fools! go dig your potatoes! For the Angel Gabriel he won’t go a-digging ’em for you.”

So everywhere the night had come and gone; the prophecy was a delusion, William and Joshua deceivers.

But saints, like scientists, have rich subterfuge in modification that laymen must envy them, and a hold on their followers that most naked defeat does not lightly relax. Some of these did indeed drop away, for whom the emotional recoil was too violent, or the rage at finding themselves without their chattels. For the most part they held fast, gobbling up with a greed of sincerity equalling William's own the new subtleties—and new dates—he was discovering. The Year was all he had ever announced as part of the revelation proper; that gave them nine months yet, till the last day of December. Ill in body and soul, he started a still more intensive study of the Prophet. At once he perceived his mistake, his foolish impossible mistake! The year of course was the Jewish year, so the end was for the spring equinox of forty-four. The faithful grasped gladly at these straws, and new crowds, diminished in size but not certainty, went forth to the hills again when March again came round.

Nothing happened. Nothing. But only when the last outside hope—December 31st, 1844, the last day of the Christian year in which the Jewish year ended—proved also vain, when the ultimate twists and tricks of re-modification and reinterpretation had been exposed and exploded by inexorable fact, did the movement peter finally out. It was the end also of old William Miller, who died brokenhearted; but not of the world.

No latter year of fate has had quite such a following. The 1917 prophecy, based on fresh researches in Revelation, connected up with the marks of the Beast (the Kaiser), and made known throughout England by showers of pamphlets that once or twice disquieted the Censor, appears to have left the nation quite unmoved; which cared less about the end of the world than about the end of the war.

Nor more successful this last decade's fatal choices—'21 (April), '24, '28—culled by new desperate subtlety with the Book of Daniel and the Great Pyramid, and grounded on calculations connected with the final overthrow of the Pope's temporal power, which was not perhaps quite so final as its enemies fancied, the subversion of Rome, which may mean whatever you like, and the conversion of the Jews, which is still proceeding rather slowly.

For the immediate future there is 1931, next year as I write. The Prophetical Society of Dallas, Texas, the most powerful catastrophic organization in the world, which exercises much influence through the length and breadth of the Bible Belt of the United States of America, and even far outside that intemperate zone, has assembled the facts, and they are many, and dispelled the doubts, till they must be few. Perhaps in spring, perhaps in the autumn, rather more probably at Christmas. Every sign has indeed been accomplished: famines and pestilences and earthquakes, nation rising up against nation and kingdom against kingdom, the gospel preached at last in All the world for a witness, and the abomination of desolation standing in the holy place—though whether Dux or Pontifex be the abomination is left doubtful, and even diplomatists are not sure for which of the two the Lateran trumpets sounded victory. Every prophecy concords: Apocalypse with Apocrypha, the Pyramid corridors with Daniel's chronology; Kemal's inauguration is Antichrist's World Coronation, Ismet's number (count it) the number of the Beast, the Red Tsar the Scarlet Woman.

For our children and children's children there are the 2000 and, two years before it, the 1998. One is the Thousand years twice told, the pre-ordinate and decretory termination of the six thousand

years of this vision; the other both the magical three times the magical number of a Man (3 × 666 = 1998) and the Passionate numeral of the Son of Man Himself, Who was crucified in the 1998th week of His human life.

Nobody heeds. Faintly heard by this earthbound tumultuous century amid its fevers of industry, politics and progress, whose dark fear is personal poverty not world disaster, whose high hope is for the Golden City here below not in heaven hereafter, these manifold menaces attract little attention and inspire less terror. The received prophets of today, when not the political economists, are the physical scientists; and among these latter the stray eccentrics here and there who think, or can be represented as thinking, that geological or astronomical probabilities imply an early natural end include not one who fits his fancy to the Procrustean bed of precise number. Even if the end be natural and near, they do not know the date.

If it be supernatural, nigh or far, their numeralist rivals do not know the date. They have none commanding general agreement or any wide adherence whatsoever; they disagree too much among themselves, and have too often been shown wrong.

All of which proves, as it disproves, nothing. Number, as long ago the Pythagoreans saw, is bound up with the inmost nature of reality; is nearer reality than time or space, which our teachers are now discarding. Number they cannot discard: three is three, seventy seventy, at any speed, in any frame of reference, under any theory of post-Einsteinian space-time. It is a first constituent of being. It is a lost sense, still stirring faintly in our blood and brain, stirring like music, whose soul it is; a true mode of the mystery, rejected, forgotten awhile; a dweller in the innermost, perhaps the Innermost Itself.

Of all mysteries it is the most mysterious. 256 is two to the eighth power, 257 prime and powerless. 142,856 is nothing, 142,857 a magician that no other till the thousands of the trillions can equal—take a pencil and his secrets enkabbalize the paper. … Of all phenomena it is the most flawlessly infinite. One, two, three—and a hare is started that runs to Eternity, off on a path that transcends the universe, for the universe may be finite but the number of numbers is not. Count forever and you reach no last number, which is beyond forever. … Two and two make four. Is it only a jargon, answering to no reality? Two things added to two things do not make four of the same things, no two things being the same, neither worlds nor men, neither grains of sand nor galaxies nor human hopes. Or, not a quality of things nor relation between them, but a symbol corresponding to the reality behind them; a being on its own, before and after reality? In contemplation of numbers, abstract and concrete, ordinal and cardinal, and of all the half-glimpsed harmonies they dominate—music, music of the spheres, the chemical elements, the physical atoms, arithmetic, astronomy, the signs of Satan, the wounds of God—sometimes we are transported to a mood, a place, where the mystery invades and transforms; we see the other, the ultimate existence around us, in sane moods unguessed at. Our hearts cannot bear the beauty of terror; we fall back into the dream, into life.

The chiliasts and the Rabbis and the Bible-delvers were poor bungling workmen; but their principle is surely right. One day the astronomers, now so disdainful, will complete the work they were not equal to, and vindicate the principle. When the exact past motions of all the stars shall be known, when the whole prehistory of heaven shall be revealed, cosmologists will calculate far backward till

they find in what year and what hour the star our father struck or passed tidally by; the year and the number of the beginning. When the exact future motions of all the stars shall be known, when every fact about sun’s, moon’s and earth’s movement and mass, tempo and temperature, shall be garnered and verified, then they will calculate far forward till they find the clock-moment of the crash or cold; the year and the number of the end. Number will be seen, in a mode half-comprehended, as existence itself, deciding the fate of each phase of existence. We are beads on the abacus, digits in the cosmic sum. God has fixed the magical number of the world; not yet have we the clue to find it.

## Next Year

Aside from the named year, early or late, stand the two chief temporal expectations, broadly grouped and broadly contrasted. The end of the world is at hand; it is very far off.

The former has been the faith of many peoples; of savages who have attained to thinking on such matters, of the classic nations of antiquity, of the Hebrews, and inheriting from them of the early Christians, from whom we of the West inherit our ideas on last and first things.

Fear prompted this faith. Man dreaded the end; therefore he believed it near, as he believed all his enemies near, and as usually they were: want and plague and tribal foes none of them lurking far away. As fear diminished the end receded. But the decline of corporate fear being a mark of only the very latest generations on the earth, there is no reason to think that it is permanent, or that the Optimist Age is not already departing. If we are still awhile under its bright, or cynical, beams, and unlike men of other ages gaily postpone the inevitable and like ostriches of all ages bury our heads in the solacing sands of time, it was not always so; nor will be again.

Seconding and sanctifying fear, revealed religion encouraged the early expectation. Organized religion enforced it, as useful to God’s ministers, giving them power over the flock.

Reason bore religion out. A few thousand years had sufficed to run up the zenith of time; a few thousand more would suffice to touch nadir. It was illogical to assume the length of the world’s future disproportionate to its past. And the length of the past was known. The Almighty was great, and Archbishop Ussher was His prophet.

That prelate, more locally and more culpably celebrated as the Irishman who goaded James the First to crueller persecutions of Irishmen, having secured national renown through his kindly apothegm “Toleration is a grievous sin,” went on to earn cosmic fame by laying it down once and for all “The world was created in 4004 BC” He did but set the fashion of precise chronological margins that persisted to the Family Bibles of our childhood, did but nail down to a year what Christendom already believed to a year or two; most men before him, and (until the new geology) since, held that the past of the world was of the six-thousand-year order. Why should its future be any longer?

Reinforcing this commonsense deduction from the Ussherian interpretation of Biblical chronology, stood the whole tradition of Christianity, which, from the lips of its Founder, the writings of its first propagandists and the experiences of its earliest days, had received deep impress of belief in

adjacent catastrophe. Jesus said: “Verily I say unto you, that this generation shall not pass till all these things be done.” St. Paul wrote, “The ends of the world are come”; St. Peter, “The end of all things is at hand”; St. John of the Revelation, “Behold, I come quickly.”

No subject that has ever engaged the minds of men has been more thought about or more written about than the words of Christ and the letters of His Word, those bearing on the future most of any. Interpretation is therefore legion, in each age unabated from the earliest Fathers to the Highest Critics. It has been said that Jesus, an unlettered Jew, merely took over the popular eschatology of Jewish Apocalyptic, adding a special niche for Himself as hero of the Second Coming; it has been answered that, Son of God, He foretold the end as men now know it will be, the darkened sun and lightless moon and falling stars of heaven—“this generation” being a symbolical phrase for that particular aeon of eternity which will in fact be concluded when this world concludes. It has been asserted that He believed literally in the literal disasters, as in Matthew Twenty-Four, that He foretold, and in their literal nearness; it has been replied that His language was throughout figurative, to every phrase a secret seraphic meaning behind the plain one, and further that His thoughts as recorded for us have been coloured by His more material-minded reporters. This last view curiously confirmed by an examination, in the four gospels one by one, of all eschatological words attributed to Him. They are most frequent, most physical and most fearful in the first gospel, fewest and least disastrous in the last, the second and third being respectively about one-third way and two-thirds way in between; which graduated rarefying of the catastrophic atmosphere corresponds with oddest exactitude to what little is known of the four evangelists, from Matthew the orthodox Hebrew through practical Mark and professional Luke to John the Hellenized philosopher.

Both views seem to contain truth. Jesus saw what He said, and believed what He saw: the darkness of destruction that the end will be. But in Him, as in all who see the Terror, and in Him more than all others, the intensity of His vision transcended the illusion Time. In His mind’s eye the trillion years shrivelled to pinpoint, and He described them as what they are: “this generation” of Eternity.

The Synoptics and the Apocalypse, however, which took the time-phrases literally, had greater sway over the first centuries. None of the portents was lacking. That was an hour, more than most in the horrible pages of history, of evil and signs of evil; of cyclones and floods, famines and plagues, eclipses and comets, eruptions and earthquakes, wars and rumours of wars. Lust reigned in Rome; and sorcery; and ruinous fire. Earth trembled and reduced Philadelphia to ashes; under his ashes Vesuvius buried Herculaneum and Pompeii. In one week the inundation drowned twenty thousand in the Delta, in one year the pestilence slew thirty thousand in the Urbs. Through the wide oecumene the legions were slaughtering: Boadicea and her Britons in the island West, Teutons in the boundaried north, Parthians in Parthia, the Chosen People in their chosen land, till, after the cruellest siege we have word of, when without the walls was death and within them was death, when men tortured each other for a morsel of bread or of offal and Mary of Bethezub ate the child at her breast, the city that had destroyed the Redeemer herself was destroyed, the Temple of Solomon delivered at last to the flames and Mount Zion to the sword and the vulture. Lord of the World was Antichrist: “Strike the womb which bore Nero!” cried Agrippina, the dead womb he came to peer at and to mock; at brotherly table young Britannicus was killed with treacherous wine-cup; of Octavia each innocent vein was opened ere he flung her into the burning bath, and her fair head carried to Poppaea (soon herself, though with womb living, to be kicked to death)—who, self-

crowned with the quadruple tiara of prolicide, uxoricide, fratricide, matricide, aspired to deicide also when he turned on Christ in the person of His Saints, crucified them, drove stakes through them from middle to mouth, wrapped them in lion-skins to be torn by the devouring dogs, resinously trussed them as live torches to illumine the night's imperial gardens, drove his laughing chariot down the aisle of human candles as they flamed, calling on Christ and calling him Antichrist. His successors, four in one year, swam through each other's red blood to the purple; one hacked to pieces, one slain with his own hand, one knived on the Gemonian Stairs, one living awhile to encompass the downfall of Jerusalem. Rapine and cruelty ruled the earth, whose heart spewed cruelty and rapine.

Such were the days in which our religion began. No syllable of the Messianic Woes was lacking. Expectation of earth's speedy judgment filled Christianity from its cradle.

A special form of that expectation was the millennial; when the calendar gave this the lie, the more general anticipations of an early end flagged also. By the end of the Middle Ages, side by side always with the numerical, they revived somewhat. When

> A Castilla y á Leon
> Nuevo mondo dió Colon,

though that new world turned out to be only America, he had discovered it in mistake for Paradise; which he thought lay eastward of India, for which he set sail ere it should be too late. Martin Luther hurried also, to finish his Bible in time. For a while again every comet, every least change in the constellations, was taken for a sign of the approaching day. Though with dwindling force, and dwindling effects on life and conduct, the belief, like its dated variant, persisted as a wide and serious one through two or three centuries more. As late as the last it enabled Juliana—the von Krüdener—to bedevil Tsar Alexander as he sobbed in her arms, and to inspire his Unholy Alliance.

Then came the scientific revolution, since which (despite which) those in the West who still cling to early expectations—such as our Plymouth Brethren and other literalists, the Adventist denominations in America who by avoiding fixed dates avoid frequent disappointments, the catastrophic sects of Russia whom neither Tsar nor Soviet has abashed, and plain men without labels here, there and everywhere—are no longer, if ever they were, those who have the main influence on its thought.

This is now guided by the physical scientists. And they are for Far, not Near. Their prophecies will be set forth in due place; but here, where the end proximate is contended for, the basis and general principle of their prophecies must in advance be questioned. The principle is Probability.

What is Probability?

Invoke that simian typist. Seated at his machine, seated there for a thousand years, is it probable that he will ever—his uncomprehending paws roving all day and all night over the keys—by sheer Baconian accident thrum out the works of Shakespeare, from Ferdinand's first exordium to Fame to Prospero's last plea for indulgence? Perhaps not. But fetch a million monkeys, set them before a million Remingtons, allow them a million years; might not just one of them, in his chance strumming on the keyboard, at long last produce the works of—Galsworthy? Perhaps.

Revive those roulette contentions. Could the same even chance, black or red, pair or impair, manque or passe, go on continually repeating itself? Twenty-nine times running is the highest in recorded gambling, and that two hundred years ago; is it probable that during the next two hundred years another twenty-nine sequence will occur? It is not. But increase the years; multiply, centuplicate them; allow two hundred centuries of centuries. Then may not the twenty-nine sequence come again, and more than twenty-nine, and more than again? It may; it will.

Ransack our own memories. A dozen men around a green table. Only two or three of them punting on single numbers, only one of these staking each time the maximum. Is it probable that he alone will get a pleno three times running, the only three times running of a year of months? Yet we saw this happen at the Jockey Club in Barcelona in April of 1921—month and year with best recent end-of-the-world backing. Was it probable that through almost the whole gambling day of twelve hours, three noon to three morn, one of the (sacred) thirty-seven numbers should not turn up a single time? Yet we saw this happen that same night at that same table. Three minutes to three. The minds of the inveterate pale sitters-on one curling vision of the serpent shape of 8, and their purses in sacrifice emptier. Heletha; in the Sphinx sorceries, Absolute Justice; number of the Names of Siva and of the Saints of Florence; holy day of the Vedic month, eightfold Path of Buddha; eight-hours day also and Eights week and pieces of eight; Serpent of the Universe swallowing his own tail, coiled Eternity—mysteries few and poor compared to those of the great sisters: 3, God’s favourite and England’s; 7, parthenous, parthenogenetic; 9, the ultimate … Yet soon I was hoping she’d outstay the clock. Then, three minutes to three on that April morning, at last we saw, and heard the two croupiers, who were twins, boom in excited unison together an Ocho Negro! over a number now empty, having taken all the substance of our world in revenge for her small share of the other’s …

Probability, in short, is a law of averages; at any moment the law may be infringed, the first ape at the first typewriter type Shakespeare the first week, only black never red turn up next season twenty-nine times twenty-nine, Ocho Negro lie uncalled not for a day but a generation. It is based on a logical theory of the world; the naturalists themselves are coming to see that matter may be illogical, anarchical, able at any moment to disobey. Above all, it is a rule that holds good over short periods only; the periods of the universe are long.

When, pursuing Probability, the calm apostles of distance proceed to base When on How and, selecting this way or that way for the end, posit each in its most absolute, its remotest form, they use another fallacy. It is a fundamental fallacy. For a light touch of each way or any could suffice. A ten percent rise in the sun’s temperature, no need for a hundred. A billion-mile passing of the star, not full percussion. One short cold snap, not final winter. Every new glacial period is colder; the next one may be too cold for life to live through. Every new inter-glacial period is shorter; the next one bids fair to reach not fifty centuries. Not the extreme hour of the frost eternal sounds our knell, but the first frost of autumn. We are well through the summer.

If soon, sudden.

While the end remote implies oftenest, though not obligatorily, that it will come snail-pace, the idea of early conclusion comprises usually, though not necessarily, the notion of short notice or none. Surat of the Troops: The trumpet shall sound. St. Peter: As a thief in the night. St. Paul: As travail

upon a woman with child. Whether man’s almost universal instinct that he shall be cut off suddenly is the result of Bible or Coran in childhood or whether Bible or Coran is the result of that instinct all-powerful through the childhood of the race, almost universal indeed it has been. And still is; save only (here again) for the latter-day saints, the scientists.

Who, reluctantly concurring to this extent—that any spurt extreme enough or eccentric enough, in whichever the process, might possibly defeat prevision—otherwise stand adamant for long foreknowledge.

They base their hope, principally, on future scientific methods made much more powerful and more accurate than now. But what telescope of tomorrow could give a hundred years’ notice of a comet moving at only a hundredth the speed of light; what super-seismometer full warning of the total plutonic outbreak; what thirtieth-century theorem due inkling of all sudden spurts in the sun’s heat or the star’s speed? One flaw in the instrument uncorrected, one irregularity in the event unallowed for, one weakness in calculation or deduction, one sharp drop in the ice age thermometer or rise in the sun’s, and all plans for preservation go agley.

They base it also on expectation of a future race well able to exploit those methods. But man may move backwards not forwards intellectually, or aside up some pudding-bag of futile and feckless being. He may know less than we do now, or quite different things—that show him the future in a light too bright or too dark for our eyes, or for his. All present facts may be seen as strange fancies, nightmare guesses of a race of dolls, by our sons the supermen; or blankly forgotten, by the beasts we shall breed. This only is certain: that, if there are still any, the living things on the planet a few thousand or few million years from now will be lower than gods and not lower than stones; creatures who may have no more knowledge of cause and result than have the fishes, or have defied all results save the last and divined all Causes save the First.

We can have no foreknowledge of their foreknowledge; no expectation of long expectation. One year the end will be next year; and that year may be the next.

## Some Time

Twentieth century’s persuasion—the End far and wide—is founded on five chief things.

First, on sheer optimism, in its turn founded partly, if unconsciously, on the present trend of teaching and preaching, itself founded partly on the comfortable situation of most folk who preach and teach. Were the world’s past described by the downtrodden or the suffering or the hungry, by cargo of slave-ship or girls of a brothel, by children of galleys or gallows or caste-bridehood or race-hatred or festering slum, it would wear different hues and darker; were the world’s future descried by the world’s victims—the world’s majority—it would be coloured by less joy of continuance. Long life for the world is predicted by a small and special class who find its life worth prolonging.

Second, on a kind of logic akin to but less ignoble than such complacency; which, well aware of his sorrowful past and suffering present, yet has faith in man’s ultimate destiny and regards it as against all meaning and all reason that he should be cut off before the flower of his age—so reasonless, so meaningless as to be beyond conception. Near doom is not conceivable; so doom is

far.

Third, on the new sense of time created by, and that has created, the new theories of time's nature. What they say, the strange priests with the strange names—Weyl and Cassirer; Bergson, Bolzano; Einstein, Minkowski; Poincaré, Palágyi—who tug at the mantle of Chronos and send his scythe swerving through nightmare, what they mean: who knows? They themselves? their warring acolytes? the chronic hierophants who would harmonize, synthesize, their magic and discordant speech? Perhaps none of these. But plain men scent the plain upshot: that through their words and their worship the old God's life is made longer, Time's boundaries pushed backward, world's respite increased.

Fourthly, and fundamentally, on a consideration one by one of the various manners of the end. A distant answer to When? is, by Probability, deduced from the different answers to How? The most probable of these are those probably most remote.

To each of the Ways allot its percentage of likelihood:

| Mode of World's End | Percentage of Likelihood |
|---|---|
| Comet | 1 |
| Fire | 2 |
| Water | 1 |
| Drought | 15 |
| Cold | 80 |
| Crash | 1 |

This is a very unsatisfactory table. To avoid fractions, proportionately too many marks, from the scientist's point of view, are doubtless given to the ways he deems least likely. To ignore for the moment the distinction between man's end and the globe's, the figures apply—where there would be a difference between the two—to the former, Collision thus getting one mark instead of (say) ninety-nine. The supernatural end, God, is excluded as not amenable to natural percentages. All the figures are quite arbitrary. Fire, for instance, is particularly unassessable at this juncture of particular doubt and dispute as to the sun's age and constitution and source of self-renewal. Cold and Drought are really one. Water's scarce worth a fraction. Comet is claptrap. … It is a very unsatisfactory table.

It could hardly be otherwise. The very ways being guesses, so much the more so their comparative likelihood. Each way had many variants, each variant many variants as to time. One way is bound up with other ways, often inextricably. If (under Cold) the earth's oceans freeze or (under Drought) disappear before the moon's return (under Crash) upon us, then tidal friction will abate, and the moon's advance be arrested; and there will be no such Crash, and Cold it will be. If, on the contrary, the moon makes haste and comes before the seas are either frozen or dried up, then Collision has it. …

The broad result is not affected. It is unequivocal. Comet, Fire and Crash, the three accidents—which, being the least precisely predictable, cannot be refused therefore the theoretical possibility of coming soon—manage all three together to reach a paltry 4 percent. No less than 96 percent is shared by Water, Drought and Cold, which should come upon us in a far future only.

Drought-Cold, the composite end, that according to almost all latter-day conjecture, we are bound for, is, according to almost all present-day assessment, not less than thousands of millions of years away. The answer to When? as based on the answers to How? puts early consummation beyond the pale of all human plausibility.

Fifthly, and most persuasively, on the companion belief that the beginning is far away.

Here abandon intensive figure-play for extensive, the humble sums and subtractions of the older prophecy for the bold zero-games of the new. If the calculations are remoter from lay understanding, more fantastic, more visionary, they offer the great compensation of vagueness—more elbow-room. With Millerists and Millenarists one wrong is all wrong; with geologists a million years out is no error; with astronomers a hundred million margin is sheer finicky precision. The new magic has the further advantage of not having yet been caught out; no date of its choosing has ever been reached, so none has ever been proved wrong. Some may dislike the airs of the latest holders of the temple, their contempt for their predecessors, exaction of blind acceptance, unwillingness to see that as the wizards and astrologers to them so they will appear to the next age's priests of knowledge. But once you accept their premises, once you share their assumption that the external world they speak of is there, you must admit them without rivals at explaining that world, and must applaud alike the triumphant mechanism they have built up on that assumption and the skilful notations in which they describe it: the chemical notation, the mechanical notation, the mathematical notation; the rows of huddling noughts.

Noughts divorced, if not from beauty, from experience; not to be grasped with the brain, though the eye lends mystical help. A bit-by-bit method, dealing with moderate multiples, persuades a few. By express train the moon is only six months away; that Flying Scotsman which for eight hours bore you northwards you can perhaps, with an effort, conceive having carried you on for five hundred times as far. The sun is not four hundred times further again; you can, maybe, just visualize the journey. The old Queen was born only some three times as long ago as you and I. All previous recorded history, from Memphis or Babylon the first city, from great Cheops to great Victoria, is but fifty times longer ago than that. The post-Tertiary period is but twenty (or thirty, or forty) times longer ago than recorded history; the earlier geological periods each not more than two or three times as long as the post-Tertiary; the pre-geological period not more than half—or twice—as long ago again as all the geological eras added together. This method may help, or it may not. The persuasive "buts" and "onlys" may assist the vision of certain piecemeal and analytic minds, or may defeat their own ingenuous end, and make the years' confusion worse confounded. The jingling millions and billions are better; the rows of huddling noughts.

With their aid, how runs the answer? How long has the world been? Ussher's brevity is brutally avenged; the new doctors vie in prodigious estimate:

First the humble philologists, who for the evolution of human speech require a year allowance of some

80,000.

Next the anthropologists, who put man’s reign as man, since back in the early Miocene he took farewell of his anthropoid brethren, at

200,000.

Then the biologists, who for the full evolution of life, want a mere

80,000,000.

Passing from life to the lifeless earth, with the geologists we take a jump. The old man with his salt machine, turning it out like mince: how long has he been turning? All the rivers run into the sea: how many years has it taken them to bear down the sodium now found there, allowing for so much originally present, so much blown back to the shore by winds, and this correction and that?

1,600,000,000.

Sea is deep; land is deeper. How many years for the depths of the different sediments that encrust the earth to have been deposited, for the oldest Algonquins to be laid down? Maybe

1,650,000,000.

Land and sea, in even battle, have since the beginning been warring together, an age of the raising of mountains alternating with an age of the lowering of lands. There have been such and such a number of alternations. How many years have been needed to fulfil them? A rough

1,800,000,000.

Chemist joins geologist to take up the tale; together they meditate on the radioactive elements in the earth’s crust. As Paracelsus saw long ago, all stones are philosopher’s stones. Alchemy is a matter of temperature; each metal holds within itself the principle of self-transmutation. Uranium for instance, debauched uranium, goes on changing from one element into another, usually ending its fickle career as lead. The rake’s progress is long, but the spies of science have found out just how long. The rate of disintegration has been discovered, so that if there is so much uranium in a given rock, and so much lead, the age of the rock is “known.” The figure for the oldest rocks is

1,900,000,000.

Strike the balance of these four to get, as the age of the solid earth, over

1,700,000,000.

Pass from geological to astronomical mysteries. The left-hand integer rises.

The years required for the solar system to have accomplished its long journey from its nativity-place in the Milky Way—if it was born there:

3,000,000,000.

To cover the age of the moon, our child—if she was born of us:

4,000,000,000.

To account for the eccentricity in the orbit of Mercury—if one can account for it by zeros at all:

5,000,000,000.

To fit the tidal hypothesis of origin—if the true hypothesis:

5,600,000,000.

Average these four astronomicals:

4,000,000,000.

The world, then, is held to have existed as a solid globe for one thousand seven hundred million, as a separate one for four thousand million years.

As though the clues Earth affords were not obscure enough in themselves, the varying ardour of the suitors, by interpreting them most variously, has made matters worse. The physicists, half envying Genesis, have assured her she is young, always construing her shy hints as conservatively and courteously as possible. The geologists are less gallant, the chemists mere churls. From decade to decade too the estimates have varied, moving up and down in great curves, all sciences together. They were a little lower just before the last war than just after Darwin; they are higher today than at any other time. How bold was Lord Kelvin when, arguing from the laws of thermal conductivity, he demanded for the time since the crust became solid over a hundred million years; arguing from the polar flattening and the rate of rotation, several hundreds of millions! Yet to the salt or sediment schools or the uranium-zirconium schools of today he is a timid fellow, a second Ussher; as they, perhaps, someone's Usshers tomorrow. Maybe the hints are deliberately misleading. Maybe, like ancient kings who hid the day of their birth lest astrologers should cast them an ill horoscope, for a like reason the world hides hers. Somewhere, in the numbered heart of God, her birthday is known. But not to human calculation, which can only use those poor averaged guesses at the past as ground for new poor averaged guessing at the future.

Four thousand million for the past. Now the evidence, though technical, that the earth is a comparatively young earth, with noontide and meridian far ahead, is described as overwhelming. So put her future at whatever figure you like; put it at nearly double her past: put it (with almost any other integer instead of the seven fairly acceptable to 1930 theory) at

7,000,000,000.

Last of all, to crown us with length of days, come the sidereal actuaries, who place the Sun's own birthday—that he shared with his brethren in the Galaxy, at the parturition of a great spiral nebula—in a far remoter past, reaching twelve digits, and who make his expectation of life, as the earth-assessors ours, proportionately still longer; make it, with their new notions of matter, of star-centres more radial than radium, of energy subatomic sub-eternal, of ions bombarding each other

into outlandish senility, a wild fourteen-digit thing: some

10,000,000,000,000.

It being not known, nor to be sanely guessed, for how much of this ten million million period his radiation will be sufficient to keep earth's creatures alive, nor what share of his future will be ours also, as earth's Ultimate Figure choose one somewhere, anywhere, between this outside limit for the sun and the seven thousand million chosen for the earth's chance on its own.

Choose

1,000,000,000,000—

that is, a million million, or (as in England we say it) a billion.

The World Will Last a Billion Years

What of it? What upshot of this our longevity?

Scarce any. A time so far away cannot be comprehended, and is not comprehended. It has no reaction on human understanding, leave alone human conduct. It hides so distant that it holds no fears, no more than death for a hopeful boy. It holds no interest either. Who wants to hear about it, read about it, think about it—do anything at all about it?

Certain tendencies are no doubt strengthened by, after strengthening, this postponement: the decline of fear, the decay of religion, rising ambitions for man's destiny. Distance lends enchantment. The Delectable Mountains are ahead. We shall become supermen, then gods. There is time for anything, everything.

This adjournment, like all adjournments, like all optimism, in practice discourages action and defeats its own desire. Time for everything means time for nothing. Dwell careless. Eat, drink and be merry. You've till the year one billion ere you die.

Being built on the quicksands of contemporary speculation, the far-off dogma may crumble of course tomorrow. Choked by the armour of many dimensions it is forging for itself, strangled by the mathematical network it is getting entangled in, Science will suddenly be seen (unseen) for the dream, outside God's reality, that it is. Then its prorogations will be denied, and a new vision of hope or despair, or neither, be revealed.

Till then why not trust the naturalists? They tell so little. Not what the world is, nor where its first substance first came from, nor what the men upon it are or mean; only when this globe as real in the way they suppose, and when life upon it as the physical thing they describe, may, with most fantastic margin for error, be guessed—may appear—to disappear.

Not soon. And not signless.

What shall the sign be, the sign of Thy coming and of the end of the world?

The reappearance of the two men who have lived but not died: Elijah, prophet and Tishbite, and Enoch father of Methuselah—himself no ready dier? How shall they be known?

The sign of the Son of Man in heaven? What shall it be?

The destruction of Rome? While she lives, aureal, imperial, leonine, capitoline,

> O fior d'ogni città, donna del mondo,

city of cities, Babylon the third city, Caput Mundi, then lives the world. When she falls, the world falls. To this day the Romans will have it (I am husband of a Roman and know) that when the statue of Marcus Aurelius shall turn golden again then the sun shall turn black; that the last sunset over the Colosseum will be the last sunset over earth.

Or, not rather, the slow signs that Science will discover? For if not soon, not sudden.

Flood will advance painlessly and to programme; there'll be time to plant gopher-trees. The brains of those latter days will compass every chemical trick to combat Drought and postpone his hour, then to foretell the hour beyond which postponement cannot go. They will raise batteries against the Cold, using devices and deftnesses we cannot conjecture, eking out the reduced rations of radiation according to a timetable corrected continually in their favour, and accepting defeat, accurately forecast, only when the sun as ally indispensable can help them no longer. Centuries soon, by high celestial mathematics crash with comet or star will be deduced. Striking-chance, size, speed, noxiousness, all will be published generations in advance. Stellar waverings inconceivably far will constitute the first warnings, and will continue and increase through the first period. The mathematical stage, concluded by disturbances in the orbit of Neptune or of Chronos, named but still to be found,1 will be followed by the stage of telescopic visibility, then by the naked-eye stage, as the foe moves through the six magnitudes till larger than Sirius or the Morning Star at her brightest. Then the seasons will begin to go wrong, and the thermometers, and the clocks. If the first warning is given today, that is at a moment when, as the accredited magicians of the age, astronomers and physicists happen to be enjoying enormous prestige with common men—a prestige they may lose tomorrow to the spiritualists or the mystics or the priests—incredulity, if any, will cede swiftly, and long before the naked-eye period the psychoanalysts of the heavens will have permeated the mass of the people with their prediction.

What then will come to pass? First, covering all men, a slow surge of fear—fear, with Love and self-love, the third director of men's actions. When fear rises self-love rises with it, and Love goes under. In hearts stripped naked by terror, the beast will hack through and triumph forth; their death before their eyes, their faces turned monstrous with their hearts, cruelly they will fight to get or keep for themselves alone the best places or best chances (if against Cold not the Star, the last stocks of preserved sunlight or synthetic warmth), cruelly rejoicing in the suffering of those whom they deprive or despoil. From craftier hearts "What must I do to be saved?"—all fear-moments are religious moments—will go up in clouds of servile prayer to the advancing star (the dying one), with incense of propitiatory virtue and pious works. In a few heavenly hearts Love will stand firm and victorious, in might of self-sacrifice giving up its share of scant coolness (scant heat) unto others. In the few maddest hearts will shine exultation, glad welcome to death as victory, Annihilation as the

Bride. Until, as the heat (cold) waxes, and pain and disease oust (numb) even fear, and the horror of physical suffering blots out even the mental horror at the world's fate. …

Except—who knows? Who knows what happens, as he dies, in the heart of another? Some go fearing, some cursing; some in peace, some in pride; some struggling passionately to live, some knowing that there is nothing better for a man than that he should die; some beholding the darkness, and some the King in His beauty. According to the manner of his individual soul and according to the manner of the general end, so amid these various ways for man's choosing will he choose to die.

Foreknowledge must be his comfort. By large increase of memory and foresight, by calculus more powerful and machines more marvellous, by telescopes to watch each sunspot on each farthest star, by microscopes to watch each proton and electron at work or play, by subtleties of mind and contrivances of matter that at the last instead of merely adumbrating will seek to direct the destinies of earth and of heaven, by all these and by God's pity—whichever the way, whatever the end, it will be foretold in time.

In time for what?

## Never

World not longeval, but eternal. World without end.

There is a halfway house, a high intermediate possibility: of a termination so remote, so far beyond the proudest chain of ciphers in astronomy as, though short of eternity, to be for the human mind almost indistinguishable from it.

Brahma divided the time of the world into Days, each Day consisting of 2,000 divine periods, each divine period consisting of 12,000 spiritual years, each spiritual year consisting of 360 terrestrial years of 360 days each. A Day thus contains 3,110,400,000,000 days. How many Days will there be?

Buddha divided the time of the world into Great Periods, and each Great Period into four Incalculables. Asked the number of years in an Incalculable, he replied: So great that no writing of zeros would ever attain it. A Cingalese doctor, glossing Gautama, estimates that if once in a hundred years an iron mountain were touched lightly by a light muslin veil, the length of an Incalculable is the length of time required for that veil to wear away that mountain. Unmindful of the master's warning, a Burmese horologist lays zeros together, and his Incalculable estimate—at once the most liberal and the most precise that we have—is two hundred septillions of miles of noughts. For a Great Period multiply by four. How many Great Periods may there not be?

Likewise modern lovers of number have imagined the time of the world as of a magnitude that bedwarfs the astronomer's billions. A billion written out contains but thirteen digits, a million billion but six zeros more; there are the numbers containing a billion of the zeros themselves, and the staircase-numbers a billion digits of times yet bigger. The total number of the atoms that make up this earth contains but some sixty noughts; that make up the whole universe of matter, as today

judged finite in space, some four hundred; that made up Archimedes' cosmos, as described in the Psammites, the Sand-Reckoner, some fourscore thousand. Number transcending matter, the total of seconds in the universe not of space but of time may run to a sum decillions of staircase-numbers greater than those fourscore thousands of noughts, to a figure so flagrant that no way or system of human words or symbols is able to show forth or dimly shadow it. How many separate decillions of those decillions may there not be?

It is vanity. In His sight all the noughts round all the universes are a noontide. They will pass. Eternity ahead of them will be no briefer than before.

Not, like these divisional schemes, short of Eternity, but a special way of conceiving it, is the World of Ages or Cycles; Palingesia perpetual. The doctrine has had its finite variants: so many deaths, so many rebirths, and at last the final end. But Arabs, Arawaks, Aztecs have implied the eternity of the series. The Mayas of Yucatan—the great American people—taught that there had been four past Ages or Suns: the Sun of Earth, ended by the Great Drought; the Sun of Fire, ended by the Great Conflagration; the Sun of Air, ended by the Great Hurricane; the Sun of Water, ended by the Great Flood—in world tradition generally the last general world disaster—and indeed the whole sequence is an accurate account of what has happened, if not to the planet, at least over large areas of it. The Suns will continue; Nature has resources enough to find new destructions for each, vitality enough each time to atone.

For Heraclitus each end is identical, always the Sun of Fire; each time a counterfeit world will rise from the ashes; Earth is Phoenix. Collisionists concur. From nebula to sun and planets; crash, and then back to nebula; then back again, repetitional, iterative, ding-dong—and so forever.

Beyond all septillions and decillions, beyond life and death sempiternally recurrent, thrones the pure form of the Everlasting dogma. Without sensible change, without intervening destructions, without parcel or periods, the Earth abideth forever.

The phenomena of science and experience, the water and the cold, the maternal nebulae and paternal impacts that give birth and death and birth again, all matter and its manifestations, all visible tangible things, are pure illusion, a trick of the beholder's brain. There is no world. The world is but the form or mode of a dream or vision. In that dream sense in which it exists now, it will exist forever.

Though Brahma pass from dream into a dreamless sleep, only apparently will the world come to end.

The world is God. God by His nature is eternal. The world is eternal.

Rome is deathless:

> His ego nec metas rerum, nec tempora pono.

Roma Aeterna: Mundus Aeternus.

Physics too, if sheepishly, is beginning to smile on metaphysics, and both to lend colour to the truth. Time has no independent existence. It is but a manner of conceiving things. Eternity therefore, time's extension to the nth—to beyond the boundaries of the brain, the confines of sane beatitude or sane terror—has no existence either. All times being the same, because there is no time, anything that exists forever exists now; all that exists now exists forever.

From yet more orthodox throats the same witness is borne. The earth, whatever the precise way, came out of the sun and consists of what were originally the sun's outer layers. These were made of the lightest atoms, the permanent atoms, the only ones not dissolvable into radiation atoms, the only matter not transformable into light. The sun, as after parenthood he remains, now consists of dissolvables only; whom the earth, consisting on the contrary of final-inconvertibles only, will outlive, and all his brothers the mighty stars.

Avoiding also collision. Space as well as time being infinite, an encounter with other bodies need never take place; to assume that in infinite time it must, is to forget that infinite space redresses the balance.

Sailing but bound for no port, from impact immune, of indestructible substance compounded, our globe will wander through the sunless starless universe forever.

# Which First?

End of the World has so far been used indifferently to mean the end of mankind and the end of this globe he inhabits. The two are not the same, and except in a case like head-on collision, planet and people vanishing in vapour together, will not be simultaneous.

Either man will predecease his home. One of the great climatic climacteric disasters will suffice to destroy him while hardly more than ruffling the earth's surface; or quite other factors, of a kind different from any yet alluded to, may, in conjunction with or independently of natural change, sweep life but not earth away.

Or, in certain strange circumstances, the race may outlive the world.

## Man

Of Comet's unlikely chances, those least unlikely—his chances of scorching, poisoning, flooding—are fatal only to life; the mass of him, arguable from comets known, could scarcely demolish the planet. Water or Drought, in drowning or desiccating her inhabitants, will leave the round earth, if discoloured a little for lunar and Martian eyes, all-unperturbed in her course. If Cold for man, Crash for matter, the interval between the end of the world in the one sense and the end of the world in the other is the interval between the millions of years for the sun's cooling to life's death-point and the quintillions, ere he encounter some galactic brother, for his crashing to his own.

Whichever the way, Earth’s journey with living passengers is like to be much shorter than her time as a tomb. Even though, through abrupt increase of our sun or premature grazing by some other, the interlude between the two destructions were less than in the likelier instances, it would still be considerable. Literal simultaneousness, crew and the ship down together, is one chance in Brahmanic zeros.

Man going need not mean all life going. Flood will not finish the fishes. Earth has her salamanders if it is Fire; aside from those microbes who riot and revel in the boiling point of water, what mere lizard will not outlive us? She has her parasites who dote on congelation, if it be the Cold; with polar moss and lichen to outstay the last tarrying bacillus. Yet those who could survive us (and most will succumb sooner) would survive for a space so short that here it will be ignored altogether, and human extinction held to imply and include the extinction of every living thing. Both will occur when the Chosen Way imposes them—if not sooner.

Will it be sooner? Without harm from the heavens, will the race fail? Shall we go, without compulsion from outside nature, before we must?

There are borderline cases. Astronomy, returning to the paths of her stepmother astrology, might cast a fatal horoscope; the sun, entering not this sign of the zodiac or that, but some field of unknown matter, could so transform the quality of his radiation as subtly, secretly, to kill the germ-plasm; we should die without will-to-live, without voice or knowledge to call Traitor to the skies. A slight axial shifting could unhinge and convulse the seasons. Then, even as that change in conditions that was the white man’s advent did silently and mysteriously, and more potently than his smallpox or syphilis or gin, deprive red men in North America and brown men in Southern Seas of their impulse to continue, so the advent of changed climate could, without slaughter spectacular, discourage men white and yellow and black, dash their virility, deprive them of all desire of duration.

Exclude such hybrid hypotheses, rule out every reason obliquely astronomical-geological. Will man, left to himself, to his resources biological-psychological, live as long as the earth’s conditions, left to themselves, permit him to?

Facts are here outnumbered by fancies, more fanciful than those of the stargazers or million-mumblers. We know even less of our own nature than of the mystical nature of Number; of our own bodies than of the heavenly; or where they come from, or whither they go. The time element, a large difficulty when treating of suns and planets, becomes a fatal one when seeking to prognosticate for men, who obey less known laws and move at less mensurable speeds, who need smaller time for bigger changes, whose souls elude the clock. The direction factor fails also. The earth’s, and the sun’s tolerably, are known. Man’s, if he has one, is not.

Shall we perish before we must? No answer is available; only strange contending prophecies, sharp rival conjecturalities. …

The race grows ever stronger and more viable.

Physically. With better and more regular food, better and less hostile conditions of every kind, the stamina of the species is constantly improving. Disease is being conquered; one cruel malady after

another has been driven from the body, and those still resisting will be broken. In the foulest slum-tenements of this Gilded Age fewer babies now die than in king's houses three centuries ago—what then of the Golden Age, slumless, soon to follow, when all houses shall be royal, and in none of them, as now, infanticide practised? Nor parricide: the old will live to be older, and happier and healthier and usefuller in their age; the generations will overlap for longer, strengthening the forward rhythm of human continuity. Long ago we got rid of tails, brutish foreheads, simian jaws; next, our absurd hands and feet and genitals, inadequate instruments of infinite yearnings in art and movement and love, in their turn will go or be transmuted. Whatever the future of eugenics, natality controlled and perfected not by blind instinct but by instinct and intellect working wide-eyed together, it will be better than its past. It has no past. Even without it, we've come far. When the creature of Piltdown shambled through the Sussex jungles, tiger was no less tiger than today, and the orangutan and the gibbon, who since have learnt no more, had learnt already to stand upright. While they ever since have marked time, the human average of health, beauty and functional fitness has marched on to where we now stand, upright in body and soul, beholding them face to face to love our women, looking no more at the ground but at the sky to know our world. Because conscious, future progress will be swifter, in half the time covering double the distance between Piltdown and Nineteen-Thirty; thence running forward on a swift straight track unto the goal, triune and shining, of perfect health, perfect strength and perfect beauty.

Intellectually. It is a demonstrable, measurable fact that man's brain, instrument and symbol of his superiority over his animal forebears and contemporaries, has grown and is growing in size, complexity, adaptability. In power and promise of power it has outdistanced the brain of every other creature and every other organ of man's own. By it he increases his stock of knowledge and his capacity to hold and use it, his individual memory and the race memory, his personal intelligence and all the people's. Since the anthropoid parting—nay before—intellect has been curbing instinct, canalizing it, transfiguring it. Inventors, innovators have appeared, challenging the rigidity of ignorant, immovable custom; men with more brain than their fellows, whose brain-average moves at last upward to theirs; great men—and there were no great monkeys. Through great men the race grows greater; as it grows greater, the proportion of great men grows also. The good movement gathers momentum. If the peaks of intelligence are higher, much more so, in comparison, the plains. If civilization levels, it levels up. And when at last the chemical causes of cerebral energy are fully understood, and the brain can be improved at will, then the rate of intellectual augmentation will soar swiftly, and in a few centuries, years, hours—what is time?—carry the race far skyward. Ye shall be as gods.

Morally. Make every admission of present ugliness and evil; how much uglier and eviller the past! Are not the high ideals man today can aspire to, the fair deeds he is capable of, beyond any his forest forebears knew? Who can gainsay that, once beholden, the vision of the beauty of holiness has been driving Satan steadily back; that, through Christ's example and sacrifice, goodness and mercy have ever since, however slowly, been gaining ground—as, on His death-night, assassins everywhere trembled; as, on His birth-night, every sodomite throughout the world was suddenly cut off? Who can deny that more hopefully than in jungle days, or Jurassic days, the balance between good and evil, happiness and suffering, now tilts? Compare the red tooth and claw of the grey twilight with the warming kindness and comradeship of noonday; caveman culture with Christian civilization; Galilean Man with the Man of Galilee. Consider Tertiary ethics, the dinosaur comity of nightmare; consider the loveliness of poetry, of aspiration, of altruism—of Love—at their

present loveliest. Only a fool or a knave or a traitor to humanity in its slow but glorious upward march can deny that the march is upwards.

And if so much has been done in the little time since men were upon the earth, what shall not be achieved in the unfolding aeons ahead? At the worst, our far-off descendants—our measureless superiors in bodily vigour and bodily cunning, in will and brain, in moral courage and moral worth, in gladness and grounds for gladness—will be able to postpone almost indefinitely the end, then radiantly to live the last ounce and instant that cosmic conditions permit; at the best, able to create cosmic conditions of their own which shall make temporal life eternal and human life divine. …

The race grows ever weaker and less viable.

Physically. That better and more regular food exists only in the imagination of those few (one in six, is it, of the earth's inhabitants, or eight?) who have it also in their bellies; over the crawling plains of the East, over the swollen stone agglomerations of the West, famine and undernourishment gauntly reign, a monarchy almost absolute. Conditions of life, as each year life moves to the million-cities, get each year worse. Disease more than keeps pace with the doctors, who less than keep pace with the germs and the rats. Little babies, brought forth on bare garret floors in the starving cold and cruel squalor of twentieth century night, die faster than the rats or the germs. Biologically we are retrograde, and soon will be degenerate; our fur has gone, our hair is going, our toes are numbing and our teeth dropping out. The look of age is upon us; compared to the proud races of prehistory, we are a decaying, doddering stock. What biological progress have we marked this last ten thousand years? What shadow of a sign of any such progress is there? Physique may be improving among the well-to-do, numerically insignificant, nuptially sterile; stamina is declining in all classes. Civilization is sapping man's vigour, blunting his senses, always reducing the scope for his endeavour. He no longer needs strong right arm nor mental resource, no longer need fend for himself; the tribe, the State, the super-State is his protector, his poisoner, according him cheap survival for an ever smaller expenditure of brain and brawn. State and faculty have joined their murderous hands. Medicine, while saving the individual, enfeebles the race; the proportion of weaklings is mounting like a tide of death. If Adam was not the largest man, nor all the old Rabbinical estimates true, nor only giants in the land in those days, nor all men more splendid—if, in deference to the dogma of the literal and inspired untruth of every word in the Bible and the legends, these things must be denied, what then of the Crô-Magnon fossils? Surely geology, which routed Genesis, surely geology must speak the truth? But behold those skeletons and ours. Confront the old Magdalenes and their frail sisters of today. Compare the vanishing Highlanders and advancing Keelies, the yeoman of Middlesex and their Cockney supplanters, the Romans and the Romans, the men of tribal Manhattan and tumescent New York. Beauty? Consider the lilies of the field.

Intellectually. Punier in body, above all in brain. It is a demonstrable measurable fact that the great primitive peoples had more grey matter than we; the brain of Crô-Magnon woman equals that of modern man, and is much larger than that of her voting daughters. Are we a higher type than the citizens of Periclean Athens—or than his slave? Art, poetry and music are corpses. Tools do our "manual" work for us; the hand is losing its cunning, and with it a rich area of the brain its cunning also. When tools for mental work soon appear, the brain's brightest regions will follow little toe and

little finger into atrophy. The mind that looks to chemical aid to improve itself will be beyond improvement; monkey tricks with monkey glands will not seat us on God's throne. Birth control is reducing the proportion of the mentally fittest and, allied with the doctors, though for the moment they are its foes, will hasten the decline and the fall; hastened also, from all sides the bad movement gathering momentum, by the brain-wear and nerve-strain of the coming centuries of nightmare speed, noise and number. Card-index will not save, nor catalogue. Accumulated facts and pigeonholed experience are not intellectual progress; they weaken not strengthen the racial memory and mind. Wisdom Peak was in Palaeolithic. The downward slope will be peopled with madmen, and cretins, and ghosts.

Morally. If Buddha walked again on the Kapilavastu road, he would meet the same Four Signs of misery, now as then; and none caring, less now than then. That every imagination of the thoughts of man's heart is ever more evil continually, that the frost ahead like the flood before is due reward for a race unworthy to have lived, has not less witness to call than that pale doctrine of moral progress, whereby "good" is something positive and cumulative, growing in quality and quantity, whereby men are always better, relatively and absolutely, moving forwards and upwards—intrepid heavenly walkers—to heights of supernal worth by virtue whereof they shall have everlasting life. Where are they better? In which land of which sea? Not, assuredly, in the two great Messianic empires that today divide between them the adoration of the world—the tumbrils roll through Moscow, the death-pyres blaze through Texas. Assuredly not elsewhere: in which realm of which hemisphere holds not Inhumanity the sceptre of humanity, wears not Unrighteousness the crown royal? Look into all lands, and behold sorrow; look for judgment, but behold oppression; for righteousness, but behold a cry. Than when are they better? Even our teachers are wavering; at last anthropology, turning from Tennyson to the truth, begins sulkily to allow that the common tradition of the race is right, that Arcadia long ago existed, that the Golden Age once was, that everywhere there is less liberty, less equality, less fraternity among the civilized nations of the present than among the uncivilized nations of the past, that every year, since in that fateful hour by the fruitful River civilization was first invented, injustice everywhere has waxed: from class to class, colour to colour, sex to sex, man to unbrothered man. Oppressions multiply, and on the side of the oppressors there is power. The spoilers shout for battle: 1914 outshone its predecessors, but will look dim beside its successors, now being made ready by patriotism run to paroxysm (fair pollen turned to foul poison), soon to triumph with the deadly formulae of electrochemistry and electrophysics instead of mere tomahawks and tanks, by and by to exterminate us altogether. Harlotry, crueller than of old, marks progress organizational, orgiastical, on the sporadic sexual injustice of earlier tribes; in greater ease and security men trample on the broken vessels of their pleasure; with sweeter joy of contrast women contemplate women less fortunate. Neo-Croesus, propped up by children's skeletons, riding high upon the neck of the afflicted in luxury old shahs and satraps would have trembled at, blinks down on a world of antlike toil without the ant's rewards, secure in his weapons of steel and starvation, parchment and parliament, there at his whim to crush those who cry out for bread. There is no wickedness or wretchedness in the long dolorous human past that is not outmatched by the wickedness and wretchedness of today; that, ever uglier against the new background of ethical pretence, shall not seem virtue and joy compared to the monstrous wickedness and wretchedness of tomorrow. Only a fool or a knave or a traitor to the truth can gainsay the doleful failure of humanity, its biological degeneracy into a type not capable, its moral degeneracy into a type not worthy of survival; its certainty to succumb, if to the evil in its body and heart it has not succumbed already, at the first advance signal from the

sky.

From such shrill bandying of total prejudice, assertion and bland counter-assertion of progress or decay integral, small help is to be had.

The dourer optimists shift their ground. Life, they say, may not be in any clear sense on the upgrade, but it is the most adaptable thing in the universe. Plants have weathered the dank warmth of the Coal Age and the hard cold of the Ice Age; while pole has swung to equator and equator to pole, they have flourished like the bay tree or Arctic shrub, becoming deciduous or evergreen, evergreen or deciduous, as the fashion vagaries of the climate demanded. Microbes take potluck; whether it freezes or boils over. Fishes are at home in the pilchard shallows of Cornwall or the one-foot tarns of Cumberland, and in the abysmal depths of the unplumbed Pacific. They have passed from water to land and land to air, putting off fishhood for snakehood and then birdhood; or, remaining fish, bird or mammal, have suited their fins, wings or coats to the requirements of each changing age. Just now the elephant is hairless, but (if we spare him so long) will turn hairy again when the next ice age counsels a coat. Man their slaughterer is the supplest. That he ever evolved, that he survived the wild beast rivals of his long childhood, with only his brain to defend him and defy them till he ruled them all, that he surmounted every change of cold and heat, damp and drought, dearth and plenty, is itself the chief miracle of the past, chief earnest of the ascendant future. The hardest days are over; but should the planet turn Eskimo snowfield or Dyak forest again tomorrow, that will suit him, and he survive them. The wild creatures will be gone in another century, the tame ones are our slaves, and now we have made us new creatures, steel children of our brains, who will help the children of our bodies to new heights of resistance and new depths of subtlety against the worst that the stars and the years can do.

Life is not the most but one of the least adaptable of phenomena. The stones have survived; how many of the beasts? Where, for all his name, is Titanotherium Robustum? Or Diplodocus Carnegii? Where now is Pterosaur, flying reptile with massy head, bone-cased eyes and hopeful leer; made cunning enough, one would have thought, for victory over time? Where is Pythonomorph, sea-serpent double the size and horror of all silly-season and all silly-sailor tales? Ichthyosaurus, giant ocean-lizard; Iguanadon, giant ostrich-reptile; Clepsydrops, Dimetrodon; Mylodon, Megatherium, Glyptodon? Or, in ascending Jurassic rhythm of towering horror, where Brontosaurus, Megalosaurus, Gigantosaurus, Atlantosaurus? All went. They were herbivorous; Tyrannosaurus the flesh-eater devoured them. Where is he? Arch-rodent has shrunk from nine feet to not nine inches; Taxodon is become rat. Labyrinthodont or mastodont, dinosaurs or dromosaurs, all are gone, those mighty beasts are gone; as extinct as the dodo, if far longer ago than she. Who should believe in that delirium world of bird-dragons, elephant-tigers, fish-lizards, rhinoceros-seals, armadillo-monkeys, were it not for beholding their skeletons, their footprints, their dagger-like dragon-like teeth that fastened into the writhing frames of our own fathers and mothers and of those who might have been fathers and mothers of a higher race than ours? Pithecanthropus might have done better than Homo Sapiens; but he died, as all but a tiny minority of species died or are dying. All are gone; not only they whom for bulk and terror we gape at, but hundreds of thousands of species less spectacular—insects, fishes, mammals, primates—have gone with them. Lemuria is lost; the Missing Link is missing. Man has contrived to hold out for one or two brief geological periods. But the higher the organism, the harder its survival; whom the gods love die young. Now, become stereotyped and lazy, a degenerate who has specialized in a few nerves and a few brain-tracks as

the dinosaurs specialized in this or that piece of defensive armour or in size or amphibian aptitude, like them, decayed and dislaurelled, he will go. Who will observe his human skeleton in what inhuman South Kensington of the future?

The survivalists try again. Man, they say, unlike all other phenomena, is moving in a known direction. His road may show ups and downs, yield stretches of hard going, moments even of standstill, lead now and then sheer backwards through countries of failure and evil; sometimes he loses his way, sometimes the guides go wrong, anon the standard-bearer fainteth. But the drift and net movement is onward—each heart of us knows it, kowtow to the darkness how we will. Man, unlike his ignorant forebears, himself knows it. He has glimpsed the goal, and he believes it good; which, consciously desiring, he at last will attain. … Man's, unlike that of those perished species, is the right direction. They overspecialized in wrong directions. He alone has concentrated on brain, which has empowered him to outlive or to master his fellow-animals and to subdue the world inorganic, and which will enable him, when needs be, to face final destiny. The Chosen Way, it is he who has chosen it. Evolution is creative, not passive; Man makes, not encounters, the circumstances before him; makes, not suffers, himself. He is the path and the pathfinder; they are one; they lead to Paradise.

He has no direction, or it is the wrong one. Evolution is decreative. The trend of the heavens, as of radioactivity, as of every ultimate thing and process, is from elaborate to less elaborate, from complex to simple, from changeable to changeless. Evolution on the earth, being the other way, is swimming against the tide of the universe; like walking along a corridor train in the opposite direction to its motion, along a travelling ship from prow to stern. Cosmically considered, life is a perversion. … He has no direction, or it is the wrong one. The road? It has brought him from Arcadia to Armageddon, and now is shooting to the Abyss. The drift and net movement is downward—each heart of us knows it, wallow in make-believe how we may. At the best, the graph of man's history, switchback Spenglerian rhythm of civilizations that rise and fall, leaves each new downward dip no higher than the dip before; at the fond fantastic best, no higher. A goal? It is the song of fools. A standard-bearer? He fainteth not; he is not. We poor perishing people have no leader; no light, no faith, no Lord. Christ is dead in His tomb, not risen; Christ is worms and clay. Where is an ensign to the nations? Where is a banner upon the mountains? Where, to guide us through a world now pushed past the stars, where now is a Star? Horrible infinite world, by the mirage of knowledge stretched out through space and through time unto eternity. Where is a Jesus for eternity? Where is Immanuel of the Infinite?

The optimists' last bid for human victory is also their boldest. Even if it so be that man must go under, he will have found replacement by a tribe of gods; whether the children of his body made more than human by untold centuries of the work of his brain, or whether children of his brain alone, a triumph-people, raised artificially. Paracelsus first tried his hand. Put so much sperma viri in an alambic; stir, keep warm. After forty days you will see a tiny creature moving about in the bottom of the still. Keep him there for forty weeks at the temperature of a horse's belly; feed him on human blood; at the end of the forty weeks he will have developed into a small but perfect human being. Whether or no the great magician himself succeeded with his recipe, Homunculus certainly had no children, started no rival race. Far other will be the expectations of the later life makers. Cyanic acid is an odd new name, and there are newer and odder, for Jove or Jehovah; but he—it—or someone much like her—seems to have been our first parent. Somehow, by the

cyanogen bridge or some such other, the gulf incredible between inorganic matter and the lowest organism, between the dead and the living, was crossed. Crossed once, it will be crossed again. If, despite a thousand experiments as strange as the homuncular, no one yet has made life in the laboratory, success one day will come; and then, under man's guidance, a type of life will, through millions of years, though needing less millions than blundering nature, be evolved along new lines until in the fullness of time it reaches new heights, there at last to supplant its humbler creator and inherit the earth forever.

Humanity, answers the soul of our sadness, far from fooling with cyanogen or semen, with biochemical blasphemies of creation or prolongation, far from seeking to make other life, will, long ages before the astronomical limit, have likelier made away with its own. Ages earlier the creatures of dust will, of sad choice, have returned to the earth as they were; and the spirit, if there be spirit, unto God Who gave it. Increased awareness of the inevitable will, as the ice rises (water goes, star comes) decide man not to fight. Realizing that no schemes can avert or avail, that all he has laboured for, great works and great estate, wisdom and empires, visions social and celestial, blood flowing through veins eternal, is to end only in this, in a Last Man who must lay himself down to die, then he will say: Why tarry? There is a time to be born, it is Never; there is a time to die, it is Now. Reproduction then will appear a heartless crime, saving sons from life the one good, and the far-off Malthusians and perverts and contracepts of the earth's dawn-time halo'd sages and heroic forerunners, and statues—oh Thomas! oh Oscar! oh Marie!—will be set up to you in every snow-fast city of the dying world. … Gainsaying life to his children, man will deny it at last to himself; a universal felo-de-se of the soul forestalling the fading sun, death from within the death from without. Desire shall fail; he shall desire but to die, and death shall not flee from him.

Between these frantic guessed antipodes of perdition and glory we choose as we will or must, as mental bias suggests, as sense of humour or horror allows, as hope or fear of immortality decides. We may feel that, through the unnumbered years Time vouchsafeth, one day the long curve will shoot up above the danger line forever. We may feel that one dip in the curve too deep, and life will forever be over. We may take courage from the infinite perils the race has survived and see them as glad augury of perpetuity. We may take terror from the infinite variety and infinite littleness of the changes that could destroy it: one jot of carbon dioxide less or more, one touch of the cold seven miles above or the heat seven miles below. We may remember that the shears which would snap the thread of our days have failed though they've tried since the beginning; we may remember that the doors that lead to death, they are ten thousand, and a thousand times ten thousand. We may hope or fear this or that, work our belief to imagine that or this; but there is no evidence and no presumption of a kind any one of us, hopeful or fearful, would heed in any other matter, great or small, that either our race or any created or descendent race, will in a future, nigh or far, be either much better able or much worse able than at this present instant of time to affront whatever the earth and terrible heavens have in store.

They decree, and we die.

## Earth

To live again?

If hardly here; if, following even those rare dooms that do not preclude it, a second start for humanity is scarcely to foresee; if the ashes shall be barren ashes and life, though the earth be, not Phoenix—then elsewhere? on some other world?

Faced with the rope if we stay prisoners here, shall we escape? Is life elsewhere in the universe possible? Possible for us?

Since men first saw the stars, the war of mundane plurality has been raging; and is still undecided. Not perhaps to remain so for long. The first heavier-than-ether machine to tour the seven planets will decide.

Those who will have other worlds inhabited, or inhabitable, recite a great poem of great names. The Vedas, the Zend-Avesta; the Orphic songs, the Ionian sects; priests of Anglesey, priests of Egypt. Thales, Empedocles; Aristarchus, Anaxagoras—though it was less for his men in the moon than for his unpatriotic suggestion that the sun was larger than the Peloponnesus that Pericles' friend got into trouble with the police. Pythagoras, Parmenides; Heraclitus, Democritus—all the ancient names the modern mind finds most appealing. Xenophanes of Colophon, who also favoured the moon, though he warned against anthropomorphic imaginings. Heraclides of Pontus, who favoured everywhere. Alexander the Great was not sure, but he wanted to hold this view: there would have been more worlds to conquer. Zeno and many of the Stoics here found agreement with most of the Epicureans; Metrodorus of Lampsacus thought it as foolish to have created one living world as one living grain of wheat, and in two famous passages Lucretius endorsed. Then, after the inglorious Middle Ages, brave Giordano Bruno, burnt for this also; Montaigne, Cyrano de Bergerac (a bolder, more proboscidial H. G. Wells), Descartes; Gassendi, Locke, Hevelius; Huygens, whose Cosmotheoros remains the most famous plurality-book published, ingenious Fontenelle, great Swedenborg. … Among the moderns, those who knew heaven best: Kepler, Kant, Laplace, Herschel—to omit the poets such as old Horace and Virgil, and the romancers whose imagination, not to be mocked at, may have hit the heavenly mark.

The anti-pluralists challenge some of these champions as wrongfully claimed, and jeer at some others. Themselves concentrate on quality rather than quantity: the sane sound Romans rather than the romantic Greeks, yet of the Greeks Plato and Aristotle, the two greatest; the glorious Middle Ages, the Saints and the Fathers, the popes of Russia, the Pope of Rome; of the modern astronomers the modernest, the freest from fairytale trammels, sane sound Englishmen rather than frothy Flammarions.

Flourish of nominal trumpets over, real arguments enter the field.

On the one side:

Wherever conditions for the evolution of matter into life obtain, there surely is life. Such conditions obtain in many places besides this tiny planet Earth. Waiving the stars, and considering only her fellow-members of the solar system, these are all more alike than unlike; their differences in shape, size, atmosphere, temperature, are less striking than their resemblances. Commonsense concurs with common modesty that worlds so similar to ours must have produced or one day be producing life. If the moon has little atmosphere, why assume that an atmosphere is necessary to living

existence, to anything but the earth's special form of it? If she is cold, why too cold—with her fourteen generous days of twenty-four hours' sunshine on end, such as never had Glasgow? In her craters the colours change—sudden green when the sun rises—indicating the presence of vegetation, likeliest in those low-lying places where, should air be needed, some air is likeliest to be left. If not vegetation, what is it? If Venus gets double our quota of sunshine and Mars only half, has not Nature, with her foresight and cunning, counterbalanced these differences by other differences: the Venerean clouds, the Martian cloudlessness? For Mars in particular, the signs of seasonal vegetation are convincing and converging to the point of proof; though no proof will persuade folk vain enough to fancy their own speck of dust unlike any other speck of dust in the universe, will prevent anthropocentric madmen from confining life, as an ant might to her ant-heap, to this one of a million bodies in space whose quality and history and destiny are in every essential the same.

On the other side:

The material conditions under which the mystery called life can evolve form an infinitesimal fraction of the infinite range of material conditions in the universe. The earth happens to coincide with that fraction. Hence—though another world so coinciding could conceivably, theoretically exist—on the earth alone there is in fact the mystery. Among the planets she alone is the right distance from the sun, has the due allotment of water, heat and light, the requisite mass, the suitable density of air. The moon is too cold, and too small; and too small to have retained an atmosphere. The thing that could exist without atmosphere would, whatever it was, not be life. That instantaneous green is an effect of light; what grass could spring up in a second or two? Mercury and (probably) Venus each turns one side towards the sun and the other forever away; one half is too cold and the other too hot. Mercury's in any case too tiny. Venus is covered with water, an abode of fishes if of life at all. Mars has not enough water or air, and receives not enough sunlight—if enough limelight from his romantic partisans. Jupiter, covered with cloud, and Saturn, bound fast by the ring, both are molten hot; nor could cool down to permit life on their surfaces until the sun's radiation would be too feeble to support it. Outside the planetary eight, bodies with solid crusts are a rarity; not one, avers astrophysics, in a thousand. Few suns have planets, few planets air. What other world is like to be made of the right end-atoms (ash-atoms), to have the proper amount of light and the proper temperature, and a regular enough temperature and regular for long enough, and the right size and density and axis and rate of rotation and rate of advance, like to fulfil every one of the narrow and complicated geological and chemical and astronomical conditions, each one of which, present and compresent, is essential to existence? Earthmen are men; but the Neptunians no more real than Neptune's mermen, the men in the moon mere moonshine. Is there life on the comets, the sun, the burning stars, the dead ones? The miracle of special circumstances has in one special corner allowed the miracle of man; no unreasoning preference for universality of vitality, no vague mixing of spiritual and spatial conceptions, can create it elsewhere.

Religion has something for both sides.

Christianity speaks unequivocally on one. Plurality is blasphemy. Were there a million worlds of people, then God the Father would have had to have begotten a million Sons, or else to send—or to have sent—or be sending—His Only Begotten One to be slain for their sins a million times in a

million different places. So it may be—Christ is crucified always—but not by the orthodox doctrine of the Church, which acted if not with love at least with leniency and logic when she burnt her Brunos, made one stake expiate a million crosses, one Campo dei Fiori a million Calvarys.

The religious temper in general, as distinct from Christian dogma, inclines the other way. God is everywhere, and therefore Man. Buddhism, Swedenborgianism, Pantheism, if they do not always posit, do not ever exclude material life on other material worlds.

In the innermost heart also, the irrational corner still inviolate from facts and from faith, stand equally poised the two opposite persuasions. Persuasion, utterly, we are here on earth only; persuasion, innerly, we are everywhere.

The anti-pluralists seem to lose. They make one fatal admission: that the special circumstances could, however improbably, repeat themselves. In a universe of infinite time and therefore of infinite similarities, if they could repeat themselves they must repeat themselves; if they repeat themselves once they repeat themselves forever.

Assume that they do. Assume that life elsewhere is a thing more likely—less unlikely—than life nowhere else. Is it therefore more likely now, at this coincident hour of earthly time?

Soon we shall know. There were folk bold enough through all the centuries—through all the week—before he crossed it to deny the possibility of crossing the Atlantic by air. Crossing interplanetary space will be more difficult, but the technical hindrances will be overcome. Then some celestial but not more charming Lindbergh will wing his way to the Moon. He may find some form of life there, grabbling deep in the Crater of Copernicus, swimming high through the Seas of Putrefaction or Serenity; or he may not. It may be a type of life very unlike ours, the people dark and strange, and hard to communicate with, much as trees and sponges and worms are hard to communicate with. Or very like ours: Judas Iscariot may still be there. More probably the lunar Lindbergh, if he got back to tell the tale, would report a dead world bestrewn with monstrous skeletons of an existence, neither vegetable nor animal, dead millions of years ago; a barren world with no prospects either vital or economic: no more gold for Old Glory, triumphantly planted on Mount Newton or the highest summit of the Leibnitz Hills.

The next expedition would be to Mars, always the most attractive of the neighbours. Those canals! (Is not the very word a mistranslation? By canali Schiaparelli merely meant channels; a translator’s error has largely created in England and America the Martian ideas there so passionately held.) They are vast aqueducts, or other mechanical constructions too geometrical to be accidental, or artificially irrigated scrips of intensive cultivation; the mesh of them, their pattern, their placing, their relation to the Martian equator, their hibernation, with a hundred other Lowell-listed characteristics, all join to proclaim them the work of conscious minds and of mighty. They are chance scratchings, whose Euclidean straightness is an illusion of the telescope, a delusion of its users. The seas! They are not seas. They are vast alluvial plains, that whole planet one vast Holland. They are terrible deserts. …

Life is a possible phenomenon on other worlds; one day we shall travel to other worlds. Could we live there? Other earths are habitable; are they habitable by man?

By the time he needed new worlds to conquer, his brain, his forethought, the subtlety and subservience of science his slave, would have increased beyond present understanding. Colonization of another planet would by then be an easy affair; and a well planned affair, slow, selective, scientific. There would be a restriction-of-immigration bill stricter than proud America's, keeping out undesirables (perhaps proud Americans), imposing some aerial Areal Ellis Island. There would be time for and method in acclimatization. Transplantation, through ages prepared for, is a possible—the probable—future of this race.

Man is a very local species, due to very local conditions on the earth, made up of certain proportions of C and N and H and O, and clearly unable to breed, if even to breathe, in a world where the proportions of these elements would be different, as in every other known world they are. He would fall under the weight of his skeleton, choke through the lightness of his lungs. Transplantation is not probable, and not possible; we shall die where we were born.

The worlds to be colonized, being the habitable ones, may be inhabited already; not desolate heritages for our seizing. On his Itinerarium exstaticum the old Jesuit Father found lovely angels of silver on Venus, great angels of fire on the sun, angels everywhere and everywhere the friendliest reception. His experience may be repeated; shamefaced, we shall find each fresh world we alight on to be a land of brothers and of beauty, an abode of perfection and holiness:

Each of those stars is a religious house; I saw their altars smoke, their incense rise, And heard Hosannahs ring through every sphere.

Or, by Kant's theory that the planets furthest from the sun (having, by Kant's theory, had more time) have developed the highest organisms, we might expect a different reception according as we moved in towards the sun or out; under the latter alternative either a more intelligent welcome or a bitterer resistance, according as further physical evolution is held to imply higher ethical evolution or not. The treatment the so-called higher races down here have meted out to the lower; the story, earth's blackest story, of white man's wickedness to black, is no happy augury for the Martians' treatment of ourselves, a race more alien and kithless. Why should they treat us kindly? Why should the war of the worlds be merciful? Why should it bring victory for us?

The war may be fought here. We may be fated to be the colonized conquered planet, wiped out within our own trenches by the Silenians or Silurians or Saturnians. By when things here were getting unfavourable, on Mars they would be worse. Migration hither is in plain fact the likelier. Next week the first man from Mars may be landing.

Time would defeat us again if our hopes flew further afield. Saturn and Jupiter have no hope of a habitability phase. Uranus and Neptune have long been too cold. By the time we shall need a world for escape, there will be none to escape to.

In the solar system, at least; the chance in the stars is beyond all statable conjecture. A few may possess cool-surfaced satellites; life, by some path incredible, may one day reach and, by some chance improbable, be able to continue there—thence, post-deceasing it, to watch the old home flare.

If the life germs are everywhere; if the Universe is sown with them, is them; if from eternity to eternity they are spilt and spread from system to system by comets, by stellar dust, by radiation, by the secret ether, by ordered mutations, by methods mechanical or mystical we know not of, by high cosmic perpetual xenogamy; if, though some germs die of the inter-sidereal cold, others are better preserved by it to flourish and wander and found nations of people whenever they arrive at a world where the outlook for vivification is favourable—like ours—then we are migrants already, and shall be again; then life will last while the Universe lasts.

While the Universe lasts. …

Another world is at best a remand; on it also the sun will cease to shine. Could we fly further, to the planet of some other star—this too must one day die. From dying worlds can life migrate forever?

Dead suns crash into dead suns, creating new great stars, which become new spiral nebulae, new masses of smaller stars, new hot sun, new cooling sun, new dead sun: the old titanic round. The materials being always the same and the conditions often similar, life in certain favoured corners of certain favoured new systems will begin all over again from the lowest forms: to die all over again as the circle wheels round again to death. Can this go on forever?

Or is there, end of all worlds, a Universe-end?

# What After?

For terrible multitudes of years the stars have been pouring forth their light; the Universe has been melting away.

Since energy turns always into heat, and since heat passes always from a warmer body to a colder, there is always available less energy in the Universe, whose temperature is always levelling up.

In the end no lucid atoms will be left; the transmission of energy will have ceased; entropy, the final equalization of temperature, will be accomplished; the clock will have run down. All life, light, movement, vibration will be over, in soundless motionless eternal total night: the calorific death of the Universe: the Wärmetod.

The mind rebels.

Could not the cyclic collisions, systole and diastole of worlds, release fresh energy forever?—They are mere accidents, incidents, powerless to stem or deflect the stream ineluctable of sidereal evolution. They are dying flares, each time paltrier.

Could not inequality—movement—life—in some way start again, some cosmic accident after untold ages somehow, as a spark dead gunpowder, fire the dark equilibrium?—Entropy is irreversible. There is no opposite process. The universe is a mechanism transforming energy into heat, never to the same extent heat back into energy. Matter turns into light, not light into matter; life into death, not death into life.

Heat is only one source and mode of movement; why should temperature equilibrium spell total equilibrium? Why, life being a mystery beyond mechanics, must physical death spell psychical death?—If heat goes, existence goes, spiritual and material, in this world and other worlds.

Irreversibility, if true of finite systems, why true for infinite space?—Space is not infinite. Leave Neptune behind and, cutting a path through the void, strike for the nearest star: Proxima Centauri, but twenty-six million million miles away, four years as light travels. Thence, still in the same shrunk suburb of the cosmos, traverse the Milky Way, through darkness, past single suns, binary suns, steady and variable suns, dwarf and giant suns, protean families of suns, through droves and broods of suns, great blazing archipelagos of suns, some yellow like ours, some green, some red or indigo; through darkness again; out beyond the last galactical confines, through icy mists of Magellanic nebulae, on into new stanchless clusters of furious worlds and desolate emptiness, through more millions of stars and more billions of miles and most trillions of desolate emptiness, fresh terrible oceans of dividing darkness, on to new Milky Ways, lone island-universes of prodigal immensity. … To the weary feet and terrified heart space seems infinite indeed. But though it be of size unimaginable, microscopically, macroscopically; though every drop of water or grain of sand be itself an island-universe, every molecule a constellation, every atom a solar system with electrons revolving round protons like planets around suns; though each solar system in its turn be an atom, each heavenly constellation a molecule, each Milky Way a grain of sand in its own Milky Way; though from Mount Wilson, through the great telescope there, they behold stars which shine, or rather once shone, one hundred and forty million light-years away, and behold two million extragalactic nebulae, a fraction of those ere long to be revealed, each with its myriad stars and chiliad systems, each a wild universe on its own; though number and size and removedness thus tower and riot and appal—yet no such series of wandering miles and wearying zeros attains infinity. De Sitter’s toy world is a sphere (Einstein’s a cylinder), space bending back on itself; and, while a thousand million times bigger than the trillion-mile pitiful corner seen from Mount Wilson—so big that light, swiftest of all things, takes one hundred thousand million years to go round it and come back to the starting-point, to our sun, ghost of a sun; our earth, ghost of an earth; ourselves, ghosts of ourselves—yet no bigger, and so short of infinity.

To an infinite Universe the calorific death might come or might not; to this finite Universe, the Universe that is, in irreversibility of entropy it must.

The soul rebels.

The Universe shall not die! Space shall be infinite. That whole cosmos of theirs, which embraces the uttermost nebulae, which sweeps a thousand million times wider than the trillion-mile pitiful corner seen from Mount Wilson, around which light, swiftest of all things, takes one hundred thousand million years to travel, it is but a bubble enwombed in the ether, in empty ether stretching out to infinity. And entropy of infinity is a phrase that has no sense—no, not even in transcendental physics. The law of degradation breaks down. We are saved.

Light can reconstitute matter; can build up stars to start all over again. It is last year’s newest evangel.

Entropy is only an average, a probability, and so must sometimes fail; as sometimes heat does pass from cold nebulae to warmer stars, as one day those apes will ride the Tempest, and red outrun black even till it break the heavenly bank.

If Wärmetod must happen, why has it not happened already, happened always? If the calorific stillness were inevitable it must, unless the fundamental laws have changed, unless temperature was once infinitely irregular—which is not sense, no not even in thermodynamics—have come long ago, been eternally. There must always have been entropy; there can never have been a Universe.—Yet one is there; here.

Here for an hour; and here because it is not infinite, no more in time than in space. It could escape the warmth-death only to die the time-death. Either way, every way, the Clock runs down.

What started the Clock? Who? How? And before? And after?

We are beaten. We revolve on a wheel; scuttle round in a trap.

The world must have perished, the world is here—this antithesis between reasoned theory and apprehended fact, between on the one side the indirect inevitable-seeming consequence of a system devised by our brains and on the other side the direct deliverance of our senses, is a shadow of that sharper antithesis, the antithesis between things as delivered by our senses and things as they are. The world of indirect apprehension or scientific description—the world that this book is full of—is one step yet farther than the sham world of direct apprehension from whatever reality may be; it is a self-contained world of imagination, a mythical mechanism working itself, worked by itself; expounding, in a circle vicious and aimless, one set of phenomena it assumes in terms of other such phenomena; and having, except at the place or moment, where the brain seizes hold of the deliverance of the senses as raw material for its constructions, no contact again with even the mock-show of appearance, still less with the reality beyond—if there be one. Atoms and molecules, solar shapes and nebulae; fire and water, cold and collision; matter and energy, millions and millionths; time and space, past and future; first cause and final outcome, End and No End: all are names, words, counters, symbols, wraiths, thin-spun abstractions of abstractions. Science is a shorthand based on these symbols, a game played with these counters, a creed recited with these words, an incantation formed with these names, a metrical ghost-world filled with these gibbering wraiths, the arch-abstraction refined from these abstractions of abstractions.

Its so-called facts are interpretative guesses. Its so-called laws are invented by our minds, not presented by the things themselves. Were our minds different, the apparent world would be different, and its apparent laws. Suppose we were one sense short, blind every one of us. Then the Universe we should apprehend would be a different Universe, while in itself remaining (perhaps) the same Universe. Suppose we had one sense more. Then the cosmos would be different again, a place now unimagined and unimaginable, though still itself remaining (who knows?) the same cosmos. Suppose thought were different, other than analytic, eclectic; suppose it worked differently, with quite other symbols; suppose it could think something other than thought. Then the world it would build would be another world, leaving elsewhere (or nowhere?) the real world. Worlds, like wine, take the shape of the bottle they’re poured into. We are the bottles. The world believed in has no being but in our brain that edifies it; it is an artificial construction made up of

arbitrary signs, themselves made up by the narrowly selective machinery of our mind with the raw material supplied by our narrowly selective senses. The seen world, if one step less distant from it than the science world, is not the world. Which is unknown.

Can it ever be known? Is the Universe knowable at all: the real scheme corresponding to the sham scheme in which the symbols figure?

If the world were knowable it would not be itself; if it were knowable for ourselves we should not be ourselves. Acatalepsy makes equation with agnosticism, the object's incapability of being known with the subject's incapability of knowing. At most, our knowledge is of structure not contents; of dream-shape not dream-substance; of how imaginary things seem to fit together, not what real things are. The Universe-in-itself, being unlike anything we can think, may be the opposite: Antichthon, Counter-Earth, with matter spirit, and the past the future. We may be the wine, and the world the bottle; knowable to the Universe, though not it to us. Life may be emergent in matter, a waste product, of matter, a last phase of dying matter, or matter may be the dead deposit of life; matter may be a configuration of our brains or our brains a configuration of matter; reality may be what we call matter plus what we call soul; or it may be matter without soul, or soul without matter, or neither, or some other mixture of both, or a symbiosis of one with some other thing than the other. … Back in the prison-house! Round in the trap! What are "matter," "life," "soul"? What are "we"?

How can we know? No juggling with the counters can help us to know.

Can any other method of approach? Can religion? When not a bare system of life or government, a mere ethical programme or aesthetic cult, but when reigning in her home province as sovereign remedy for and minister to the metaphysical ills and needs of man, she utters the magical name of God. Who avails us little. For He is not God. He is our own invention, a man-made figure of God, an idol made with minds; a token, a terrible toy, a word of thunder deafening us to the emptiness within, a prisoner with us in the circle our senses go round in. Unless the Circle Itself.

Mysticism? Whether luminous under the banner of one religion or another, or of none, she takes the soul nearest to understanding, or the illusion of understanding; to high telepathy with the Unknown God. Conducting her favourites—her victims?—beyond the borderland of sensuous experience, she leaves them an instant there, translated, in nameless ecstasy or nameless terror, for an instant there to know the unknowable; without the circle of themselves, within His arms. They come back, and tell little. Only that the beauty, or the horror, was absolute; only that the experience was authentic, noëtic, as no other experience ever was or could be; only adjectives decking the soon-faded memory of their glimpse beyond. What they saw, they cannot tell. Did they see anything? Anything beyond shadows of the Shadow?

Strange ways are theirs of squaring the Circle: contemplation of His Person or Passion; eating His hidden manna; drinking His precious blood; kissing His cross, bearing it; dervish devices—repetition of the same word or same whirl; mad child's devices—stare into the mirror, kiss your own lips there, think "Jesus" forever. Thus too the wild expectation arises, and nearer, nearer—almost, all but—the mystery is uncovered. It is illusion; and perfect is the illusion that it is not illusion.

Mysticism like mechanism, religion like reason, all are prisoners. What the Universe is can never be known. We are in it, we are of it, we are it; but what it is we do not know, world without beginning, world without end. The reality is unseizable, unapproachable, indefinable, in the most ultimate sense ineffable. The mystery, the misery, is forever.

Is the Universe real?

For the solipsist nothing exists apart from himself, and he is the only reality; he imagines the world, he himself makes it. When he dies the world dies; his brain projected it. No hope in spiritualist hopes of the soul's survival: survival after this life, even to a thousand lifetimes, holds no promise of life eternal. With the death of the last disembodied spirit—instead of the last man alive—the world, as projection of his spirit, then would die.

Should however the solipsist be wrong, and the world exist on its own, then are there two things uncomprehended instead of one, and duality of ignorance. Or should the world be multiple, a manyness not unity, a complex of numberless planes or levels compresent at the same time though unperceived each by the other, then an eternity of things uncomprehended, and cosmic infinity of mutual ignorance. Sometimes the different planes seem to guess or grope at each other's existence, as when, at this present moment, mind is wedded to matter and together they constitute life; as when, in the love moment, two together become one; as when, in nirvana, we taste and see the Lord; as when, in pari-nirvana, God tastes and sees Himself. Mostly the levels stay alone, unknowing and unknown of the others—like those electric currents that, though they have power to flame cities, pass through our bodies unobserved; like that magnet which could lift a steel mightiness but not my little finger; like the spirits around us whom so few perceive; like the finite, unperceived by the infinite—straight parallel lines through the magic.

Ghost lines, not real ones.

Is the Universe rational?

Evidence of some plan or scheme, of a certain order within certain ordered limits, of a measure of presiding harmony, is considerable; to minds which forget they are cage-bound, and give to the pattern of their bars the name of Reason, it appears overwhelming. Yet gravitation may fail tonight, time run backwards, and the whole cosmos, like a nightmare sky, tear asunder or tumble together in hideous confusion and lunatic chaos. The laws, if any, are not the laws our minds have made; but there may be no laws. The vision we think we perceive—of good and evil irregularly jumbled, joy and pain unjustly apportioned, lovely children starving who peer through the window at Wickedness who feasts within, God in the slave's face and Satan in the slaver's, one event to the just and the unjust, no reward for endeavour and reward for no endeavour, confusion on earth and collision in heaven, purpose frustrated among the stars as in our hearts certitude of sorrow, conjecturality of glory—gives no evidence of any plan, moral or logical or mechanical, if no proofs against one. There can be no proofs either way, and no probable inferences.

If no Reason, has it reasons?

That mankind, its climax, might be achieved? That the power of the devil should be shown forth? That the glory of the Lord shall be revealed? Some elysian goal, unrevealed, unrevealing,

unrevealable? Or no reason, no purpose? Ideas from the trap.

Is the Universe alive?

Conscious, in supernal analogy to our kind of consciousness? Do earth and sun in dying have agony? Does consciousness accompany all material change: rock decaying, comet frittering, moons forming, stars crashing? Does Space suffer; does Number feel? Does the world that comprises them all know that it is alive, feel that it is alive, look inwards, and backwards and forwards, at its holistic Self? Is it fighting for its life, as we all fight? Are we, as we fight for our lives, it fighting for its? If alive, will it die?

It is not conscious, nor unconscious. It is not suffering, nor unsuffering. It is not alive, nor dead. It is not there.

Is the Universe Time?

In Orphic cosmogony it was Chronos who laid the world-egg. For Heraclitus, Time was like an eternal river, and that river the world. By one latter-day scheme of geometrical metaphysics, point-instants, offspring of Time out of Space, are the last realities; in each of these the instant is the mind of its point, and taking the whole Universe, which is the sum total of point-instants, Time is the mind of Space. Under some other philosophies, Time—or Space-Time—is as the field or framework within which Energy, for them the last reality, is exercising itself; the setting or background of the Universe. … What they mean, the strange doctors of the strange doctrines—idealist and realist, objective and subjective, physical and metaphysical, mathematical and psychological—who tug at the mantle of Chronos and send his scythe swerving through nightmare, what they tell: who knows? They tell nothing of what Time is.

It is not. Who shall discover it? Did it begin? Will it end?—Time flies. Who shall put plummets upon its flying feet? If tonight it should go ten times swifter or ten times slower, who would know? The properties it would have if it existed—unity, simultaneity, omneity—these it has not. Great Nebula in Orion is seen as it was a thousand centuries ago, not as it is now; as it is now, it will be seen (if any shall see) a thousand centuries ahead. The brightest stars and biggest nebulae of all are not yet perceived, whose light has not yet reached us; or the dimmest stars may be the nearest, seen through space backwards. But no star, as no other thing, has ever been seen as it is. There is no is; only a timeless becoming. There is no Time: only times and times. Time is a deduction, a derivation, a delusion; a trick on the trickster; a prisoner in prisoners’ minds.

Is the Universe infinite?

Finite or infinite, both are inconceivable. Brains nor hearts can imagine neither edge nor rim, end nor beginning; nor can imagine the world without margin or limit, without beginning or end. Both are totally equally irrevocably inconceivable.

If it be infinite, then either cyclic or evolutionary. Either the same heavens and the same earth shall return perpetually, or Behold! I create a new heaven and a new earth. Either each one of the possible combinations of lines or atoms or movements will one day recur, and again recur, and forever recur; the whole present configuration of the whole in every particular and detail reappear,

disappear, again reappear, and so on through the endless nightmare ahead as it has appeared, disappeared, reappeared in the beginningless nightmare behind. This was the thought that enabled Socrates to abide Xanthippe's tongue with patience, and without fear to face the hemlock. Or else, in the direction in which Time is going (its one open end, the future) the Universe is creating itself. From shapes inconceivable, lower than matter, to matter; from matter to life, life to mind, mind to man, the cosmos has walked onwards and worked upwards. The pilgrimage of being will continue: from man to God, God to shapes ineffable, beyond divinity. … This is the thought that comforts Socrates' successors today.

If it be finite: then—spirit and matter being different aspects of the same thing, same movement, same finite contents—the law of death and degradation must apply to both. Physical entropy will include psychical entropy, matter-death spirit-death. It is the supernatural stalemate, the Wärmetod of Souls.

Is the Universe old?

If thus finite, is it nearing its end?

Of all the matter that must once have filled it, the greater part has spent itself in radiation, and only a little part remains. Calculate the light that there was in the beginning and the light that since has shone forth. Twenty-three parts of it have been beamed away, is the surmise, and a twenty-fourth part of it is still to spend. Twenty-three twenty-fourths of Time is over; it is eleven at Universe-night.

The world's lamps are flickering, and no oil and no light are to buy. Behold the Bridegroom cometh.

Is the Universe terrible?

No sense capping Yea with Nay and Nay with Yea. Each soul must answer for itself. Some there are who see Glory not as the foil, the predestined victim, the glittering shadow of Evil, but as the soul and substance prevailing. I know Evil the more powerful; the positive and pervasive force. Sometimes I am filled with it, sick with it, mad with loathing and agony and horror—pursued, obsessed, surrounded by the nameless infinite shape which hunts my soul, and which some call the Devil but which I fear may be the King. Worst is the realized fact of existence itself, the fact that I am alive, that there is a world, that there ever has been a world, ever has been Anything. Here no pity, no loophole, no hidden door of hope. No saviour can unmake that, ever made, I am made for evermore; no judge can commute my sentence of life into sentence of death. No trick, no faith, can assuage; can alter that, having been, I have been; and am, and shall be, I Geoffrey, for evermore. A tremor through all my body; I know He is coming. I turn pale; my spirit trembles—a weak prayer for courage to face Him. The cold wind from the mystery of darkness blows through my heart; then He seizes my soul; I am delivered over. Frozen with everlasting terror I look into His Eyes, and through them forever into space and time forever. I scream in my heart for eternity. Sometimes no sound escapes me; I have taught my will to stifle it; I may be in company, in the midst of friendly or frivolous talk. Uttered or unuttered, the moan in my heart continues to madness-place; then stops. The vision vanishes. Blood rushes back through my veins; then a moment almost of pleasure, warm joy of deliverance.

Is the Universe God?

His body it is, crucified for us, for which we are crucified. His Spirit it is, Which we apprehend with fear, worship and love pushed to that place—plane, state, moment (no words)—wherein we behold and, in final translation, ourselves become the Living God.

Is there, was there ever, a Universe?

It is a dream. A dream of a dream, dream within dream forever, with no reality ever behind. Even the dream is an illusion; an illusion that it is a dream, an illusion that it is not a dream, an illusion that the dream, dream or not, is being dreamt, dream within dream forever.

It is not the dream but the Dreamer, Who Himself forever is dreamt. The joy and the truth is Zero, Non-Being, Nihility.

There is no Universe.