The Beginning of the End of the World

Your world. Your life. Your future. Now.

Fram with wind turbine

John Slade

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Part I

Three Guests

Chapter One

She stood at the railing of the upper deck of a Norwegian research ship, staring across the choppy gray water of the Arctic Ocean at the ragged edge of the polar ice cap, no more than fifty meters away. The ship was moving slowly along the edge of the vast sheet of ice that stretched to the northern horizon. Flat chunks of ice which had broken off floated in the open water; the ship's steel hull cut through them easily as the vessel headed east, enabling the crew of scientists to survey the fragile edge of one of the most important features on planet Earth.

With binoculars, she could see cracks and fissures along the fringe of the ice cap, where the thin sheet of ice—no more than three meters thick—cracked and crumbled in the battering waves. Now she heard—she heard with her ears and she heard with her heart—a sound almost like the shot of a cannon, as a chunk of ice broke loose and floated away in the gray water.

That was the sound, she knew, of the beginning of the end of the world.

She looked over her shoulder at the deck behind her, where the other members of the international research team were going about their normal business: filming the ice cap with a camera mounted with a telephoto lens; watching for birds, watching for bears, for seals, for whales. One hardy group on the aft lower deck was laying out black rubber suits and scuba tanks in preparation for a dive into the frigid water.

But she saw no one else. She looked at her watch beneath the thick cuff of her red arctic jacket: a few minutes before ten o'clock. The pale yellow sun in early May was low in the misty blue sky to the south. Conditions were excellent for staring across the open water at the enormous sheet of ice that filled the northern horizon.

She was confident that her visitors would join her, here at the railing. Yes, she was almost certain that they would soon appear.

She was staring again through her binoculars at a ridge of ice where one sheet had angled up over another, when suddenly she knew, she knew . . .

She looked over her left shoulder saw him—how remarkably he looked like his pictures—wearing an old-fashioned sealskin coat and leggings, a fur hood, and boots perhaps of reindeer hide. His face was stern—always so stern in the pictures—though he nodded to her as he approached.

Thank you, she thought. Thank you, thank you.

Now he stood beside her, wrapped his fur mittens over the railing, and stared due north at the ragged edge of the sheet of ice which once, long ago, he had crossed on skis.

"Hello, Professor Nansen," she said, enormously glad to see him. "Welcome aboard the *Polar Star*."

He looked at her, his eyes no longer stern, but alert, with a hint of gratitude, and perhaps a measure of surprise at seeing a woman scientist on the deck of a research ship. "Professor Normann, I thank you for this opportunity."

"You are most welcome."

Then they stood, shoulder to shoulder, colleagues on a research expedition, staring across the open gray water at the ragged fringe of the polar ice cap. She handed him her binoculars, then she crossed the deck to a nearby equipment locker; she lifted the lid and took out one of the three pairs inside. She joined him again at the railing, where the two of them swept their binoculars back and forth, studying the ice with eyes that could read every crack, every fissure.

He felt—it gave him a deep, quiet happiness—the gentle rolling of the ship beneath his feet. How good to be at sea again.

He breathed the cold salty air. He listened to the immense silence, broken only by the lapping of the waves against hull beneath him, and by the low rumble of the ship's engine. And now by the call of one of the crew behind him, a strong voice, the voice of a man dedicated to his work.

He lowered his binoculars, turned and looked at the sun behind him, low above the silver-gray sea. Then he asked the woman standing beside him in her modern red jacket and hood, "What latitude are we at?"

She told him, for she had expected his question, "Seventy-nine degrees, twenty-four minutes."

He stared at her, astonished, baffled, almost ready to tell her that she certainly must be wrong . . . although he did not. "But we are sailing on open water, where there should be ice."

Her heart ached for him; she hated that he now had to learn how desperate the world had become.

"The ocean is warming. The water melts the ice from underneath. The polar ice cap shrinks around the edges, and melts from below. The ice cap is less than sixty percent of what it was in your time. Now even in the month of May, it is smaller than it was in August of 1893."

And then she heard it: like the shot of a cannon as another chunk broke loose. They both stared through their binoculars at the ice bobbing in open water—water which a century ago had been solid ice. She told him, "That was the sound of the beginning of the end of the world."

He looked at her, and she could see in his eyes that already he understood that the Arctic was changing, and that something was deeply, deeply wrong.

"The world is warming," she told him. "The oceans are warming. The ice is melting. And soon, the planet itself will become a very different planet."

She touched his arm with her padded glove. "That is why we asked you to come back. We hope that, somehow, you can help."

The man of science, the man who had made such great efforts to understand the Arctic world, asked her with a voice both incredulous and baffled, "But why? Why is the world warming?"

She hesitated. "Before I explain, I think that all three of you should be here. So that we can . . . learn together, and somehow respond together." She smiled, with a bit of hope in what she was proposing. "We shall be an international team."

"Ah," he said with satisfaction. "And from what countries shall they come from?"

"One from Russia. A man of science, a man of deep learning, from Russia."

"Well then. How nice it will be to speak with a Russian again."

"Yes. And one from America. Most definitely, a man of science. A man whose inquiring mind explored the early mysteries of electricity. A man whose generous heart prompted him to establish the first library in Philadelphia."

"Ah. How nice it will be to speak with an American again."

She looked over her shoulder, hoping that . . . Yes, there they were! Walking toward her were two figures clad in old fashioned fur coats and leggings. One was distinctly tall; he wore a hood over his head made of white fur, perhaps Arctic fox. The other was shorter, definitely a rounder figure; he wore the fur hat that had made him such a sensation in Paris years ago.

She saw in the eyes of the taller figure a keen alertness. He had a piercing stare which demanded to know what he could learn from the world, as he looked about him at this modern ship, at the open sea, at the distant sheet of ice.

She saw in the eyes of the shorter, rounder figure a glint of humor, and a deep, quiet wisdom, as he looked not at the ship nor the sea nor the ice, but at her. With a smile, he nodded his greeting. He was here; he was ready to help.

"Professor Nansen," she said, touching the arm of the man she had so admired even as a school girl, "may I introduce you to your colleagues?"

He turned from the sea to look at her, then turned fully around and faced the two gentlemen approaching him.

She called to them, "Welcome. Welcome. This is Professor Fridtjof Nansen of Norway. I am Professor Trude Normann, also of Norway. And you, sir," she said to the taller one, "must be Peter the Great."

Peter bowed and offered his fur mitten, marveling that his host—his hostess—on this ship was a woman.

Then Peter and Fridtjof shook hands.

"Dobra djen," said Fridjof in Russian. "Good day."

"Da!" said Peter with surprise. *"Dobra djen."*

Trude turned to the man who smiled at her, offering his warm friendship. He was clearly the oldest of the four of them. "And you, sir," she shook his hand, "must be Doctor Benjamin Franklin."

"Delighted to be here," he said. "Delighted to take another look at this good old world, and to see if we can make another bit of progress."

Doctor Franklin shook hands with Professor Nansen, who told him in excellent English, "I am very glad to meet you, sir. Our Norwegian constitution, you see, was fashioned in 1814 with the model of your American constitution of 1787 very much in mind."

"Good!" said Benjamin. "Our hope, even back then, was that we might have some positive influence out in the world beyond our shores."

Trude suggested, "Just to get a perspective on our places in the passage of time, I think it would be helpful to say that you, Peter, explored first Amsterdam and then London during your eighteen-month visit to western Europe in 1697-1698. You learned about shipbuilding in the Netherlands, and you learned about designing a city in Manchester, England. When you returned home to Russia, you used this new

knowledge to build Russia's first fleet of ships, and to build Russia's great seaport, Saint Petersburg."

"Yes," acknowledged Peter, "but do not forget that I hired experts in many fields who brought their skills to Russia: ship builders, architects, mechanical engineers, artillery officers, even sculptors. I did my best to educate my poor backward Russians. I opened schools where entirely new subjects were taught, and I invited even children to visit a museum of science."

"Ahhhhh," said Trude, "Peter, we need you today. We need you today."

She turned to Doctor Franklin. "And you, sir, visited London in 1725 to 1726, not so many years after Peter had been there. You learned about modern techniques in the printing trade, which enabled you, upon your return to Philadelphia, to establish your own newspaper, as well as an almanac in which you gave practical advice to the working man. You established the first library in Philadelphia, open to all citizens who would take the time to read a book. And you designed a far better stove, which produced more heat with much less smoke. It seems, Doctor Franklin, that even before your political contributions, your heart was devoted to improving the lives of your fellow Americans."

Ben smiled, thinking back to those times. "The key, my dear, is that they were willing to learn. And thus we made, in a few industrious decades, an astonishing amount of progress."

"Ben," she said, her heart gladdened by this enterprising man from a country now so troubled in these modern times, "we need you today. Oh, so urgently, we need you today."

Then she turned to Professor Nansen. "And you, my fellow Norwegian, you were in London many times, although your first visit was in 1889, following your trek on skis across Greenland. You addressed, if I am correct, the Royal Geographical Society and shared with them what you had learned from your crossing of the ice that capped the great hump of Greenland."

He nodded; that was correct.

She gestured toward the edge of the polar ice cap. "Later, in 1893 to 1896, you returned to the Arctic aboard the *Fram,* an innovative ship built with a rounded hull, constructed of strong, heavy beams of oak, so that the ship could survive becoming frozen into the ice of the polar ice cap. Rather than crush the sides of the ship, the ice lifted the round hull, and thus the *Fram* survived for almost three years—from September of 1893 to August of 1896—locked within the polar ice."

He nodded, this quiet man; that was correct.

"Your plan was to prove that the ice drifted from east to west, and thus the ship would drift with it from the waters above Siberia to the waters above Norway. Your hope was that this drifting voyage would take you far enough north that the ship would approach the North Pole. When you saw that the drifting ice carried you westward rather than to the north, you and your companion Hjalmar Johansen set out on skis—just the two of you alone, with twenty-eight dogs, three sleds, two kayaks, a tent, and provisions for a hundred days, as well as a Norwegian flag—to see if you could reach the very top of the world."

He nodded; that was correct. In his stern eyes, she saw a growing measure of respect.

"On the ninth of April, 1895, at 86 degrees, 4 minutes, you and Johansen realized that the distance was too great, and the difficulties with broken ice and deep cracks were so exhausting, that you had to begin the trek south with the hope of finding a cluster of islands, and shelter, and perhaps some human habitation."

He nodded. "We did not reach the very top of the planet, but we visited a place of many mysteries, a place of great beauty. We struggled, but we survived. We learned about that Arctic world—oh, we learned so much—and I put all of what we learned into several books."

Then he turned to the north and gestured with his arm toward the open gray water of the Arctic Ocean, and toward the ragged edge of the polar ice cap. "Now, Trude, you tell me that the polar ice cap is melting. Melting because the Arctic Ocean beneath it is warming. Warming because the entire world is warming." He looked at her with eyes filled with sadness—eyes that had witnessed so much sadness during his life—and now must witness even more sadness today. "Trude, please, explain to us what is happening to that world of many mysteries, and deep, lonely beauty, the world where once my beating, struggling heart was so profoundly happy."

The others took their places along the railing, facing north. Trude stood with Ben to her right, Fridtjof to her left, with Peter to his left. She walked to the equipment locker on the deck, lifted the lid and took out two pairs of binoculars. She gave them to Peter and to Ben, then she returned to her spot at the railing.

Chapter Two

Trude Normann, mother of five children, with whom she skyped at least once a week while she was on this Arctic expedition, did not look back at the course of her own life . . . as much as she looked forward to the future decades which her children, and their children, would experience. With a doctorate from the University of Bergen on aquatic life in the Arctic Seas, and twenty-two years of research in the field, she had witnessed the early changes in the Arctic. And of course, all of her colleagues around the world shared their research, so that she understood, too well, the Big Picture.

She knew too much. Which meant . . . she knew what was coming.

Trude's oldest daughter, now a university student, had already found her beau. Within five years, they would graduate, find their first jobs, celebrate the sacrament of marriage, and start a new family.

Trude's youngest child, also a daughter, five years old, was so bright and beautiful that people called her Little Sunshine. In twenty years, she too would be starting a family. In twenty years, the polar ice cap would either be remnants of rotten ice, or it might well be gone entirely.

And then her Little Sunshine would be living on a completely different planet.

"Gentlemen," she said, her voice strong enough that though she spoke straight ahead, toward the open water, toward the ragged ice, the three visitors to her right and to her left could hear her clearly, "the most important event in our lives today is the melting of the polar ice cap."

She paused, as she always did when speaking to students in a school auditorium, or to adults at a community gathering.

"The most important event in your life today is not your hot date on Saturday night. It is not the exams that you must pass at the end of the semester. It is not the job interview that could lead to a great career. No. The most important event in your life today is the melting of the polar ice cap."

She listened to the waves slapping against the hull beneath her. She had loved the sound of the waves since she was a tiny little girl standing in the summer sunshine between her mother and her father on a beach, staring—staring with utter fascination—

at the waves that rolled toward her and broke with a splash . . . and washed cold, so cold, over her bare feet.

"The polar ice cap, the great curved cap of ice that covers the top of our spherical planet, has for five million years reflected the light from the sun. Thus, sunlight reached the Arctic Ocean only around the outer fringes of the ice cap, warming the ocean slightly during the summers, and not at all during the winters.

"Then, about two hundred years ago, people on planet Earth began to burn coal to power their machines. Eventually, they began to burn oil as well. For two long centuries, from the beginning of the Industrial Revolution to our present day, we have burned so much coal and oil that the smoke—primarily the carbon dioxide in that smoke—now wraps as a blanket around planet Earth. The blanket allows sunlight to pass through it, sunlight which turns to heat and warms the planet. But the blanket will not allow much of this heat to rise into the sky and vanish into space, as it did in the old, clean days. Before, the Earth was warmed just enough for life to flourish. Now, as the blanket of pollution steadily thickens, more and more heat is trapped. Much of this unnatural heat has been absorbed by the oceans, for water has a great capacity for absorbing and containing heat."

Here she was, speaking to three of the most inquiring minds, three of the most innovative minds, in human history, about what a child in sixth grade could readily understand . . . but they showed no impatience. They were listening.

"Eventually, the oceans of the world absorbed so much heat that they began to melt any ice which they touched. And the atmospheres of the world—the winds, the gentle breezes, the powerful storms—absorbed so much heat that they too began to melt any ice which they touched.

"The Arctic Ocean, becoming incrementally warmer, began to melt the polar ice cap from underneath. The ice became thinner, more fragile, especially along its edges. The pounding wind of storms flexed the ice, and the crashing waves of storms battered the ice, so that it cracked. Warm water could then rise up into the cracks, and thus melt the ice from *inside*.

"The surface area of the ice cap began to shrink. The more it shrank, the more it exposed the open dark water of the Arctic Ocean, which absorbed more and more sunlight, which warmed the water. The warming water melted even more ice, so that the entire process accelerated. The more the ice melts, the warmer the ocean becomes, and the warmer the ocean becomes, the more the ice melts. It all happens faster and

faster, until what was once an enormous cap of solid ice becomes a shrinking patch of rotten ice. Which, in the course of one summer storm, might break apart completely.

"When the ice cap is gone, light from the sun will of course continue to shine on the entire Arctic Ocean, warming it through the summer. How warm will the open water of the Arctic Ocean become? We do not know. The warming water will warm the winds which blow over them. How warm will the winds become? We do not know.

"The warming winds already blow over vast expanses of land that form a wreath around the Arctic. Peter," she turned to him, "warming winds now warm great stretches of northern Russia. Fridtjof, warming winds now warm the northern portions of Scandinavia. Ben, warming winds now warm the northern lands of Canada and Alaska. These warming winds bring their unnatural heat to the tundra. As the tundra warms, the permafrost—frozen ground just beneath the surface, a remnant of the last ice age still ringing the northern planet—begins to thaw. The permafrost begins to thaw for the first time in eons, releasing unprecedented quantities of methane gas which had been trapped beneath the permafrost ice.

"Methane gas—created by bacteria as it fed on organic matter before the last ice age, and created by bacteria as it feeds on organic matter today—is already seeping up to the surface of the warming tundra . . . and rising into the atmosphere. It is already bubbling up through arctic lakes. It is already bubbling up from the bottom of northern seas.

"Methane is at least twenty-five times more efficient than carbon dioxide at trapping the heat from sunlight. The blanket of methane will become thicker than the blanket of carbon dioxide. As the tundra warms, as the permafrost thaws, as planetary amounts of methane rise up into the sky, the world which we know today will become, in the near future, an entirely different planet.

She paused, then she stated very clearly, "Methane is the monster. Methane . . . is the monster."

Now she felt the twin powerful emotions which had plagued her for years with growing intensity: the grief, and the outrage.

"Gentlemen, I have asked you to join me today because after several decades of trying to warn people, trying to educate people . . . after decades of scientific research, decades of detailed reports, decades of international conferences . . . people around the world are *still* burning massive amounts of coal. They are still driving their millions upon millions of dirty cars. They are still electing fools who claim to believe that the

warming of the world is nothing to worry about. We can go right on burning the oil—that wonderful, profitable oil—never mind that a few polar bears lose their home."

Fridtjof stirred beside her. Something about the polar bears had touched him.

"Gentlemen, I have asked you to join me today because—"

With a crack like the shot of a cannon—Ben and Peter were both jolted by the sudden noise—a chunk of ice broke free.

As the chunk bobbed in the open water, she told her three guests, "That was the sound of the beginning of the end of the world."

They looked at her now, three faces wrapped by fur against the Arctic cold, three faces filled with an understanding which had leapt from their world long ago . . . to the present endangered moment.

"I once drove an automobile," said Fridtjof. "During my visit to Washington in 1917, I was able to buy a Ford and ship it home. I loved to drive that modern vehicle into the countryside with whatever family and friends I could gather on board. But now I see . . . that I too have contributed to what may be our impending extinction."

"I am to blame as much as you," she told him. "Every time I fly to a scientific conference—every time I fly from Oslo to Tromsø to board this ship—I contribute to what may be our impending extinction."

"Fly?" asked Peter. "You fly . . . to some place you are going?"

"Yes," she said, "I will explain to you how we can fly today in an airplane from one end of Russia to the other. Or from Oslo to New York."

She paused.

"But first . . . I must show you some pictures."

Chapter Three

Fridtjof was intrigued when Trude looked at him and said quietly, “Professor Nansen, may I show you some pictures which I think you will recognize?”

Then with a sweep of her arm, she beckoned her three guests—Fridtjof had so many questions for Peter, so many questions for Ben—to follow her across the deck. He had questions as well for the other researchers on the ship; he glanced at them scattered about the deck with their intriguing equipment. But Trude led her guests to a blue steel door that opened to a set of stairs leading down to the deck below. She clearly had a purpose which allowed for no diversions along the way.

She led them along a narrow corridor with numbered doors on both sides to a door near the stern, which she opened with a key. Stepping inside, she turned on the lights, then beckoned her guests to enter. Peter gestured to Ben that he should enter first, being the oldest. Then Fridtjof gestured to Peter that he should enter, being a foreign guest; Peter had to stoop a bit and duck his head as he passed through the door. And then Fridtjof stepped into what was a small theater, with a sloping floor and perhaps thirty seats facing a stage and a large white screen.

“Gentlemen, please take a seat.” She gestured toward a row of seats in the middle of the theater, about half way up the slope.

As Ben and Peter and Fridtjof took off their coats, then made their way to the three appointed seats and sat facing the stage, Trude explained to them from where she stood beside the screen, “On every expedition, we have researchers aboard the ship from countries around the world. On a quiet evening, when we have finished our work, we take turns giving a presentation about our research, with pictures, graphs and charts. We explore the coral reefs along the coast of Australia. We track the spread of radiation—from the meltdown of a Japanese nuclear power plant—on the currents of the Pacific Ocean. We examine points of pollution in the Mediterranean Sea, in the Baltic,” she nodded toward Peter, “in the Gulf of Finland.” She told Ben, “We study a massive oil spill in your Gulf of Mexico.” Now she looked at me, “We study the early signs of shifting currents in the Norwegian Sea. Fridtjof, you measured and chartered those currents so carefully. I am sorry to say, that as the oceans become warmer, and as the fresh water from melting ice dilutes the salty seas, the currents are beginning to shift from their old courses to new and unpredictable positions. How far shall they wander? We do not know.”

He was stunned. The ocean currents were shifting? What becomes of a world where even the great currents are altered by the disturbances of careless men?

Trude dimmed the lights in the theater, then, with some little instrument in her hand, she showed a picture on the screen which Fridtjof recognized immediately: five men with poles were pulling heavy sleds across the ice of Greenland. In August of 1888. He himself was not in the picture because he was, as always on every expedition, the photographer. Three of the men wore hoods against the cold wind, but two of the men, Balto and Ravna, were wearing their angular Sami hats. All five were leaning forward, pulling on the rope attached to their sleds. What work it had been! What an endless struggle from dawn to dark, making their way over the broken ice, finding a path around the long jagged fissures. And yet, from August to October, they had crossed an entire unexplored continent, they had taken measurements all along the way, they had made so many discoveries . . . and they did not lose a single man.

Trude now showed a new picture, in color rather than black-and-white. He saw a huge crack in the ice, with a tiny man at the edge staring down at a long blue-green lake.

"Fridtjof, in 1888, you pulled your sleds across the frozen ice of Greenland. But today, conditions are so warm that during the summer, virtually all of the ice on Greenland, even at the highest elevations, is melting. Tiny streams cut through the ice, becoming rivers like the one in this picture."

A river! He was stunned. An entire river from the water of melting ice.

"At lower elevations," she showed another picture, of countless small silvery lakes reaching to the horizon, "researchers find no shortage of water for making their morning coffee."

Now she showed a picture of a waterfall—a waterfall as tall as those which poured down the mountain slopes of Norway—but this one was falling over the edge of the Greenland ice cap . . . into the ocean far below.

Now another picture, or rather, a short film, of giant chunks of ice breaking off from the tall edge of the Greenland ice cap and crashing down into the sea.

Fridtjof knew solid ice, and he knew rotten ice. What he was watching was an entire continent of northern ice as it slowly vanished, slowly crumbled, not because the sun was any warmer . . . but because the planet itself was becoming steadily, incrementally warmer. The planet had a fever, a worsening fever. He understood that what he was looking at was something deeply frightening.

Trude said to her audience, “As our planet becomes warmer and warmer, much more is happening than just the melting of ice.” She showed another picture, of an enormous forest fire, its orange flames boiling above an expanse of green trees; black smoke rose into a hazy blue sky and trailed off toward the horizon.

“Drought now parches the land. Scorching heat and little rain, for months, sometimes for years.” She pointed at Peter, sitting with his long legs cramped against the seat in front of him. “Peter, this is a forest near Arkhangelsk in northern Russia. Summers of record-breaking heat, summers of little rain, have become more and more ‘normal’. The floor of the forest becomes dry, the spruce trees become desiccated, the wetlands become thick dry sponges . . . and then the black clouds of a thunderstorm sweep over the land. The brief rain is far too little to sufficiently wet the parched earth, but the bolts of lightning, jabbing down into the dry soil, are more than sufficient to set the forest on fire.”

She paused.

“Russia is burning, Peter. All across northern Siberia, every summer, Russia is burning.”

I could see, on the arm of the chair between Peter and myself, that the great tsar had clenched his fist.

Now she showed another picture, of another forest fire: towering orange flames reached above the trees on the side of a mountain. “Ben, you do not know the state of California, on the far western shore of the American continent. But here you can see that California, the twenty-seventh state in the republic which you helped to create, is burning.”

Another picture, of another huge forest fire burning on the side of a mountain. “Colorado, the seventeenth state, is burning. Drought, Ben, drought . . . has come like a plague to the nation which you so carefully crafted.”

Benjamin Franklin, who had created Philadelphia’s first fire brigade, with thirty volunteers following a devastating fire in 1736, stared at a forest fire larger than the city of Philadelphia had been in his time. These fires were caused not by a toppled lantern filled with burning whale oil, nor by hot coals from a worn-out stove, but from drought, which had parched the earth. And the drought had been caused not by the hand of the Creator, but by the burning of coal, the burning of oil. What advice did he have—what epigram which he as editor might print in his newspaper *The Pennsylvania Gazette*—for the citizens of his modern nation . . . a nation which he had known from the very beginning would be an experiment in democracy?

Ben looked at Peter, looked at Fridtjof, with eyes that knew that the dangers which they faced today were far beyond those of a marching company of redcoats.

Now Trude showed a picture which again Fridtjof immediately recognized, for he with his camera had taken this picture during the famine in Russia: three children who had died of starvation lay naked on a wooden platform leading to the open door of a barn. The barn was empty of grain. The children were naked; he could see the ribs of one child, the skeletal legs of another.

December, 1921. The Russian authorities—the Bolsheviks—had allowed Professor Nansen to organize a relief mission which brought into the Volga region trains from western Europe loaded with food, medicine, tools, and seed corn. He had hired doctors, one of whom died of typhus. Drought was not the only cause of this mass starvation; there were political reasons as well. But had the rains been normal that summer in southern Russia, many of the peasants would have survived.

He had written about starvation in Russia, with the hope that he could raise enough money in Europe to cope with this overwhelming disaster. He wrote especially about the children. "But worst of all: children; pitiful, small, emaciated creatures, tottering around dressed in their rags in the streets or on the countryside roads, without a goal or a direction – only eyes, searching, pleading, accusing, unforgettable eyes!"

Trude now showed another of his pictures, again black-and-white: a heap of naked bodies waiting to be buried in a mass grave. Most of them, he remembered, were children. They were naked because the survivors needed the clothing of the dead.

And now she showed a picture in color of a dark-skinned child, clearly a victim of starvation—with countable ribs and a bloated stomach—held in the thin arms of a mother who stared with utter exhaustion. "Drought in Ethiopia," said Trude.

Another picture, another famished child. "Drought in South Sudan."

Fridtjof could feel it now, the old helplessness, and the outrage that such suffering could ever be allowed to happen. Especially now, almost a century since he had struggled in Russia to bring the minimal basics of survival to those poor people.

Fridtjof looked at Peter, and at Ben. "Why," he asked them, "has she brought us here to witness the disasters of her modern world? Didn't we struggle enough in our own time?"

"Brother Nansen," said Peter, "I thank you for all that you did to feed my starving people."

"You are welcome, Brother Peter. But why, why, *why*, does this shit still continue today?"

Ben reached his hand and touched Fridtjof's arm. "Brother Fridtjof, we tried so hard when we wrote our Constitution in 1787 to rid our nation of the curse of slavery. But there were those who would not give it up. Finally, in the end, we northerners had to accept that hideous evil as a part of our nation, or the southern states would have broken away. Sometimes, my friend, I could weep for the everlasting evil that is in us. We are a curse upon ourselves."

Trude now showed a picture of a Nansen passport. Perhaps only a picture of his beloved Eva, who had died so young at forty-nine, could have stirred his heart with such deep and tumultuous emotions. As High Commissioner for Refugees within the League of Nations, he had issued, beginning in 1922, this precious document: a piece of folded heavy paper which gave legal identity to stateless refugees . . . who had been driven from their homes by the many wars that raged during the early 20th century. Roughly 450,000 Nansen passports had been issued, to people who otherwise were stranded in some foreign country, while armies battled in their homeland. Or while borders were closed to them. They had no country, they had no home, but they had a brown cardboard document from Doctor Nansen which identified them as individual people with certain rights. And with a small measure of hope.

Trude now showed a black-and-white picture of "Dr. Fridtjof Nansen", as was written in the upper right corner, standing in a white suit at a table where a meal was being served to Armenian boys, boys without parents, boys who were refugees from the massacre of their people in Turkey.

"Fridtjof," said Trude, "in your time, you reached out to the refugees of the world. I want you to know how much, how achingly much, we now need you to show us how to reach out to the refugees of the world today."

She showed another picture, in color, of people in a muddy camp of tents and shabby huts, people—hard-faced men, exhausted women, baffled children—whom he immediately recognized as refugees. "These people," she told him, "live in a refugee camp called Moria, on the Greek island of Lesvos. They have fled from half a dozen wars. They have gotten as far as Greece, at the edge of Europe, but the borders are closed. The world has little money to feed these people, and a pittance

of money to provide the children with schools . . . but the world has a bountiful supply of weapons with which to feed the unending wars."

No. No!

Fridtjof stood up and said to Trude—almost shouted at her—"No more! I cannot watch any more of this misery." He began to walk along the row of empty seats, clearly to escape this show which only became worse and worse.

"Why," he asked her, his voice sharp with anger, "did you bring us here? What possible use could we be to you, you people of the world today, who seem to be at the very edge of destroying not only each other, but the very Earth you live on."

"Fridtjof," she called to him, beckoning him to wait but a moment longer before he fled from the room.

And then she showed a black-and-white picture, a picture which he had taken over a century ago, of the *Fram* wrapped by the ragged ice the polar ice cap. On the ship's deck, standing between the first and second masts, was the wind turbine with its four blades which had produced electricity through three dark arctic winters. That sturdy turbine, the first of its kind in Norway, powered the light bulbs down in the ship, so that the men could eat their dinners in the festive light, play cards, write scientific reports, or read a book from the ship's library.

"Fridtjof," called Trude, beseeching him, "I have shown you the bad news. Now, please, may I show you the good news?"

Peter beckoned with his hand.

Ben beckoned to him as well. "She must," he said, "have some good reason for bringing us here."

"Yes," said Trude from the stage, "you three gentlemen are my final hope."

He had never before retreated. The ship which had brought him and his team of five men to the eastern shore of Greenland had sailed back home, on his orders. He and his men had no choice but to proceed on skis westward across the icy continent to the distant shore. There would be no retreat.

"All right," he said. "Please," he walked back along the row and sat in his seat beside Peter, "tell us the good news."

Chapter Four

"Ben and Peter," said Trude, "we are looking at a very important picture. Here we see the grandfather of modern wind turbines, machines which are able to catch the wind with their wings . . . and to turn the boundless energy of the wind into the energy of electricity."

She nodded to her reluctant guest. "Fridtjof, when Colin Archer was building your ship with its innovative rounded hull in the Larvik shipyard, you decided that you would provide the *Fram* with electricity produced by an innovative machine: a turbine driven not by falling water—such as powered the street lights of Kristiania at that time—but a turbine driven by the wind. As we can see in the picture, your wind turbine looks like a small Dutch windmill in a Rembrandt etching. But this windmill did not pump water from the lowlands of Holland. It did not grind grains of corn and wheat into flour for bread. No, it contained a generator in which coils of copper spun within an electromagnetic field, thus producing a flow of electricity in the copper wires that formed a circuit inside the ship."

She turned to her American guest. "Ben, you who made some of the first experiments with electricity, trying to understand what it was—this powerful force which came down in bolts from the clouds—yes, you would have studied this wind turbine and its generator most carefully, I am sure."

Ben said to Fridtjof with a laugh, "Yes, I should have been with you on that frozen ship!"

"Welcome, welcome," said Fridtjof with a faint hint of a smile.

"Just to give you a bit of historical perspective," continued Trude as she showed the next picture, of a Faraday disk, "the British scientist Michael Faraday designed, in 1831, the first electromagnetic generator. A copper disk spun between the arms of a horseshoe magnet. The movement of copper within the magnetic field produced a current of electricity which radiated outward from the center of the disk toward the rim. That current was tapped into a wire which could power a lamp, for example, before the wire and its current returned to the machine and fed electricity back into the disk by way of the axel."

Ben leaned forward in his seat, fascinated.

"Later inventors discovered that spinning coils of wire within a magnetic field produced a much stronger current. The original magnet was eventually replaced by

electromagnetic coils which produced a far stronger magnetic field, resulting in a far stronger current of electricity."

She paused, and then asked, "Fridtjof, how well did your wind turbine work?"

He replied, "Exceedingly well. The men were quite cheered on that first evening of October, 1893, when, as the arctic evenings were growing dark earlier and earlier, Bernhard Nordahl, our electrician, got the rig going and powered the lights over our dining table down below, prompting a celebration dinner."

"Hurrah!" said Trude with a quiet laugh.

Then she showed them another picture, in color, of an old Dutch windmill surrounded by fields of brightly colored flowers. Standing in scattered positions behind the windmill—with its four stubby, rectangular blades—were a dozen tall, slender, majestic white wind turbines, with three long blades like white slender feathers.

"Peter," said Trude, "you must remember the Dutch windmills from your visit to the Netherlands."

"I do, I do. I studied the blades, I studied the gears, I studied the grinding stones, and brought what I learned back to our farmers in Russia. But Trude, what are those . . . tall daisies in the background?"

"Those are modern wind turbines, with blades fifty meters long, like giant eagle feathers catching the wind. One turbine alone can power a town of two thousand people: their homes, their shops, their schools, their hospital. A second turbine can power a half-dozen small factories."

She paused, then she added, "Without burning a single lump of coal. Without burning a single barrel of oil."

"Blades fifty meters long!" marveled Fridtjof.

"Ja, but even bigger turbines now stand out in the sea, with blades up to eighty meters long. Those enormous turbines send their electricity through cables lying on the bottom of the sea to the grids on shore, thus powering the countries of Europe from one end to the other. We are still in the early years—wind turbines are a young industry—but I can tell you," she looked at a sheet of paper, "that on Wednesday, February 22, 2017, 18.8% of the electricity used by Europe was produced by wind turbines. Little Denmark, the pioneer of both onshore and offshore turbines, produced—hear this, gentlemen—104% of its national demand for electricity on that day. Every light bulb, every coffee machine, every laptop computer—many things

you may not have heard of yet—were powered by the wind. And the extra four percent? Denmark sold those megawatts to another country, at a profit."

Ben asked, "Do you have a picture of wind turbines standing in the sea? Do they stand on the bottom? Do they float?"

"Here," said Trude, showing them a new picture, "you can see eighty turbines, standing in a grid about fifteen kilometers offshore from the Danish coast. This is Horn's Rev, an early wind farm, built in 2002. These turbines stand on the bottom in fairly shallow water. More modern turbines will soon float in the deep waters off the northern coast of Scotland."

Peter asked, "This picture seems to be viewed from the sky, well above the sea. How was that possible?"

Trude explained, "The photograph was taken from a helicopter, one of the modern machines which can fly. You will perhaps have the opportunity to see a helicopter, Peter. I have something special planned."

She showed them the next picture, of turbines standing along the crest of a mountain ridge. At the bottom of the picture, they could read the name of a country, Portugal.

"Let us take a look now," said Trude, "at wind turbines in countries around the world. Some of them are on land, some are out in the sea. Remember, this is a young industry. The peoples of the world are just getting started."

Now music filled the dark theater—Grieg's "Morgen Stemning"; a joyful flute played as if in a high mountain meadow filled with wildflowers in the early morning sunshine—as she showed a series of twenty-five pictures of wind turbines in various countries around the world. Each country was labeled at the bottom of the picture. Wind turbines among the rice paddies of Viet Nam. Wind turbines on the windy plateau of Mongolia. Wind turbines near the crowded cities of China. Wind turbines near remote villages in India. Wind turbines in Turkey, in Morocco, in Kenya, in South Africa. Wind turbines in Costa Rica, in Mexico, in Chile, in Peru. Wind turbines on the Great Plains of the American continent. Wind turbines in Lake Ontario, offshore from Toronto, Canada. Wind turbines on the islands of Hawaii. And even a wind turbine powering a research station in Antarctica.

While Fridtjof listened to Grieg's music—he felt a surge of happiness when he heard the familiar first bars of that joyous flute—he marveled at the progress which people around the world had made in a little over a century. Yes, here was the good news. These pictures of tall slender machines that clearly withstood the battering

winds of storms at sea, and the deep winter cold on mountain peaks, and the heat of parched, desolate deserts . . . Here was human innovation. Here was the international cooperation which he had struggled to build back in the 1920s. Here was truly a spark of hope.

As the full orchestra played through the final bars, Trude left on the screen a graceful curve of about twenty wind turbines standing in the sea off the shore of Copenhagen. A sailboat, its hull red, its sails bright white in the sunshine, sailed between two of the white turbine towers. Blades and sails together were catching the wind.

Now in the quiet theater, Ben asked, "Are there any wind turbines standing in the sea off the coast of Boston? Any wind turbines standing in Chesapeake Bay near Philadelphia?"

Trude shook her head. "Ben, I am sorry to tell you that the Americans have been very slow to install offshore wind turbines. Until recently, all along the Atlantic coast, and throughout the Gulf of Mexico, and all along the Pacific coast, and in the five Great Lakes in the middle of the continent, there were no wind turbines. Now, since the autumn of 2016, there are five turbines off the shore of Rhode Island, the tiny state in New England. All five were built in France, and all five were shipped over and installed by a specially built vessel from Norway."

"Only five turbines in American waters!" marveled Ben. "And they are offshore from Rhode Island, and not Massachusetts? What has happened to the bold patriots of my home state? Boston once led the nation!"

Trude sighed. "It's a long story, Ben. America is . . . a different nation today."

Now Peter asked, "Are there any wind turbines standing in the sea off the port of Saint Petersburg? Or perhaps on the island of Kronstadt?"

Trude shook her head. "Peter, I am sorry to tell you that the Russians have been even slower than the Americans to install offshore wind turbines. Your people have not a single turbine standing in the sea. In fact, Russia has very few turbines standing on land. Until recently, your government has shown no interest."

"But," he protested, "why not? Is Russia forever to be the Backward Nation?"

"Because," said Trude, "both the ruling elite of Russia and the ruling elite of America are making great profits from oil. From oil. Though your two countries are forever aiming their nuclear cannons at each other, and though they argue and bicker over every last thing, they are really quite similar. The oligarchs of Russia, and the

tycoons of American, have become extremely rich from oil, and with that money, they control the politicians of their governments. They finance this candidate and that candidate, they control the newspapers, they hire the necessary thugs, all while wrapped in the flag of Mother Russia, of noble America."

She paused, then added, "Until recently, the largest oil company in America, Exxon-Mobil, was cooperating with the largest oil company in Russia, Rosneft, as together they explored the Arctic Ocean for more deposits of oil . . . beneath the bottom of the sea. American oil engineers sailed aboard Russian ships, looking for the last barrels of filthy oil on planet Earth."

"Wait a minute," said Fridtjof. "Let me be sure that I understand this. You told us that the burning of coal and oil is warming the Earth. The burning of coal and oil are causing the polar ice cap to melt. And now . . ." He gestured, inviting Trude to speak.

"Yes," she said, "and now as the polar ice shrinks, and the area of open water in the Arctic expands, the oil companies from half a dozen countries are already sending their ships north to explore for more oil. Which of course, will be burned in cars and power plants around the world. Which will cause the Earth to become even warmer."

Fridtjof asked, "Is Norway planning to search for oil in the Arctic?"

"Oh, yes. Norway already claims several sites where we will drill for oil."

"But . . ." He shook his head, baffled. "This makes no sense."

"Fridtjof, drilling for oil in the Arctic is the final suicidal madness."

He could not believe it. His own country, which had honored him for his polar explorations. For his years spent studying the sea.

"Keep in mind," continued Trude, "that every oil vessel, whether it be a research ship or a construction ship or an oil tanker, will be accompanied by military ships protecting the 'national interests' of the home country. Peter, the Russians have always been wary of foreign forces close to your borders. You have been invaded by the Mongols, by the French, by the Germans. Now you are wary of NATO. But soon your vast northern coastline, free of ice, will be patrolled by the military ships of a half-dozen nations. Surface ships and hidden submarines. All of them armed with missiles carrying nuclear warheads which can destroy Arkhangelsk and Saint Petersburg and Moscow in a matter of minutes. The Arctic Ocean may well become the last battleground of planet Earth."

"If I understand this correctly," said Ben, "Americans and Russians and Norwegians are going to contend with each other—"

Trude interrupted, “And Chinese, and Canadians, and British, and very possibly French and Dutch and Saudi Arabians as well. Everyone will want to grab that final barrel of oil, that final dollar.”

Ben continued, “So that they can sell the oil to people who will burn the oil, and thus wrap a blanket of death around our world.”

“Correct,” said Trude. “Exactly correct.”

Chapter Five

"I would like," she said, "as we face very honestly the state of our world today, to introduce you to one more piece of good news."

They stared at her, Ben and Peter and Fridtjof, their faces grim with the brutal knowledge which now darkened their minds, and ravaged their hearts.

"The sun," she said, "is as ready and willing as the wind to power planet Earth."

She showed them a picture of several workers putting solar panels on the roof of a home. "Ben, during the past few decades, we have learned how to build a flat panel containing certain components which can transform the energy of sunshine into an electrical current. The panels on the roof of this home will provide enough electricity to power all the lights inside, as well as a multitude of small machines, such as a box which keeps food cold, and another box which makes food hot, and another machine which brews your morning coffee."

She showed her three attentive guests a picture of the garage. "On the wall, you see a large white box which contains a battery. That battery not only powers the house through the night, and through days of dark, rainy weather, but also provides electricity to the battery in the car. Unlike the old dirty cars which run on oil, this car runs entirely on energy which came from the sun."

She heard Ben say, very quietly, "Remarkable."

"This compact and very efficient system was developed by a visionary inventor named Elon Musk, who was born in South Africa, made his way to Canada, then settled in California, where he is now determined to put the entire oil industry out of business."

"You have twice mentioned California," said Ben. "Forest fires in California, and now a home and a vehicle powered by the sun. I think that I must visit this California."

"I am quite sure," said Trude, "that Elon Musk would be very glad to show the man who invented the lightning rod around his innovative factory."

She showed another picture, of a man wearing sunglasses standing beside a field of solar panels which stretched to the horizon. "Let us travel now to India. Here we see Prime Minister Narendra Modi standing beside one of India's new solar farms, where thousands of solar panels are able to power entire towns. At a gathering of scientists and political leaders in Paris in December of 2016, Prime Minister Modi stated, 'The world must turn to the sun to power our future. As the

developing world lifts billions of people into prosperity, our hope for a sustainable planet rests on a bold, global initiative.'" She paused, then she said to Fridtjof, "Professor Nansen, the man who explored the ice that caps our planet, the man who helped to create the League of Nations, the man who walked in dusty boots through villages where poverty and starvation and disease claimed their daily victims . . ." She gestured to the man on the screen, "Here is a world leader who speaks about 'a bold, global initiative.' *Bold*, with the courage to move beyond the old, failed ways of powering our planet. And *global*, looking at not just my little patch of cabbage, but at *all* of the countries around the world."

"Yes," said Fridtjof. "Our League of Nations foundered like a great ship on the rocks of yet another war. But I see that today, with help from the sun, with help from the wind, you are trying again."

"Yes," said the mother of five children, "we are trying again."

She showed them now not a picture, but a chart with statistics. "In 2015, only 55% of all rural homes in India had electricity. Barely half of the people living outside of the cities could turn on a lamp in the evening so that the children could do their homework. 85% of people living in rural homes needed to cut firewood in order to cook their dinners. They cut down their trees in order to boil a pot of water."

She now clicked through a series of pictures. "During that same year, 2015, India teamed up with the sun. Nearly one million solar lanterns were sold to people who before had been burning expensive, dirty kerosene. Solar powered water pumps provided villages with both drinking water and water for irrigation. Solar panels provided electricity for something utterly unprecedented in many villages: street lights. And perhaps of greatest importance for millions of mothers, solar cookers replaced smoky fires in kitchens across India. Finally, *finally*, we invited the sun to lend a helping hand."

Peter stirred in his seat. "I hesitate to ask, but . . . do you have any good news from Russia?"

Trude sighed, for the sleeping giant was still sleeping. "There have been talks about cooperation with India regarding the development of solar power, and most recently, there have been talks with the Netherlands regarding the development of wind turbines. But . . . the profits from oil exported to other countries provide little incentive for any bold thinking in Moscow."

The man who had once led a Russia delegation on an eighteen-month trip to western Europe so that he and his colleagues could study everything from modern shipbuilding to fire hoses to the construction of locks, now sank back in his chair.

"Peter," said Trude, "your country needs you."

He stared without speaking at the picture still on the screen of a young girl preparing dinner on a solar cooker in a village courtyard.

"Gentlemen, I could show you pictures from around the world of solar panels, solar towers, and solar mirrors. All of them power a quiet revolution in the lives of billions of people. I could show you bold, innovative thinking in the mountain villages of Nepal, in the desert villages of Ethiopia, on tiny islands in the Pacific Ocean."

"And yet," interrupted, Fridtjof, "the fools are still planning to drill for oil in the Arctic Ocean."

"Yes, the fools are still planning, as Ben put it, to wrap their blanket of death around planet Earth."

She turned off the picture and now stood beside the dark screen.

"Gentlemen, I have a little girl at home in Oslo, a daughter five years old. And a little boy of seven. Isabel, and Benjamin. Last summer, my ever patient husband and I built a chicken coop in our back yard, so that we might have fresh eggs for breakfast. The children, of course, love to fetch the eggs."

With the click of a button, she showed on the screen a picture she had taken last August, of her two children running toward her across the lawn of the back yard, barefoot in brightly colored t-shirts and shorts, holding out for her to see in their small hands . . . four eggs. Their smiling faces were lit by sunshine. In the background, slightly out of focus, were a half-dozen chickens wandering about the yard.

"Ask Benjamin what he is learning in school about the melting polar ice cap. Ask Isabel what she is learning in kindergarten about the ever thickening blanket of death wrapped around her planet. 'Oooooh', some will say, 'These children are too young to learn about such things.'"

Trude shook her head. "No," she said with conviction. "I absolutely disagree. Because there are children in this world, millions of them, who already know about hunger. About drought. And about war. About wars caused—caused for over a century—by oil. By filthy, profitable oil."

Now she put on the screen a picture of her teenage son, standing tall with a backpack and boots—and a cocky grin—on a steep mountain trail. Far below him

were two lakes, one bluish-gray, the other pale green. She had taken this picture, this favorite portrait, on a hike up the Besseggen trail two summers ago, when she and her husband had treated Victor—just the three of them—to a weekend together on his sixteenth birthday.

"Gentlemen, ask my son Victor what he is learning in high school about the melting of the polar ice cap. Ask him what he is learning about the methane already bubbling up from the thawing permafrost. Ask him if he had heard about the forest fires in Russia, right next door. Or about the forest fires in Indonesia, on the other side of the world. As him if he has listened, in his Oslo classroom, to a genuine Sami reindeer herder speaking about climate change on the tundra. Ask him if he has listened to a genuine Lofoten fisherman speaking about climate change on the Norwegian Sea. Ask Victor if he and his fellow classmates have listened to a graduate student in economics at the University of Oslo, a graduate student from a village in Ethiopia . . . who could talk for hours about growing up in the midst of year after year of drought."

She shook her head with disgust. "Ask him about old, stagnant, outdated courses that lead only to a final exam. Ask him about the latest video war games on his super-slick telephone. Ask him why he hates politics and politicians 'and all that rubbish.'"

Now she put on the screen her two oldest children, one an engineering student at the University in Trondheim, the other a medical student at the University of Oslo, both of them hard-working, determined to be at top professionals in their fields. In the picture, they were washing the family car. The EL on the license plate proclaimed the car to be the family's first electric vehicle. Her son was holding a green hose and ducking . . . because her daughter was throwing, with a laugh, a soapy sponge at him.

"Here you see Johannes, who has contended since the day he was born with the loving pranks of his older sister, Mai-Britt. They are both university students in the top ten percent of their classes. My husband and I, we could not be prouder."

She looked at Ben, at Peter, at Fridtjof, each one a father.

"Ask Johannes, ask Mai-Britt, if they have ever attended a lecture about why the hideous war in Syria goes on forever and ever. Ask them if they have ever been assigned to do a research project on where the endless supplies of weapons are coming from, and on who is making enormous profits. Ask them if a veteran who has fought in the war in Iraq, or the war in Afghanistan, has ever spoken to them in a university classroom about war . . . from a soldier's point of view. Ask them if a refugee from

Syria, whose apartment building in Aleppo was bombed during the night while hundreds of people were sleeping, has ever spoken to them in class. Ask them, ask their fellow classmates, if they have ever had the opportunity to ask their *own* questions about what is going on in their world today."

She knew the answers, of course. No, and no, and no, and no.

"The old academics will say, 'Students need to concentrate on their field of study. They have enough on their minds without having to think about some foreign war.'

"But one mother, at least, would respond, 'Is this the world we want to give to our children? Is this the world that we want to give to *their* children? And what, after all, is the *purpose* of education, if not to prepare us to build a better world?'"

She turned off the picture and stood once again beside the dark screen.

"Gentlemen, are we to drag all of the old evils from centuries past into the twenty-first century . . . or are we finally, *finally,* going to educate our children so that, yes, they can build a better world? The question is: Do we *believe* in our children, do we believe in what they potentially *could* accomplish . . . or do we just shrug and hope for the best?"

The question, "Do we believe in our children?", hovered in the silent theater.

"Trude," said Fridtjof, "as an old man fairly worn out with the cares of the world, I spoke to a group of young people at St. Andrews University in Scotland. That was back in November of 1926, just a few years before I died. I had been made an honorary rector of the University, and thus they wanted me to speak, with some assumed wisdom, about what I had learned from life."

He looked at Peter. "I told them about the famine in Russia during 1921, when squabbling European governments turned their backs on thirty million people slowly starving to death. There were great surpluses of corn, there were empty ships, there were unemployed workers, and yet only the government of the United States reached out a helping hand to the government of Russia. No one in Europe, you see, wanted to offer any support to the Bolsheviks. The evil *Bolsheviks*! Never mind that women and children lay dead in the streets of southern Russia."

Fridtjof looked now at Ben. "I told those young people in Scotland about the League of Nations, which struggled so valiantly to bring peace to the world, and which nevertheless was so unremittingly crippled—once again—by bickering governments who saw only their own advantage. They would not reach out a helping hand to Germany, and so Germany, soon enough, raised her fist against them.

"Yes, I told those students, 'The old beaten tracks do not take us to our goal.' I told them that 'The touchstone of real culture should be the feeling of solidarity.' I told them—perhaps they thought I was preaching—about 'love of one's neighbour' as the fundamental principle that should guide our conduct in our international world."

Fridtjof leaned forward in his seat, his face brightening. "And I told those young people about 'the spirit of adventure'. Yes, that was even the title of my talk. Break away from 'the superficial rush and scramble which is modern life.' I told them, 'Make your preparations carefully; they can never be too careful—the road is long. No guess-work, no approximations. But when you strike out, then throw your whole self into the enterprise. Set *all* your sails.'"

He turned to Peter. "Am I correct, Brother Peter, that you once threw your whole self into the enterprise?'

Peter laughed. "I threw my whole self and half of Russia into the enterprise."

Fridtjof looked at Ben. "And you, Brother Ben, did you perhaps struggle for not merely years, but long decades?"

"Brother Fridtjof," said Ben, "when I consider the stretch of time from the trials of my young manhood, through the trials of our young country—including eight and a half years of war against the most powerful army and the most powerful navy in the world—and then on to the writing of the great Constitution, and Bill of Rights, by which time I was truly an old man in great pain with a bladder stone and gout . . . I wonder that we had the strength to do it all. And yet, we did."

He paused, then he added, "And so it seems to me, we need to do again today."

The four of them were quiet for a long moment.

"Perhaps," said Fridtjof, "I might add one more thought from that speech which I gave in Scotland so long ago. I told those young people at St. Andrew's University about 'building a ship of a special shape, sufficiently strong to resist the ice pressure.' We built a vessel with a rounded hull, very smooth, with strong oak beams bracing the interior of the hull, so that when the ice pressed against the hull from both sides, it did not crush the hull—as it had done with several previous ships in the Arctic—but instead lifted the hull *up*, thereby diminishing the dangerous pressure. Which, to our great satisfaction, is exactly what happened when we allowed ourselves to be frozen into the ice. The *Fram* suffered very little damage, though the ice sometimes heaped like a small mountain against her sides."

Peter the Shipbuilder looked with admiration at the Norwegian shipbuilder beside him.

"In addition," continued Fridtjof, "rather than try to force our way directly north through the ice, as explorers had done before, we sailed as far east as we could along the northern coast of Russia, then sailed a short distance north and allowed ourselves to be frozen into the ice. My theory, that the ice itself flowed from east to west by a northerly route, proved to be correct. The ice carried us on our journey toward—but not quite to—the northern Pole. And eventually, the ice released the *Fram* at its western edge, enabling the crew to sail back to Norway.

"As I told those young people, getting ready to set out themselves on their voyage into the world, 'It simply meant working *with* the forces of nature instead of against them.' And so, I think, as Ben has said, we need to do the same today. We must extend our offer of solidarity beyond the peoples of the Earth. We must work in solidarity with the Earth herself. Then, I think, we shall begin to make some real progress."

Amen, thought Trude.

She looked at her watch. "How about we go back up topside and get a little fresh air and sunshine? I would like to introduce you to the crew, who are most eager to meet you. They would be glad, I am sure, to talk with you about their research."

And so the three gentlemen stood up and stretched their legs, much like students after a long and challenging seminar. The four of them left the theater, climbed the stairs, and stepped through the door—they put their coats and hoods back on—into the frosty air of the Arctic north. The sun, with a blush of red in it now, had swung further to the west. The sheet of ice to the north was tinged with a pale Arctic pink.

Trude called to the researchers fore and aft; they gathered with hearty smiles and handshakes. Fridtjof was invited by the captain himself up to the bridge, so that he might take a look at the instruments of modern navigation.

Peter was invited to a room two decks below, where a team of three—Russian (to his delight), Swedish, and Canadian—were mapping with sonar the bottom of the Arctic Ocean. They showed Peter a multitude of maps, so that he could see with astonishing clarity the hidden underwater world that stretched beyond the northern shores of his great Russia.

Ben was invited to the stern deck, where a team of four—Irish, Norwegian, Palestinian, and (to his delight) African-American—showed him the various instruments with which they measured the currents of the northern seas. Ben was able to tell them that when *he* had sailed, a number of times, from America to England, and

back again, he had lowered a thermometer over the side of the various ships and discovered a warm current that swept northwest across the North Atlantic. He encouraged the ship captains of his day to seek that warm current and to sail with it on their eastbound voyages, and to avoid it as they sailed west.

Abraham, the African-American, listened with astonishment, then he held out his hand. "Sir," he said as the two men shook hands, "you discovered the Gulf Stream."

Trude stood at the railing, staring north at ragged edge of the ice cap. Beside her stood a colleague, a woman from China. Chun-Hua asked her, "How did it go?"

Trude took a deep breath of the cold, briny air that she loved to breathe. "Better than I could have expected." She looked at her friend—who studied the Arctic atmosphere and who would soon show Ben one of her kites—and told her, "I haven't felt this hopeful for a long, long time."

Part II

The Renaissance of the 21st Century

Chapter Six

After lunch, the three guests joined the research team for an afternoon of 21st century science. The *Polar Star* had moored beside a sheet of ice at the edge of the ice cap, and a long ladder had been lowered over the side. A crane lowered a sledge filled with equipment.

Fridtjof in his furs and reindeer hide boots descended the ladder with a dozen scientists in their red and orange jackets and thermal-insulated boots. When he set foot on the ice and then walked, simply walked, across it, he marveled at the irony that all the while he had been on the three-year Arctic expedition, he had ached with longing for home back in Norway. But now that he was on the ice again, he felt, very strongly, that he was home.

He inspected a modern version of his water-collecting bottle, a device which he had invented for taking water samples, and temperature readings, at various depths. He had always insisted in his research that measurements must be as accurate as possible; the modern "Nansen bottle", as the graduate student from Tromsø called it, was accurate in its digital temperature readings to a tenth of a degree.

Trude, whose specialty was drilling for core samples of ice, and then studying the ice to learn about its density, salinity, temperature, and a half-dozen other characteristics, explained to Fridtjof every aspect of her work. When he mentioned that he wished he had his black-and-white camera, so that he could take a picture of her while she was holding the drill and boring down into the ice, she laughed and dug into a pocket for her Arctic Smartphone. Then she held a short section of round ice from a core in one hand while she stood beside Fridtjof—the two of them facing the Arctic sun—and took a selfie which she would treasure for the rest of her life.

On the bow of the *Polar Star*, Ben returned to his boyhood exuberance as Chun Hoa flew her kites in the Arctic breeze, taking measurements with lightweight airborne sensors of temperature, wind velocities, and humidity at various elevations. He was delighted when he spotted a flock of Arctic terns with their long pointed white wings and graceful flight close to the waves.

Peter joined the group of divers on the aft deck, marveling at the rubber suits which they put on to keep themselves warm. He was even more astonished when they lifted a metal tank in a harness onto their backs, for, as one diver explained to him, the tanks contained air under great pressure, which the divers could breathe for as long as an hour while they swam underwater. The scientists were going to explore the underside of the ice, where it was melting in the warming waters of the Arctic Ocean.

Eventually, Peter and Ben climbed down the ladder to join the others on the ice. "Look at that!" exclaimed Ben when he noticed his shadow, for the low Arctic sun cast it far across the flat ice. Peter's shadow stretched even further. Peter poked Ben with his elbow; his shadow's elbow was almost ten meters away.

"Yes, I may be a bit taller," said Peter with a laugh, "but you are definitely a bit rounder."

Two members of the crew carried a rifle slung over their shoulders, "In case," as they explained, "a polar bear should approach."

Peter, Ben and Fridtjof gathered around a scientist who pulled up, arm over arm, a fine-mesh net which he had lowered through a hole in the ice to a certain depth. Fridtjof peered over the man's shoulder and saw, as the net emerged from the water, several small wriggling creatures. Yes, he could identify them as a certain species of shrimp . . . but more important in that moment, he looked upon them as old friends. He was heartened, for life still flourished beneath the ice.

And then . . . Trude led her three guests back up the ladder, and to an elevated deck at the stern of the ship, where she showed them a strange-looking . . . something . . . with a large rounded window and several blades radiating out from its top. "Gentlemen, this is a helicopter, and we are going for a ride."

She introduced them to the pilot, then she and Peter and Fridtjof strapped themselves into seats in the rear of the cockpit, while Ben, as the "honored elder", was given a seat up front beside the pilot.

Fridtjof looked out the windows at open water on one side: the warming Arctic Ocean; and a vast sheet of ice on the other: the ice that for five million years had reflected sunlight back into space. As the blades above him now began to whirr faster and faster, his heart quickened. When the metal cabin lifted from the deck, tilted

slightly and swept off over the open water, rising steadily into the sky, he thought for a moment of the barrel at the top of the *Fram's* tallest mast, from which the men watched for open channels in the ice, and bears approaching the ship, and for distant dark peaks which might be land. Looking down out of one of the windows at the ship receding far below, he felt the great leap of progress that people had made during the past century.

As the helicopter now circled to the north, he looked down at the edge of the vast sheet of ice, and at the hundreds of broken pieces floating in open water. Shifting in his seat, he looked forward, past Ben, and saw beyond the big front window the ice which he knew stretched all the way to the northern Pole. He and Hjalmar Johansen, on skis, had reached 86 degrees, 4 minutes. Today, this machine could probably fly at least that far, and return to the ship in time for dinner.

Then why, he wondered, after a century of such progress, were people still burning coal, still burning oil? And why, equally important, were they still fighting their barbaric wars? How could they be so clever in some ways, and so unrelentingly stupid in others?

As the helicopter was sweeping down toward the ship, Fridtjof wished that Eva could have been with him today on the *Polar Star*, and in this magical machine. Then finally she could see for herself the Arctic which he loved, and which had always been a world apart from her own world of family and music. Was that not the essence of life: to share what you loved?

He spotted the crew of scientists on various decks of the ship, waving up to them. He couldn't help himself: he waved down and smiled.

Chapter Seven

They stood—the four of them—at the railing after dinner, with a golden-red sun blazing low in the western sky to their left, and a pale turquoise sky to their right. Now in early May, the Arctic sun, declining sideways, would not set this evening, but would instead skim just above the North Pole at midnight, then gradually rise as it glided through the eastern sky, forming a golden ring above the top of the world.

The edge of the polar ice cap, running east-west, was faintly visible in gray-blue shadow, though ridges of ice jutting up from the sheet of ice caught the salmon-orange glow of the sun.

Trude asked Fridtjof, standing to her left, "Which did you prefer, the Arctic day of summer, or the Arctic night of winter?"

"Ah," he said, then for a long moment he was quiet, thinking back to those three winters and three summers well over a century ago.

"The summers, of course, lifted our spirits immensely, and gave us ample time to do our work. But the Arctic nights of winter . . . their beauty, their cold, lonely beauty, was beyond anything I had ever known."

She had brought a book with her from her cabin, a book which he himself had written, **Fram over Polhavet**, first published in 1897. She opened it to a page which she had marked, then she asked him, "May I read a passage to you about the Arctic night?"

He glanced at the book, recognized it and looked at her with quiet gratitude. "Please do."

"Gentlemen," she said to Ben on her right, and to Peter on her far left, "I would like to read for you the observations of Professor Nansen during his frozen voyage on the *Fram*, observations made on Tuesday, September 26, 1893, while at 78 degrees, 50 minutes north latitude. The *Fram* had now been locked within the ice for six days. During the daytime, the sun was low in the southern sky, nine degrees above the horizon at noon. It set earlier and earlier with each day, and thus the winter night was growing longer and longer. Professor Nansen's observations, which I am about to read, describe that winter night."

She looked to the left and to the right at the two attentive faces, Peter's and Ben's, facing her. Fridtjof, however, stared north, his eyes reaching great distances.

She began, "'Nothing more wonderfully beautiful can exist than the Arctic night. It is a dreamland, painted in the imagination's most delicate tints; it is colour

etherealized. One shade melts into the other, so that you cannot tell where one ends and the other begins, and yet they are all there. No forms—it is all faint, dreamy colour music . . .” She paused, glancing at Fridtjof as she repeated, “colour music.” Then she continued, “a far-away, long-drawn-out melody on muted strings.”

Peter, and now Ben, both gazed to the north, toward a pale apricot sky over the vast sheet of ice which the sun tinged pink-orange.

“‘The sky is like an enormous cupola, blue at the zenith, shading down into green, and then into lilac and violet at the edges. Over the ice-fields there are cold violet-blue shadows, with lighter pink tints where a ridge here and there catches the last reflection of the vanished day. Up in the blue of the cupola shine the stars, speaking peace, as they always do, those unchanging friends.’”

Fridtjof nodded faintly. Yes, what he had written was exactly right.

“‘Presently the aurora borealis shakes over the vault of heaven its veil of glittering silver—changing now to yellow, now to green, now to red. It spreads, it contracts again, in restless change, next it breaks into waving, many-folded bands of shining silver, over which shoot billows of glittering rays; and then the glory vanishes.’

“‘Presently it shimmers in tongues of flame over the very zenith; and then again it shoots a bright ray right up from the horizon, until the whole melts away in the moonlight, and it is as though one heard the sigh of a departing spirit.’

“‘And all the time this utter stillness, impressive as the symphony of infinitude.’”

She paused for a moment, then continued, “I have never been able to fathom, that this Earth will once turn hard and become desolate and empty. What for, then, all this beauty? Not one creature to bring happiness to. Now I have an inkling. Here is the coming Earth, here is Beauty and Death. But why? Yes, why all these planets? Read the answer out there in the blue, stellar space.”

She closed the book.

After a long moment of silence, she said to Fridtjof, “Your pictures show you as so stern, so silent. Yet here in the north, you were a poet.”

He looked at her, and she could see once again that deep sadness in his eyes.

“Yes, when I was young, before the wars, before the refugees, before the drought and the starvation, before the clamoring demands of politics . . . the young explorer was a poet.”

* * * * * *

"Trude," said Ben, some minutes later, "I have been thinking." He pulled his coat more tightly around him as the blazing red sun in the west swung further and further north. "I have been thinking about education. When we set up our library in Philadelphia, the thought was to enable people to develop their knowledge, and thus to develop their thinking. The more that folks learned about their world, the better they would be able to live within it. And so it proved to be. Students from families too poor to purchase a book, and working people too occupied with the cares of the day to think much beyond them . . . more and more, they came to visit the shelves of our ever-growing library."

Peter, and even Fridtjof, had turned toward Ben, listening.

"And certainly, before the writing of our great Constitution, what would we have done had not Tom Jefferson, in France, shipped a full library of books to his friend Madison in Virginia? Madison had been charged with writing a first draft of an entirely new constitution, a draft which the delegates who gathered in Philadelphia during that long, hot summer of 1787, might use as a rough model. Jefferson, our ambassador in France, sent books about government, about law, about political philosophy, not only from a multitude of countries, but from several epochs of history, so that Madison and others might read from the Greeks in their Golden Age, and from the Romans, as well as from the many authors of the Enlightenment. Madison feasted on that library, and took the best of what he learned so that he could weave the wisdom of the ages into the modern framework of a republic."

"I did much the same," said Peter, "when I took my Grand Embassy to Europe for eighteen months. We collected the wisdom of many countries, and took it all back to Russia."

"And I," said Fridtjof, "carefully studied the documents written by explorers from various countries—chiefly Britain, Scandinavia, and Russia—as I made my own plans to sail north into the Arctic."

"And so I think," continued Ben, "that because we are confronted today with planetary challenges, so we need to gather information from around the world, in order to develop planetary solutions." He raised his hand, "I know, I know, that to a great extent you are already doing that. As I have learned from my talks at dinner, several thousand scientists from a multitude of countries have been sharing their research for several decades. But . . . how much of that knowledge is shared with the young people in schools around the world? They, after all, are the ones who will soon inherit a changing planet. Do they have a global library at their fingertips? Do they

pursue—*every* student in *every* school around the world—serious courses about," he pointed, his face tinged red by the evening sunlight, toward the north, "this fragile cap of ice, a major feature of planet Earth, which is now steadily disappearing?"

Trude shook her head. "Most folks never give it a thought."

"First" said Ben, "we need a full, professional course in the autumn about global warming, 'The Problem'. And we need not just one book, one teacher, but a growing multitude of books and websites, and a full range of speakers who visit the school to address the students, and to answer their questions.

"Then another full, professional course in the spring, about the sun and the wind, 'The Solutions'. We need to study these solutions as they develop in countries all around the world. Who is doing what, and what can we learn from them?"

Ben paused, mulling for a moment over what he was about to say.

"I have learned about your extraordinary internet. About electronic books. And even electronic lectures, so that a student can listen to a teacher, or a fellow student, in a school on the other side of the world. Magnificent! There you have your library, reaching far beyond what our small shelves in Philadelphia could reach.

"But more. Simple learning is not enough. I would have the students do *their own research,* into whatever subject that might interest them. I would have them not simply 'take a course', but design their own extended research project, much as," Ben nodded to Fridtjof, "you found necessary to do here in the Arctic."

"Yes," agreed Fridtjof, "the classroom was but Step One."

"And *then*," said Ben, his voice ever more vehement, "*weave* the schools together. If fires are burning in California and fires are burning in Russia, then let the young people of both countries work *together* to share their knowledge, to learn from each other. Then, as they grow older, and take up their careers, they are already colleagues with an international education, rather than adversaries who view each other as the enemy. *Then,* and only then, can we develop planetary solutions for planetary problems."

"Brother Ben," said Peter, "we shall weave our schools together, your American schools and our Russian schools. That shall be the Grand Embassy of the 21st century."

"And," said Fridtjof, "we shall make sure that *all* of those schools around the world—no matter how poor the village—shall have the electricity, and these magical computers, so that they too can share this global library. And they too can weave their schools with all the other schools around the world."

Fridtjof thumped his fist in its fur mitten on the railing. "In fact, we must be sure that every refugee camp has such a school. For there, living in dusty tents, will you find dedicated students . . . ready to build a better world."

Trude listened to these great plans, these dreams of wise visionaries. But she knew, as the mother of five children, that the local school board, as well as the national Ministry of Education, moved at a glacial pace. No, even more slowly, for the glaciers were melting far more quickly than any school board could make a decision about adding entirely new courses to the curriculum.

"Gentlemen," she said, "you are absolutely right. But these courses which you talk about—and this global library, and weaving the schools together—will never happen . . . unless the students themselves make them happen. *They* must design their own courses, *they* must build their own network of schools, and *they* must invite clean energy entrepreneurs and Sami reindeer herders and Lofoten fishermen into their classrooms . . . or it will never happen."

She felt a surge of excitement at the thought of what *could* be done. "We are now in the month of May. If, during the coming summer, a growing number of young people worked together to design these new courses, and then *demanded* in September that the courses be a full and serious part of the school's curriculum—grade school, high school, college and university, around the world—then the first global generation in human history will launch what I believe can be the Renaissance of the 21st century."

Fridtjof stared at her, with a look in his eyes perhaps like the initial glimmer of determination when he had first looked at Colin Archer's blueprint for the *Fram*.

Trude stated firmly, "If this poor, battered, struggling world is ever going to move forward, it will be the young people, the *kids*, who make it happen."

Ben looked around the deck of the ship, where various researchers were enjoying the late evening sunshine. "I do not see any kids on this ship."

"Exactly," said Trude. "We connect this ship by internet with a dozen classrooms. With a hundred classrooms. With a thousand. So that a million students can see through the telephoto lens what that crumbling polar ice cap looks like. So that they can hear the crack like the shot of a cannon, as another piece breaks loose into the sea. So that they can share in the measurements of temperature and wind velocity and salinity. So that they can see—right there on their laptop screens in Nepal and Zimbabwe and Viet Nam—when the sampling nets are brought up, how much life—magnificent, delicate, unique-in-all-the-universe life—there is even in the Arctic Ocean."

That, as a mother, was her dream for not only her own five children, but for all of the children in this very-close-to-perishing world.

"So," said Fridtjof with a faint smile, "you would have me share my Arctic nights with the kids of Africa."

"Correct," said Trude. "Exactly correct."

Chapter Eight

The sun became deep red as, like an orb on the hour hand of a great clock, it swung toward midnight. Trude knew that her three visitors would be leaving her when the sun reached due north. Each of them would return home—to Russia, to the United States, to Norway—where they would . . .

As Ben had said, "The key, my dear, is that they were willing to learn. And thus we made, in a few industrious decades, an astonishing amount of progress."

The four of them spent the long, peaceful evening on deck talking with the researchers and crew. Coffee and hot rolls were served at ten o'clock. After asking permission, both Peter and Fridtjof smoked a pipe.

The great clock was nearing midnight when Trude stood once more at the railing, with Ben to her right, Fridtjof to her left, Peter to her far left. They were quiet as they stared north, deeply quiet, for they knew that their time together was soon coming to an end.

"Gentlemen," she said, "I have a bit of science for you to take home with you." She showed them a sheet of paper, a print-out from an online article entitled, **Polar Ice at Record Lows**. "This short article, with three graphs, comes from two American sources, NASA's Goddard Space Flight Center, near Washington, D.C., and the National Snow and Ice Data Center in Colorado."

She gave them copies, passing them from her Goretex gloves to their fur mittens. When they held the paper flat, then slightly angled toward the sun, the white pages were tinted pale red.

She now read from this document which she believed should be in the hands of every person, certainly every *young* person, around the world, in a multitude of languages. She read with a voice that reached out across the great sheet of ice that capped the top of the planet. "'In March 2017, Arctic sea ice reached a record-low maximum extent. . . . In the same month, sea ice on the opposite side of the planet, around Antarctica, hit its lowest extent ever recorded at the end of the austral summer.'"

She ran her finger along the declining zigzag graph, indicating the Deviation in Sea Ice Extent in millions of square kilometers in the Arctic, from 1979 to 2017. "Here you can see the gradual reduction in the size of Arctic ice since 1979, when satellites first began to measure the ice. During the summer of 2012, we notice a

dramatic downward zigzag, followed by another downward point during the summer of 2016. Keep in mind that these measurements are of surface area. Because the ocean warms the ice from underneath, the ice cap is also becoming thinner."

She ran her finger along the more level zigzag indicating changes in Antarctic sea ice, stopping at the severe sudden drop at the end of the graph. "As you can see, the ice at the South Pole has recently begun to melt at a much greater rate than in previous decades."

Now she showed them the third graph, which combined the Arctic and Antarctic data into a single declining slope with a sharp drop at the end, during the austral summer of 2017. She read from the article, "'On February 13, 2017, the combined Arctic and Antarctic sea ice numbers were at their lowest point since satellites began to continuously measure sea ice in 1979. Total polar sea ice covered 16.21 million square kilometers (6.26 million square miles), which is 2 million square kilometers (790,000 square miles) *less* than the average global minimum extent for 1981-2010.'" She paused, then she read for all the world to hear, "'That's the equivalent to losing a chunk of sea ice larger than Mexico.'"

For her visitors from their earlier epochs, who might not know much about Mexico, she said, "Or . . . the *loss* of sea ice is 2.67 times larger than the combined area of Norway and Sweden."

She heard Fridtjof say beside her, very quietly, "Shit."

The open gray water washing against the hull of their ship, where only a few decades ago there had been solid white ice, ice which had capped the Earth for eons of time, ice which had reflected the sunlight for eons of time . . . yes, this open water was as unnatural as if their own blood had turned pale gray.

She read, "'Arctic and global sea ice totals have moved consistently downward over 38 years. Antarctic trends are more muddled, but they do not offset the great losses in the Arctic.'"

Now she folded her sheet of paper in half, creasing it as best she could with her thick gloves, then folded it again, and again, and slid it into a pocket of her red Arctic jacket. Ben and Fritjof and Peter did the same, except that having no outer pockets in their fur outfits, they lifted up their coats and deposited the documents in the pocket of an inner shirt.

Trude lifted her cuff, glanced at her watch: seven minutes to midnight.

"Gentlemen, each of you, in your time, broke free from the familiar world which had surrounded you since birth, so that you could learn . . . and progress . . .

and shape an entirely new future. As a poet once wrote, 'All beasts are, but only man is what he might become.' We have this special gift within us, though it remains dormant for long stretches of time. Your job, as you now return to your homeland, is to awaken that gift."

She paused, wanting each word to be heard, to be felt.

"The part of the world which we call today the Middle East—a region, it seems, of perpetual war—was once the Cradle of Civilization. Two great rivers, the Tigris and the Euphrates, receive a steady flow of water from the snow and ice in the Taurus Mountains of eastern Turkey. The early peoples who lived along the banks of those two rivers developed a system of irrigation which enabled them to grow food in the midst of a vast desert. With a steady and sufficient supply of food, these early peoples went on to develop writing, mathematics, and astronomy. They gathered books into the first libraries. They created codes of law. They invented coins, and developed systems of trade that reached enormous distances . . . to the eastern lands of India and China, and to the western lands of Europe."

She paused, then she asked, "What happens when the snow and the ice on the mountains of Turkey . . . melt in a warming world? What happens when all the glaciers which feed the great rivers of the world . . . steadily melt—as we see them already doing today—until the flow of water down the mountainside becomes a dwindling trickle? At what point does the Cradle of Civilization become the Coffin of Civilization, where drought and war inflict the final devastation?"

She stared out at the ice cap, giving her three visitors a long moment of silence.

"We have a choice. Either we believe in ourselves and our special gift—either we believe in our *children* and their boundless energy and talent—or we carry on in our oil-induced stupor, until the Earth burns with such a fever that the pestilence which has infested the Cradle of Life . . . is thoroughly eradicated."

She let out a long breath, which drifted in the cold air as a plume of vapor tinged red by the sun.

"Gentlemen, I thank you." She looked at Ben, already less substantial, more a spirit who looked her with confirmation in his eyes that he would do his best.

She turned to Fridtjof, fading as well, though in his eyes she saw both the aching sadness, and the firm determination, which had balanced in his soul to the end of his life.

Now she looked at Peter, the mist of a tsar, who had once strode on his long legs across a continent, south to the Black Sea, north to the White Sea, and west to the

Atlantic. “Peter,” she said before he was fully gone, “as you once opened a Window to the West, open the windows of Russia today to the sun and the wind. We need you, Russia. We need you.”

The man who had hoisted the sails of Russia’s first navy, the man who had built one of the world’s great cities, reached out his hand as he nodded, his dark eyes fierce with determination, that he and his people would rise to the effort.

And then they were gone. The scarlet sun, due north, nearly scraped the scarlet ice beneath it.

She felt a hand on her shoulder. Turning, she saw Chun-Hoa’s oriental face, her eyes offering comfort, offering gratitude. She saw now that her colleagues had gathered around her, men and women of science, some of them young, doing research which they would weave into their doctoral dissertations, and some of them older, veterans of decades of research on global warming, and decades of entrenched public resistance.

The captain of the ship began to applaud with his thick gloves. His applause was taken up by the others, a muffled though energetic sound, tiny in the vast silence of the Arctic night.

Part Three

The Seventeenth of May

Chapter Nine

He first appeared at School Number Eleven on Vasilyevsky Island in the heart of Saint Petersburg, the city he had founded in 1703. He was standing in the corridor outside a classroom, where two girls were holding the ends of a rope and swinging it around and around while a third girl hopped over it every time it swept beneath her feet. Another girl, who was watching, counted, "Fifty-one, fifty-two, fifty-three . . ."

On the wall behind them was a large painting in which he recognized himself, taller than the other half-dozen figures who flanked him. Whereas his companions—one wore a white wig, another a fur hat—looked down, seeing little beyond themselves, he, Peter the First, wearing a long white coat and scarf and holding his pipe, stared into the distance. Yes, he had stared with a vision.

In the background he could see ships on the Neva River. One was flying the Russian flag—three horizontal stripes, white, blue, and red—which Peter had designed in 1694 in the shipyard of Arkhangelsk as Russia's naval flag. On the far side of the river stood the buildings of his new city, designed by architects from Italy. Here was Russia's new seaport, from which merchant ships could sail to the ports of Europe, and from which military ships could sail to defend their homeland. No more was Russia an isolated, landlocked country. (Arkhangelsk was too far to the north, locked in ice during the long winter.) Peter's Russia, under his firm guidance, had stepped out of the dim and stagnant past . . . and joined the modern world.

A bell rang. The noisy children in the corridor hurried into their classroom and sat at their desks. Peter followed them into the room, where he greeted their teacher, a woman who was clearly surprised to see him—Was he someone dressed up as Peter the Great, who earned money by having his picture taken with tourists?—but who graciously accepted his offer to speak with her students.

He stood in front of a blackboard covered with clusters of numbers—a lesson in mathematics—and looked at the children of his city, of his nation, today. They were attentive, about twelve years old, sitting two to a desk. Most of the girls wore a bow in their hair.

A window was open, above a shelf covered with various potted plants. A fresh breeze from the warm springtime day outside brought the scent of new leaves on the birch trees into the room.

"Good morning," said Peter with a deep and vibrant voice. "Dooooobra uuuutra." He waved his hand with a dramatic flourish, as if he welcomed them.

Twenty bright voices answered him, "Dobra utra." Some of the kids giggled, glancing at each other.

"I come today to visit your beautiful school, so that I can ask you, 'What are you learning?'"

The teacher and her students could hear from his pronunciation that he spoke some different form of Russia. This was not an actor who posed with the tourists. This was the real Peter the First, whose dark eyes stared at them with such intensity that they knew his question was serious.

"What are you studying?" He turned to the teacher and gestured toward the blackboard. "I see from the numbers that your students are learning to calculate."

"Yes," she said. "This is a trigonometry lesson. We are learning about the angles of various figures, from the triangle to a hexagon."

"Ah. Very good." He turned to the students. "One day you will be able to design new ships, new palaces." He reached out one hand, circling his fingers in the air. "And wind turbines. Beautiful, tall, majestic wind turbines, which will power your great country." He pointed at a girl in the back of the classroom. "Tell me, please, what you know about wind turbines."

She stared at him, embarrassed, a little frightened. "Um."

A boy raised his hand. "I saw a picture of a wind turbine in Murmansk. But I don't think we have very many in Russia."

And so it went, for no one had much to say about wind turbines. Nor about solar energy. Peter remembered back to the old days when people had wanted to sleep, as they had been sleeping for centuries. Somehow, somehow, he had to reach the young people. He had to find the key.

The teacher encouraged her students, "Russia has always been a nation of great engineers. Look at our space program. The International Space Station," she pointed upwards, "with Russian cosmonauts aboard, is one of our great achievements."

Peter looked at her, puzzled. "The International Space Station?"

She smiled with understanding. "Well, my point is . . . we *are* capable of extraordinary progress in the field of engineering. But we do lag, for reasons which are clear to many of us, in the field of clean energy. Perhaps one day . . ."

"Ah," he said. "Perhaps one day."

He took out from his pocket the sheet of paper which Trude had given to him, then he read to the students about the melting of the polar ice cap. He explained to them that by the time they were grown and had children of their own, they might well be living on a planet which was getting warmer and warmer, and no one knew how warm it would get.

He asked them if they knew about plans to drill for oil in the Arctic. Yes, they knew quite a bit about that. One boy stated vehemently that Russia had its own offshore zones, and that no other countries were to try to drill in Russian territory.

"What happens," asked Peter, "if there is a great storm at sea, and the ships of other countries are blown into the Russian zone? What do we do then?"

"When the storm is over," asserted the boy, "we chase them out."

"We chase them out?"

"Well, first we ask them to leave. Then we order them to leave. And if they won't go, we chase them out."

"Ah. And how will you chase them out?"

The boy laughed. "With our navy, of course!"

"Ah. And what if each country has brought its *own* navy? Won't it be a bit crowded up there on the Arctic Ocean? What if somebody now decides to send out an airplane—a fighter jet—which passes a little too close to somebody's warship. Somebody launches a missile, shooting down the plane. Then what?"

The boy was silent, thinking.

Peter continued, "Let's say that *you* are the pilot of that fighter jet. You are killed when the missile hits your plane. Do you want your death to be the cause of a war that extends from one end of northern Russia to the other?"

"Sir," said the teacher with a tone of protest. "These are young children. I do not think you should disturb them with such . . . unsettling thoughts."

Peter looked at the teacher with a nod of apology. Then he gestured toward the open window where the breeze of springtime in May was flowing into the room. He said to the students, "Invite the wind and the sun into your classroom, and you will have no wars along the northern border of Russia."

He bowed to the students and teacher. "I thank you."

Then he walked to the classroom door, opened it, stepped out into the quiet hallway, and closed the door behind him.

* * * * * *

He appeared again, now in Piskaryovskoye Memorial Cemetery, which might have been a large park within the city, with its green lawn and clusters of birch and spruce, except for the 186 long flat ridges which covered the mass graves. At the end of each grave stood a stone with a date on it: 1941, 1942, 1943, 1944, the years of the Siege of Leningrad, when 50,000 soldiers—men and women both—died along the Leningrad Front, while nearly half a million civilians died in their apartments of starvation and cold during the three long winters of war. Of war.

Peter stood beside the Eternal Flame, raising his eyes now and then from the flickering orange flame to look at the faces of people—families with children, elderly women, young couples—who stood around the flame, silent, before they walked along a sidewalk flanked with fresh May flowers toward a distant sculpture.

He walked with his countrymen along that sidewalk, breathing air scented with flowers, until he stood in front of a towering bronze woman standing atop a tall stone pedestal, holding in her outstretched arms a length of woven laurels which she seemed ready to place upon a grave. Here was the Motherland, mourning for her children.

Walking along paths flanked by the long flat ridges, he watched as people, many of them children, placed red and pink and white carnations on the blocks of stone at the end of each long grave. In the distance, he could hear birds twittering in the birch trees with their pale green leaves.

Peter came to a place in the cemetery where individual graves were marked by black-and-white pictures—photographs—on a white ceramic plaque. Here he could see the faces of the soldiers, the sailors, who had died at the age of—he read the dates of birth and death—twenty-one, twenty-three, thirty-six, nineteen. One face, of a young man wearing a sailor's cap, seemed to stare at him, asking, "How fares our nation? Did the war ever end? Do you live in peace now?"

A young woman pushing a baby buggy paused beside him. She looked at him shyly, then she reached into the buggy where her child lay sleeping beneath a pink blanket in the spring sunshine, and took a handful of red carnations from the bunch of

flowers lying on top of the blanket. "I see that maybe you would like some flowers," she said to him with a quiet voice, "to put on somebody's grave."

Yes, his hands were empty. Peter reached one of his hands—the hand which had held a shipyard hammer, a battlefield map, a gun, a sword, a telescope, and the hand of his beloved Catherine—and took the cluster of red flowers. "Thank you," he said, "for your thoughtfulness."

Then he asked, looking down at the smooth cheek of the sleeping child, "What is her name?"

"Liudmila," said the young woman. "She is the most precious gift in all the world."

Then she nodded good-bye, and Peter watched her push the buggy along the path . . . toward the years that lay ahead.

* * * * * *

He appeared for a third time on the Ninth of May, Victory Day in Russia, when he joined the parade of veterans—those still alive—and their children who walked along Nevsky Prospect through the heart of Saint Petersburg.

The veterans of the Great Patriotic War wore medals on the chest of their uniforms, commemorating their heroism in the battles which they had fought from Leningrad all the way to Berlin. Peter walked for a while beside a thin woman with an ancient face, who wore, above the shirt of her uniform adorned with a dozen medals, a collar of white lace.

Along both sides of Nevsky Prospect stood thousands of people, cheering, saluting, smiling as tears lit by the bright May sunshine streamed down their cheeks. Nearly every family in Russia had lost someone in that war. Today, they honored both veterans who had survived, and the nation which had survived.

Peter walked with the long procession as it turned to the right, passed beneath two arches, then entered the huge open area of Victory Square. In the center, high on a column of stone, stood an angel looking down on her people. Along the far side of the Square stood the elegant blue-and-white building of the Hermitage. (Peter had done a bit of research, and knew that pictures of himself, as well as his throne, were inside that vast museum.) He could hear a band playing. Families now joined the veterans as the parade dispersed into a growing crowd.

So this was the city, and the nation, which he had launched. A city of great architects and spirited people. A nation of heroes. Yet these sturdy Russians might well lose all that they had achieved, as their forests burned, as drought parched their farmland, as their great rivers became ditches of mud, as famine once more heaped piles of skeletal bodies in the streets. Or, as war once again came crashing across their borders.

They might survive a drought. They might, just barely, survive another war. But drought and war together? That would be the end of his brave and beautiful Russia.

This oil, which seemed to poison not only the atmosphere with its filth, and the oceans with its heat, but also the spirit of people in the modern world who accepted their defeat with barely a whimper. . . this oil was a curse which they cast upon themselves. And the only way to break that curse was simply to turn their backs on the oil . . . and to move together in an entirely new direction.

Had the generation yet been born which believed in itself, and the future that it could build?

Peter had founded the first of Russia's universities in 1724, on the banks of Vasilyevsky Island, facing the broad Neva River. The stately buildings of various colors today housed a multitude of departments, including the School of Law. Perhaps the time had come for students of law to look with fresh eyes upon this oil with all of its inherent evils. As slavery had been abolished, and murder much restrained, so should further profits from oil be strictly curtailed.

And students in the School of Economics, might they not look with fresh eyes at this utterly unnecessary commodity which warped the world's economy, forcing millions to live at the edge of poverty, while a few unfettered criminals grew increasingly rich?

And students in the School of Engineering, might they not launch a desperately needed Renaissance by harnessing the sun and the wind? Might they not reach out to students around the world, as Ben had suggested, weaving universities together, as they wove an entire global generation together, so that challenges on a planetary scale could be addressed by solutions on a planetary scale? Would that not be worthy of the brave and beautiful people of his Russia, land of heroes?

Yes, and the School of Education, the School of Literature, the School of Music, and most certainly the School of Medicine, might they not all have a role in

freeing the people from the shackles of the 20th century, and opening the doors to the blossoming of peace in the 21st?

As Peter walked on his long legs among the vibrant people of Saint Petersburg on their Victory Day, he decided that he would spend the summer knocking on doors at the University of Saint Petersburg. He would speak in the classrooms. He would invite the students on warm summer days to gather outside along the embankment, so they could gaze out at the river, where a breeze scattered sparkles of sunshine on the Neva.

Yes, and he would find a frigate, with sails like wings in the blue sky, so that he could take his students out to the fresh winds and rolling waves of the invigorating sea.

Ah. This was going to be magnificent summer.

And a most revolutionary September.

Chapter Ten

Ben sat on a bench in the park behind Independence Hall, where, in the shade of the oak trees back during that hot summer of 1787, he and the other delegates who were writing the new Constitution could breathe a bit of fresh air . . . and talk with each other in private—apart from the full convention in the Assembly Room—about the various components of this unprecedented document.

He had been reading a newspaper—for years he had been the editor of the *Pennsylvania Gazette*, and thus today he had bought for himself a modern newspaper at a nearby newsstand—but the light in the sky on this evening of mid-May was fading, so he folded the newspaper and laid it on the bench beside him.

What he had read about the present President and his administration had made him more than angry. He was outraged. How was it possible that the country had come to this?

Ben looked at the rear façade of the large, red-brick building with its tall windows and stately clock tower. He remembered that day in September of 1787, when, after four months of contentious work inside Independence Hall, he and the other delegates had finally emerged with a completed Constitution. They had discussed and debated during those warm months of summer with the windows closed, so that not a word of their deliberations might be heard outside. Not a single delegate had spoken to anyone during the evenings when they returned to their lodgings, for they had sworn an oath of silence. Thus, on that afternoon of September 17, when the delegates emerged from the big white front door, a local reporter was waiting most eagerly for the first news.

The reported asked Dr. Franklin, "What have you wrought?" Or, in modern parlance, "What have you created?"

Ben had answered, "A republic, if you can keep it."

But now he understood, after reading the astonishing and disheartening articles in this newspaper, that not only was some bombastic fool destroying the republic, but that sixty-three million Americans had voted for him so that he could do it.

One particular article especially disturbed Doctor Franklin, who had been perhaps—he would not boast—the greatest American scientist of his age. So many citizens of this modern America now scorned the importance of science, that they had elected a wealthy man of little learning, who had embarked on a program of tearing down the nation's scientific institutions. One of them was the Environmental

Protection Agency, which had struggled for decades to clean up the nation's pollution, and to tackle the great challenges of global warming. But now—Ben seethed with outrage—this fool who had become President was casting aside the evidence gathered by thousands of scientists around the world . . . and instead gave his support to the oil companies who wanted to drill for more oil!

He remembered Trude's firm voice as she had told them on the ship, "The most important event in your life today . . . is the melting of the polar ice cap."

What republic could ever survive the forces of such stupidity and greed?

Two familiar figures now approached him, a couple whose lifelong love for each other he had always envied. Ben stood up and offered his hand of welcome first to Abigail Adams, and then to John. "I am so glad to see you. You're looking well, both of you."

"Most wonderful Ben," said Abigail with her bright smile, "are you still taming the bolts of lightning?"

"Ha!" he laughed with disgust. "I would like to send a bolt of lightning straight into the skull of this . . ." he pointed at the newspaper and struggled to be polite, "imposture of a President."

"Quite right," said John, shaking his head sadly. "The election, of course, was a complete sham. In our day, we struggled with such determination to cast off the influence of the wealthy aristocracy in London, but now they have put back into power those very same unscrupulous thieves."

"What," asked Ben, "could possibly have led them this far astray?"

A voice called from an approaching figure, "I will tell you. The forces of ignorance have led these good people to their present catastrophe." Ben recognized his old friend Tom Jefferson, tall and slender, walking toward them with his easy gait.

They shook hands all around—Tom bowed gallantly to Abigail as he shook her hand—then Tom continued, "From what I have observed in the past few days, the schools of America are in a woeful state. Yes, the teachers do their valiant best, but the curriculum is appallingly outdated. Worse, most of the students have no sense of purpose. *Purpose!* Was there any man or woman in America in 1776 without a purpose? We all had our life's work laid out for us. And we did it, diligently, and with great fervor. Because we *believed* in our cause, and gave our lives to it."

Ben remembered back to when the five of them, himself with John and Tom—as well as Robert Livingston and Roger Sherman—had been chosen by the delegates

of the Second Continental Congress, here in this same Independence Hall during the summer of 1776, to write a document declaring the multitude of reasons why the thirteen colonies were determined to break away from Great Britain. Tom, both a man of extensive learning and a felicitous writer, was given the job of writing the draft of the Declaration. Ben and John later offered their small bits of editing.

Yes, the delegates to that convention, many of whom were lawyers, could write a well deliberated document, but it was Tom Jefferson who dipped his quill into an inkpot in which the ink was infused with something from the divine Creator himself.

"I must say," said John, "that this gathering today in Philadelphia was most unexpected. I do hope that the others are coming as well."

"Have you seen your cousin Samuel?" asked Ben.

"Oh, he'll be here," laughed John. "If there's a rabble to be roused, he'll be here."

"I certainly hope," said Abigail, "that Martha will be coming with her George."

Ben reassured her, "Martha was with her George in the encampment through all eight winters of the war. She brought the General great comfort. I am quite sure that if the Commander-in-Chief joins us this evening, she will be at his side."

"Hallooo!" called the voice of another figure who approached in the fading light of dusk.

Ben recognized the bright and brash Hamilton, the financial genius who had created the nation's first bank, and yet the man with so many flaws in his personal life. He called back, "Alexander, welcome, welcome. It seems that the nation's finances are a bit out of skew, and could use your guiding hand."

"Out of skew!" snapped Hamilton with scorn, though he most cordially shook hands all around. "Even the king and his ministers would laugh at this paltry crew. The present President and his gang of rogues see but one corner of the economic tapestry: their own deep pockets. Beyond that, they lack not only skill, but any shred of honesty. A most unseemly batch of blackguards, they are. I'd love to have a go at the fat bald one who wears a wig. *There* would be a rolicksome debate."

Ben looked around the wooded park, where a growing number of figures—old friends from Rhode Island, Connecticut, Massachusetts and New Hampshire in the north; New York, New Jersey, Delaware, Maryland, and his own Pennsylvania in the middle; and Virginia, North Carolina, South Carolina, and distant Georgia in the south—came walking toward him from all corners of the park. Many of them, Ben

was gratified to see, had brought their wives. Yes, if Trude could stand on the deck of a research ship as one of the highly trained scientists, then certainly this evening, the wisdom of the women, which had been neglected in 1776, and again in 1787, would be now be fully recognized.

When the thirty-nine delegates had assembled in front of the bench on which Ben's folded newspaper still lay, James Madison, delegate from Virginia, accompanied by his wife Dolly, greeted the gathering, "Good evening, good evening! How deeply heartened I am to see you all upon this somber occasion, an occasion encumbered with many painful challenges." He paused for a moment while various delegates returned his greeting with their own "Good evening, sir."

Then he announced, "General Washington and his good wife Martha await us at the front door. We are to walk around the building," he gestured toward the right corner of Independence Hall—its red brick walls and clock tower were now lit by spotlights, though its windows were dark, for the tourists had gone home—"and then step through that same front door through which we entered and exited so many times before. Once we are all gathered within the Assembly Room, we shall be able, undisturbed, to take up once again the urgent issues of the day."

Ben looked up between the black leafy crowns of the oak trees and saw that the first stars had appeared in the night sky.

He pointed upward as he addressed the delegates, "Honored ladies and worthy gentlemen, the stars peer down as our witnesses tonight. The Creator himself, I am quite sure, peers down as well, to see whether we in our deliberations might take some bold step forward."

He paused, then he swept his arm with invitation, "We must not keep our General and his good wife waiting."

As Ben led the procession of delegates around the building's front corner, he spotted two familiar figures standing near the front door: one of them was tall, with a dignified bearing unmatched by any other delegate here tonight, while the other was much shorter, though she too stood with a firm bearing. Behind them towered a bronze sculpture of General Washington on a stone pedestal.

Perhaps that was the problem, thought Ben. These moderns were left with a sculpture and a building, whereas that early spirit—that belief in their bold enterprise, that belief in *themselves*—was today far less evident in the general population than in the time when every farmer, every merchant, every blacksmith and barrel maker, as

well as every farm wife and village wife and mistress of her city home, knew in their beating hearts that they would *demand* their independence, and their liberty, and their chance for themselves and their neighbors to build a far better world.

"General Washington," called Ben, "and your dear Martha. Good evening to you!"

The General, who rarely showed his sentiments, now broadly smiled as he held out his hands to the approaching assemblage. "My hearty good evening to you all!"

Martha called with delight, "Good evening to such good friends!"

General Washington gestured toward the large white door. "Our chairs, I believe, are waiting for us."

But now a policeman in a blue uniform stepped in front of the door. He stated with great authority, "This facility is closed. The Independence National Historical Park tours begin tomorrow morning at nine a.m. You can purchase your tickets at the Welcome Center." He pointed toward a building on the other side of Chestnut Avenue.

Then he stood, firmly blocking our way, with his hand on some piece of equipment fastened to his belt.

General Washington stepped forward. "Sir, our country now finds itself in a crisis which grows more dire by the day. We have come, in these unprecedented times, to see if we might find our way toward some revolutionary new way of thinking. We have, you see, some experience in these matters."

The policeman regarded General Washington with suspicion. "Revolutionary, you say?"

"Perhaps you have children, who will one day want their own children."

"Yes, and what about that?"

"I come here tonight," said the General, and then I heard him use a phrase which he had often used during those difficult years long ago, "on behalf of the unborn millions. Their cause is equal to our own."

As the policeman looked into our faces, something seemed to stir within him. He took from his belt a ring of keys, found one particular key, set it into the lock and turned it. He gripped the door's handle, put his thumb on the latch . . . and the two large white doors swung open into a dark hallway.

He stepped inside and switched on the lights.

When he returned to the doorway, he said with a slight bow, "Welcome."

And then he stepped aside.

"Thank you, sir," said the General. Then he swept his arm, and bade John and Abigail Adams to be the first to enter.

The clock high above them tolled nine times as they climbed the steps, passed through the door and walked a short distance along the hallway, then turned left and passed through another door into the Assembly Room, which seemed to welcome them as old friends. Yes, there were the round-backed chairs, the tables with their green tablecloths, the tall white candles in their brass candlesticks, the quills and paper ready for their use . . . even the green curtains on the windows.

And there at the front of the room, elevated on a platform above the main floor, stood the broad desk where General Washington—his labors completed on the bloody battleground of war—had once presided, facing the Congress Assembled, as they deliberated the workings of our Constitution.

Behind that broad desk, covered like the tables with a green tablecloth, stood the chair where General Washington had sat during those four arduous months in 1787, saying little, but guiding the delegates with his stern dignity. On the back of that chair, atop the elegant woodwork, was the carved upper half of the sun, with beams radiating above it. The lower half of the sun was hidden beneath the horizon. After the Constitution had been signed—after the great work of argument and counter-argument had been completed—Ben had commented for all to hear that he had many times regarded that sun during the deliberations, wondering whether it was a rising sun, or a setting sun. He declared, now that the Constitution which would guide the unprecedented Republic into the years ahead had become a living document, that the sun was most certainly rising.

The delegates, men and women both, spread themselves throughout the room—there were chairs enough for everyone—while General Washington took his seat behind the desk at the front. He gestured to a seat in the front row and said, "Patsy," as he called his wife, "we welcome your thoughts this evening."

Ben sat in his wonted seat in the front row, a place of honor because of his age, though this evening he suffered no pain from bladder stones, nor fatigue from his eighty-one years. Quite the contrary, he felt himself in the springtime of his youthful vigor.

"Gentlemen," called a voice from across the room—it was Tom Jefferson, delegate from Virginia—"I make a motion that we light the candles, for they quite well illuminated our proceedings during those many nights when we worked late."

And so, finding boxes of matches beside the candlesticks, they lit all the candles around the room—two to a table and some more along the sides—and felt a deep gladness in their hearts at their glow. Someone found the modern light switch and turned off the electric lights. Several other delegates lowered the green curtains and thus covered the three large windows on the right and left sides of the room, so that the city lights outside would not intrude upon their proceedings.

They sat for a prolonged moment of silence in the beneficent glow of their candles, while each woman and man in the room thought quietly—and perhaps said a prayer—about the great work upon which they were about to embark. For they now, as they had once done over two centuries ago, would design a new and unprecedented nation, in which modern people in their modern times would be able to flourish.

They opened the discussion with comments from around the room—some of them most heated—regarding all that they found to be *wrong* about America today. Economic policies utterly blind to the desperate needs of people struggling to earn a living. An educational system which barely addressed the urgent challenges in the world today. A political system which failed to represent the common people, but which instead had become a most corrupt system controlled by powerful corporations, whose minions in Congress passed whatever legislation most suited their wealthy overseers. From any of a dozen viewpoints, democracy had become a sham.

It was in the midst of this seemingly endless barrage of complaints, that they heard a loud knock on the front door. General Washington stared in that direction with a look of impatience. Had the policeman come back? Had their meeting run on too long?

James Madison, delegate from Virginia—and the political sage who had written the first draft of a constitution which had served as the admirable foundation for the final document—rose from his chair and exited the room. They could hear his voice, down the dark hallway to the right, where he now stood at the closed door, as he asked, “Who is it?”

Now they heard a voice from outside the door, a bit muffled but nevertheless both vibrant and firm, “Four score and seven years ago, our fathers brought forth on this continent, a new nation, conceived in Liberty, and dedicated to the proposition that all men are created equal.”

They all knew, every woman and man in the Assembly Room, despite the three-quarters of a century which had divided them, that Abraham Lincoln now stood at the door to Independence Hall.

And then we heard a second voice, which called to us with deep resonance, "I have a dream that my four little children will one day live in a nation where they will not be judged by the color of their skin but by the content of their character."

They knew—some of them for a moment even stopped breathing—that Martin Luther King was standing at the door to Independence Hall.

And now they heard a third voice, speaking English with a heavy accent, "I am Tatanka Yotanka, or as you call me, Sitting Bull, of the Hunkpapa Lokata people. I will say to you tonight, as I tried to say to you many years ago, when your ears were deaf . . ." He paused, and then they heard an ancient voice speaking from the plains of an ancient America, "Let us put our minds together and see what life we can make for our children."

Ben had read in the newspaper that day an article about Native Americans in the state of North Dakota—yes, he remembered that they were Lakota people—who had protested against an oil pipeline that some corporation wanted to lay across their land. The oil company wanted to dig a tunnel beneath a river, then run a pipeline through that tunnel to the other side. The Native Americans were afraid that the pipeline might leak—as other pipelines had leaked in so many other places around America—and thus they and other tribes had gathered in peaceful protest.

Ben had stared at the picture in the newspaper of the police who confronted the protestors with guns and dogs and giant military vehicles. Another picture showed large clouds of something called "tear gas", which poisoned people's eyes and lungs.

He knew, of course, what first the Europeans, and then the settlers heading west, had done to the Indians. That was bad enough. But that such savagery continued in America today!

The third voice now stated with vehement clarity, "Let me remind you, that all three of us were assassinated."

General Washington stood up from his chair and called, "Let them in. Beckon them in. *Welcome* them in."

Tom Jefferson was on his feet as well. For though these new guests were from a time much later than his own epoch, he understood—as if he had read about them in a book, or as if the Creator himself had somehow bestowed upon the minds of the delegates an understanding of what was both in the future and in the past—yes, he

understood who they were, and how they might contribute to the deliberations this evening . . . about the soul of America.

Jefferson strode toward the door of the Assembly Room. He who had understood in his time, perhaps better than most—as a southern gentleman who had owned slaves on his plantation—the injustices which he had perpetrated, now reached his hand to the tall, gaunt figure who, in 1863, with his Emancipation Proclamation, had finally freed the slaves . . . and thus amended the most glaring failure of the Constitution. "Sir, we are deeply honored by your presence here this evening."

Lincoln recognized Jefferson from the pictures in his boyhood books. "The honor," he said, "is distinctly mine."

Dolly Madison stood up and called with her gracious voice, "Please, Mr. Lincoln, come take a chair beside Tom Jefferson's chair, here in the front row."

Abraham Lincoln, sixteenth president of the United States, the man who had kept those states united, walked into the room toward the chair which awaited him.

Jefferson, who as the third president of the United States had sent Lewis and Clark on their expedition to explore the American West, now reached his hand toward an American far more native than he, even as a Founding Father, could ever be. "Sir, our ears are no longer deaf. Our hearts are no longer hard. We welcome you, and promise that we shall listen with open minds to the wisdom which your bring."

Sitting Bull reached his hand and shook with a firm grip the hand of the Great White Father who had penned the words, "All men are created equal." Sitting Bull held Jefferson's hand, held it for a long moment, while he stared deep into Jefferson's eyes, wanting to know—as Jefferson understood—whether or not he could trust him.

Jefferson told him, "You have my promise, sir, my *oath,* as the son of our shared Creator, that your people shall now live where justice dwells upon the land."

Sitting Bull squeezed Jefferson's hand with the grip of a warrior who had defended his people to the end. "Then let us share with the land herself . . . her full measure of justice. For she, like my people, has been severely wounded."

Now General Washington, a warrior who had led his people through eight and a half years of brutal war, called to Sitting Bull, "Please, sir, will you come sit beside Doctor Franklin, here in the front row. I think that you will find him a most cordial companion."

Sitting Bull, with an eagle feather in his hair, walked into the room toward the chair which awaited him.

Jefferson now reached his hand toward a young man whose face was not as etched with cares and hardships . . . as the faces of the other two guests. He was only thirty-eight years old, and though he was most probably the son of the son of the son of a slave, he smiled the broad, warm smile of someone still in his youth.

"Sir," said Jefferson, "we are in great need of the man who led the marches through the streets of modern America."

"Yes," said Martin, "for I hear that those streets are filled, even today, with the strife which we labored so hard to overcome half a century ago."

Samuel Adams, who in his time had walked the streets of Boston, and who had spoken upon many occasions from the pulpit of the Old South Meeting House—as he organized his people into a body of citizens who demanded justice from those who oppressed them—now stood up and called to the man who had spoken from so many pulpits in America, "Please, sir, I would be most honored if you would sit beside me."

Martin, who had spoken again and again about the sacred Constitution which guaranteed his people their rights, now walked into the room filled with the people who had written that Constitution, and made his way toward the chair which awaited him.

The delegates now took up the subject which had plagued America from its earliest days: racism. The first settlers had felt little hesitation in aiming their muskets at the savages who occupied the fertile land. And later, especially in the southern colonies, landowners had felt little hesitation as they bought and sold Africans whom they viewed as mere chattel, and then applied the whip to make them work.

With astonishing tenacity, these racist attitudes continued today in America, where, as Ben pointed out, police with military weapons could fire upon the unarmed "water protectors" at Standing Rock. Sitting Bull rose from his chair beside Ben and addressed the delegates, so that every man and woman in the room understood that Standing Rock was on the sacred land of the Dakota peoples. "The battle which the Americans fight against us today is the *same* battle which they fought against us seven generations ago. Their hatred toward us has never diminished."

The room was silent. The delegates had listened to Sitting Bull with ears that were no longer deaf.

When General Washington asked Martin if he would like to address the delegates, Martin stood up from his chair beside Tom Jefferson, but for a long

moment he was unable to speak. His face, that young, handsome face, was gripped by anguish and sorrow and bafflement.

Finally he said, "Did we boycott the buses in Montgomery in 1955, and did we march in the streets of Birmingham, where dogs attacked us, in 1963, and did we march across the Edmund Pettus Bridge in Selma in 1965, so that today the police can pull over a black driver on a traffic violation and shoot him dead? Did we ride the Greyhound buses, and sit at lunch counters, and register people to vote, so that today one of every three young black men spends time in our nation's prisons? Did we abide by the laws of nonviolence, despite the savage attacks of Klansmen with their baseball bats during the day and their rifles in the darkness of night, so that our black men and women could be sent off to fight in yet another war in yet another country, where the people had never, never, *never* done America any harm?"

He paused for a long moment, and then his resonant voice reached out with even greater vehemence, "Did we gather in Washington in August of 1963, in front of the monumental sculpture of," Martin gestured toward Lincoln, "the Great Liberator who freed us from our chains . . . so that one hundred years later, and now over half a century after that historic day, our children are *still* educated in second-rate schools? Our children still grow up on streets where gunfire is more common than the singing of birds. Our children face a job market which pays a wage that no family can live on. Our children watched the nation's first black President as he struggled for eight years to surmount the roadblocks and barriers which Congress put in his way, no matter what he tried to do. Yes, our children watch the world around them very carefully, and as their hope ebbs away, their anger becomes more fierce."

Abraham Lincoln now stood up and walked over to Martin. The lawyer said to the minister, "I fear God's wrath. For surely, he cannot much longer countenance the evil which they *refuse* to quell within their hearts."

Then Lincoln turned to the delegates, and they saw the aching sadness, and the exhaustion, in his eyes. "When I, as Commander-in-Chief," he turned and nodded to General Washington, "sent young men into battle, knowing that a certain number would surely die before the sun had set that day, I did so in the belief that we were ridding the nation of that pestilence called slavery. I believed, earnestly believed, that with the long sought-after peace . . . might come a deeper sense of brotherhood. If one man no longer owned another, but worked alongside him, might they not come to better know each other? Might they not even find some measure of friendship?

Might they not . . . enable America to live up to her promise that," Lincoln gestured toward Jefferson, "'All men are created equal.'"

He shook his head, and now they witnessed the grief in that weathered face. "But," he said, barely able to speak, "I was not allowed to bind up the nation's wounds. My time was cut short, and men of little vision took up the reins of our country. This tragedy, I see, lays its pall upon us today. We are still far, so incomprehensibly far, from binding up the wounds. And thus we create new wounds, inflicted every day upon our children. Upon our children. Yes, I am certain, that we must all fear God's wrath. For surely he will not abide this evil much longer."

Abraham Lincoln sat back down in his chair.

The room was silent.

The candles had burned more than half way down to the brass candlesticks.

"I would like," said General Washington, "to take up the subject of the incessant wars which modern America feels compelled to launch against its neighbors in the world."

He glared toward a curtained window, a window which faced south toward the park with its trees and benches, and far beyond that, toward the nation's capital which bore his name.

Then he addressed the delegates, "I refer to the war which America launched against the people of a small, humble country called Viet Nam. Suddenly, in the spring of 1965, giant planes began to drop bombs on farmers who were plowing their rice paddies with water buffaloes. To my knowledge, and I have read deeply into this matter, not a single person from Viet Nam had ever so much as cast a stone at any citizen of America."

He thumped his fist on the desk in front of him, jolting the candlestick; the orange flame wavered. "And then during the 1980s, another president, another," he spat the words, "Commander-in-Chief, launched our forces against the people of a small country far to the south of us. To my knowledge, and I have read deeply into this matter, not a single person from Nicaragua ever so much as cast a pebble at any citizen of America."

General Washington stood up from his chair and walked around his desk so that he could stand at the edge of the platform as he addressed the delegates. "And then in March of 2003, perhaps the most monumentally unqualified Commander-in-Chief in the history of our nation launched an attack with missiles so powerful, that they could

reduce a city the size of Philadelphia to mere rubble. To my knowledge, and I have read deeply into this matter, not a single person from Baghdad ever so much as cast an angry glance at any citizen of America. The boy, the cocky little boy, had to have his war. The utterly unnecessary war in Afghanistan was going so poorly . . . that he would have another try in Iraq."

The General clenched his fist. "I would like to meet these three Presidents who considered themselves to be some sort of Commander-in-Chief. I would like to have a good long talk with them. I would like to know whether they have even the slightest understanding of what," he nearly shouted the word, "*America* . . . stands for in the long history of human progress."

He looked down at his wife Patsy, who had left their comfortable home in Virginia to be with him at headquarters during each of the eight winters of the war. She nodded to him with encouragement.

Then he scanned the faces of the delegates, who had helped him in this very room to craft a new sort of nation, based on the simple principle, "We the People."

"I have read," he told them, "that the cocky little boy had a nickname among his buddies. They called him 'Dubyah', after the W which represented his middle name. Well, perhaps they were right. Because that Dubyah, in my estimation, stands for War Criminal."

The General returned to his chair, where he sat and glowered with outrage, then he thumped his fist with all of his strength, nearly toppling the candle. "War Criminal!"

The room was silent.

The candles burned, lighting the somber faces of the delegates as they saw ever more deeply into the nature of their task.

Ben now tried to take up the subject of global warming, and the need for new programs in the schools, but he was met by a loud guffaw from Roger Sherman, delegate from Connecticut. "Global warming! During the last presidential campaign, the two candidates never even mentioned global warming in their debates. The only candidate who referred again and again to global warming and climate change was the supremely qualified candidate from Vermont, Bernie Sanders. But of course, he was never allowed to participate in the debates. The one thing those two hooligans agreed on was that Bernie could have beaten them both."

"Yes, and as far as 'new programs in the schools,'" declared William Blount, delegate from North Carolina, "there are multitudes of schools that will prohibit even

the mention of 'climate change' in their classrooms. Drought will parch the land, and storms will flood entire cities along the seacoast, before our schools finally emerge from the dark ages of denial."

Ben, who had written countless articles in his newspapers to enlighten the minds of the common people—the congenial wisdom in Poor Richard's Almanack had reached thousands of his countrymen—now slumped in his chair. "People back then were willing to learn," he said. "If they could understand the principles of British taxation, they would surely have tackled the challenges of global warming. But today . . . folks don't seem to have the spirit anymore."

The candles had burned low, and the spirits of the weary delegates—who had once in this room debated with each other with such vigor, and learned from each other with such earnestness, and who had thus crafted the complex architecture of an entirely new nation—yes, their spirits had ebbed as well to an unprecedented low.

"I'll tell you what I think of democracy in today's America," said Nicholas Gilman, delegate from New Hampshire. He leaned forward from his chair and blew out his candle. "Dark times ahead," he stated with conviction. "Dark times ahead."

The delegates, stunned, looked first at the wisp of smoke that rose from the stub of a candle, and then at each other. Was he right?

Jared Ingersoll, delegate from Pennsylvania, leaned forward and blew out his candle.

John Dickinson, delegate from Delaware, leaned forward and blew out his candle.

Abraham Baldwin, delegate from Georgia, leaned forward and blew out his candle.

General Washington stirred in his seat. The delegates watched with grim apprehension. Would the nation's first President blow out the twin candles on his desk? If so, what darkness would fall like a funeral shroud over the nation which they had created and nurtured with such care?

And then . . . they heard a loud knock on the door.

It was Abigail who stood up. She beckoned with her hand to her husband's cousin, Samuel. "Shall we go together?" she asked him.

Abigail had written a letter to her husband, dated March 31, 1776, which she posted from Quincy, Massachusetts to Philadelphia. John, as a member of the

Continental Congress, was working with the other delegates on a document which would declare their independence from Great Britain. Equally important, they were at the same time designing a new code of laws for the soon-to-be-born nation. Knowing that John was engaged in these two momentous undertakings, Abigail had written in her letter:

"I long to hear that you have declared an independency. And, by the way, in the new code of laws which I suppose it will be necessary for you to make, I desire you would **remember the ladies** and be more generous and favorable to them than your ancestors. Do not put such unlimited power into the hands of the husbands. Remember, all men would be tyrants if they could. If particular care and attention is not paid to the ladies, **we are determined to foment a rebellion**, and will not hold ourselves bound by any laws in which we have no voice or representation."

Now, as she stood beside her chair in the front row of the Assembly Room, not far from General Washington's desk, she knew that her time had come.

Samuel stood up from his chair. Way back before the first shot at Lexington in April of 1775, he had talked with the young men on the docks of Boston about the injustice of the British taxation . . . without their proper representation in Parliament. Few had listened to him at first, but during the tumultuous decade leading up to the outbreak of war, he had never given up trying to teach the young men that they were not slaves, but citizens. He believed in those young people, believed that they could run their own country, without "help" from the leeches in London who were sucking them dry.

Samuel crossed the front of the room to Abigail, who looked at him with gratitude in her eyes. They would answer the knock on the door together.

The delegates watched them leave the room, then they heard the click of the latch. "Well," said Abigail with surprise in her voice, "we had no idea that you were coming. But of course we should have known."

Moments later, she and Samuel led a procession of young people—of every possible ethnic background—into the Assembly Room. They were invited—all fifty of them, young women and young men, some of them in their early twenties, some of them teenagers and even younger—to stand across the front of the room, flanking General Washington's desk. With confidence, with poise, they now faced the delegates. Some of them wore blue jeans; the delegates wore knee breeches. Some

of them wore formal suits and dresses; others wore brightly colored t-shirts and shorts. One young woman wore an eagle feather in her hair.

A boy stepped forward. He was African-American, perhaps ten years old. He told the delegates, "I am from Flint, Michigan, where they have poisoned our water. I want to become a doctor in the field of community health."

A girl stepped forward. She was Latino, perhaps sixteen years old. "Ten years ago, my father was killed in Iraq. I want to know why."

A young man stepped forward. With his bushy red hair, he was perhaps of Irish descent. "I come from a farm in Nebraska where we harvest the alfalfa with our combines . . . and where we harvest the wind with our turbines. I want to become a clean energy engineer."

A young woman stepped forward. She gestured with her hand, and fifteen others stepped forward. "We want to go to college, but we cannot possibly afford the tuition."

A boy stepped forward. "My father is in prison, and I want to know why."

The young woman who wore an eagle feather in her hair stepped forward, bowed with deep gratitude to Sitting Bull, then asked her colleagues at the front of the room, "How many of you want to become lawyers in the field of human rights?"

At least a dozen raised their hands.

Samuel Adams, meanwhile, had located a large number of folding chairs at the back of the room. He also found a box which contained, as he discovered when he opened it, a supply of fresh candles.

As the young delegates unfolded their chairs and sat with their older colleagues at the various tables, General Washington stepped down from the platform and said to his wife, "Patsy, please join me at my desk. You must see this gathering as I see it. For here is truly a moment in history."

He carried her chair to the raised platform and set it beside his own chair behind the desk, then the two sat together, watching as the new candles were lit from the old stubs, then inserted into the candlesticks. The two eagle feathers came together as the young daughter provided the honored father with a fresh candle.

A girl with blue eyes and braided hair brought a fresh candle for Martha.

A boy with dark eyes and an African necklace brought a fresh candle for General Washington.

When all were seated, and the room glowed with fresh candle light, the General stood and declared with solemn dignity, “The Constitutional Congress is now in session. We shall turn our attention to the Bill of Rights.”

He paused, savoring the moment, and then he asked, “Good people of America, do you have any suggestions?”

Fifty hands went up.

And so in that room quickened a new spirit, which would take the country into an entirely new epoch, fulfilling the promises made long ago.

Chapter Eleven

He first appeared standing on a sidewalk in a crowd of people who were watching . . . he knew immediately that the children walking in front of him were marching in a 17th of May parade. Most of the girls and some of the boys wore their traditional Norwegian outfits, and many were waving bright flags in the sunshine. Right behind them followed a school band with a large drum beating, "Thump! Thump! Thump!"

Looking around, he saw that he stood on Karl Johan Boulevard, in front of the Grand Hotel, with the Storting to his left, and to the right . . . the front of the long parade was just reaching the Royal Palace.

He could have whooped with joy to find himself here, in modern Norway, on the day when Norwegians both celebrated the signing of their Constitution in 1814, and honored their children. No soldiers with rifles marched in this parade. On the Seventeenth of May, when the daffodils were blossoming in southern Norway, and the first pale green buds of leaves—"mouse ears"— appeared on the birches in northern Norway, the children—jubilant children filled with springtime joy—paraded through the streets of every city and town and tiny village, from the seaports along the southern coast to the snow-clad tundra far above the Arctic Circle. Today, Norway honored her children.

He remembered how homesick he had been on the *Fram* when they were frozen in the ice in 1894, on that day of great celebration back home. He and his crew of twelve had arranged their own parade, with flags and banners and music as they marched on the ragged ice around the ship, shouting "Hurrah!" and firing a cannon from the deck. The dogs ran along with them, and Nansen, ever the photographer, had taken a picture.

He wondered for a moment why he had somehow been transported from the research ship in the Arctic to this festive day in Oslo, when a woman wearing a *bunad*—she was clearly a teacher marching with a group of children—touched his arm and said, "Professor Nansen, come march with us. Let the children see you."

Let the children see me? He did not want to give any speeches. He did not want to be the center of attention.

But as he stepped now from the curb into the group of ten-year-olds, he saw that no one was going to make any fuss over him. One little girl looked up at him with curiosity—he remembered his daughter Liv at that age—then she hooked her arm

around the arm of the girl beside her—a girl with dark skin, clearly from some other country—and the two walked together proudly waving their small red, blue and white flags.

Not far behind him, a band was playing a piece by Grieg; the trumpets were especially vibrant. He had met Grieg soon after he had returned from the polar expedition. Nansen had given a speech at a banquet in Bergen . . . And then that thought vanished from his mind. He was with the children, Norwegian children like those he had known in his own time, as well as an abundant mixture of children who seemed to be from many other countries, and he was—he did not know why he had been given this gift—so profoundly happy.

As the *Fram*, frozen in the ice north of Siberia, had drifted with the ice from east to west, proving his theory, so he now slowly walked inside this long parade of children, letting them take him along from east to west, toward the stately yellow Palace on the crest of the hill. He wished for a moment that Eva were with him, and that his own five children were with them, but . . . that thought vanished from his mind and he was simply walking, walking, walking with the children of Norway.

They passed the University on the right, where he had spoken in the Aula about the great issues of his day. Then they crossed Frederiks gate, and now the road entered the park that wrapped around the palace. The crowns of the great trees were pale green with their springtime foliage. Oh, how his heart had ached in that desert of ice far to the north for the luxurious green of May back home in Norway. He spotted patches of color in the park's gardens, daffodils and violets, and remembered the flowers that Eva had planted around their home.

The road was rising gently now, and he could clearly see ahead, on the Palace balcony, four figures waving down to the children below. The children were waving up to their King and Queen, to their Prince and Princess. Was it . . . and then he understood, that the King waving down must be the son of Olav, who had been only two years old in 1905, when his father Haakon, Norway's new king, stepped off the ship in Oslo's harbor with his young son in his arm. Yes, the King today was the grandson of that King whom Nansen had worked so hard to bring from Denmark. There had been a referendum . . .

And then that thought vanished from his mind, as he savored the simple fact that Norway, sturdy independent Norway, was still flourishing on this bright sunny day of May in the modern world.

As the parade approached the Palace, it followed the right side of the large gravel triangle in front of the building, then it angled to the left so that it passed just in front of the balcony. Nansen felt someone taking hold of his hand. He looked down and saw a girl with blond braids who was looking up at her King. She apparently needed to hold onto the hand of an adult during this powerful moment in her childhood.

"What is your King's name?" he asked her.

"King Harald," she said, glancing at him. "And Queen Sonja."

He gave her hand a squeeze, then he too looked up.

While King Harald was waving to the children, he suddenly stared down at Nansen with recognition. For a moment, their eyes were locked.

Nansen waved as he called up, "I knew your grandfather."

The King called down with a smile, "You certainly did."

Gratitude. A moment of mutual gratitude.

And then the parade moved on toward the far corner of the triangle, and a road that led off into the park.

Nansen walked with the parade as it emerged from the park onto Ibsens gate. The procession turned to the left and marched as far as a roundabout, where it turned to the right and—just below a statue which he guessed, because it was so tall and thin, must be of King Haakon himself—now followed Haakon VIIs gate to a large open area beside the harbor. Nearby stood an immense red brick building with two square towers and a clock rising into the sunshine. He could hear bells chiming in one of the towers.

Someone was speaking to him, "Do you want to take the ferry out to the Fram Museum on Bygdøy?"

He looked and saw that it was the teacher who had invited him to join the parade.

"The Fram Museum?"

"You can visit your ship. The museum is open today." She pointed toward a pale brown ferry moored to the wharf. "They go every twenty minutes. You can't miss the museum, a tall A-frame right near the shore. Your ship is inside."

"I . . . I thank you," he said. She curtsied, delighted to have spoken with him, then she went off to take care of her children.

He was walking toward the ferry when he suddenly felt extremely tired. Looking around, he spotted a bench where he sat beside a couple who spoke some foreign language. Closing his eyes in the warm sunshine on his face, he marveled at the number of children in the parade who seemed to have come from other countries. They must be immigrants, perhaps refugees.

He thought for a moment of his work with so many refugees, stateless people struggling in an unfriendly world, whom he had helped with his Nansen Passport. And then that thought vanished from his mind, and he simply rested with his eyes closed in the sunshine, while the bright voices of children chirped around him.

* * * * * *

Now he found himself in a crowded, noisy place, where many people filled a narrow street flanked by large white tents with UNHCR printed in blue letters on their sides. The people were not Norwegians. Their faces were darker, their clothing was different. And . . . they were not going anywhere. They were not walking along Karl Johan with some destination in mind, but stood in clusters, some of them talking loudly, some just staring. The women especially, with a scarf over their head and a child in their arms, stared with a look of utter exhaustion.

He knew where he was; there could be no doubt, for he had been in so many refugee camps that he recognized the squalor, the dirt, the despair. The smell of strange food cooking, the smell of bad sanitation. The groups of children who stood waiting, watching, without even a ball to play with.

He looked up the narrow street, flanked on both sides by white tents as far as he could see. They were good tents—fairly large white boxes with a pointed roof—provided by some organization, some government, perhaps the UNHCR, whatever that was. But the street was at the bottom of a large ditch, with a tall stone wall rising above the tents on the right side, and a lower stone wall on the left; along the crest on the left, he could see modern homes. It struck him that these people were living at the bottom of a very long grave, where the world could not see them.

The sun shone down into the ditch from high in a clear blue sky; no doubt the people in their modern homes overlooking the camp were enjoying a lovely day. But down in the ditch, the air was stagnant, hot, dusty. The tents were blindingly white.

Yes, he knew the stink and the despair of refugee camps, and he marveled that they could exist in this modern world, a full century after he had struggled to help the

thousands of refugees after the cataclysm of World War One. Was there another war? Was it possible that a century after the horrors at the beginning of the twentieth century, the twenty-first was beginning with the same insanity?

He began to walk along the street that took him past endless tents crowded against each other. He nodded silently to people with white faces, brown faces, black faces, who barely noticed him. Laundry hung from a rope to dry in the sun. An old man in ragged clothes sat on a broken chair in the shade of a tent; when Nansen nodded to him—for he felt a closeness, a friendship, almost a kinship with these people—the old man's eyes brightened and he nodded back.

Nansen remembered the moment on the research ship when he had asked Trude—he had asked her without hiding his anger—why she had brought him back to see the melting ice, the warming Arctic, the changing Earth. Now he wondered why he had been brought back to see the anguish of yet another refugee camp. Hadn't he struggled enough in his own time, with all of the disasters which his own people had managed to create for themselves? Why did he need, once again, to walk this street through such an ugly, hidden, inhuman place?

And then . . . a young woman with blond hair stepped out of one of the tents into the street just ahead of him. She wore a yellow vest, with blue writing on it that said—in Norwegian!—*Dråpen i Havet.* Drop in the Ocean. Now she squinted in the bright sunlight as she looked at a group of children who came running toward her, calling, "Jette! Jette!"

A Norwegian name. When he had been a boy growing up in Oslo, he had known a girl in school named Jette.

She called to the children by name, laughing at their exuberance, and told them, in English, that lunch would be ready in—she looked at her watch—forty minutes. Now she knelt, the knee of her blue trousers on the dry dirt, and listened while each child told her about something from their small, troubled lives. She reassured them, kidded with them, gently touched their arms, their cheeks.

She stood up, telling them, "I've got to go get your lunch ready. You should be in line in half an hour."

She patted one boy on the top of his head, then, as if Nansen had spoken to her, had called to her—though he had not said a word—she turned in his direction and spotted him, five meters from where she stood.

"Professor Nansen," she said with a welcoming smile. She spoke in Norwegian, "Trude sent an email that you were coming. How wonderful to see you. Welcome to Souda."

She walked toward him and held out her hand.

If this, he thought, enormously heartened, is what Norwegian women have become today, then . . . "Yes, I am Nansen. I am very glad to meet you."

Her grip was firm and welcoming. "I am Jette, one of the Drops volunteering in Souda Camp. I've just been checking on a sick child." She nodded toward the tent from which she had emerged. "A Dutch physician from Doctors Without Borders will visit the family this afternoon."

"It seems that you are fairly well organized here."

"Well, we do our best. If the world would stop fighting," she hesitated, then she spat out the words, "their *fucking wars,* we could make a whole lot more progress with these poor people. All they want, most of them, is to go home."

They walked together along the crowded street that curved to the right, skirting the tall shaded wall of stone. Nansen asked, "Where are we? That wall looks to be the ruins of some old castle."

"Exactly right," said Jette. "We are in the old moat of Chios Castle, on the Greek island of Chios, in the Aegean Sea. The refugees cross the sea from Turkey to the Greek islands, hoping to make their way north toward some refuge in Europe. But the borders are closed, and our own sweet homeland had decided . . . Well, let's just say that nobody in the Storting is handing out any more Nansen Passports."

"Ah. I know the situation well. Better to let a million Russians starve, than to offer support to the Bolsheviks."

"Yes. This camp, you see," she waved with a smile to a family of shy parents and bright-faced children, "is full of terrorists."

He looked again at the tall stone wall of the ancient moat, in the shade to their right, and at the lower stone wall to the left, overgrown with trees, with homes along the upper edge. "How do the Greeks feel about their neighbors?"

"At first they were welcoming. They were *heroic*, down on the beaches all night, meeting the little rubber boats filled with desperate people who had crossed the sea from Turkey. The Greeks offered their homes, their food, their doctors, their schools. But the refugees kept coming, thousands of them, and the tourists—the lifeblood of the Greek economy—well, the tourists decided they didn't want a bunch of refugees disturbing their vacation. So they booked a flight to Spain instead, or to

Miami, those who could afford it. And then when the borders were shut during March of 2016, Greece was stuck with what is now over sixty thousand refugees, trapped in a country that does not want them."

She pointed toward the top of the moat wall. "One night, a gang of men suddenly began throwing stones from the top of the wall down onto the tents, while people were sleeping inside. The electricity was cut off, so the entire camp was dark, while rocks came crashing down through the tents onto," she gestured toward the people around them, "these *kids,* these *mothers,* these men who ask for nothing more than safety for their families and some sort of work. A dozen people ended up in a hospital. One man died from a rock that struck his head."

He could not believe it. A century later, a *century*, and people were still throwing rocks.

"And the rats," she said, disgusted. "At night, the rats come out. They creep around *in* the tents, looking for whatever scrap of food people might have. Even on Christmas, even on Easter, when the good people up north are saying their prayers in church, the rats are busy in Souda."

"But," he hesitated to ask—he did not want to hear, did not want to know—"are these refugees fleeing from a war?"

Now he saw in her eyes the anger, the outrage, that he had known himself a century ago.

"Which war do you want? The war in Syria? The war in Yemen? The war in South Sudan? The war in Iraq? The war in Afghanistan? Walk up and down the street and see how many wars you can tally on your list."

She pointed at a cluster of men talking quietly with each other. "The Kurds do not even have their own country, but they have their own war." She pointed at a boy carrying a heavy plastic jug of water. "The Palestinians do not have their own nation, but they have a war that goes on forever."

"And what is the cause of all these wars?"

"Ask them. Go from tent to tent and ask them. Some will say 'They took our land.' Some will say, 'This tribe is fighting that tribe.' Some will blame the war on a dictator who kills his own people. But *all* of them will tell you that the original cause—which has poisoned their countries and their cultures for a century—is oil."

She looked at him, a young woman of about twenty-five, who could easily have stayed in her safe Norway, but who chose to walk this long street at the bottom of a ditch—as if in some Underworld, some Hades—as she said with absolute conviction,

"Professor Nansen, on the day when we stop buying and selling oil, ninety percent of all of the wars in the world will come to a halt. When the boys are no longer able to earn a profit from their filthy, filthy oil, we will have peace on planet Earth. And all of these people," she swept her hand at the poorest of the poor ahead of her, "will go home and build schools and tuck their kids safely into bed at night."

Nansen, who had once thought in terms of oceanic currents, in terms of continental wars, in terms of an international organization which would strive to maintain peace in a troubled world, now once again saw the Big Picture. Oil in the Arctic, oil in the deserts of Arabia.

He stopped walking, turned and lifted his face to the sun shining down from high in the blue Greek sky. Closing his eyes, he could feel its warmth on his cheeks. He could not feel any wind in this stagnant ditch, but he could feel the sun.

"Jette," he said, looking at her now, "the answer is so simple. Invite the sun and the wind into the classrooms of the world, and we will have peace."

"Yes," she said, her eyes tired, her eyes hopeful, "I have thought about it a lot. When the day comes—and it will come, it will come—when we can rebuild the schools for these beautiful children, we must teach them how to create a completely new world. If they can all live together in this horrid camp, they can surely work together to harness the sun that shines every day on every kid on the planet."

Jette pointed at cluster of teenage girls, some wearing the traditional scarves and robes, some wearing bright dresses over a pair of dark trousers. "They are the ones I admire so much. They are the ones with the toughest job, but they are the ones who are going to change their world . . . forever."

Several of the girls waved at her. She smiled and waved back, then she led her guest over to them and introduced Professor Nansen to each one of them. She knew them all by name. Clearly they liked her, and trusted her. And they were glad to meet her friend. Each girl, even one with eyes peering out over the black veil which covered her face, reached out and gently shook his hand.

"The day will come," said Jette, "when we together will rebuild the University of Aleppo. These brave young women will surely invite the sun and the wind into the classroom. They will become engineers, economists, doctors, teachers, and poets. Yes, but they will also become," she looked at them with admiration, "architects of peace."

"InShaAllah," said several of the girls together. "If God is willing."

"Oh, he is willing, he is willing," said Jette. "Just give these strong young women a chance."

Then she looked at her watch and told them, "Lunch in twenty minutes."

"Shukran!" they said. Thank you. "We will be there."

As Jette and Doctor Nansen continued walking along the street through Souda Camp, he wondered, as he had wondered on the research ship in the Arctic, if he was here as a witness to a cataclysmic ending, or to an unprecedented beginning.

And then, unexpectedly, the Drops invited him to become his old self again. At the end of the street, they came to an open area beneath the castle wall where a half-dozen people wearing the *Dråpen i Havet* yellow vest were standing behind a long table with a canopy over it, getting ready to serve lunch to the people patiently waiting in a long line. "Breakfast, lunch and dinner," said Jette. "Over a thousand meals, three times a day."

She pointed out other small buildings in the clearing. "That's our warehouse, with clothing and shoes for distribution. That one is a sanctuary for mothers with small children. And that one is a school, with a growing number of books. We do our best, though we never know from day to day when the Greek authorities might throw us out completely."

Yes, he thought, the authorities. The Bolsheviks, the Labor Party, the right wing, the left wing. All those wonderful people.

Jette introduced Professor Nansen to her fellow Drops, who waved to him across the table with plastic gloves on their hands. Then she led him around the table and, much to his surprise, handed him a yellow vest. "If you don't mind, you're in charge of handing out cartons of orange juice. The juice is absolutely fresh, from the trees right here on Chios."

And so, wearing his yellow vest, he stood beside Jens, a pensioner from Lillehammer who was getting ready to hand out sandwiches with freshly baked bread.

Nansen noticed that beyond the open space—covered with asphalt as if it had previously been a parking lot at the end of the long street—was a beach flanking the blue-gray sea. The sea. Perhaps after lunch, he would have time to visit the place that was always home.

During the next couple of hours, he handed out over a thousand cartons of orange juice to a thousand reaching hands. He looked into a thousand grateful faces,

exhausted faces, faces without any expression. Most of the people said thank you, in a dozen different languages.

He knew that the meal was probably not enough for the older boys and grown men. He knew that the refugees were probably very tired of sandwiches, and ached for their own food from their own kitchens. He knew that many of them no doubt felt ashamed to take this food from strangers. But they were polite, and most of the children still had a bright look of friendship in their eyes.

They were trapped on this island. The borders to the rest of Europe were closed. They were mere numbers on a list in some bureaucrat's office. No one knew how long they would be here, packed into crowded tents, with no real school, with a different doctor every couple of weeks, and with no work, no money coming in. Only money going out, going out, while they waited, while they waited, while they waited.

And what, Nansen wondered, was he supposed to do about all of this?

He remembered organizing the trains that brought great quantities of food into southern Russia in 1921, when drought had parched the land and millions of people were starving. And now, a century later, he was handing out cartons of orange juice.

What was it that Ben Franklin had said? "We are a curse upon ourselves."

Now—yes, they had finally arrived—he handed out his cartons of orange juice to the group of young women whom he had met on the street, the women whom Jette admired so much. They smiled at him with recognition, they smiled with gratitude, they smiled with friendship.

He smiled as well—it did not happen often, but he could not help himself—as he told them, each one, "I am proud of you. I am proud of you. I am proud of you."

When the long line had come to an end, Nansen and Jette and the other Drops took a sandwich and a carton of orange juice to the beach, where they sat on a variety of battered benches, facing the waves rolling toward shore as they ate their lunch.

Nansen, like all of the others, was still wearing his yellow vest. He did not want to take it off.

He looked at a young couple holding hands as they stared out at the sea. What sort of life could they plan? What families, what wreckage, had they left back home?

Children played at the edge of the waves. He closed his eyes and listened to their bright voices chirping with delight as each wave splashed their bare feet with cold water.

Chapter Twelve

And then . . . he found himself standing on the Oslo wharf, which he recognized only because he was staring out at the Oslo Fjord, and at the fortress on the far shore. Otherwise, everything was entirely different from the day in 1889 when he and his crew of five had sailed up the fjord after their successful crossing of Greenland. And everything was different from the day in 1896 when he and his crew of twelve had sailed on the *Fram* up the fjord after their successful three years of drifting in the Arctic ice. The wharf was different as well from that day in November of 1905 when Nansen met King Haakon and his family, who had just sailed up the fjord on their journey from Denmark, to become the royal family in newly independent Norway.

Looking to the left, toward the city of Oslo, he spotted the enormous red brick building with square towers which he had seen earlier that day, after the parade. The clock on the right tower read 18:15. Early evening on the 17th of May. Multitudes of people were strolling along the wooden wharf, enjoying the last springtime hours of this day of celebration.

Turning further to the left, with his back now to the fjord, he discovered with amazement the tall modern buildings flanking the wharf, and the busy cafes where people sat eating dinner. Never in his day had Oslo looked so prosperous.

Then he thought of the ferry which the teacher had told him about, the ferry that would take him to Bygdøy and the museum where he could visit his *Fram.* But the museum must be closed by now. Would the ferry still be running? He walked as quickly as he could through the crowds of people—he passed a restaurant on a barge where people at one table were singing boisterously—and then it hit him. Because he remembered . . . he had just come from Souda, where nobody sang boisterously while they raised their big glasses of golden beer in the early evening sunshine.

How was it possible that there could be two such different worlds, on the 17th of May?

But he kept walking as quickly as he could, and reached the pale yellow ferry just a few minutes before—he glanced at the sign beside the gangway—the last departure at 18:25. He bought a ticket from a very chipper young man, then made his way through the seats inside to a doorway to the bow. He wanted, of course, to be outside, where he could get a good look at the fjord and feel the wind on his face.

The boat was nearly empty when it pulled away from the pier. Yes, the museums must surely be closed by now. Well, he might be able to look in through a window at his ship.

He gazed across the water at the familiar tip of Nesodden, and at the little islands sprinkled about the fjord. He watched a sailboat gliding across the water, its mainsail and jib tinged red by the red-orange sun over the hills in the west. The sun would not set—as he knew with certainty, for the sun at least did not change over all these years—until almost ten o'clock on this evening of mid-May.

Now he spotted the A-frame building which the teacher had spoken about; there were two A-frames, but certainly the *Fram* must be in the larger of the two, on the right. He took a deep breath, for he was nervous, a little apprehensive. He had not seen the *Fram*, he had certainly not stood on the deck, since . . . at least a century ago. After the polar expedition, he had been busy with Eva and the family, with Norwegian independence, with his duties as ambassador in London, with the exchange of war prisoners, with starvation in Russia, with the disaster in Armenia. He didn't have time for strolling the deck and reminiscing.

The ferry bumped against the tires lining the Bygdøy pier. Nansen said thank you to the chipper young man who, after the trip back to Oslo, would get off work and had perhaps a big evening ahead of him.

Nansen walked with a dozen people along the pier to the grassy shore, where he spotted a sign with a single word, *Fram*, and a red arrow. As he walked beside the tall A-frame building—he imagined the three masts of the schooner inside, reaching up to the pointed ridge of the roof—he could feel a quickening of his heartbeat. He glanced at several other buildings that seemed to be museums, but he had no interest in them. It was almost as if he was returning from some long trip—a speaking tour to America, his all-consuming duties as ambassador in London—and now, in a few moments, he would meet his Eva at the door. The ship, the *Fram*, had meant almost as much to him as she had meant.

A group of tourists from the ferry, who had been walking ahead of him, followed the sidewalk around the far end of the building and tried to open the door. But it was locked. They peered in through the glass, noted the opening hour tomorrow morning on a sign, then they turned away and headed toward one of the other museums.

Nansen stood in front of the large glass door. Why was he here? From the deck of the research ship in the Arctic, to the 17th of May parade, to the refugee camp

on Chios island, and now, to the door of the *Fram* Museum. Why? What was the purpose of his return to this . . . deeply troubled world?

He took a step forward. The door swung silently open. He stepped into the dimly lit museum, saw the empty ticket desk, and behind it . . . the tall rounded prow which he had looked up at from the Arctic ice so many times, always with admiration. The ship's architect, Colin Archer, had followed Nansen's original design perfectly. The entire hull—Nansen walked past the ticket counter and stood now embracing with his eyes the entire rounded hull—had been designed like a coconut, round and smooth and strong, so that the ice which pressed against the hull would not crush the sides, but would instead lift the hull *up*, where it rode safely on the ice for almost three years.

Nansen admired the smooth hull with not a crack in it. The ice had roared and thundered as it heaped against the ship, and yet, from September 22 of 1893 . . . to August 13 of 1896, the ice had done little damage to the hull itself. The propeller and the rudder had been pulled by chains up into the hull, and they too had survived the frozen journey unscathed.

He saw steps leading up to an elevated floor that ringed the ship, and spotted a gangway which led to the deck. But first, he wanted to walk to the stern, and all the way around the hull of the ship, before he went up on deck.

On his left, about halfway along the length of the *Fram*, was a small café where tourists could order, as he saw from a sign, waffles and coffee. The lights were on, the café was well lit. Just beyond the café was a series of alcoves with picnic tables, also well lit. In the third alcove, he discovered a young man seated on a bench, staring at the screen of his laptop. (Fridtjof had seen this extraordinary piece of equipment, a laptop, in Trude's laboratory on the research ship.) Fridtjof saw a bucket of water and a sponge at the far end of the table; the young man was probably cleaning the café after the museum had closed, and had taken a break to look at something on his laptop. Nansen would walk quietly past, without disturbing him.

But the young man, startled by the presence of someone else in the museum, looked at him with unhidden grief in his eyes. Nansen could see that the man—with dark hair, dark eyes, almost certainly an immigrant—had been crying. His cheeks were wet.

The man stood up, bowed slightly as if with apology, then turned to his sponge and began wiping the table.

"Are you all right?" asked Nansen in Norwegian.

"Ja, ja, no problem," replied the man in Norwegian with an accent. "I finish the tables, I mop the floor. I be done by," he tapped the watch on his wrist, "eight o'clock. Then I must go."

Nansen wasn't sure whether he should sit down on the bench and somehow offer some friendship . . . or whether it would be better not to intrude.

He was by nature a quiet person, distant from other people, and so he said, letting the young man know that he would be nearby if he was needed, "Well, I thought I would visit the ship. I'll be up on the deck. If you need anything . . ."

The young man gestured toward the upper level of the ship. "I have mopped the deck. It is clean and dry."

"You have mopped the deck?" During the polar expedition, with men working on various jobs, and dogs roaming the deck, not to mention polar bear meat and hides that were hoisted up over the gunnel to be stored below, the crew had occasionally mopped the deck. But here in a museum?

"Yes, the tourists bring a lot of dirt on their shoes. The deck should be clean in the morning."

"Well, thank you then for your good work."

The young man looked at him as if he were in this moment two people: one had been caught loafing on the job, while the other stared with utter devastation in his eyes.

Nansen said again, "If you need anything, I'll be up on the deck." Then he continued walking toward the propeller at the stern with its large powerful blades, while the young man wiped the picnic table with his sponge.

Nansen admired the tall, narrow rudder which had enabled the ship to maneuver in close quarters in the seams of open water between broken sheets of ice, so that in September of 1893, he could find just the right spot to moor against a sheet of drift ice . . . before the *Fram* was frozen in.

Walking along the port side of the *Fram*, he looked with interest at the books on display along the museum's wall, several of them with his picture on the cover. There were even books for children, with polar bears on the cover.

As he walked beneath the bow, he remembered that extraordinary day—the 26th of October, 1892—when the hull was ready to slide down the wooden ramp from Colin Archer's shipyard into the Oslo Fjord. Eva, his brave Eva—who knew that he would be leaving on this ship for at least three years, and who knew as well that he might

never come home again—christened the ship from a platform beneath the bow. She broke a bottle of champagne against the prow and declared, "*Fram* shall be its name." And then the hull, with three bare masts, slid down the ramp with a splash into the sea.

He stared up at the prow, wrapped with strips of iron so that it could cut its way through the ice. Which had been stronger, his Eva, or the *Fram*?

Now he climbed the stairs on the starboard side which led up to the elevated floor that ringed the ship. The hull, painted red at the bottom, then black, and white at the top, was in excellent shape. Yes, and the museum had clearly done a professional job in restoring the battered railing.

Walking along the elevated floor, with photographs and maps on the wall to his left, he gazed up at the steel wire rigging that rose to the top of the three masts. How many times had he clambered up and down those angled ladders in the freezing wind?

Atop the middle mast was the white barrel where the lookout stood, searching for seams of open water, for land, for bears that approached the ship. He saw that the mast had been shortened to fit beneath the pointed roof of the museum, and that the barrel was not as high as it had been during the voyage. Never mind; few people would notice.

He had loved to be up in that cold barrel at forty degrees below zero during the Arctic night, when the green and pink ribbons of the northern lights rippled just above him from one end of the vast sky to the other. Yes, Trude was right. He had written in his journal about those Arctic nights, and the explorer had proven to be a poet as well.

Now he came to the metal gangway which reached with a gentle upward slope from the floor to the deck. He paused for a moment. His heart was lightly thumping as he stepped across the ramp and put one foot and then the other on the deck which he had walked a hundred and twenty-four years ago. From that deck, in 1893, he had seen his home on the western shore of Oslo Fjord as it receded and finally disappeared into the distance. From that deck, he had seen Vardø, the last Norwegian port in the far north, as it too disappeared off the stern. From that deck, he had looked out at the endless, poorly charted coastline of Siberia. And from that deck, he had studied the ice, studied the winds, as they sailed north in September of 1893 to where, at 78 degrees, 49 minutes north latitude, 132 degrees, 53 minutes east longitude, the ice embraced them. And then the ice gripped the ship for almost three years.

He walked now around the broad deck which sloped gently upward toward the prow, remembering the men who, all twelve of them, had done their jobs with rarely a word of complaint. They had all flourished, remaining so healthy with the good food

and arduous exercise that poor Doctor Blessing had no patients, and thus turned his attention to the dogs that fought almost daily and bloodied themselves.

He remembered as well a small fact, that eight of the thirteen men on board, including himself, were fathers, with a total of twenty-seven children. Yes, the ship had carried precious cargo, and to a man, they had all returned safely home.

Nansen gripped the rough lines coiled at the base of the forward mast—he savored the thick rope with his fingers—and wondered how many times, with the other men all working together, he had hauled the lines arm over arm as the heavy yards and flapping sails high above rose into place to catch the polar winds.

Now he stood between the first and second masts, where once the windmill had stood and spun in the cold wind, powering the lights in the cabins down below. The windmill was gone—worn and battered, the old hero had finally been cut into pieces so that its wood could be used to build sledges—but his photographs of the *Fram* showed the four proud blades which had immeasurably brightened the men's spirits through those long dark Arctic winters.

He descended the steps on the port side from the upper forward deck to the lower stern deck, then walked to the wheel of the *Fram* with its eight wooden spokes. He stood on the platform beneath it, a platform that reached about a meter to each side beyond the wheel, then he faced forward with one hand gripping a spoke of the wheel. He had not been the ship's captain—that was Sverdrup's job—but he had upon occasion stood at the wheel, guiding the vessel around points of land, and through the endless ice.

For some years after the Arctic voyage, he had wanted to sail the *Fram* south to Antarctica, but other pressing business had occupied him—as well as Eva, who could not bear another absence of how many years?—and so another man had steered the *Fram* south. But, he paused to wonder now, if he *were* to launch and sail his ship again, where would he go? What distant, uncharted shore would he explore? What discoveries, what knowledge, would he bring home?

He was about to descend a staircase to the deck below, inside the ship, where he wanted to see his old cabin, and the small dining hall where he and his sturdy men had gathered around the long table to eat their meals in the festive glow of electric lights . . . when he heard a cry of anguish from the ground floor of the museum. He walked quickly to the starboard gunnel and looked down. The lights of the café were

still on. From one of the alcoves he could hear a man not just sobbing, but wailing with grief.

All right, he thought, whoever he is, he needs a friend.

Nansen hurried across the deck, stepped quickly across the gangway, raced to the stairs and descended to the ground floor, then he almost ran beside the ship to the café and the third alcove beyond it, where the young man sat on the same bench and stared at the screen of his laptop, on which Nansen could see the moving picture of what Trude called a "video".

He sat on the bench beside the young man and now stared at pictures of children lying on a street, gasping for breath. He could hear voices shouting in some language, he could hear shrieking, he could hear a car horn, and he could hear the gasping, gasping, of a boy struggling to breathe.

Now a little girl was laid on a bench, but she was not gasping. Her open eyes stared. Around her open mouth was foam. Someone pressed on her chest a few times, trying to get her to breathe. But she did not respond.

The young man clicked on the bottom left corner of the screen and the picture froze. Rocking back and forth in his grief, he wailed, "Maya! Maya!"

Then he looked at Nansen sitting beside him and told him with a ragged voice, "My sister. My sister."

Nansen could think of nothing to say, other than, "Your sister."

"They dropped bombs with poison gas. They dropped bombs in the middle of a neighborhood. She is no soldier!"

"Where . . ." asked Nansen. "Where is this?"

"In Idlib."

"Idlib?"

"In Syria. My father and mother sent me away before Assad's army could take me. A year ago, to Turkey, to Greece, to Macedonia, to . . . I don't know how many places, until God brings me to Norway. I phone to my family to tell them I am safe. I work, I study, I learn your language. I phone my family every week. And then, in April, a plane in the sky drops bombs with poison gas on a neighborhood in Idlib. Why? Why?" He shrieked, *"Why?"*

"This was in April?" Nansen could barely grasp all of this.

"April 4, Tuesday morning, when children are getting ready to go to school. Just six weeks ago, they killed her!"

Nansen thumped is fist on the table. Poison gas. They had used poison gas in the trenches during World War One. In 1917. Now it was 2017. Shit. *Shit.*

"Today," said the young man, "May seventeen, is her birthday. She would have been six years old."

Nansen stood up from the bench and stepped away. He could not look at any more of this appalling butchery.

The old nightmare of war and refugees and endless death crashed through his mind.

Then, because he was Nansen, he asked the young man, "What can I do? How can I help?"

The young man said to him, "I am Yasar. She was Maya. We are real people."

Yasar looked again for a long moment at his dead sister. With a click, the picture disappeared from the screen. With another click, Yasar turned off the laptop. He folded the screen down, then he stood up from the bench with the laptop tucked under his arm.

"What can you do? What can you *do*?" His eyes glared with outrage. "You can stop the fucking war. You can stop, stop, *stop* bombing us with your endless jets and helicopters and rocket launchers. There is no reason for this war to go on and on for *six hideous years!* While you have your empty meetings in Geneva and New York. While you have your *parades*."

His entire body was shaking with anger. "You can stop the war, any fucking day you finally decide to stop it."

Then he walked out of the alcove, walked past the café without turning off the lights, walked past the empty ticket counter and, turning a latch, opened the door and stepped outside into the dusk of a springtime evening.

Nansen walked slowly to the steps up to the deck of his ship. He did not know what else to do, other than climb those steps, then cross the gangway and put his feet once more on the broad, uncluttered deck of the *Fram*.

Should he roar with outrage? Should he wail with despair?

He walked across the deck to the bow, where he found no answers.

He gripped the line coiled at the bottom of the mast, but he found no answers.

He walked back across the deck and stood where the valiant windmill had once stood, but he found no answers.

Then he descended the steps to the stern deck and walked to the wheel. He stood on the platform facing forward and gripped one of the spokes, but he found no answers.

Chapter Thirteen

He felt, as he stood gripping the spoke of the wheel, much the same as he had felt after Eva had died of pneumonia at the age of forty-nine. He was racing home from London to be with her, when he received a telegram in Hamburg from her doctor that she was gone.

Her final words on her deathbed had been, "Poor him, he will come too late."

Yes, he had come too late.

He spent weeks lying in bed, barely able even to speak with his five children. He asked his oldest daughter, Liv, just short of fifteen years old when her mother died, to look after the others.

When he finally did crawl out of bed, he spent the days and the nights up in his tower office, pacing, then sitting, then pacing again.

How did he ever manage to survive?

And now . . . Up north, as the Arctic ice melted, the fools were getting ready to drill for oil. As Trude had said, it was "the final suicidal madness."

Down south, the fools were proving with yet another war that they had learned nothing, nothing, nothing. Children were now the enemy.

Wars had gone on for centuries. But wars on a dying planet? No, that was the end.

He remembered when he had lowered a fine-mesh net through holes in the Arctic ice to various depths. When he pulled up the net, he would almost always find a multitude of tiny creatures: diatoms and shrimp and a dozen other species which he would study under his shipboard microscope. There in the frigid waters of the Arctic Ocean, he found living creatures. He found life.

He hoped that those little creatures would survive what was coming. He hoped that some polar bears would survive on lingering patches of polar ice.

He hoped, if the wars did their job, that the Earth might be free of this hideous pestilence soon enough . . . so that here and there, a few sanctuaries of life might survive.

And then . . . he heard a voice, a woman's voice, asking, "Professor Nansen, may we come aboard?"

He looked toward the gangway, halfway along the length of the ship on his right, and saw Trude, dressed not in her red Arctic coat and hood but in a sweater and blue trousers. Behind her, on the gangplank, and along the elevated floor that flanked the forward half of the ship, stood a multitude of people, thirty or forty at least.

"Trude," he said, not so much surprised to see her as deeply glad to see her, "yes, please, you are welcome to come aboard."

And so she led a procession of people onto the deck, where some of them walked forward to the bow and looked up with interest at the rigging, while others followed Trude down the steps to the stern deck and gathered in an arc of about twenty people, facing him where he stood at the wheel. Most of them were young: a few of them were no more than ten years old, the majority were teenagers, and a few were in their early twenties. Sprinkled among them were a several adults of Trude's age. They seemed to have come from every corner of the world, but they all shared one thing in common: they stared at Professor Nansen with absolute conviction in their eyes.

"We have heard," said a young woman, "that you have been aboard a research ship at the edge of the Arctic ice cap. You know how fragile it is, that thin white skullcap of ice only a few meters thick. The giant chunks that pressed and crashed against your *Fram* were, in reality, mere flecks of ice so thin that often you could see, through the cracks, the water beneath them."

Yes, that was true, he thought. On a planetary scale, the polar ice cap was barely as thick as the frost on a window pane on a winter's night.

"And yet," she continued, "that dome of ice has reflected the light from the sun—the *energy* from the sun—for, as I have read, at least five million years. The Arctic ice has kept the Earth at a temperature that perfectly suited the development of life."

She paused, then she said with growing anger, "So when we in our ignorance and our arrogance and our unrelenting *greed* now destroy in a few decades one of the key conditions for life on this planet, then some of us—yes, some of the seven billion people living on this planet—have come here tonight from our various churches and mosques and synagogues, from our wilderness mountains and from our farms, to take a stand against that ignorance, and that arrogance, and that greed."

"Yes," said Nansen to the young woman who might have been a friend of his daughter Liv at the age of twenty, "there comes a time when we take a stand."

"We have come here tonight," said a young man who looked as if he might have lived, not long ago, in a tent in some refugee camp, "to abolish that ignorance. To reprimand that arrogance. And to banish, as much as we can, that greed . . . from the face of the Earth."

Good, thought Nansen. Finally, the generation had come.

"If someone in Ethiopia," said a woman wearing an African dress and a bright cloth wrapped around her hair, "wants to know about the melting of the polar ice cap—for surely as it disappears, it will bring drought to our land—what can we do? Our teachers at school—if we have a school—know nothing about some Arctic ice cap. If we Google 'Arctic ice cap' on our laptop—if we have a laptop—we can read an article about something far away, with a picture of a white bear looking very thin. But that's all. We don't really *know* anything about that cap of ice on planet Earth. And we certainly do not know what we could possibly do to prevent it from melting. We certainly do not know what we can do to prevent the next drought, and then the *next* drought . . . and then the final drought."

Yes, Nansen had walked through the dust of drought. He had walked through villages in the south of Russia where he had seen—where he had photographed—heaps of skeletal bodies, waiting to be buried in ground baked as hard as a brick.

"So we have all come together," said Trude, "to write the clear and accurate story of what is happening in our various parts of the world. Not with scientific jargon, though science shall be the foundation of the stories that we tell. Not with any political agenda, for we are writing about planet Earth. We shall write, Professor Nansen, as you wrote about the Arctic, with scientific facts, with pictures, with entries from a journal . . . so that people on the other side of the world can understand this precious Arctic, this frozen patch in the quilt that wraps around our planet."

"We put a one-hour lesson about the polar ice cap on the internet," said a boy perhaps twelve years old, "so that an entire class of grade school pupils, of high school students, of university students, can have a clear and complete and *vibrant* introduction to the Arctic ice cap."

The boy—Nansen recognized an Armenian look in his face—glanced at his colleagues to the right and left of him. "But that's not all." He smiled, confident in the vision which he shared with the others. "There are many wonderful possibilities within this global classroom. For example, after students in a class have watched the one-hour introduction about the Arctic ice cap, they can click on a multitude of links for further research. These are special links which we ourselves have gathered, about

the effects of the melting polar ice cap on the tundra, on the jet streams, on ocean currents. Not just more information from random links, but instead selected links about all of the pieces that fit together to form the *Big Picture*, which reaches from the North Pole to the farms of Ethiopia."

The people on the forward deck had been gathering along the railing that ran across the waist of the ship, so that, standing five feet above and behind their colleagues, they could look down and listen.

"Some of the links," said a man who stood at the railing, "connect students with researchers like myself, who have agreed to respond to student questions by email. We can direct the older students—university students around the world—to advanced articles, and perhaps to conferences which stream live, so that a student in Nepal, in Mexico, in Viet Nam, can keep up with the most up-to-date research. Experts like me, from labs, from universities, from corporations, who agree to give a little of our time to young people reaching out to us . . . well, there's a multiplier effect here. One student in Nepal can then share what he learned with a hundred others."

"The part that *I* like," said a girl at the railing, "is that this global classroom which we are developing—we call it, Build a Better World—enables students working on some topic to link with students in other schools around the world who are working on the same topic. A group of kids working on drought and wildfires in California . . . can link up with a group of kids working on drought and wildfires in northern Russia. Maybe the *politicians* are squabbling, getting everybody ready for the next war, but the *kids* are working with each other, sending pictures back and forth, sending their own high-school-level research back and forth, maybe even sending some of their favorite music back and forth . . . and so, One: they're learning about their world on a planetary scale, and Two: they do not have time for somebody's idiot war."

"That's right," said a girl down on the stern deck, her face lit with enthusiasm, "weave the schools of the world together, so that the students can learn from each other. Can *work* with each other. Then we will not only learn about ice caps and drought and soil erosion and rising sea levels . . . we will also be weaving together the first global generation in human history. A generation which is *not* going to put up with the old shit any longer."

Nansen gripped the wooden spoke of the wheel. Yes, here was a voyage, here was a journey, which could take these young people, and their children, and their children's children, right through the 21st century.

"But that's not all," said one of the adults on the stern deck, perhaps the daughter of immigrants, born in Norway, and now a professional in her field. "We've been talking about Climate Change, the Problem. But another part of our global classroom is Clean Energy, the Solution. Entrepreneurs like myself, who are working with the sun and the wind, and with the tides and waves in the sea, want to show students around the world the extraordinary progress in clean energy that we are making. The new solar farm in India, larger than the largest solar farm in California. The solar collectors in Morocco. The wind turbines scattered among the rice paddies in Viet Nam. Not just the bad news, but the *good* news too. So that as we gradually build an international clean energy grid that wraps around the world, we also weave together the young entrepreneurs, the visionaries, and we give them all the support they need to develop their inventions, to develop their dreams."

"That's right," said a young man at the railing whom Nansen now recognized as Yasar. He spoke now not with his simple Norwegian, but with fluent English. "How many entrepreneurs, how many visionaries, how many future engineers and architects and economists are now wasting their years in a refugee camp? Waiting, waiting, *waiting* for some insane war to finally be over. If they can at least plug into our global classroom, if they can watch on their laptops—if they have a laptop, if they can charge their laptop, if no one has stolen their laptop—a dozen lectures about people making progress outside of their refugee camp prison . . . then they can at least feel some degree of connection, some degree of hope. They, from their dusty tent, can send an email to a professor at a university in Scotland, asking about floating wind turbines. They can write to an entrepreneur who is linking solar power on the shore of a sea with desalinization plants, to give farmers fresh water for irrigation, and to give people fresh water to drink. Refugees rotting in an overcrowded camp can investigate different schools with programs in clean energy, so that they can plan some sort of future . . . if somebody will only give them a few years of peace, if somebody will only open the borders."

Now they were quiet, these thirty, forty, maybe fifty pioneers who were ready to build a better world. They were quiet, looking at Nansen from where they stood on the decks of the *Fram*, until Trude said on their behalf, "Professor Nansen, here is your crew."

Yes, he thought, it took a century, a full century, for the right generation to finally come along. But now, here they are, their faces filled with conviction. And what a century, what an unprecedented century, they could have ahead of them.

"Are there any Sami here?" he asked. A young woman on the lower deck stepped forward, wearing the blue and red dress of her native Kautokeino. "*Buorre beaivvi,* Professor Nansen," she said with a smile. "Of course we are here. Did you not have two Sami skiers with you, Samuel Balto and Ole Nielsen Ravna, when you skied in 1888 across the ice cap on Greenland?"

"*Ipmel atti*," said Nansen, returning her greeting. "Yes, I don't think I could have done it without them. I was a good skier in the forests around Oslo, and I had even crossed the Hardangervidda plateau, but that was all in southern Norway. Balto and Ravna, they knew how to ski in the Arctic."

"And after the crossing, you spent the winter on the west coast of Greenland with the Eskimo people. They taught you how to paddle a kayak."

"Yes, they taught me many things." He smiled faintly. "I could say that they even taught me how to *live*."

"Well then, perhaps the indigenous peoples of the world might have something to contribute to this global classroom. We who have lived in harmony with the Arctic tundra, and the grassy plains, and the jungle forest, for thousands of years . . . perhaps we have something to teach those who would destroy the Earth in a few decades."

"Yes." He almost mentioned that he had written a book about the Eskimos, with the hope of preserving their culture. But he said simply, "*Ollu giitu*." Thank you.

She answered with a smile, *"Gal beaivváš fas badjána!"* Then she translated, "The sun will rise again!"

He was about to take his hand from the spoke of the wheel, so that he could step down from the platform and shake the hands of the people who had come to join him on the *Fram*, when he heard Yasar call down to him, "But that's not all."

Looking up at the young man who had lost his sister because she had been trapped inside of someone's hideous war, he said to Yasar, "You are right. That's not all. There is something more that we need to fix."

Chapter Fourteen

Yasar stood at the railing beside the steps from the upper to the lower deck. His face was no longer filled with devastation. The grief was gone from his eyes, replaced by a fierce determination as he spoke to Professor Nansen, and to all of the others who had now turned to face him.

"After six years of war in Syria, from March 15 of 2011 to March 15 of 2017, various organizations tally the number of dead at roughly half a million. If we take the current population of Oslo to be 667,000, then we could try to imagine what this city would be like if 75% of the people had been bombed, shot, gassed to death, or tortured to death in prisons, over the past six years."

He closed his eyes, as if saying for a moment a quiet prayer. Then he continued. "After six years of war, the number of refugees who had fled from Syria is roughly 6.2 million. 5 million of them now live in neighboring countries, most of them in refugee camps. The United Nations has registered 2.9 million Syrian refugees living in Turkey, and two million more living in Egypt, Iraq, Jordan, and Lebanon. Others have fled to countries in North Africa. The other 1.2 million refugees have crossed the sea into Europe. In all, 6.2 million desperate people have fled from the endless insanity of war in their home country."

He looked at one of his listeners, a young girl from Norway. "The population of your country is just over five million. Imagine if everyone in Norway had to flee from their homes, with nothing more than what they could carry in their arms, so that they could end up in some dusty, overcrowded refugee camp in Turkey. So that they could end up in a refugee camp on a Greek island where gangs of men dropped rocks through their tents in the middle of the night. So that they could end up in a country here in your enlightened Europe where people set fire to their mosques in the middle of the night.

"Yes, empty Norway of her five million people, and see if anyone in the world bothers to notice."

He looked at a young boy who stared at him with unwavering dark eyes. "Three million Syrian children, born within the past six years, know nothing in their childhood except war. Older children spend years in the refugee camps without any real school. What happens to their young minds, when all they know is brutality and death?

"None of this is any secret, of course. The war in Syria is probably the most documented war in all of human history. Countless websites offer pictures of dead

children, of blasted city streets, of refugee camps with neatly ordered tents reaching all the way to the horizon. We can watch YouTubes of helicopters dropping barrel bombs, of jets circling over Aleppo, of White Helmets struggling to dig survivors out of the rubble, of doctors in hospitals trying to keep their patients alive *while the hospital is being bombed*."

He paused, until he had calmed enough to continue.

"No, none of this is any secret . . . unless people choose not to look at those pictures. Nor does it help if people choose to shrug their shoulders and say, 'It's awful, but what can I do? I'm just a little guy with problems of my own.'"

Yasar looked from face to face at the people around him—one woman nodded her encouragement—then he said to Professor Nansen, "My colleagues and I would like to offer a suggestion."

Fridtjof, who had spent years as Norway's delegate to the League of Nations, the international organization created after World War One which had struggled and ultimately failed to prevent any further wars, now said to Yasar, "I welcome your suggestion."

Yasar spoke with less anger in his voice, but rather with quiet deliberation. "We have heard this evening about the global classroom which would offer courses within the two themes, Climate Change, the Problem . . . and Clean Energy, the Solution. These twin themes, *if* they become a major part of the curriculum in classrooms around the world, would enable the young generation to make unprecedented progress.

"But that is only half the package. The other half also consists of two themes: The Causes of War . . . and The Architecture of Peace. Because, you see, every war has its hidden causes, obscured by all the flag-waving and rhetoric about 'freedom and democracy'. The six-year war in Syria is an excellent example of a conflict with a *multitude* of hidden causes, each with its secret machinery that drives the war on and on without end.

"So we," Yasar gestured to his colleagues, "suggest a full semester course—in every high school and college around the world—a course which examines the *causes* of war. We first take a look at several important wars during the past two thousand years of history, and then we look at the wars in the world today. Now this is not a course with one teacher taking the students through one text book. This is a course in which many speakers—above all *veterans*—visit the schools and engage with the students in deep and vibrant discussions.

"A major component of this course is the requirement that every student pursues at least a month of independent research on whatever aspect of war she or he would like to learn about. You see, we've got to get beyond the evening news. We've got to learn how to do our *own* research, until we know what is really happening in that secret world behind every war.

"Toward the end of the semester, each student will address the class, explaining what she or he has learned about profits, about ancient tribal grievances, about racism, about religion, about oil. No doubt there will be debates, but that is exactly the purpose of this course: to challenge each other, to learn from each other, so that we can finally get beyond our ignorance and indifference, and instead get a firm grasp on the reality of our world today."

Yasar paused. "Following this intensive course in the autumn on The Causes of War, we take a break at the end of the year to celebrate our different national holidays. And then . . . we pursue an equally intensive course in the spring on The Architecture of Peace.

"Looking once more at history, what have been our successes, and our failures, as we have tried again and again to build some structure which would preserve the fragile peace, and prevent any further wars?

"Then, what do *we ourselves* propose? And here the discussion opens and becomes global. American students, instead of listening to their Great Communicator yammering about the Soviet Union as the Evil Empire, now correspond themselves with students in Russian classrooms, asking them what *they* think. Students living within NATO countries engage in discussions with students in Afghanistan, and Iraq, asking *them* what they think about the wars that have come crashing into their countries.

"*That* is the research we need to be doing. If young people around the world can better understand each other, then the most natural thing in the world is to ask each other, How can we learn to *work* together? How can we best team up to meet the great challenges of climate change? How can we best team up to build a global system of clean energy? And then, don't you see, every wind turbine that we build together . . . becomes another step toward peace.

"Because—isn't it obvious?—nobody ever went to war over a wind turbine."

Yasar let out a long breath, then he said, "One thing more. We have two pairs of twin courses in our global classroom. Two pairs of twin courses in our Build a

Better World. These courses should be *a requirement for graduation* for every student, in every school, in every country, around the world.

"And the kids sitting in refugee camps without schools . . . they will be your best students. Because they will bring a deep understanding of what war is all about to these discussions. They will be the first to get beyond the old racial hatreds. They will be the first to forget grievances that are centuries old. They will be the first to spot greed and corruption. They will be the first to reach out to the children of the world. They will be the first to demand, to fiercely and unrelentingly *demand*, a just and lasting peace.

"Europe, instead of fearing the refugees, embrace them. For they bring with them a wisdom from the war zone."

With a faint glimmer of a smile, Yasar nodded to Professor Nansen. "That is our suggestion."

Fridtjof beckoned with his hand as he said, "Please, Yasar, come join me."

As Yasar came down the steps and crossed the stern deck, Fridtjof released his grip on the spoke of the wheel and stepped away. He gestured for the young man to take his place.

Yasar looked at Professor Nansen with hesitation, as if this were too great a responsibility, but Fridtjof gestured again. "Put your feet where my feet were. Put your hand on the wheel. Then you and your crew shall set your course across the decades of the 21st century."

As Yasar took his place at the wheel, and gripped the spoke still warm from Nansen's grip, he looked with growing confidence from face to face at his companions and acknowledged their quiet applause.

Fridtjof said to the crew aboard this unprecedented vessel, "There was a time in my life when I was too late." He thought of his Eva on her deathbed, and his arrival home after she was gone. "I deeply hope that this time, we are not too late. The polar ice cap is melting. The wars are bleeding us. May the winds fill your sails, and may the sun shine upon your faces, as you chart your course toward a world where every child's talents can blossom."

Fridtjof crossed the deck to Trude and shook her hand. "I'm not quite sure how you managed to do it, but I am deeply glad that you did."

She laughed, delighted to see the happiness in his eyes. "Fridtjof, you are most welcome."

"I wonder how Ben and Peter are doing."

"Oh, quite well, I'm sure."

He glanced at Yasar at the wheel. Some of the crew had gathered around him, while others were exploring the forward deck of their new vessel. He asked Trude, "Shall we go up on the bow? I would like to meet your friends."

They climbed the steps to the long forward deck and slowly made their way toward the bow, stopping again and again so that Trude could introduce Professor Nansen to her friends from every corner of the world.

Fridtjof was drawn, as he had been drawn countless times before during his voyage on the *Fram*, to the towering mast near the bow. He patted the sturdy wood with his hand, then he gripped the rough rope of a line and savored its strength with his fingers, while he spoke with a teenage girl who told him, "Professor Nansen, what I am learning here in Norway, I will one day take home . . . when I return to help rebuild the University of Aleppo."

John Slade
Tuesday, April 17, 2017
1:53 p.m.

Ås, Norge