The Story of the World

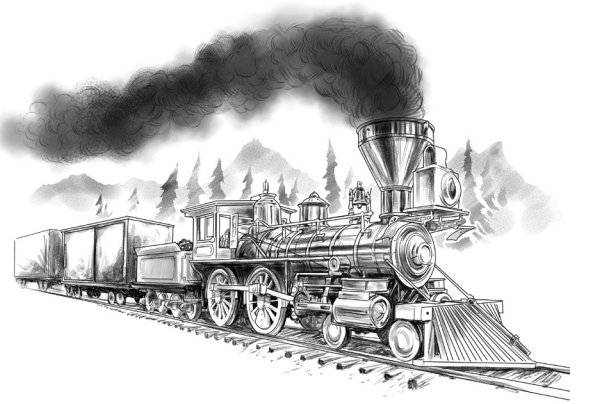
HISTORY FOR THE CLASSICAL CHILD

Volume 4: The Modern Age

From Victoria's Empire to the End of the USSR

REVISED EDITION

with new maps, illustrations and timelines



by Susan Wise Bauer

illustrated by Jeff West

maps by Sarah Park

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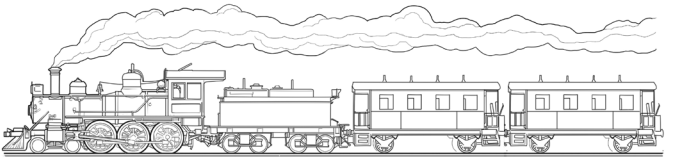
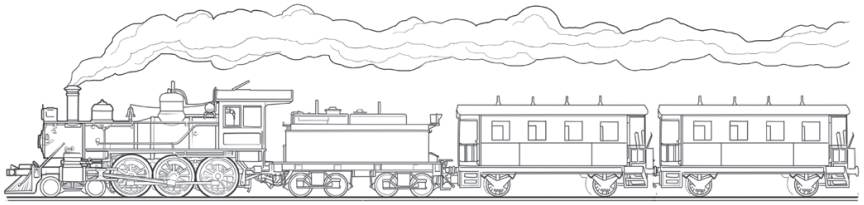


Foreword



The four volumes of the Story of the World are meant to be read by children, or read aloud by parents to children. Each of the first three volumes increases slightly in difficulty. Although older students can certainly make use of them, the primary audience for Volume 1 is children in grades 1–4. For Volume 2, the primary audience is grades 2–5; and for volume 3, grades 3–6. This volume is targeted at students in grades 4–8.

The first three volumes (which cover history from roughly 5000 BC up until 1850) are designed so that siblings can use them together; so, a first grader could certainly make use of Volume 2 if her third-grade sister were using it as well.

I wouldn't study this particular volume, though, with children younger than fourth grade. The events that shaped the twentieth century—by which I mean the events that have laid down the borders of countries and dictated the ways in which those countries relate to each other—have almost all involved violence. As an academic, a writer, a historian, and the mother of children ranging in age from four to beginning high school, I have done my best to tell this history in

a way that is age-appropriate. Because of that attempt, this volume is less evocative than the previous three. I have always tried to tell history as a story, to bring out the color and narrative thread of events. But with this history, I have found myself veering continually toward a more matter-of-fact and less dramatic tone. The events of the twentieth century—the bombing of Hiroshima, the purges of Stalin, to name only two—are dramatic enough. Turned into story, they would be overwhelming.

Despite their violent nature, I don't think these events should be ignored by parents of young children. A fourth grader hears the news on the car radio, on the TV, or in the conversation of his elders. He hears the words ("terrorism") and senses the worry of the adults around him. A fourth or fifth grader who has a vague idea of what is going on in the world deserves to be started on the path to understanding. The shape of the world today is not random; it has been formed by a very definite pattern of happenings. To deny a child an understanding of that pattern is truly to doom a child to fear, because war, unrest, and violence appear totally random.

Even in this book, violence is not random. It is alarming, but not random. As you read, you will see, again and again, the same pattern acted out: A person or a group of people rejects injustice by rebelling and seizing the reins of power. As soon as those reins are in the hands of the rebels, the rebels become the establishment, the victims become the tyrants, the freedom-fighters become the dictators. The man who shouts for equality in one decade purges, in the next decade, those who shout against him. Boiling history down to its simplest outline so that beginning scholars can grasp it brings this repetition into stark relief.

Again and again, while researching this book, I was reminded of the words of Alexander Solzhenitsyn, who spent eleven years in the labor camps of the Soviet Union, and who, when he became powerless, finally understood that revolution never brings an end to oppression. Solzhenitsyn wrote, "In the intoxication of youthful successes I had felt myself to be infallible, and I was therefore cruel. In the surfeit of power I was a murderer and an oppressor. . . . And it was only when I lay there on rotting prison straw that I sensed within myself the first stirrings of good. . . . Even in the best of hearts there remains . . . an unuprooted small corner of evil. Since then I have come to understand the truth of all the religions of the world: They struggle with the *evil inside a human being*. . . . And since that time I have come to understand the falsehood of all the revolutions in history: They destroy only those carriers of evil contemporary with them."

Revolution shatters the structures; but the men who build the next set of structures haven't conquered the evil that lives in their own hearts. The history of the twentieth century is, again and again, the story of men who fight against tyrants, win the battle, and then are overwhelmed by the unconquered tyranny in their own souls.

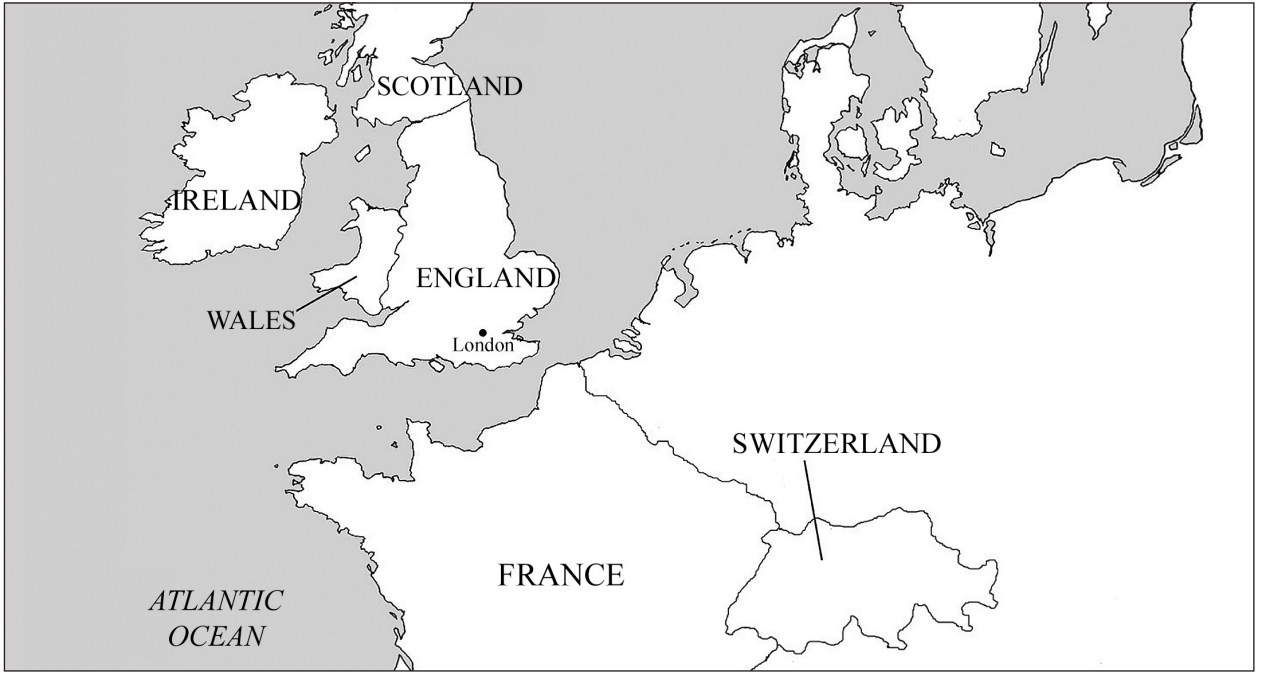
A note on accuracy: Historians vary widely on such matters as the number of war casualties in any given conflict, the sizes of armies, and even specific dates on which treaties were signed or independence declared. Since this is a basic text for young students, I have decided (fairly arbitrarily) to use *Encyclopædia Britannica* as the final authority on dates and numbers.

There is no single accepted method of transliteration for Arabic and Chinese names. I have chosen to use the Pinyin

system for most Chinese names, unless another transliteration is extremely well known ("Manchuria" instead of the Pinyin "Dongbei," for example). I have generally followed *Britannica* for names in other languages.

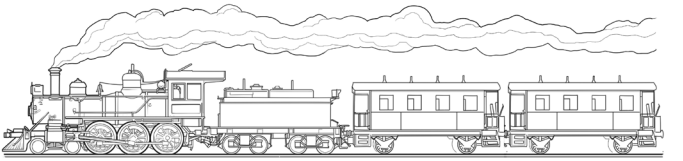
— Susan Wise Bauer
Charles City, VA
March, 2005

Victoria's England



CHAPTER ONE

Britain's Empire



Victoria's England

Summer had come to England. The sun poured down on the hot, soot-covered roofs and cluttered streets of London. The Thames River shone in the morning light. In an open green space at the center of the city, a huge glass box sat like a glittering toy on the grass.

Beneath the glass roof of the box, an army troop was marching in circles, beating a path on the grass. The youngest soldier looked up at the glass ceiling nervously.

"It's going to collapse any minute!" he whispered to the soldier in front of him.

"Quiet!" bellowed the sergeant at the troop's head. "Left! Right! Left, right, left! Stamp your feet! March until it falls down on your head!"

The young soldier hunched his shoulders and tramped harder. The ceiling shook—but the walls stood firm. Finally, the sergeant called his men to a halt. They had marched for

an hour, and failed to shake the glass building down. Queen Victoria and her husband, Prince Albert, would be delighted!

Victoria was queen of Great Britain, a country made up of four smaller countries (England, Scotland, Ireland, and Wales) all allied together. In less than a year, Victoria and Albert planned to invite the entire world to Great Britain's capital city, London, for the biggest fair ever held: "The Great Exhibition of the Works of Industry of All Nations." Countries from all across the globe would bring their inventions, their machines, and their goods to this fair. But such a huge fair needed an enormous building to hold all those exhibits.

Prince Albert had looked at 245 different plans for buildings—and had rejected all of them. Finally, he found the perfect exhibition hall: a glass building made out of almost a million feet of glass, attached to four thousand tons of iron columns and beams. This glass building had been designed by a man named Joseph Paxton, a gardener who had spent years building greenhouses. It was bigger than any building in England, and it would shine in the sun like a jewel.

But when the people of London heard about the glass building, they objected. If huge crowds milled around underneath the glass ceiling, shaking the ground with their feet, the building might collapse and kill everyone beneath.

So Joseph Paxton made a smaller model of his glass building and asked the troop of soldiers to jump and stamp around underneath it, shaking the ground. The model remained standing. Plans to build the giant greenhouse could go ahead!

There was no time to waste. The Great Exhibition was due to open in less than nine months. Every glassmaker in England was called upon to help. Thousands of sheets of glass and hundreds of iron bars and columns were brought to an open

green space in the center of London called Hyde Park. There, the iron and glass were put together into a huge greenhouse that covered nineteen acres—the same space as seventeen football fields. A huge dome rose from it, big enough so that the towering elm trees in the park could fit right into the building. Paxton's building, the Crystal Palace, was ready for the fair.

Countries from all over the world brought thirteen thousand different exhibits. Vases and hats from Russia, furniture from Austria, farming tools from the United States, rich clothing and embroidery made in Prussia, fine cloth and weapons from France, and Swiss watches filled the halls. There were statues and pictures, a life-sized lead mine, the first gigantic models of dinosaurs, cuneiform tablets just discovered in the ancient land of Assyria, and a fountain hundreds of feet high.

On May 1st, 1851, Queen Victoria and Prince Albert arrived in their state carriage to open the very first day of the Great Exhibition. The Crystal Palace shone in the sun. Flags waved from the roof. Sunshine flooded through the glass walls and illuminated the queen as she walked into the central dome. As she entered, a huge choir began to sing the Hallelujah Chorus.

Victoria and Albert walked through the Crystal Palace, admiring the beautiful clothing and furniture and the ingenious inventions from other countries. Later, Queen Victoria wrote in her diary, "We were quite dazzled by the most splendid [Indian] shawls and tissues . . . [and] charming Turkish stuffs, including very fine silks. . . . [And] there were 'Bowie' knives in profusion, made entirely for Americans, who never move without one."

Queen Victoria attended the Great Exhibition at the Crystal Palace.

But Albert and Victoria were the most pleased by exhibits from all parts of the British Empire—an empire that stretched around the world. Australian convicts from the British colony of Australia had sent bonnets made out of palm leaves. British New Zealand sent carved wood. British-run factories in India sent beautiful silks and cottons. The British colony of Canada sent a brand-new kind of fire engine. Throughout the Crystal Palace, visitors marveled at British machines: a huge locomotive engine, a diving bell; models of steamships, cranes, pumps, plows and reapers; and architects' models of bridges and buildings.

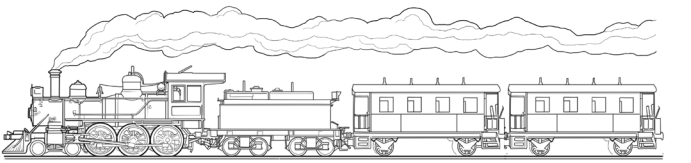
The *real* reason for the Great Exhibition was to show the entire world how powerful and modern the British

Empire was. Britain itself was just a tiny island off the coast of Europe. But British governors were in charge of British colonies and territories in Canada, Australia, New Zealand, India, South Africa, and many more places. Victoria's empire was so big that the British said, "The sun never sets on the British Empire!" No matter where the sun's light fell as the Earth traveled around it, the rays would warm land governed by the British.

British colonies sent coal, silk, furs, and other valuable goods back to Britain itself. But the British didn't spread their empire just for money. They were sure that they could improve every part of the world—if they could just take control of it. Englishman Cecil Rhodes wrote, "We are the first [best] race in the world, and . . . the more of the world we inhabit, the better it is for the human race."

The Great Exhibition made this clear! Only half of the Crystal Palace was given over to exhibits from the rest of the world. The other half was filled entirely with British goods. The six million visitors who came to the Great Exhibition could see exactly what the British thought of themselves: Britain was as powerful as the rest of the world, put together. The British historian and writer Thomas Babington Macaulay exclaimed, "[The Great Exhibition was] a most gorgeous sight. . . . I cannot think that the Caesars ever exhibited a more splendid spectacle." Just like the Caesars of the Roman Empire, the kings and queens of Britain had spread their laws, their customs, and their language across the world.

But just like the Romans of old, the British would soon have to fight to keep their empire together.



The Sepoy Mutiny

Not long after the close of the Great Exhibition, Britain found itself fighting a war in India—a war in which the eighty-two-year-old emperor of India, Bahadur Shah, would be forced to hide in a tomb while fighting raged outside.

Long before Bahadur Shah was born, English merchants who wanted to buy rare silks, cotton, and tea from India asked the emperor of India, Jahangir, for permission to build little settlements called *trading posts* along the Indian coast. These settlements would be safe places for their ships to land.

Jahangir agreed. So the merchants, joining together into a group called the East India Company, began to build their trading posts. For a hundred years, the East India Company went on building trading posts throughout India. More and more Englishmen and women settled around the trading posts. The trading posts put guns on their walls to defend the settlers. The trading posts began to look more like English cities!

One of the largest of these "English cities," Calcutta, lay on India's northeast coast, in the province of Bengal. The governor of Bengal began to grow nervous about this large settlement of Englishmen with guns, right in the middle of his country. He decided that it was time for the English to leave—so he assembled an army and marched out to fight against them.

India During the Sepoy Mutiny

But the merchants of the East India Company didn't want to leave Calcutta. They hired an army of English soldiers and an English general and fought back. When they defeated the Indian army, the East India Company took control of the government of Bengal.

The merchants had become governors.

By the time Bahadur Shah was born, the East India Company had seized control of more and more parts of India. In some places, British officials actually ran the government of India. In others, they allowed local rulers to control their courts and their ceremonies—but British "advisors" told the rulers what to do. And the taxes paid by Indians on their land went to the British.

Many Indians were displeased by life under British rule. They could see that British soldiers and officers treated Indians with scorn. The British tore down Indian temples to make room for British railroad tracks. Sometimes they forced Indian Muslims to shave their beards, which symbolized their faith. And both Hindus and Muslims in India were afraid that the British were out to convert them, by force, to Christianity.

When Bahadur Shah's father finally died, as a very old man, Bahadur Shah became the emperor of India. He was already sixty years old. Even though he was emperor, he had to do exactly as the East India Company told him. The Company even paid his salary!

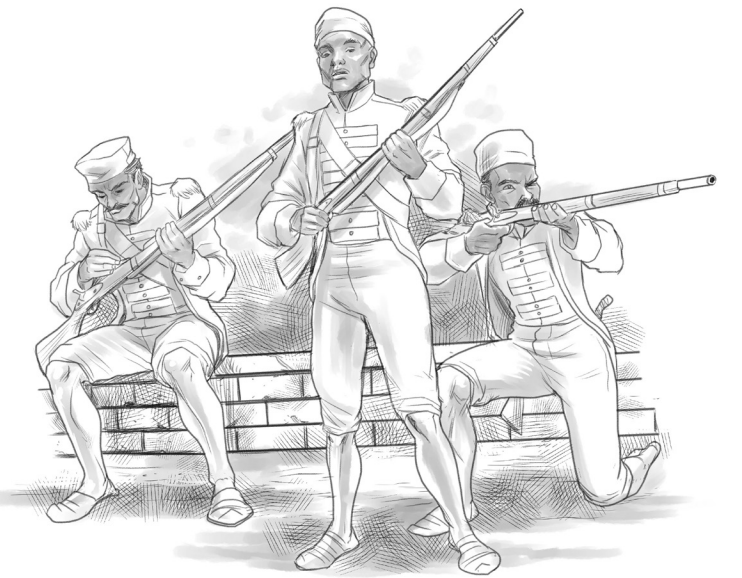
In 1856, when Bahadur Shah was eighty-one years old and had "ruled" India for twenty-one years, the East India Company made a very big mistake.

The Company had three large armies to help control the three hundred million people of India. The army officers were all British, but many of the soldiers were native Indians, both

Hindu and Muslim, who had agreed to work for the East India Company. These native soldiers were called *sepoys*.

In 1856, the British passed a law declaring that any soldier who belonged to the British army in India could be put on a ship and sent to fight in another country. The Hindu soldiers were appalled. A devout Hindu could only keep himself ceremonially clean if he could cook his own food and draw his own water for bathing—and this was impossible on board a ship. A Hindu soldier who went on a British ship and then came home often found that his relatives and friends refused even to eat with him.

Then something even more disturbing happened. The East India Company bought a new, modern kind of rifle called the Enfield rifle, and announced that the army would



Indian sepoys

begin using it. Soon, word spread through the ranks of the sepoys: "Don't use the rifle! They are trying to make us into Christians once more!"

To understand this, you have to know that in those days, when a soldier loaded a rifle, he first had to load the powder, and then the bullets. This took time! But in an Enfield rifle, the bullets and powder were folded up together in a greased paper package called a cartridge. All the soldier had to do was bite off the end of the cartridge, pour the powder into the rifle, and slide the bullet in.

Now, the sepoys whispered to each other that the grease used to coat the cartridges had been made out of animal fat. Devout Hindus were horrified by the thought that the fat of cows might touch their lips. Cows were sacred animals, never to be eaten. The Muslims were just as sickened by the idea that they might have to put pig fat into their mouths. In Islam, hogs were unclean.

At once, the British government announced that Hindu and Muslim soldiers could make their own grease out of vegetable oil. But it was too late. The sepoys were already angry at their British superiors, who called them "pigs" and other demeaning names. Now they were convinced that the cartridges were a deliberate attempt to destroy their Hindu and Muslim faiths.

The sepoys began to rebel all over the northwest of India. They announced that Bahadur Shah, now eighty-two, was their commander in chief. Bahadur Shah was too old to fight—but he watched as the rebels took control of Delhi, drove the British out of the city of Cawnpore, and then laid siege to the city of Lucknow.

But the British had no intention of losing India. The East India Company marched new divisions of well-trained British soldiers into India, and laid siege to Delhi. The rebels fought desperately to keep their city. One out of every three British soldiers who besieged Delhi was killed. But finally the British flooded over the walls. They found Bahadur Shah hiding in the tomb of his great ancestor Humayan and dragged him out to stand trial for treason. Bahadur Shah was found guilty and sent away to live, under guard, in a distant city—where he died, five years later, at the age of eighty-seven.

The British government declared that India would no longer have an emperor. But the East India Company wouldn't govern India anymore, either. Britain was fed up with the incompetent rule of the East India Company. If the Company had not treated the sepoys so poorly, perhaps the Sepoy Mutiny would never have happened.

So Queen Victoria took India away from the East India Company and announced that India was now a colony of Britain, governed directly by the Queen and Parliament with the help of a head official called the Viceroy of India. Queen Victoria promised that all the British would work to make India a better place for the Indians.

But India didn't belong to the Indians any more. It had become British. All over India, Indians went on hoping for the day when they would get their own country back.

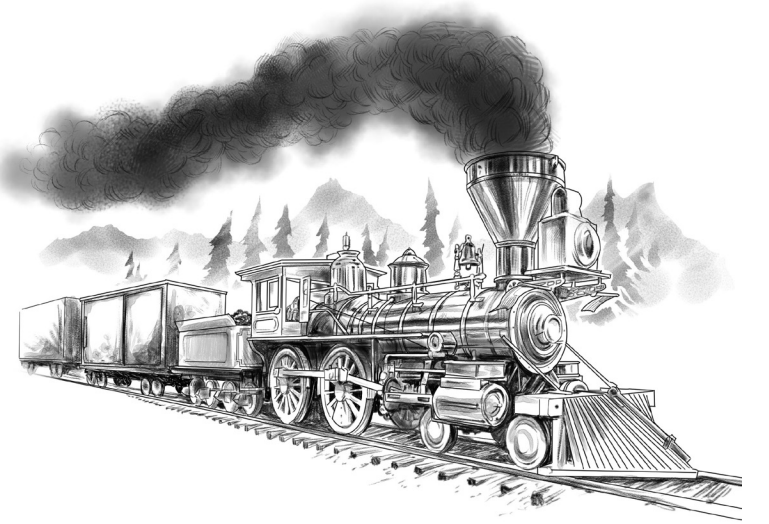
The officials slipped the four spikes through four holes in the laurelwood tie, and tapped them in with a special silver hammer. But the laurelwood tie wouldn't stand up to the weight of a train, so immediately the special tie and spikes were taken out and sent to a museum. A regular old pine railroad tie was put in its place. The two officials took turns swinging a *real* hammer at the last iron spike. The first official took a huge swing—and hit the tie, missing the spike altogether. Then the second official took a swing and missed both the spike *and* the tie! An experienced rail worker had to pick up the hammer and knock the spike in instead.

The railroad across the United States was finished. For six years, twenty thousand men from as far away as China had been building for twelve hours a day, blasting passes through mountains with dynamite and stretching bridges across rivers and valleys. Now the railroad ran unbroken from coast to coast. Before the railroad was built, a businessman from New York who wanted to travel to California had to take a month-long journey by stagecoach, or sail in a steamship all the way around the coast of South America. Now he could reach the opposite coast in just five days!

Soon more and more railroads were built across the west. Trains carried people to cities where they might never have settled. Companies made tremendous amounts of money from shipping grain, cattle, coal, and other loads to far-away places of the United States. Railroad tracks crisscrossed the wild prairie lands.

And railroads also changed the way people kept time.

For as long as anyone could remember, cities all over the world set their own clocks by looking at the sun. When the sun was at its highest point in the sky, it was noon. But



Railroads changed the way people traveled, where they lived, and how they kept time.

because the surface of the earth curves, noon for a city on the East Coast comes sooner than noon for a city a little further west. In 1869, when clocks in New York City read twelve o'clock noon, clocks in Boston read 12:12. And in a city in California, it might be 8:32 a.m.—or 8:47. How could trains, moving quickly across the hundreds of miles between cities, ever be able to tell passengers when they would arrive?

Ten years after the last spike was driven at Promontory Summit, a Canadian railroad engineer named Sir Sandford Fleming suggested that it might be a good idea to divide the world into twenty-four time zones. Each one of the zones would stretch from the North Pole down to the South Pole, like a thin slice of an apple. In each time zone, clocks would be set to the same time. Now, Boston and New York would

reach noon at exactly the same moment. And when you travelled from one time zone to the next, you would move exactly one hour ahead or behind. Noon in Virginia would always be exactly nine a.m. in *every* city in California—not 9:13 or 9:21.

Railroad engineers welcomed Fleming's idea. On November 18th, 1883, cities all across the United States reset their clocks to match the new time zones. Time had become *standardized*—kept according to the same rules across the whole United States (and, eventually, across the whole world).

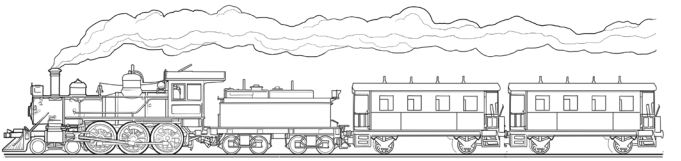
Railroads and time zones began to change the way people in the American West thought about the world.

The world no longer seemed quite as large as it once had. Making and selling goods to as many people as possible was becoming easier and easier. Local towns and small villages were changing, thanks to the ideas and inventions that came to them from large cities. And it seemed simpler than ever to come up with inventions that would make life better and better. The United States, along with the other countries of the West, was becoming *modern*.

One more invention joined with railroads and time zones to make the world more modern. In 1879, the scientist Thomas Edison unveiled his new creation: a light powered by electricity.

Edison had tried for years to come up with a way to use electrical currents to light up homes and businesses after dark. He and his assistants had tried three thousand different designs! Edison was so obsessed with his experiments that, on his wedding day, he forgot he had gotten married and went to his lab—leaving his new wife at home alone.

Twenty-one years after Ned Kelly's death, Australia became the Commonwealth of Australia. Like Canada, Australia would remain part of the British Empire—but the Australians would have the right to make their own laws and elect their own leaders.



Carving Up Africa

Australia was far away—but the mysterious jungles and plains of Africa seemed just as distant. As far as Great Britain, Germany, France, and the other countries of Europe were concerned, Africa was a wild, mysterious, distant land.

After David Livingstone, other explorers had followed his tracks. They had traveled down the Nile River to its source and sailed across the wide Congo into Africa's unknown center. They found hundreds of miles of wealth: elephants with ivory tusks, ground filled with gold and silver to be mined, limestone waiting to be quarried, rubber plants, wide fields perfect for cotton, coffee, and tea. No European had ever laid claim to this land. So, as far as the explorers were concerned, *no one* owned it.

France, Germany, and Great Britain—not to mention Spain, Portugal, and Russia—all built more and more trading posts around the coasts of Africa. By the end of the 1870s, there were plenty of European traders and missionaries in

Africa. But most of the African continent itself was still under the control of African chiefs and kings.

Then, two countries began to push for more.

Leopold, the king of Belgium, seized the most land. Even before he inherited the throne of Belgium, Prince Leopold wanted his tiny country to grow larger by claiming colonies all around the world. Five years before becoming king, he told his people, "I believe that the moment is come for us to extend our territories. I think that we must lose no time, under penalty of seeing the few remaining good positions seized upon by more enterprising nations than our own." And, just one year later, he told his countrymen, "Imitate your neighbours; extend beyond the sea whenever an opportunity is offered. You will there find precious outlets for your products, food for your commerce . . . and a still better position in the great European family."

When Prince Leopold became King Leopold II, he tried to convince the Belgian Parliament to claim the center of Africa, the "Congo Basin," for its own. Parliament refused. So Leopold announced that he was going to found a new charity, the "International African Association," which would bring modern science and trade into Africa. He hired Henry Stanley, the explorer who had gone into Africa and looked for Livingstone, to help him map out trade routes into the Congo. Henry Stanley mapped out a route a thousand miles long! Leopold II built trading posts and little medical offices all along this route, in the name of the International African Association. And then he announced that all unclaimed land along the route was actually his own, private, personal colony in Africa.

The German states were not far behind. In 1880, only nine years after the German states had reluctantly agreed to recognize Wilhelm as the "German emperor," the Second Reich was claiming lands in both the east and the west of Africa for "Germany."

The other countries of Europe didn't intend to be left behind, while Belgium and Germany took the riches of Africa for their own. Portugal claimed the southeastern African coast. The French took control of lands in the west, southwest, and north, and also convinced chiefs in the Upper Congo to sign treaties of peace, in exchange for bolts of cloth and barrels of alcohol. Italy signed a treaty of alliance with Ethiopia, in the northeast of Africa. And Great Britain claimed pieces of

This 1906 newspaper cartoon showed a snake with the head of Belgian King Leopold II strangling an African rubber-harvester.

the southeastern coast, the southern tip of Africa, and a few scattered kingdoms along Africa's western coast.

All of these countries wanted still more. The years after 1880 became known as "The Scramble" because so many countries were elbowing each other to gain control of African land. Every country in Europe believed that whatever country held the most foreign territory could claim to be the greatest.

In 1884, Germany invited the rest of Europe to a conference in the German city of Berlin. At this "Berlin Conference," representatives from a dozen different countries decided that it would be best for everyone if France, Germany, Portugal, Italy, and all the other countries of Europe didn't *fight* over Africa. After all, wars were expensive. It would be simpler to just agree on some way to divide the land fairly. After all, there was a *lot* of Africa to go around.

So at the Berlin Conference, the countries of Europe agreed that, if any country built trading posts and missionary stations in any area of Africa, that country had "occupied" the area and could claim it. No other country would try to claim, or attack, that territory.

Everyone signed the agreement and went home, pleased with their civilized and peaceful solution. But this very civilized and peaceful solution ignored the African tribes who had *lived* in these occupied countries for thousands of years. Most Europeans thought that the Africans who lived in the plains and jungles of their continent weren't fully human—certainly not smart enough to control their own land. For Europeans, Africans were like children who had to be watched over, guided, and controlled.

steadier temperament, began to hope they would someday return to home and the embrace of loved ones. Some could think only of the crude little crosses that marked the graves of their comrades. . . . What was to come next? They did not know—and hardly cared. Their minds were numbed by the shock of peace."

Although peace had finally arrived, as many as ten million soldiers and another ten million civilians had died, all around the world. In France, Great Britain, and Germany, almost every family had lost brothers, husbands, and fathers to the Great War.

But in England and America, the war helped to bring about at least one good thing. For the first time, women were allowed to vote.

For years, British and American women had been demanding the right to vote (also known as *suffrage*). Women who marched, protested, and spoke in public about their right to suffrage were called suffragettes. If you've ever seen the movie *Mary Poppins*, you might remember that Mrs. Banks is a suffragette. She wraps a banner around her, proclaiming that women should have the right to vote, and marches off singing:

> We're clearly soldiers in petticoats
> And dauntless crusaders for women's votes. . . .
> Our daughter's daughters will adore us
> And they'll sing in grateful chorus
> "Well done, sister suffragette!"

After World War I ended, it seemed obvious that women should be allowed to vote. After all, while the men had gone off to fight, women had done the men's jobs—and done them

Suffragettes

perfectly well. Why in the world shouldn't they be given the same right to vote as the men?

In 1918, Great Britain passed a new law called the Reform Act. Because women had worked so hard to help win the war, every woman over the age of thirty could vote. (In 1928, Britain changed the law so that women twenty-one and older could vote, too.)

For women in America to vote, an amendment to the Constitution had to be passed. In 1918, Congress agreed to

begin the process of changing the Constitution so that women could gain suffrage. One representative to the Congress, Frederick Hicks of New York, was sitting by his dying wife when it came time to pass the amendment. She told him to leave her deathbed and go help pass the amendment—so he did!

On the day that Congress would take its final vote on passing the amendment, "suffragists" crowded into the Senate to hear the outcome. The *New York Times* reported that "deafening applause" broke out when a senator stood up to announce that the amendment had passed Congress. The Great War was finally over. Now, in America and Great Britain, women could help pass the laws that would shape the world after the war.

Eisenhower's speech told all the good things that could happen if nuclear power plants were built. But nuclear power does have one big danger, even if it isn't being made into bombs. It produces *radioactivity*.

Radioactivity changes the way that atoms work, so that they no longer behave normally. A very small bit of radioactivity isn't dangerous. If you've ever had an x-ray, you'll remember that, before the doctors put you under the x-ray machine, they covered your body with heavy lead pads. This is because x-ray machines, too, are slightly radioactive—and the lead pads protect you. The lead pads ensure that you will only be exposed to a tiny amount of radioactivity, which won't hurt you at all.

But people who are very close to a large atomic explosion are soaked in radioactivity. Their bodies no longer work properly. In Hiroshima and Nagasaki, many people who weren't killed by the atomic explosions died several years later. The radioactivity from the explosions had caused them to get cancer and other diseases.

People worried that nuclear power plants might also leak radioactivity. They worried that working at these plants, or living near them, would make people sick. When nuclear power plants work properly, they are safe and effective.

But when accidents do happen, nuclear plants can be dangerous.

On March 28th, 1979, an accident happened at the nuclear power plant Three Mile Island, in Pennsylvania. Very early in the morning, the plant's equipment began to fail. A pump that carried coolant, to keep the reactors from getting too hot, stopped working.

Over the next five hours, more parts of the reactors stopped working properly. Scientists realized that the plant

was beginning to give off radioactive gases. At 9:15 a.m., officials called the White House to tell the president that Three Mile Island was in trouble. By 11 a.m., all the plant's workers had been told to leave Three Mile Island to get away from the radioactivity.

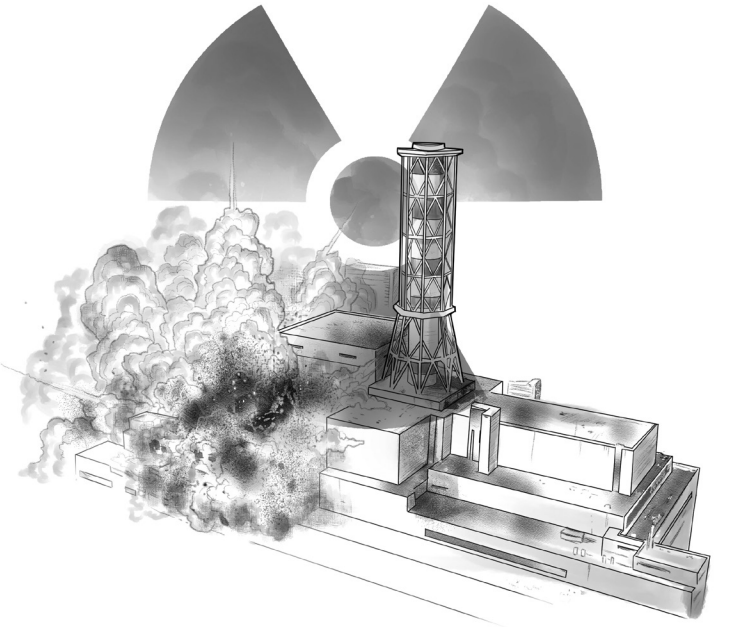
Two days later, scientists discovered that more radiation was coming from another part of the plant. The governor of Pennsylvania ordered all small children and pregnant women within five miles of the plant to leave—in case the radiation made them sick.

No one knew exactly how much radioactivity Three Mile Island had produced. Finally, scientists were able to figure out that most people nearby were only exposed to a tiny amount of radiation; one "millirem," less than what a patient would get during an x-ray. No one died or got sick from the accident at Three Mile Island.

But the accident frightened and angered the people nearby—and people who lived near other nuclear plants too. They were worried because the plant operators hadn't been able to figure out how to stop the radiation from escaping. They were frightened because it had taken scientists so long to measure the radiation that escaped. No one had been hurt this time—but what if a larger accident happened?

That larger accident happened at Chernobyl. The Soviet power plant didn't just leak a little bit. One of its four reactors, where atoms were split, blew up—and radioactive gases spewed out of the explosion.

The gases drifted all over the Russian countryside. This time, the radiation was so heavy that six hundred thousand people were exposed to dangerous levels of radioactivity. They could develop cancer years and years later, because of the



The explosion at Chernobyl, and the symbol of radiation

radiation. Animals nearby gave birth to deformed offspring. A Moscow reporter described one: "I was shown a suckling pig whose head looked like that of a frog. Instead of eyes there were large tissue growths, with no cornea or pupil. These animals usually die soon after birth, but this one survived."

People and animals near Chernobyl weren't the only ones in danger. Wind blew radioactive particles all over Europe. As far away as Poland, milk was tainted by the radiation, and no one was allowed to drink it. As far away as Sweden, reindeer and sheep were made sick by the radiation. "For the first time," the leader of the Soviet Union said, "we confront the real force of nuclear energy, out of control."