

The Great Company Adventures · Book 3 of 50

SIEMENS THE TRAIN THAT RUNS ON LIGHTNING

seven doors, twelve mental models, and the silent train that turns invisible lightning into motion.

"Discovering the businesses that built the modern world"

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THE GREAT COMPANY ADVENTURES

Discovering the businesses that built the modern world.

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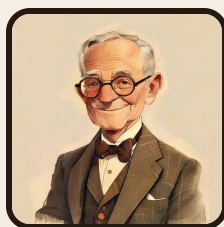
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MEET THE CHARACTERS



SIRI



BEN



WARREN



CHARLIE



PETRA

A curious girl named Siri, a wise old teacher named Ben, and his student Warren with Warren's partner Charlie — together discovering the businesses that built the modern world, one adventure at a time.

THE GLOBAL 50

One great company per volume · Fifty adventures, one modern world

SPACE & EXPLORATION

1. SpaceX — *"The Fire That Comes Back"*

MANUFACTURING & ENGINEERING

2. Toyota — *"The River That Builds Cars"*
3. Siemens — *"The Factory That Builds Factories"*
4. Caterpillar — *"The Machines That Move Mountains"*
5. Boeing — *"The Bird With Six Million Pieces"*
6. Airbus — *"The Plane Four Countries Built"*

ENERGY & INDUSTRY

7. Shell — *"The Sunlight Buried at Sea"*
8. ExxonMobil — *"The Ancient Sunlight Machine"*
9. GE Vernova — *"The Wheel That Makes Lightning"*

COMMUNICATION

10. AT&T — *"The Voice Inside the Wire"*
11. Qualcomm — *"The Whisper in the Air"*
12. Ericsson — *"The Towers That Talk"*

TRANSPORTATION

13. Tesla — *"The Car With No Engine"*
14. John Deere — *"The Machine That Feeds the World"*
15. UPS — *"The Promise in a Brown Truck"*

INFRASTRUCTURE

16. ABB — *"The Arms That Never Tire"*
17. Schneider Electric — *"The Guardian of the Grid"*

MATERIALS

18. Corning — *"The Thread of Light"*
19. DuPont — *"The Inventors of Almost Everything"*

SCIENCE & TOOLS

20. 3M — *"The Factory of Ten Thousand Ideas"*
21. Bosch — *"The Spark in Every Machine"*
22. Honeywell — *"The Dial That Tames the Weather"*

MEDICINE & BIOTECHNOLOGY

23. Pfizer — *"The Shield in a Tiny Vial"*
24. Roche — *"The Detectives of the Blood"*

25. Novo Nordisk — *"The Key to a Billion Locks"*

26. Johnson & Johnson — *"The Little Bandage That Grew"*

FOOD & AGRICULTURE

27. Nestlé — *"The Cup That Wakes the World"*
28. Cargill — *"The Invisible Harvest"*

FINANCE & COMMERCE

29. Visa — *"The Handshake Inside the Card"*
30. Mastercard — *"The Two-Second Trust Machine"*
31. Walmart — *"The Store That Never Runs Out"*
32. Costco — *"The Treasure Warehouse"*
33. FedEx — *"The Race Against the Sun"*

CONSUMER INNOVATION

34. Disney — *"The Factory of Dreams"*
35. LEGO — *"The Brick That Builds Anything"*
36. Sony — *"The Pocket Full of Music"*
37. Coca-Cola — *"The Secret in the Red Can"*
38. Nike — *"The Shoe That Learned to Fly"*

LUXURY & CRAFTSMANSHIP

39. Rolex — *"The Heartbeat on Your Wrist"*
40. LVMH — *"The Suitcase That Conquered the World"*

COMPUTING & DIGITAL CIVILIZATION

41. Apple — *"The Glass That Thinks"*
42. Microsoft — *"The Invisible Machine"*
43. Google — *"The Library With No Walls"*
44. Amazon — *"The Box That Crossed the World"*
45. NVIDIA — *"The Brain Made of Sand"*
46. Intel — *"The First Thinking Chip"*
47. TSMC — *"The Invisible City"*
48. ASML — *"The Machine That Prints With Light"*
49. OpenAI — *"The Machine That Learned to Talk"*

THE FINAL DISCOVERY

50. The Company Yet to Be Built — *"The Adventure You Will Build"*

THE TRAIN THAT RAN ON NOTHING

Midnight. Homework: abandoned. Because Grandpa Ben's brass compass just started buzzing like a trapped bee.

BZZZT

It spun. Locked. Pointed straight at the little model train on her shelf.

SPIN

Okay. That's new.

In her mind, an old picture: a steam engine, huffing black smoke, clanking along, slow and loud.

It's never done **THIS** before!

So trains are smoky and slow, right?

An illustration of a sleek, silver high-speed train with a blue stripe, moving quickly past a window. The sky is a soft pink and orange, suggesting dusk or dawn. The train is on tracks with a green field in the foreground.

Then the model train came alive — and outside her window a real one glided past, silent, silver, and fast.

No smoke! No roar!
HOW?!

An illustration of a young girl with short brown hair and freckles, looking intently at an open diary. The diary's pages are filled with handwritten text, and several small, glowing yellow stars are scattered around it. The background is dark with some distant star-like lights.

The diary flipped open by itself. Fresh ink shining.

“Time to meet the businesses that built the modern world, little one. Start with the train that runs on lightning.”

★ WORTH REMEMBERING

A high-speed train weighs more than 400 elephants, yet slips along faster than a race car — with no engine, no fuel, no smoke. Just a thin wire overhead. So tonight's mystery: **who taught metal to run on lightning?**

The model's headlight flared — and a whirlpool of blue light yanked her in.

WHOOSH



Here we GOOO!



SIRI'S SECRET NOTEBOOK

Biggest mystery yet 📖

- ① How does a train move with NO engine, NO fuel — just a wire?
- ② Grandpa says this built a 175-year giant. Prove it, compass.

A GIANT WITH NO ENGINE

The blue whirlpool spat her onto a gleaming platform — beside a silver train longer than a street.

Whoa. It's humming. Like it's ALIVE.

A young engineer in an orange jacket grinned. "I'm Petra. I help trains run on lightning."

Best. Job. EVER.

People at its wheels looked like ants. Hundreds of metres of polished, silent metal.

Petra tapped a see-through model. No engine. No fuel tank. Just little motors on the wheels — and a wire up top.

Where's the engine? Where's the smoke?

So the WIRE is the fuel?

The wire brings electricity. That's all it needs.

★ WORTH REMEMBERING

A car is a fire on wheels — burning fuel in an engine. This train is the opposite: it drinks electricity from a wire and turns it straight into motion. No tank. No flames. Every part is about one thing: **taming lightning**.

Petra unrolled a glowing map. Seven doors along a railway trail. "Open them all and you'll GET it."



Seven doors. Let's GO.



SIRI'S SECRET NOTEBOOK • THE QUEST MAP

-  1 THE PUSH — how does electricity move it?
-  2 THE POWER — where's the lightning from?
-  3 THE BRAKE — how does it stop AND give power back?
-  4 THE WHEELS — steel on steel?
-  5 THE NERVES — how do trains never crash?
-  6 THE TWIN — a factory built in a computer?!
-  7 THE JOURNEY — who builds it... and WHY?



LIGHTNING IN A COIL

3a Door One: how does electricity push?

Petra held a live wire near a compass. The needle jumped sideways, as if shoved.

The wire **PUSHED** the needle!
Electricity is magnetic?!

She wound the wire into a coil round an iron bar. Flick — it lifted a pile of paperclips.

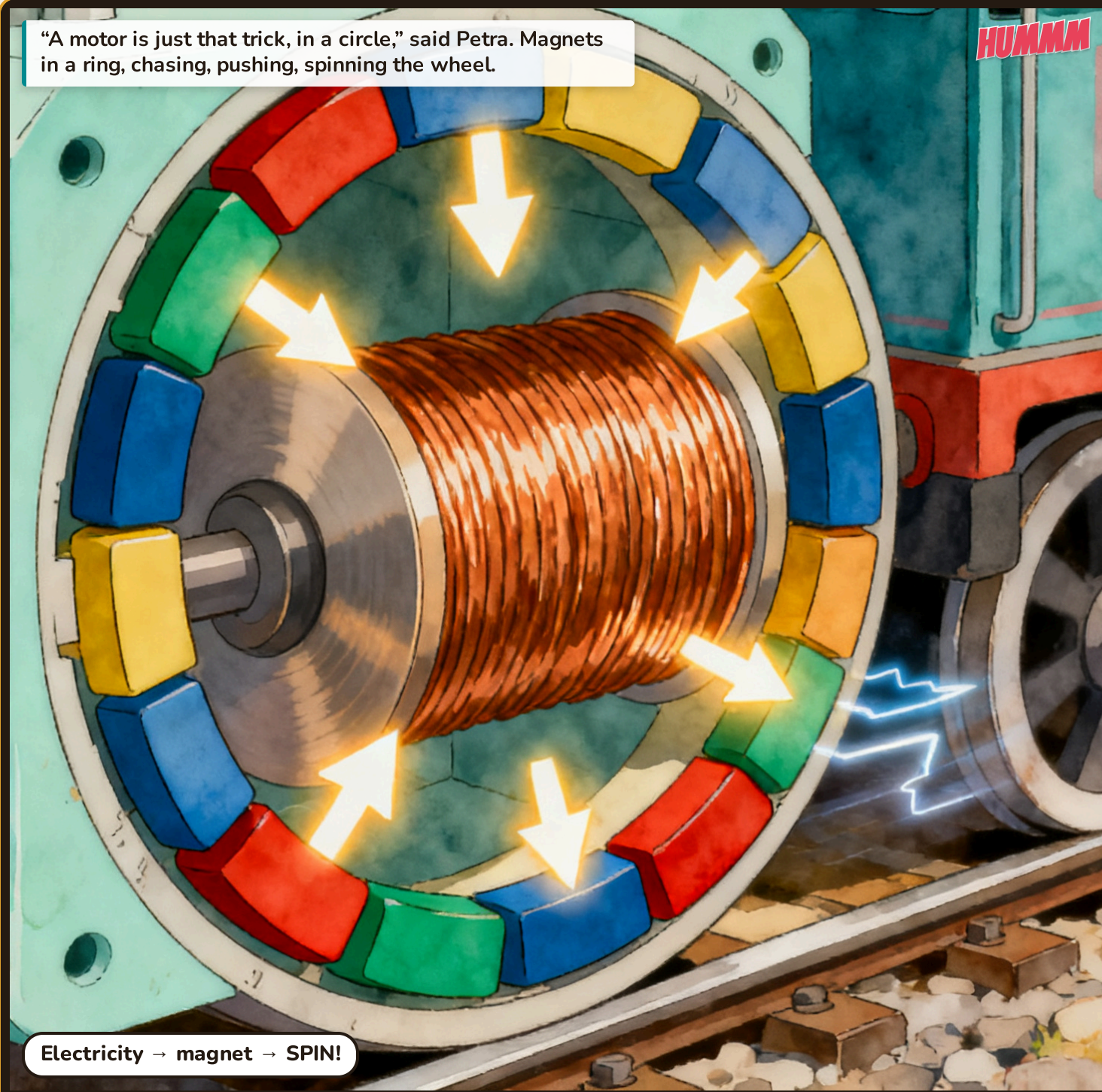
Electricity became a switchable **MAGNET**!

★ WORTH REMEMBERING

Here's the invisible workhorse of the modern world: **electricity flowing makes magnetism**. Coil the wire and you build a magnet you can switch on and off. Every motor, every train, every factory robot leans on this one quiet fact. 

"A motor is just that trick, in a circle," said Petra. Magnets in a ring, chasing, pushing, spinning the wheel.

HUMMM



Electricity → magnet → SPIN!

 SIRI'S SECRET NOTEBOOK · DOOR 1 UNLOCKED

 Electricity flowing = magnetism (compass proved it!). Coil it = a switchable magnet. A motor = magnets chasing in a ring → the wheel spins. No fire needed. Electricity in, motion out.

THE WIRE OVERHEAD

4a Door Two: where does the lightning come from?

On the roof, a springy arm reached up and kissed the wire. A blue spark ran down into the train.

ZZZT

“That wire is fierce — thousands of volts,” said Petra. “Those glass discs keep it from leaking into the metal.”

It's DRINKING the lightning!

So THAT'S why nobody touches it!

★ WORTH REMEMBERING

The overhead wire carries electricity at enormous pressure — thousands of volts — so a thin wire can deliver huge power. High voltage is like a firehose: squeeze it hard and a little pipe moves a flood. ⚡

Petra traced the wire backward — to a substation, to pylons, to power stations and wind turbines far away.



The wire is fed by a whole COUNTRY!

At a trackside substation, transformers hummed, stepping the power down for the rails.



This little building feeds the whole line?

Every train on it, all day long.

 SIRI'S SECRET NOTEBOOK · DOOR 2 UNLOCKED

⚡ The pantograph drinks from an overhead wire at thousands of volts (glass discs stop leaks). The wire is fed by the whole grid — power stations, wind, pylons, a trackside substation. The train plugs into a country.

THE BRAKE THAT GIVES BACK

5a Door Three: how does it stop — and share power?

Petra spun a little motor by hand with a crank. A lightbulb wired to it glowed.

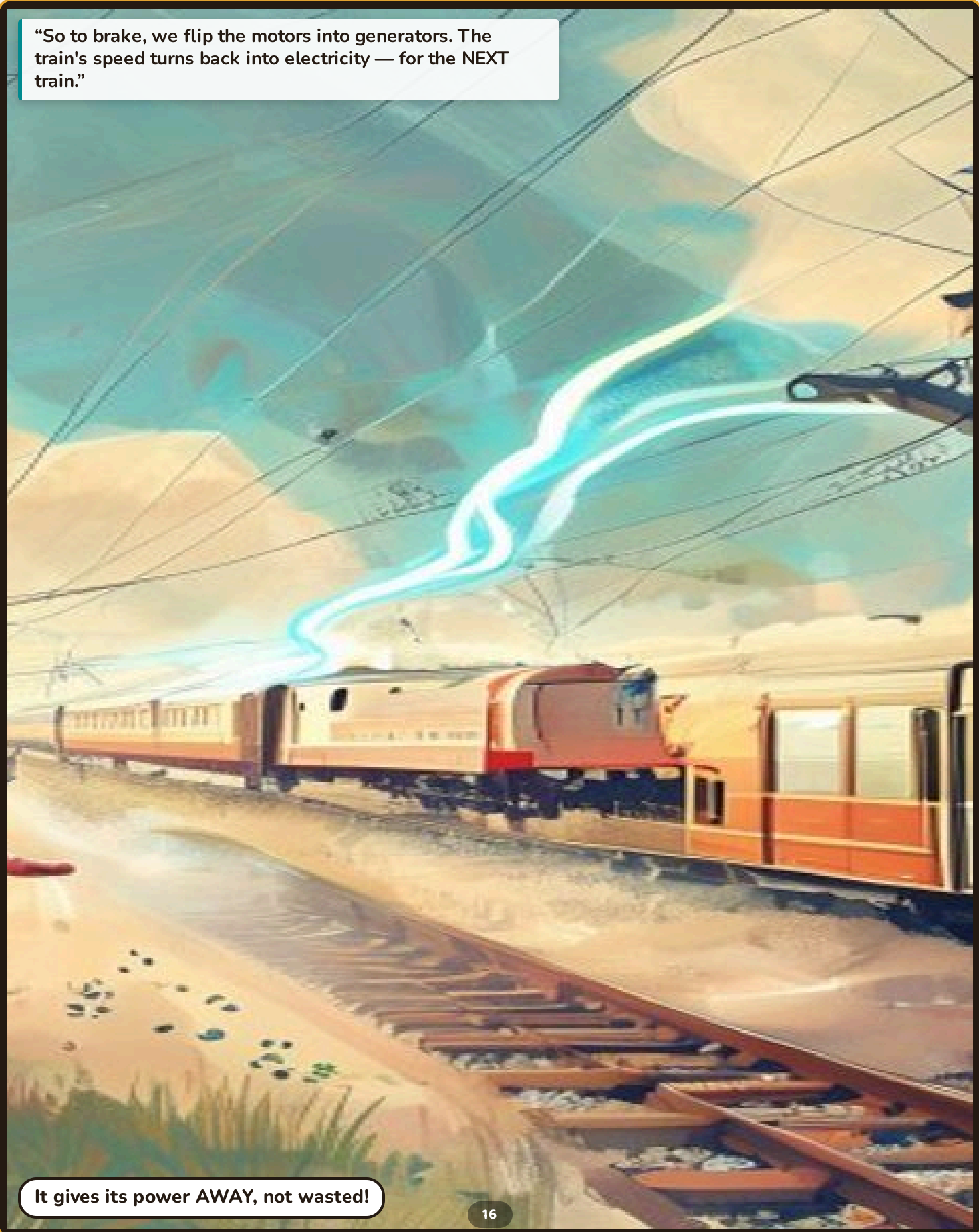


Wait — the motor **MAKES** electricity now?!

★ WORTH REMEMBERING

The most beautiful secret in the book: a motor and a generator are the **same machine**. Push electricity in and it spins. Spin it and electricity comes out. One trick, run either way — the invisible workhorse, forwards and backwards. 

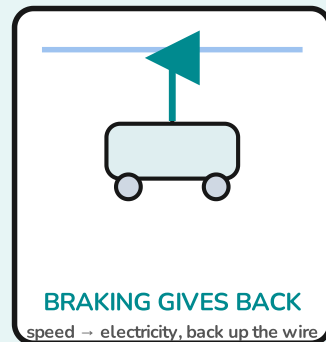
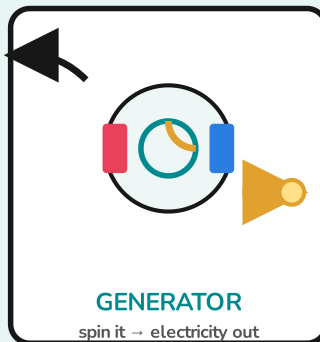
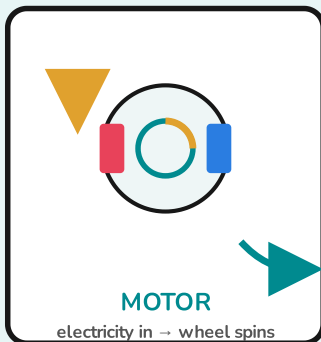
“So to brake, we flip the motors into generators. The train's speed turns back into electricity — for the NEXT train.”



It gives its power AWAY, not wasted!



THE SAME MACHINE, BOTH WAYS



"For the last gentle stop, ordinary brake pads squeeze a disc. But most of the stopping? Pure magnetism."



Braking without burning anything!

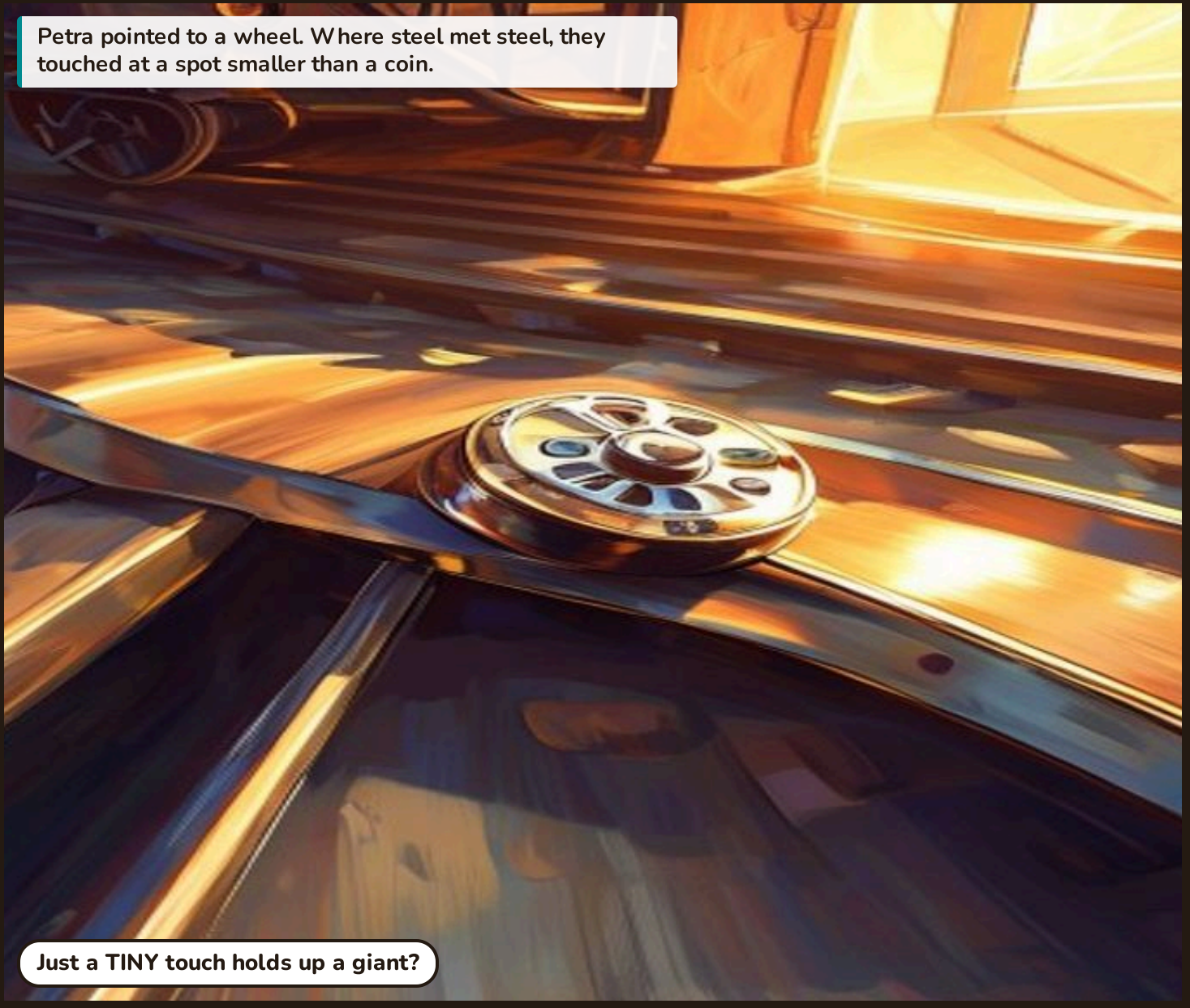
 SIRI'S SECRET NOTEBOOK · DOOR 3 UNLOCKED

 Motor = generator, SAME machine. Braking flips motors into generators: the train's speed becomes electricity, sent back up the wire to other trains. Only the final stop uses pads. Nothing wasted!

STEEL ON STEEL

6a Door Four: why steel wheels, not tires?

Petra pointed to a wheel. Where steel met steel, they touched at a spot smaller than a coin.



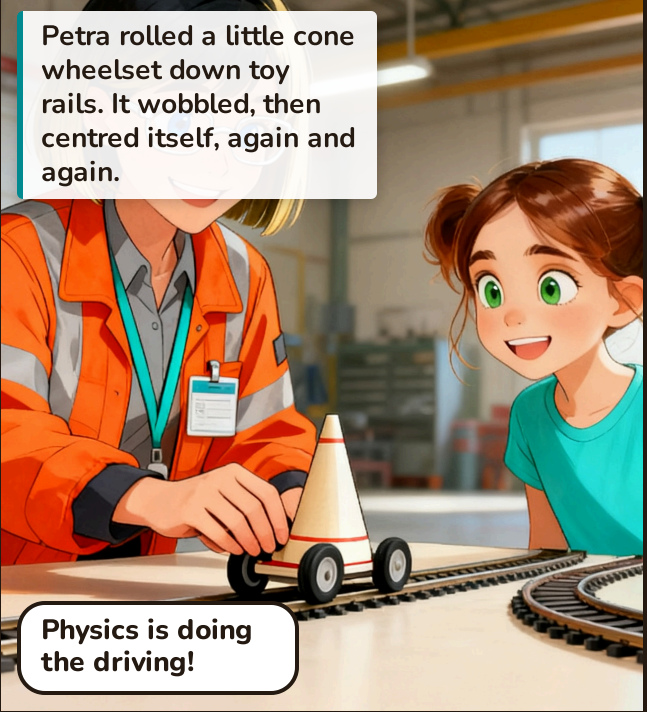
Just a TINY touch holds up a giant?

★ WORTH REMEMBERING

Steel wheel on steel rail slides with almost **no friction** — a tenth of a rubber tire's grip. Less grip sounds bad, but it means less waste: that's how a thin wire can pull 400 elephants. Smoothness is the superpower. 🏔️

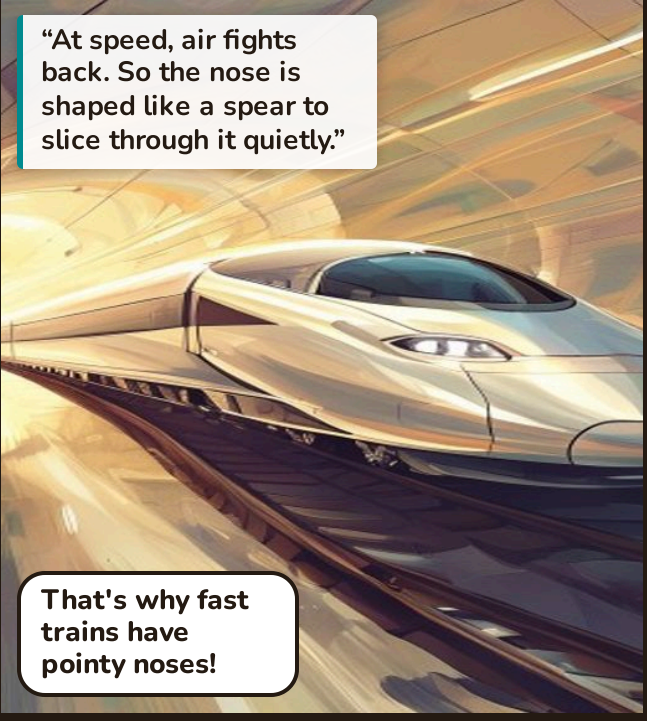


"And look — each wheel is slightly cone-shaped. On a curve, it steers ITSELF back to the middle."



Petra rolled a little cone wheelset down toy rails. It wobbled, then centred itself, again and again.

Physics is doing the driving!



"At speed, air fights back. So the nose is shaped like a spear to slice through it quietly."

The wheels don't need a steering wheel!

That's why fast trains have pointy noses!

 SIRI'S SECRET NOTEBOOK · DOOR 4 UNLOCKED

 Steel on steel = almost no friction (a tenth of tires) → tiny wire moves a giant. Cone-shaped wheels self-steer back to centre — no steering wheel! Pointy nose slices the air. Smooth = fast + cheap.

THE NERVES OF THE RAILS

7a Door Five: how do trains never crash?

"Trains can't swerve and can't stop fast," said Petra. "So we slice the track into invisible blocks."



One train per block — like stepping stones!

"The newest way: each train carries a safety bubble and radios the others, so they run close but never touch."



They TALK to each other!

A metro glided in with no driver at all — guided entirely by a brain in a box.



A train that drives ITSELF?!

On busy lines, safer than any human.

★ WORTH REMEMBERING

The rails have **nerves**. A controller — a brain in a box — watches every block and keeps trains apart, thousands of checks a second, faster than any human. Hold onto that 'brain in a box.' Behind Door Six, it runs whole factories. 🧠

In a signaling control room, glowing dots crept along a map of the whole network. Calm. Exact.



Every dot is a real train, kept safe.

 SIRI'S SECRET NOTEBOOK · DOOR 5 UNLOCKED

 Trains can't swerve → track sliced into BLOCKS, one train each. New way: trains carry bubbles and radio each other (moving block). Driverless metros run on a brain-in-a-box. Same brain runs factories — Door 6!

THE FACTORY IN A COMPUTER

8a Door Six: the machine that builds machines

Petra opened a door onto a factory line. A little glowing box pulsed light to a row of robot arms, all dancing in time.



THAT tiny box runs the whole line?

A brain in a box — for machines!

Then something magic: a glowing hologram of the WHOLE factory, floating, running — before a single wall was built.



A ghost factory! It's practising!

★ WORTH REMEMBERING

Meet the **digital twin**: a perfect copy of a factory living inside a computer. Engineers build it there first, test it, break it, fix it — so the real factory works on day one. You build the factory in a computer before you build it for real. 🖥️

"Trains, robots, whole factories," said Petra. "The same magnet-and-brain tricks, scaled up."

On one side, the ghost factory glowed. On the other, cranes built the real one to match, bolt for bolt.

So this company doesn't just make trains...

They build the factories that build EVERYTHING!

 SIRI'S SECRET NOTEBOOK · DOOR 6 UNLOCKED

 Factory line run by a brain-in-a-box (a controller). The DIGITAL TWIN = a ghost copy of a factory in a computer, tested before it's built for real. This company builds the machines that build everything else. 🏗️

THE MAKING OF A TRAIN

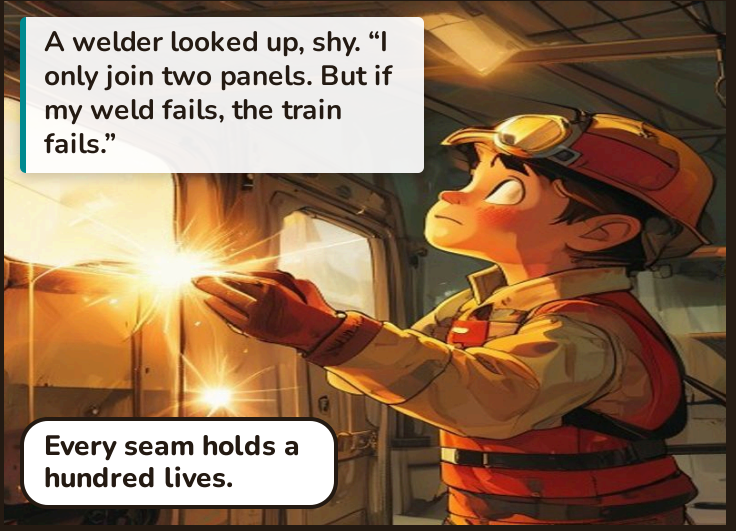
Door seven opened onto no gadget — but a factory where silver trains grew like steel whales.



The last door is a FACTORY?

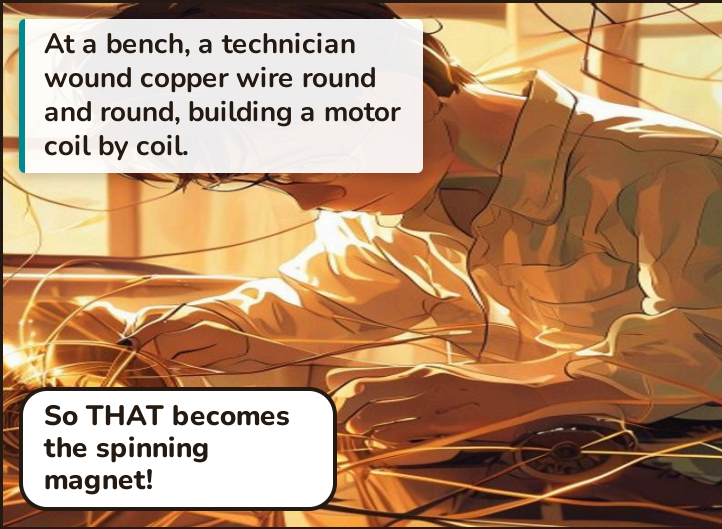
No — it's PEOPLE. Watch.

A welder looked up, shy. "I only join two panels. But if my weld fails, the train fails."



Every seam holds a hundred lives.

At a bench, a technician wound copper wire round and round, building a motor coil by coil.



So THAT becomes the spinning magnet!

Outside, a finished train screamed down a test track under floodlights, sensors watching every part.



They test it for MONTHS before anyone rides.

★ WORTH REMEMBERING

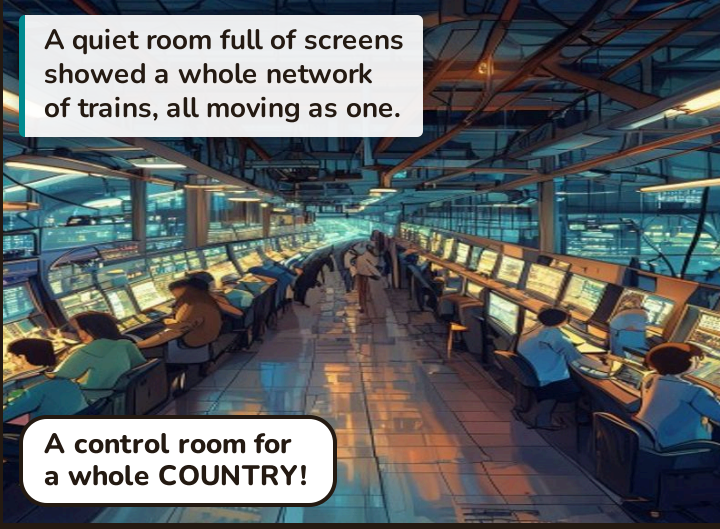
A high-speed train is one of the hardest machines humans build — magnets, brakes, brains and steel, all trusted with lives, for forty years. It cannot fail. So thousands of people each perfect one tiny piece. 🛠️

📖 SIRI'S SECRET NOTEBOOK · DOOR 7 OPENING

🔧 No single gadget — the answer is PEOPLE. Welders, motor-winders, testers. A train must not fail for 40 years, so each person perfects one sliver. Hardest machine + highest trust.

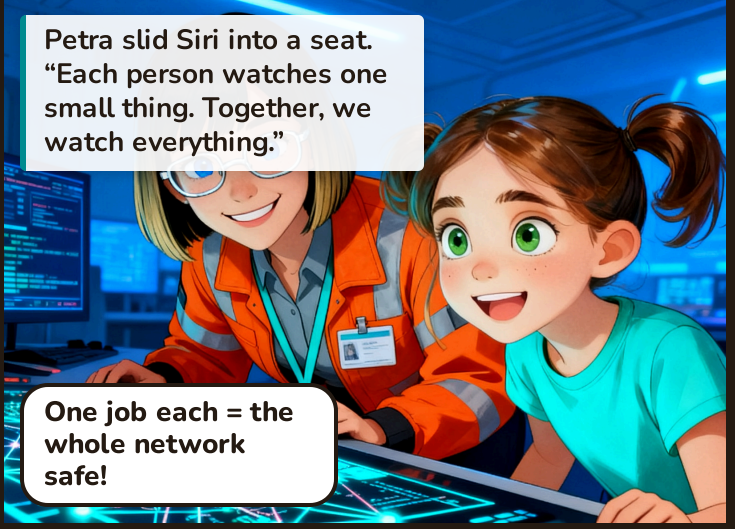
OPENING DAY

A quiet room full of screens showed a whole network of trains, all moving as one.



A control room for a whole COUNTRY!

Petra slid Siri into a seat. "Each person watches one small thing. Together, we watch everything."



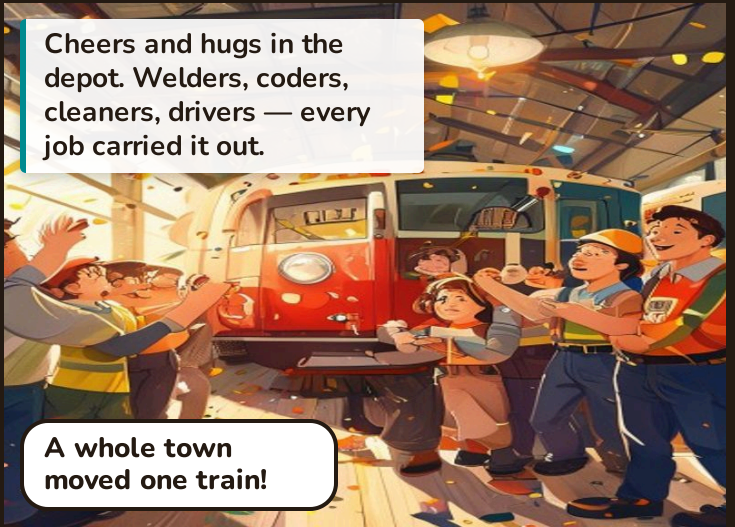
One job each = the whole network safe!

Then, opening day: a brand-new train slid from the station, packed with waving passengers.



It just WORKS — like it always had!

Cheers and hugs in the depot. Welders, coders, cleaners, drivers — every job carried it out.



A whole town moved one train!

★ WORTH REMEMBERING

A smooth train ride looks like one machine and one moment. It's really thousands of people and years of work, meeting at a single quiet departure. When it just works, nobody claps — which is the highest praise of all. 🙌

📖 SIRI'S SECRET NOTEBOOK · DOOR 7, PART TWO

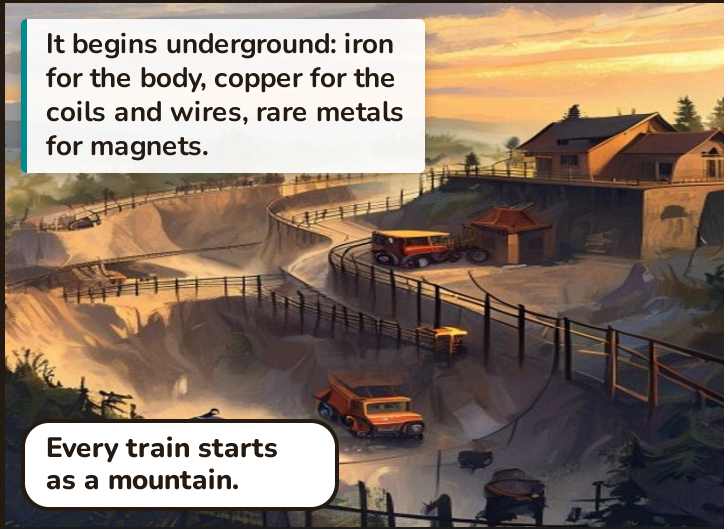
🚂 Ops room = a whole network watched by many, each on one number. Opening day = years of work meeting in one smooth departure. From cleaners to coders, everyone carries the train.

A MILLION HANDS



The trail opened wide.
Behind door seven: not a
factory — the whole world.

One train needs the
whole PLANET?



It begins underground: iron
for the body, copper for the
coils and wires, rare metals
for magnets.

Every train starts
as a mountain.



Golden threads: steel,
copper, chips, software,
motors — all flowing to
one silver train.

Everyone's holding
hands again.



The miner, the steelworker,
the motor-winder, the
coder, the signal engineer
— each said the same shy
line.

'I only do my small
part.'

★ WORTH REMEMBERING

Nobody on Earth can build a train alone. Each person masters one sliver, and one company arranges a million slivers into a machine that carries millions. The arranging, not the parts, is the real invention. 🎵

📖 SIRI'S SECRET NOTEBOOK · DOOR 7 UNLOCKED

🌐 One train = the whole planet's hands: iron, copper, chips, code, magnets. Nobody knows the **WHOLE** recipe. So the real question: **WHO** conducts it all? ...about to find out.



THE TORTURE YARD

The last stop before service: the torture yard. A whole train bolted to a giant shaker, rattled for days.

You SHAKE it on purpose?!

On a test loop, trains ran the distance to the Moon and back, hunting for anything that might wear out.

They wear it out BEFORE you ever ride.

Next, a chamber that baked it in desert heat, then froze it in arctic cold, over and over.

A train must run in ANY weather.

A technician traced a weld with a bright light, chasing one crack thinner than a hair.

One tiny crack could end everything.

★ WORTH REMEMBERING

Train rule, also a business secret: find the flaw in the yard and it costs a little; find it in service and it costs everything — because what breaks then is **trust**. So they break things on purpose, over and over. Fear, turned into a checklist. ✓

📖 SIRI'S SECRET NOTEBOOK • DOOR 7 • THE DISCIPLINE

🔧 Torture yard: shake for days, bake and freeze, run to the Moon and back, hunt hairline cracks. Break it in the yard so it never breaks in service. Reliability is built by trying to destroy it first.

WHY THE WORLD BUYS THE SAME MACHINE

13a Siri's question Flips

Petra showed a photo: an old smoky train that broke down weekly, beside a silent electric one that just... runs.



The new one barely ever breaks!

She drew a balance. One side: the price a city pays. Other: forty years of moving millions, cheaply and cleanly.

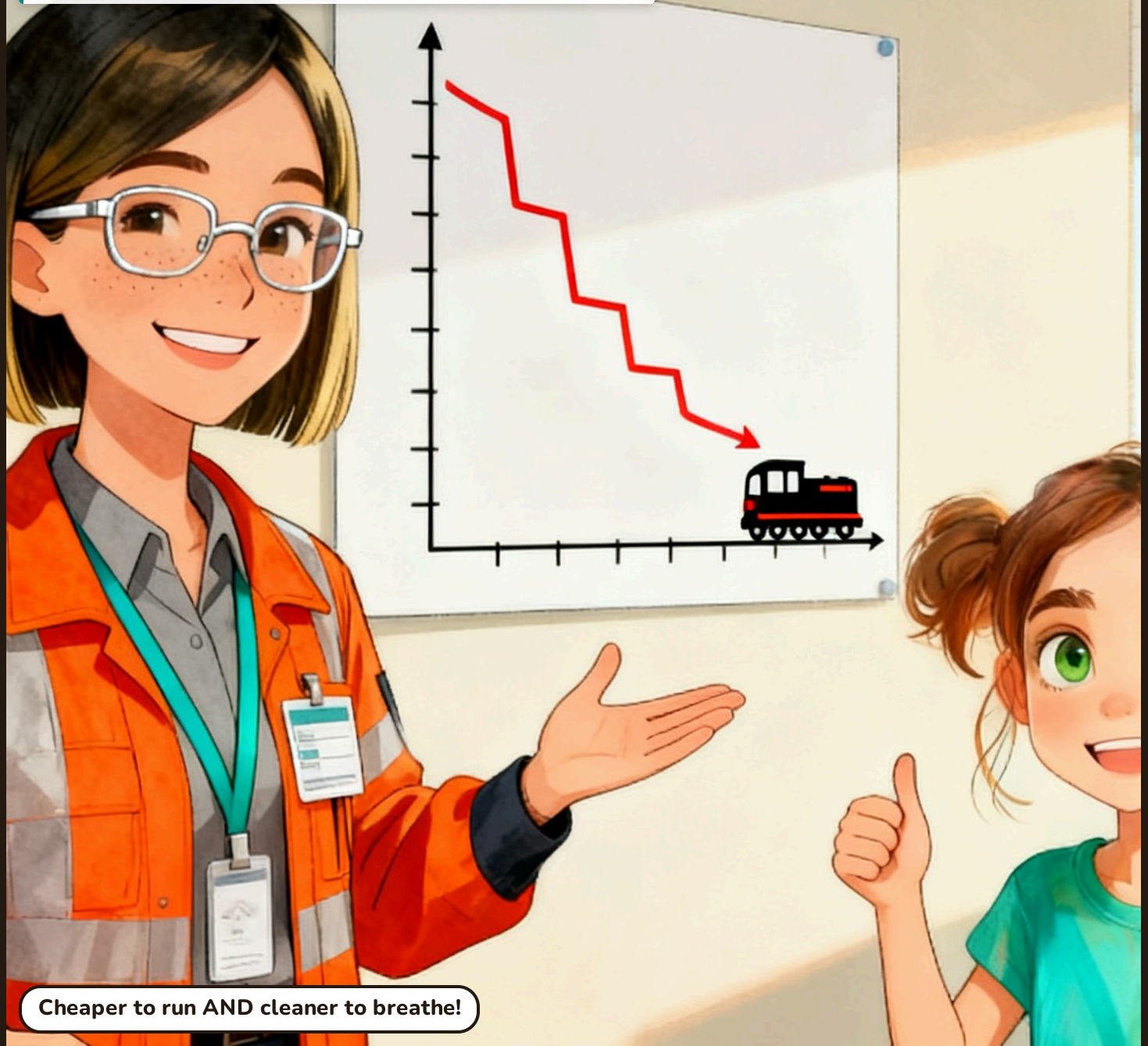


The VALUE side crashes down!

★ WORTH REMEMBERING

Warren's favourite riddle: **price is what you pay, value is what you get.** A city buys a train once, then rides it for forty years — quiet, clean, barely breaking. When the value dwarfs the price, buyers don't feel tricked. They feel grateful. 🍷

Petra pointed to a chart: electric trains sip far less energy than old ones, and the give-back brake saves even more.



Cheaper to run AND cleaner to breathe!

SIRI'S SECRET NOTEBOOK

My question flipped: not 'how does it work' → 'WHY spend billions building it?' Answer #1: a train runs 40 years, barely breaks, sips energy, cleans the air. Value >> price = grateful buyers.

THE FORTY-YEAR HANDSHAKE

Answer #2 lived in a depot: engineers servicing the SAME trains, year after year, for decades.

“Every spare part, every software update, every repair — it all speaks one language. Ours.”

So the city can't just switch brands!

And whole networks — signals, trains, software — all built to fit together like one giant instrument.

Change one piece and you'd rebuild EVERYTHING.

You look after them their **WHOLE** lives?

★ WORTH REMEMBERING

This is a **moat** made of trust and time. Sell a train, a grid, or a factory, and you service it for forty years. Once a customer's whole world speaks your language, switching means rebuilding from scratch. Almost nobody does. 🤝

📖 SIRI'S SECRET NOTEBOOK

👉 Answer #2: the FORTY-YEAR HANDSHAKE. Sell the machine, then service it for decades. Spares, updates, whole networks all speak one company's language. Switching = rebuilding everything → nobody switches. (Grown-ups call it switching costs.)

THE EVERYTHING MACHINE

"Answer #3," said Petra, and opened a hall. Trains. Factory robots. Power grids. And a giant white medical scanner.

A whole car factory ran on its controllers — the same brain-in-a-box that guards the rails.

The rails and the factory share a BRAIN!

Then the scanner. Petra grinned. "Inside is a magnet so strong it can see inside your body."

A MAGNET... to look inside PEOPLE?

One company makes ALL of these?!

★ WORTH REMEMBERING

Here's the deepest link in the whole book: the train's motor is a magnet. The scanner is a magnet. The factory runs on the same electric tricks. Master **one invisible force** — magnetism — and you can build trains, factories, grids AND medicine. 

"We don't sell one machine," said Petra. "We sell the toolkit the modern world is built with."



The picks and shovels behind
EVERYTHING!



SIRI'S SECRET NOTEBOOK

C Answer #3: the **EVERYTHING TOOLKIT**. Same magnet-and-brain tricks → trains, factory robots, power grids, and MRI scanners (a magnet that sees inside you!). They sell the toolkit, not one gadget.

THE BACKYARD THAT WIRED THE WORLD

The compass yanked them through a gate into a 175-year hall. Siri read the name and gasped.

"1847. A Berlin backyard. An inventor named Werner and a craftsman named Halske, building a telegraph by hand."

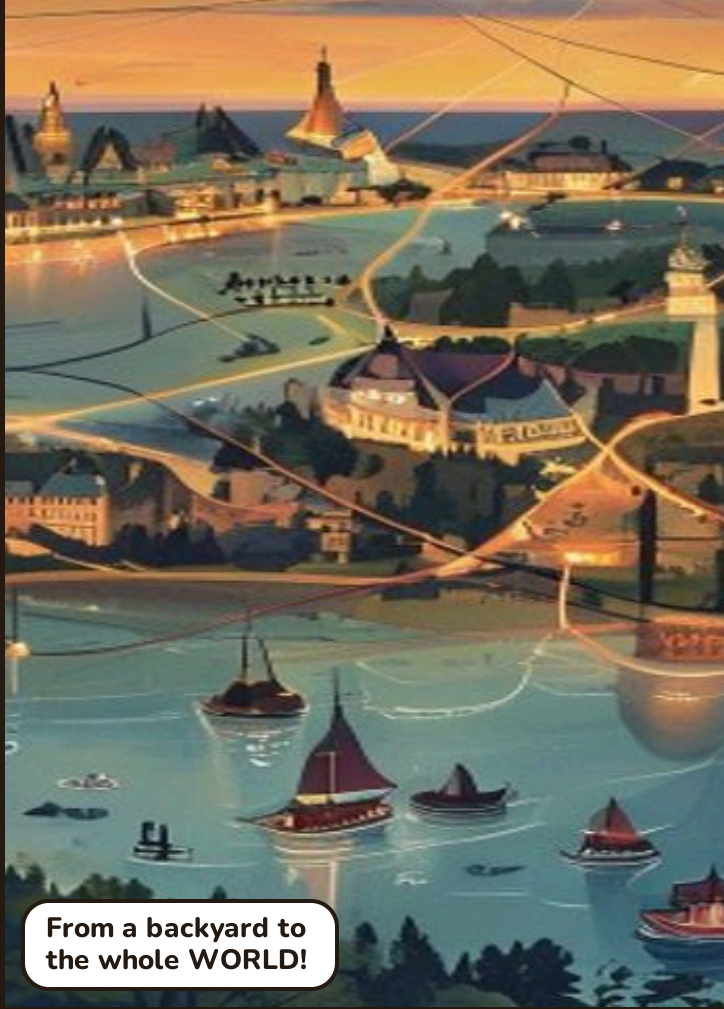
A GIANT started in a BACKYARD?

"Their telegraph was clear and reliable. Soon they strung Europe's first long line — Berlin to Frankfurt."

SIEMENS! The lightning train is theirs!

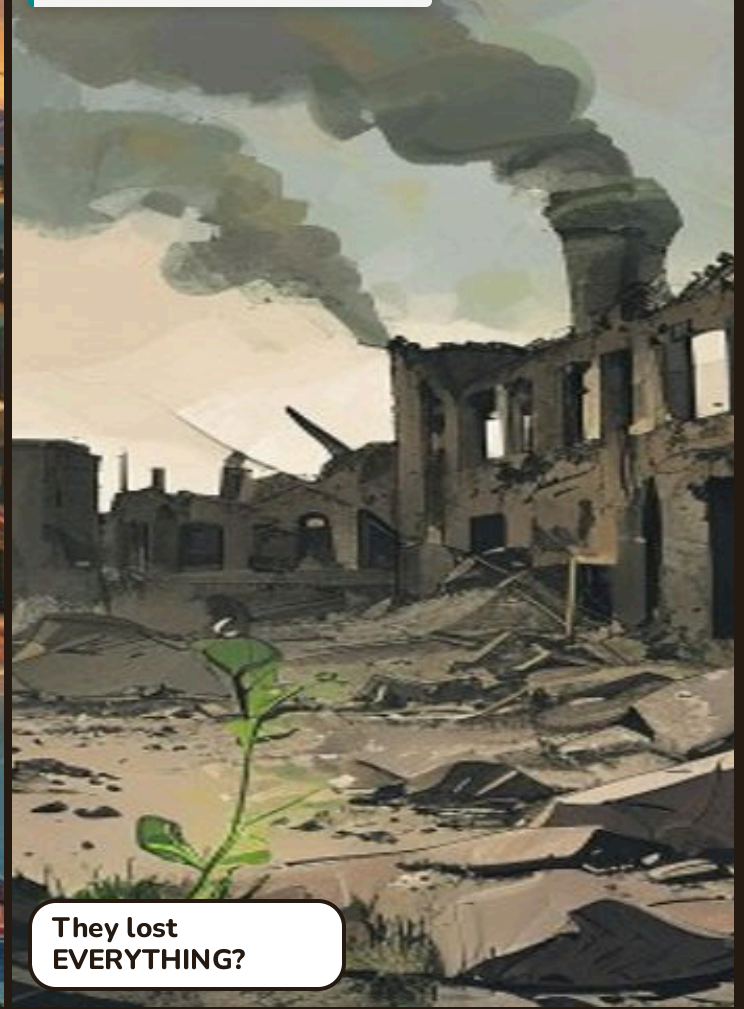
Messages faster than any horse!

“Werner's brothers carried it abroad — London, St. Petersburg. Cables even crossed under the sea.”



From a backyard to the whole WORLD!

“Then the hardest chapter. After a great war, its factories lay in ruins. It had to begin almost from nothing.”



They lost EVERYTHING?

★ WORTH REMEMBERING

Freeze on that ruin: **no company begins great, and none stays safe by birthright.**

Siemens had been famous for a hundred years — then war flattened its factories. What a company does after it falls is what truly reveals it.



SIRI'S SECRET NOTEBOOK · THE REVEAL

⚡ SIEMENS. 1847 backyard telegraph (Werner + Halske) → Europe's first long line → cables across the world → then war left its factories in RUINS. A hundred years old and starting over. Did it rise again?! TURN THE PAGE.

ONE HUNDRED AND SEVENTY-FIVE YEARS OF LIGHTNING

Back to 1866. Werner shows the world how to make electricity in huge amounts — the dynamo. The electric age opens.

He unlocked the **LIGHTNING** for everyone!

1881: the first electric tram carries people through a Berlin suburb. Cities begin to hum with electricity.

No horses — just quiet sparks!

1879, a Berlin fair. The world's first electric train, tiny and brave, pulls delighted passengers in circles.

The very first electric train EVER!

Through the next century: power plants, motors, X-ray tubes, and the brain-in-a-box that runs factories.

From telegraph to running the whole modern world!



THE STORY IN TIME

1847

Werner von Siemens & Halske build telegraphs in a Berlin backyard.

1848

They lay one of Europe's first long-distance telegraph lines.

1866

Werner reveals the dynamo — making big electricity, cheaply.

1879

The world's first electric railway runs at the Berlin fair.

1881

The first electric tram carries passengers in Berlin.

1896

Helps build one of Europe's first electric underground railways.

1900s

Grows into power plants, motors, and medical X-ray machines.

1950s+

Factory automation: the programmable brain-in-a-box.

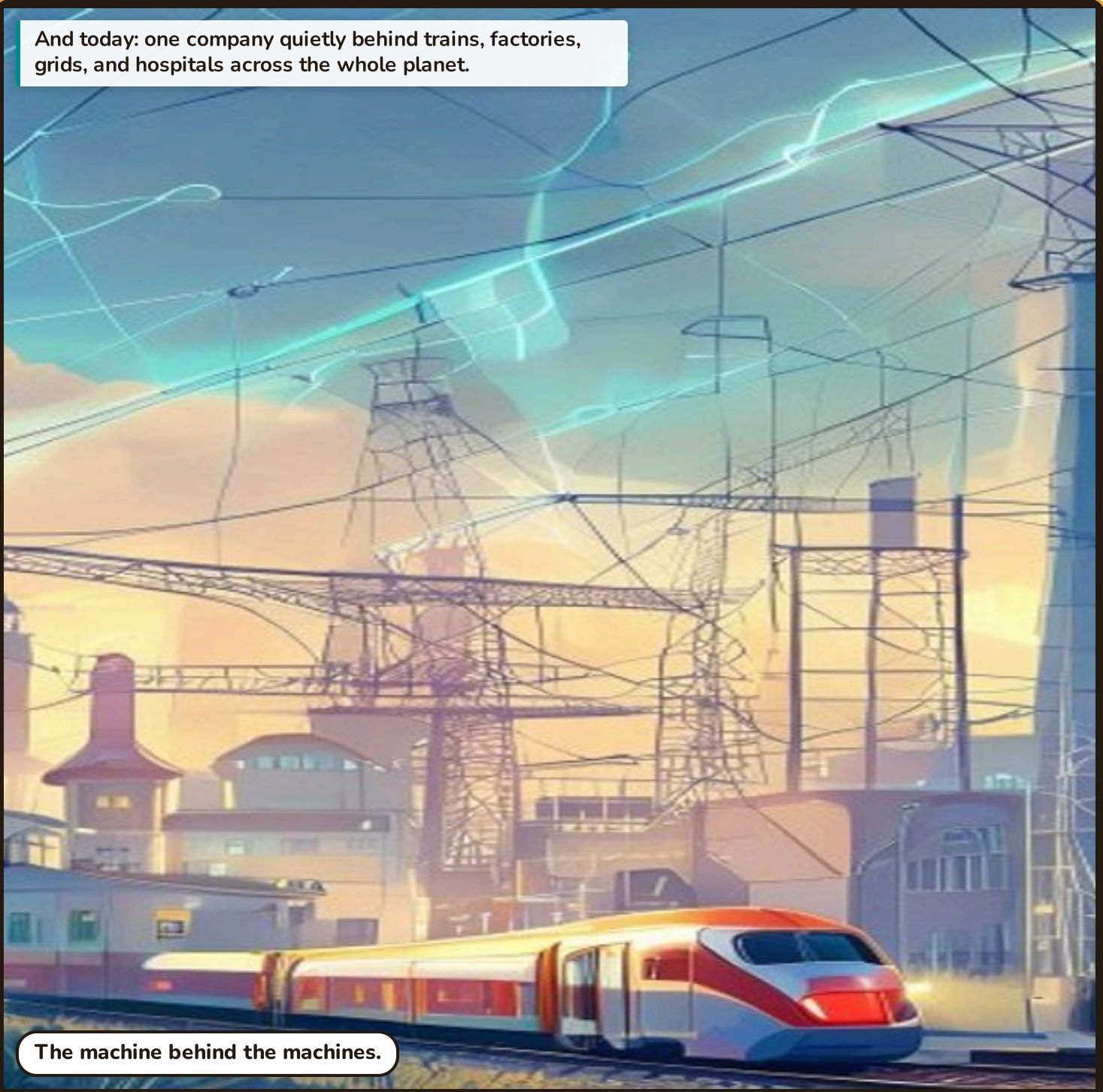
2000s

Digital twins — building factories in a computer first.

Today

Trains, factory robots, power grids, scanners and digital twins. ⚡

And today: one company quietly behind trains, factories, grids, and hospitals across the whole planet.



The machine behind the machines.



SIRI'S SECRET NOTEBOOK

⚡ Rebuilt and reinvented, again and again: dynamo (1866) → first electric train (1879) → tram → factory automation → digital twins. 175 years, one thread: master electricity, then sell it to everyone building the future.

THE CASTLE BUILT TO LAST

A whiff of cherry cola.
Warren and Charlie, the
partners from Omaha,
waited by a shining castle.

Under a bright sky the two
old friends let her lay out
the walls, one by one.
Nodding. Chuckling.
Correcting.

The only question
that matters for a
hundred years, Siri:
what keeps
invaders OUT?

Walls! I've been
collecting them
ALL BOOK!

Scarier than a
school quiz. A
hundred times
more fun.



THE CASTLE WALLS • WHY RIVALS CAN'T COPY IT



Wall One: The Forty-Year Handshake

Sell a train, a grid or a factory, then service it for decades. Once a customer's world speaks your language, they almost never switch.



Wall Two: A Mountain of Know-How

175 years of hard-won engineering can't be hired overnight. Deep patents and standards guard the gate.



Wall Three: A Promise That Can't Fail

When a train, a scanner or a power grid **MUST NOT** fail, buyers pick the name that never let them down. Trust lets you charge more.



Wall Four: The Everything-Toolkit

Not one gadget — the train **AND** the factory **AND** the grid **AND** the software, all fitting together. A rival must copy the whole toolkit at once.

Charlie tapped his glasses. "My trick: don't ask how it wins. Ask what would DESTROY it. Then check they aren't doing it. **Invert, always invert.**"



Find every way to lose — then don't go there!



THE CASTLE WALLS • WHY RIVALS CAN'T COPY IT



Crack One: The Giant Project

Huge builds can run late and over budget. One bad megaproject can swallow years of profit.



Crack Two: The Hungry Rivals

Fast-growing makers abroad are learning to build trains and automation too. The know-how gap can shrink.



Crack Three: A World of Standards

Every country's rails speak a slightly different language. Fitting them all is slow and costly.



Crack Four: The Lean Years

When governments and factories stop spending, orders dry up. Big machines are a feast-or-famine business.



★ WORTH REMEMBERING

Charlie's ruin-it checklist: bungle a giant project, let the know-how age, cut the research, or bet everything on one country. Now — just never do those. Inversion turns worry into a to-do list. ✓

Warren raised his cola. "A business the modern world can't switch off — trains, hospitals, factories, power. Behind walls that took a century to build. The treasure was never the train."



It was the WALLS!



SIRI'S SECRET NOTEBOOK · THE CASTLE

🏰 WALLS: handshake 🤝 · know-how 🧠 · kept promise 🛡️ · everything-toolkit 🧰. CRACKS: giant projects 🚧 · rivals 🏢 · mixed standards 🧩 · lean years 📉. Charlie: INVERT. Warren: buy durability, not gadgets.

THE JUDGE'S QUESTIONS

Then Warren built a tiny courtroom in the orchard — and put the TRAIN on the witness stand.

TOK TOK

Siri banged a toy gavel and fired Warren's five eternal questions.



Order in the court!



Witness — will people still **NEED** you in thirty years?



★ WORTH REMEMBERING

The Owner's Court: ⚖️ Enduring need? — 'The world will always need to move, power, build and heal.' ⚖️ Trust earned? — 'I run forty years without failing.' ⚖️ Reinvest wisely? — 'Every year into better magnets, brains and twins.' ⚖️ Copyable with money alone? — 'My machines, in time; my 175 years, never.' ⚖️ What breaks me? — 'Only growing slow, proud, or careless.' Court adjourned for lemonade.

Last exhibit: a painting of 2056 — new shapes of trains and factories, but the same eternal need to move and build.



The machines change. The need never does.

 SIRI'S SECRET NOTEBOOK · JUDGE ANY BUSINESS

 Warren's five: ① enduring need? ② trust earned? ③ reinvests wisely? ④ copyable with mere money? ⑤ what breaks it? Works on trains, soap, rockets — anything. He never once mentioned a stock price.

THE NEXT THIRTY YEARS

One last look ahead: silent trains that carry their own power — battery and hydrogen — where no wires reach.



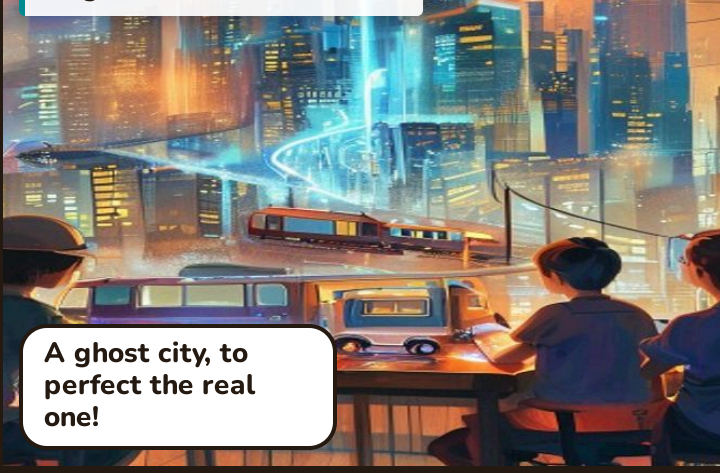
Trains that run with NO wire!

“The wild dream: trains that FLOAT on magnets, touching nothing, whispering along faster than ever.”



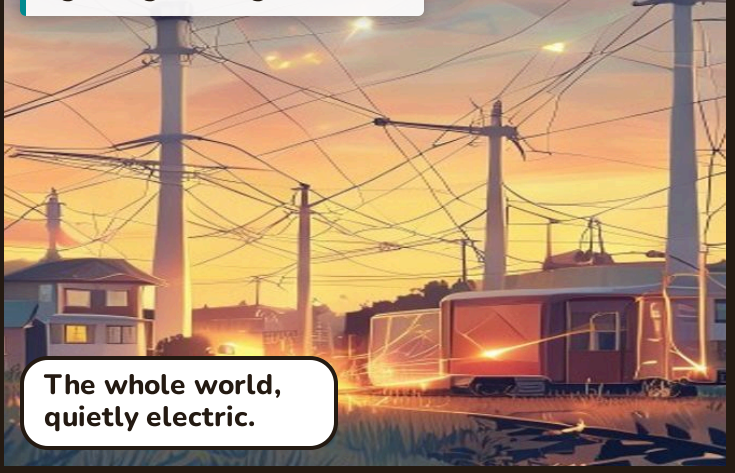
A train with no wheels?!

“And digital twins of whole CITIES — testing traffic, power and trains before a single brick is laid.”



A ghost city, to perfect the real one!

“Smart grids will juggle sun, wind and millions of batteries, keeping the lightning flowing, clean.”



The whole world, quietly electric.

★ WORTH REMEMBERING

No crystal ball — just visible currents: everything going electric, trains that float or fuel themselves, digital-twin cities, grids run by clever brains. Siri's rule: don't bet on one machine — bet on humanity's need to move, power and build. Whoever keeps trust as the machines change, wins 2056. 🌟

On a rooftop at dusk she added the honest last line: a machine is a tool, and tools serve people.



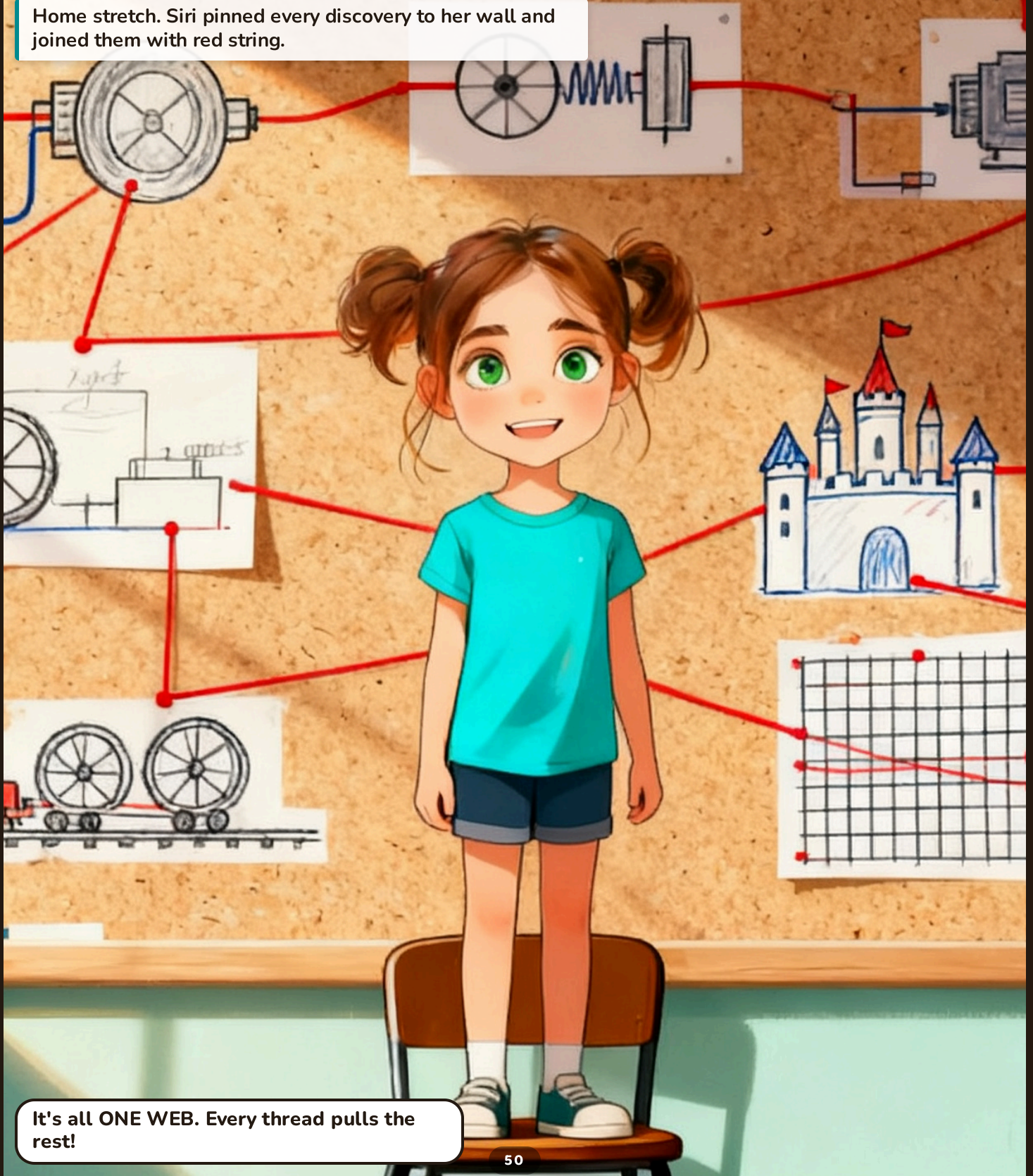
Best servant. Aim it well.

SIRI'S SECRET NOTEBOOK

 2056 watchlist: hydrogen & battery trains, floating maglev, digital-twin cities, smart green grids. Rules: bet on the NEED to move and build, not one machine · trust is the crown · keep the lightning clean.

THE SECRET NOTEBOOK

Home stretch. Siri pinned every discovery to her wall and joined them with red string.



It's all ONE WEB. Every thread pulls the rest!



★ WORTH REMEMBERING

The Science Web, one breath: electricity flowing makes magnetism → coil it into a motor and the wheel spins → run it backward and it makes electricity → brake by giving power back → steel-on-steel and cone wheels roll almost free → block signals and a brain-in-a-box keep trains apart → a digital twin builds the factory first. Ordinary physics, stacked bravely.



★ WORTH REMEMBERING

The Business Web, one breath: value (a machine that runs 40 years) → the forty-year handshake (service and standards nobody can switch away from) → the everything-toolkit (train, factory, grid, scanner) → a castle 175 years deep, patrolled with Charlie's inversion and judged by Warren's court. And underneath: a million strangers, conducted into one machine.

The real test: she retold the **WHOLE** thing to her little cousin — with a toy train and sock puppets.



If sock puppets get it, you really know it!



SIRI'S SECRET NOTEBOOK · THE LATTICEWORK

✪ Charlie's word for my string-wall. Twelve models from ONE train: electricity-makes-magnetism · motor=generator · give-back-brake · steel-on-steel · self-steering wheels · signal blocks · brain-in-a-box · digital twin · nobody-knows-the-recipe · reliability-is-the-treasure · switching costs · invert. 🚅

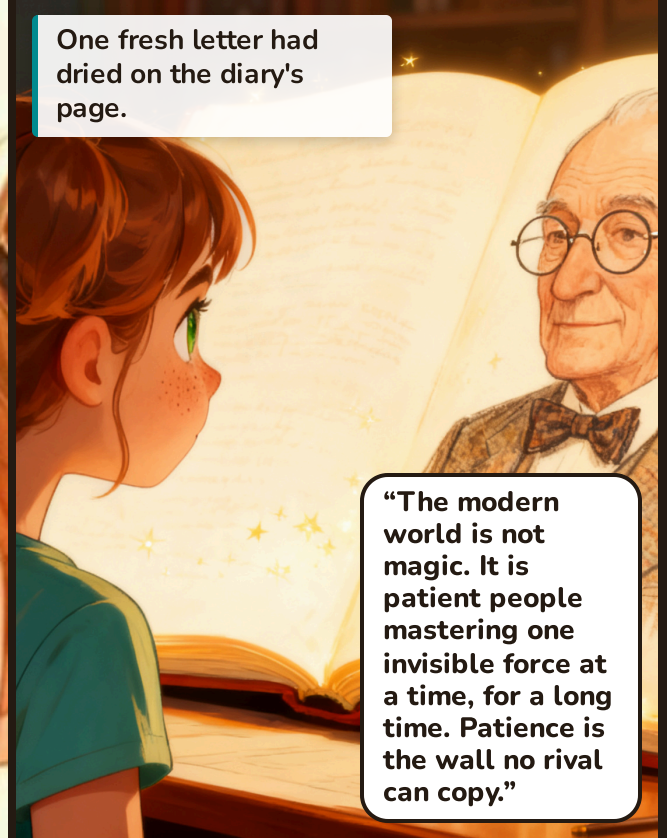
COMING HOME

Her own bed. Morning. The compass: quiet. The world: somehow lit differently.



Was it real? It FELT real...

One fresh letter had dried on the diary's page.



"The modern world is not magic. It is patient people mastering one invisible force at a time, for a long time. Patience is the wall no rival can copy."

At breakfast the little model train sat on the shelf — coils, magnets, a give-back brake, a backyard 175 years old.



You're the machine behind the machines.

Then a real silver train
glided past the window —
silent, clean — and the
whole family looked up.



It runs on lightning.
And I KNOW how!

She hugged the diary tight.
Far away, a silver train
caught the morning sun,
gliding on toward
tomorrow.



Show me the next
one, Grandpa. 🍷

★ WORTH REMEMBERING

Next time a train slides past, feel it: electricity pretending to be a magnet, spinning giant wheels — then remembering its speed as lightning to share. **Nothing, from now on, is just anything.**



SIRI'S SECRET NOTEBOOK · VOLUME THREE, CLOSED

Seven doors. Twelve mental models. One castle. One ruin. One hundred-and-seventy-five-year climb back. But the compass is twitching toward the window now... toward something huge and YELLOW, chewing a hillside apart. Volume Four. 🗺️🚗



OUR PHILOSOPHY

We believe the greatest gift we can give a child is the ability to think.

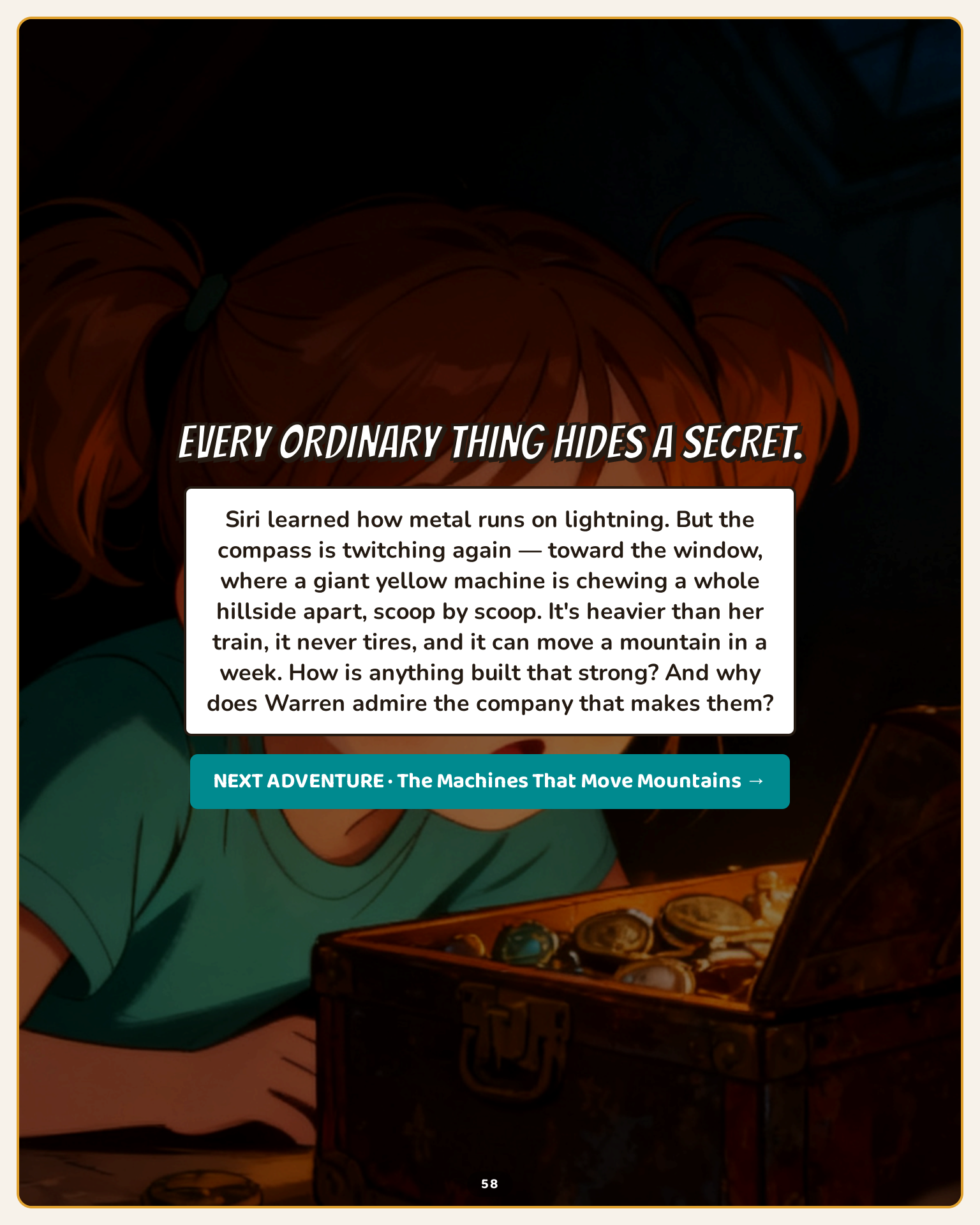
Inspired by the multidisciplinary thinking of **Charlie Munger** and the rational, long-term philosophy of **Warren Buffett**, our comics connect science, technology, business, history, and human behavior to show how the real world works.

Every story begins with a scientific idea and follows its journey into innovation, industry, and the businesses that create value for society. Along the way, children learn that great companies are built on curiosity, experimentation, integrity, and long-term thinking.

Our goal is not to teach children how to invest, but to help them build the mental models needed to understand the world, ask better questions, and think independently.

The companies featured in *The Great Company Adventures* are educational case studies—not investment recommendations. They show how knowledge, innovation, and perseverance turn ideas into products, services, and enduring businesses.

LEARN THE SCIENCE. • UNDERSTAND THE BUSINESS. • THINK FOR LIFE.



EVERY ORDINARY THING HIDES A SECRET.

Siri learned how metal runs on lightning. But the compass is twitching again — toward the window, where a giant yellow machine is chewing a whole hillside apart, scoop by scoop. It's heavier than her train, it never tires, and it can move a mountain in a week. How is anything built that strong? And why does Warren admire the company that makes them?

NEXT ADVENTURE • The Machines That Move Mountains →