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The Clockwork Epoch

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Table of Contents

- **Introduction**
- **Chapter 1** The Lathe of Hours
- **Chapter 2** Blueprints for Yesterday
- **Chapter 3** Causal Load Testing
- **Chapter 4** The Factory at Mile Zero
- **Chapter 5** Alternate Past #17
- **Chapter 6** The Auditor of Time
- **Chapter 7** Backlash and Slack
- **Chapter 8** The Salvager's Dilemma
- **Chapter 9** Ghosts in the Geartrain
- **Chapter 10** The Profit Curve
- **Chapter 11** Conservation of Regret
- **Chapter 12** The Switchyard of Histories
- **Chapter 13** Safety Interlocks
- **Chapter 14** The Impossible Contract
- **Chapter 15** Jigs and Juries
- **Chapter 16** Causality Debt
- **Chapter 17** Torsion in the Timeline
- **Chapter 18** Proof Load to Failure
- **Chapter 19** The Breakaway Pin
- **Chapter 20** A Present Worth Saving
- **Chapter 21** The Spoiler Event
- **Chapter 22** Salvage Operations
- **Chapter 23** Shear, Creep, and Courage
- **Chapter 24** The Shutdown Sequence
- **Chapter 25** Epoch Reset

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Introduction

Time stories often cheat. They wave a hand, slip through a paradox, and pretend the bill will never come due. This one refuses. In *The Clockwork Epoch*, time is not a ribbon to be tied in a bow; it is a machine built to tolerances, a system that creaks and hums under load. The figures matter. The clearances matter. When you torque a moment too far, something shears—maybe a bearing in the world, maybe a person you love.

Our protagonist is a temporal engineer, someone who treats causality as a shop full of measurable forces and finite budgets. In their world, yesterday can be milled to spec and installed where an earlier yesterday used to be, provided you respect the limits: conservation of information, boundary conditions, and the inevitable hysteresis of human memory. There are tools for this work—phase wrenches that align oscillating events, anchor pins that hold a decision in place, echo recorders that capture the interference patterns of choices that might have been. None of them are magic. Every instrument has a rating. Every revision melts a little more slack out of the geartrain of history.

The discovery that drives this tale is a factory: not a metaphor, a place. It makes alternate pasts the way other factories turn out bearings or bottles—on spindles and jigs, with shift whistles and safety posters. It accepts orders, runs prototypes, conducts destructive tests. It has a scrap yard where broken yesterdays cool among weeds. The factory is secret not because it is delicate, but because it is brutally practical. If you knew you could order a different childhood for yourself or an earlier bankruptcy for a rival, what wouldn't you try to change?

Enter the dilemma that matters: the choice between salvaging the present and profiting from impossible futures. Salvage is slow, careful, and honest. It keeps a community intact and a planet livable. Profit is immediate, seductive, and exquisitely rationalized. A revised harvest here, a pre-empted leak there, a market-shifting patent delivered three years ahead of schedule. Each intervention pays today and invoices tomorrow. Most people never see the ledger. Engineers do. They see causal debt accruing like hairline cracks along a stressed beam.

This book treats causal mechanics like engineering constraints because that is how lives are truly lived—inside limits. Our characters cannot wish consequences away. They can only calculate, improvise, and accept that every calculation carries uncertainty. The result is a thriller of shop floors and shadow contracts, of instrument panels blinking amber, of rules negotiated at midnight by people who know what failure modes look like and refuse to look away. It is, as much as it is about time, a story about responsibility: to craft, to colleagues, to strangers downstream.

If you come for the mind-bending, you will find it: switchyards where histories couple and decouple, feedback loops that sing themselves into catastrophe, and elegant workarounds that exploit tolerances without breaking the machine. If you come for the human stakes, you will find those too: grief that cannot be revised, love that refuses to be optimized, friendships that must survive long after the cleverness runs out. The gadgets are inventive because people are. The rules are consistent because the world is. The danger is real because every changed moment touches a thousand others.

To help you keep your footing, here are a few ground truths the story observes. Nothing appears from nothing, not even a new yesterday; cost is simply displaced. Memory can lag events, but not forever; the body knows before the mind admits. Small changes are easier to install than large ones, but cumulative small changes can jam a great machine. And the most reliable safety device ever made is a person who understands what a warning label means.

This introduction is your safety briefing and your promise: no deus ex machina will pry open a sealed outcome, and no paradox will be erased with a shrug. The characters in these pages will tighten bolts, make errors, honor procedures, and sometimes, under pressure, break them. They will measure twice and cut once—and still discover the piece won't fit. They will choose, because they must, and you will feel the torque of those choices. Welcome to the shop floor of time. Mind your fingers. The machine is running.

CHAPTER ONE: The Lathe of Hours

Mara Voss tightened the last bolt on the phase wrench and watched the dial settle at 0.003 seconds of lag. The tool hummed, a low vibration that felt more like a heartbeat than a machine. She had spent the last twelve months calibrating it in the basement of her apartment, where the walls were lined with echo recorders and spools of temporal tape that looked like old cassette reels but stored interference patterns instead of music. The air smelled of ozone and faintly of burnt coffee, a reminder that even the most precise instruments needed a human to keep them running.

She worked for the Temporal Integrity Bureau, a department that existed more in paperwork than in brick-and-mortar offices. Their mandate was simple on paper: prevent unauthorized alterations to the causal flow. In practice, it meant chasing down rogue engineers who tried to sell a better yesterday to the highest bidder and making sure the city's power grid didn't flicker because someone had nudged a decision a few milliseconds too early. Mara liked the job because it treated time like a piece of machinery—if you knew the tolerances, you could keep it from seizing.

That morning, the bureau's internal alert system pinged with a code she hadn't seen in the field manual: **Θ-9**. Theta-9 was reserved for anomalies that violated the conservation of information threshold by more than fifteen percent over a seventy-two-hour window. In plain language, someone had tried to rewrite a chunk of history large enough to leave a noticeable scar, and the bureau's sensors had picked up the reverberations.

Mara grabbed her field kit—a compact set of phase wrenches, a portable anchor pin array, and a battered notebook where she sketched gear ratios in the margins—and headed to the rendezvous point: an abandoned rail yard on the city's outskirts where the old freight lines still ran occasional test runs for the municipal transit authority. The yard was a tangle of rusted tracks, overgrown weeds, and the occasional graffiti tag that read "TIME IS A LIE" in faded spray paint. It was the perfect place for a discreet meeting, far enough from the surveillance grids that the bureau liked to pretend were infallible.

She arrived just as the sky began to blush with the first hints of dawn. A figure leaned against a corroded signal box, wearing a coat that had seen too many shifts in the workshop and too few in the sunshine. The person's face was obscured by a welding mask pushed up onto the forehead, revealing a pair of eyes that looked like they had been polished on a lathe—sharp, focused, and a little tired.

"Mara Voss?" the figure asked, voice filtered through the mask's resonator.

She nodded, slipping her glove off to reveal the faint scar that ran across her knuckle—a souvenir from a misaligned phase wrench that had once sheared a gear tooth in her early apprenticeship. “You’re the one who sent the Θ -9 alert?”

The figure lowered the mask, exposing a weathered face framed by a beard that had seen better days. “Name’s Silas Rook. I work the night shift at the ChronoForge plant out near Mile Zero. You’ve probably heard the rumors—factory that makes alternate pasts? Yeah, that’s us. We’ve got a problem.”

Mara’s eyebrows rose despite herself. The ChronoForge plant was a whispered legend among temporal engineers, a story told over lukewarm coffee in the break room to scare newcomers into respecting the rules. Supposedly, it was a facility that could take a request—say, a different outcome for a childhood accident—and produce a fully realized past that could be spliced into the timeline like a replacement bearing. The bureau had dismissed it as folklore, a myth born from engineers’ wishful thinking and too many late-night shifts.

“You’re saying the factory is real?” Mara asked, keeping her tone even. She had learned early that surprise was a luxury you couldn’t afford when dealing with causal mechanics.

Silas shrugged, the movement causing a few flecks of rust to fall from his coat. “As real as the lathe in my shop. We’ve been running a pilot line for the past three months, producing small-scale alternates—mostly personal tweaks, like changing the result of a job interview or the timing of a traffic light. Yesterday, something went off spec. We tried to install a past where a certain shipment arrived two hours early, intending to give a client a market edge. The splice didn’t hold. Instead, we got a feedback loop that’s started to echo through the local grid.”

Mara felt the familiar itch of curiosity tug at her fingertips. Feedback loops were the temporal equivalent of a resonant frequency that could shatter glass if left unchecked. They occurred when a change in the past reinforced itself in the present, causing the alteration to amplify rather than dampen. Left unaddressed, they could cascade, creating paradoxes that the bureau’s safety interlocks were designed to prevent.

“How big is the echo?” she asked, pulling out her phase wrench and flicking it on to get a baseline read of the ambient temporal noise.

Silas consulted a handheld readout that looked like a cross between a Geiger counter and a chronometer. “The deviation is currently at 0.12 seconds of accumulated lag over the last six hours. It’s not enough to knock out the power grid yet, but it’s climbing. If we don’t dampen it within the next twenty-four hours, the loop will hit the resonant frequency of the municipal transit hub’s master clock. At that point, we could

see a city-wide desynchronization—traffic lights cycling incorrectly, train schedules slipping, emergency response times drifting.”

Mara nodded, already running the numbers in her head. A 0.12-second lag might seem trivial, but in a system where every microsecond counted, it was enough to cause a measurable drift. The bureau’s safety protocols called for an immediate isolation of the source, followed by a controlled rollback using anchor pins to hold the decision point in place while the excess causal debt was bled off through a regulated dissipation circuit.

“Show me the site,” she said, sliding her glove back on. “I need to see the lathe you’re using.”

Silas led her through a maze of chain-link fences and past a rusted freight car that had been repurposed as a makeshift office. Inside, the air was thick with the scent of hot metal and oil. Banks of equipment lined the walls—lathes, milling machines, and a series of odd-looking devices that resembled nothing so much as oversized watchmakers’ tools, each with dials marked in seconds, minutes, and hours. At the center of the room stood a massive lathe, its bed polished to a mirror shine, its chuck gripping a cylindrical blank that seemed to pulse faintly, as if it contained a heartbeat.

“This is the Lathe of Hours,” Silas announced, pride evident in his voice despite the grim circumstances. “We feed it a blank chronon—think of it as a raw slice of time—and we shape it using calibrated cutting tools that adjust the probability amplitudes of events. The result is a finished past, ready for insertion.”

Mara walked around the machine, noting the array of cutting tools mounted on the turret. Each was labeled with a range of temporal frequencies: “Decision Shift - 0.001-0.01 s”, “Memory Hysteresis Compensator - 0.01-0.1 s”, “Information Conservation Guard - 0.1-1 s”. It was exactly the sort of toolkit she’d imagined in the bureau’s theoretical white papers, but seeing it in flesh and steel made the abstract feel tangible.

She ran her fingers along the edge of the blank. It felt cool, slightly vibrating, like a guitar string that had just been plucked. A small display embedded in the lathe’s headstock showed a waveform—an interference pattern that represented the probabilistic distribution of events contained within the blank. Peaks and valleys corresponded to moments where certain outcomes were more likely.

“What went wrong with the shipment past?” she asked, her voice low enough not to disturb the humming of the lathe.

Silas glanced at a readout on the lathe’s control panel. “We attempted to shift a macro-event—a logistics node—by 7,200 seconds. The cutting tool we used was rated

for micro-adjustments only. We overloaded the feed rate, causing the blank to deform beyond its elastic limit. Instead of a clean cut, we got a burr—a fragment of alternate history that didn't fully detach. That burr is what's feeding back into the present, creating the echo."

Mara's mind flashed to the bureau's diagrams of causal stress and strain. Overloading a temporal workpiece was akin to exceeding the yield strength of a metal; the material would permanently deform, leaving residual stresses that could later cause fracture. In time, those stresses manifested as paradoxes or, in this case, a growing lag.

"We need to remove the burr and anneal the blank," she said, more to herself than to Silas. "Annealing in temporal terms means allowing the system to relax back to its baseline through controlled dissipation—essentially, letting the excess causal information bleed out as low-grade noise."

Silas frowned. "We don't have a dissipation circuit on site. The lathe's built for production, not cleanup."

Mara pulled out her phase wrench and set it to a low-torque mode. "We can improvise. Anchor pins can hold the decision point while we use a broad-band phase modulator to smear the excess information across a spectrum of harmless frequencies. Think of it like using a deburring tool on a metal workpiece—except the tool is a wave of phase-shifted energy that smooths out the irregularities."

She glanced at the lathe's control panel, noting the input for external modulation signals. "If we feed a counter-phase signal into the blank's timeline, we can cause destructive interference with the burr's waveform, effectively canceling it out. The risk is that we might also affect the intended past we were trying to create, but since the macro-event shift failed, we have nothing to lose there."

Silas looked skeptical but nodded. "We have a spare phase modulator in the tool locker. It's set up for fine-tuning the cut on small batches. We can rig it to broadcast a wideband pulse."

Together, they set to work. Mara attached the anchor pins to the lathe's bed, clamping them at points that corresponded to the decision node of the shipment past—identified by a spike in the waveform where the probability of the early arrival peaked. The pins emitted a soft field that locked that node in place, preventing any further shift while they worked on the burr.

Silas connected the phase modulator to the lathe's modulation jack, dialing the output to a broadband noise centered around the frequency of the burr's interference pattern. He set the amplitude low at first, watching the waveform on the display. As

the modulator's signal overlapped with the burr's, the peaks began to flatten, the interference pattern diminishing like a wave meeting its opposite.

Mara monitored the temporal lag readout on her handheld. The number began to creep downward—0.11, 0.09, 0.07—each tick a small victory. She felt a familiar satisfaction, the same she got when a stubborn bolt finally turned after hours of penetrating oil and patience.

After about twenty minutes of steady modulation, the waveform showed a clean, smooth profile, the burr gone. The lag readout hovered at 0.02 seconds, essentially within normal atmospheric noise. Mara exhaled, a breath she hadn't realized she'd been holding.

"Nice work," Silas said, a grin breaking through the grime on his face. "Looks like we've bought ourselves some time."

Mara checked the lathe's status. The blank still sat in the chuck, unmarred now, ready for another attempt if they chose. She thought about the implications. The factory could indeed produce alternate pasts, but it was not without cost. Each attempt drew from the causal budget, and if the budget was exceeded, the system would develop residual stresses—exactly what they had just mitigated.

She turned to Silas. "You've got a line here that could change lives, for better or worse. But the bureau's going to want to know exactly what you're doing, and they'll want oversight. If you keep running unsanctioned shifts, you're going to keep generating causal debt that someone—maybe the city, maybe the whole region—will have to pay."

Silas's expression softened, the earlier bravado replaced by a weary acknowledgment. "I get that. We thought we were just giving people a chance to fix mistakes. Didn't realize we were shaving off slivers of the present to do it."

Mara slipped her phase wrench back into her kit. "If you want to keep working here, we'll need to set up a proper feedback dump, a regulated dissipation path, and a set of operating limits that stay well within the conservation thresholds. Think of it like installing a relief valve on a pressure vessel. It won't stop you from making product, but it'll keep the vessel from bursting."

She pulled out a small notebook from her pocket and tore out a page, scribbling a quick schematic: the lathe, the anchor pins, the phase modulator, and a new block labeled "Causal Dissipation Unit - passive low-pass filter". She handed it to Silas.

"Take this to your supervisor. Show them the numbers. If they're serious about making this a legitimate operation, they'll need to invest in the safety gear. Otherwise, the

bureau will shut you down, and you'll lose more than just a prototype line."

Silas took the page, his fingers brushing the ink. He looked at the lathe one last time, then at the empty space where the burr had been. "We'll see what they say. Thanks for the help, Engineer Voss."

Mara nodded, feeling the weight of the chronometer on her wrist tick steadily. She turned and walked back toward the rail yard's exit, the early sun casting long shadows across the weeds. The lathe continued to hum softly in the distance, a reminder that time, like any machine, required respect, maintenance, and a steady hand to keep it from tearing itself apart.

Behind her, the echo of the lathe's fade mingled with the distant whistle of a freight train—a sound that, for now, remained firmly anchored in the present.

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