

The Fractime Saga

Steve Hertig

Smashwords Edition

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Version 3.0

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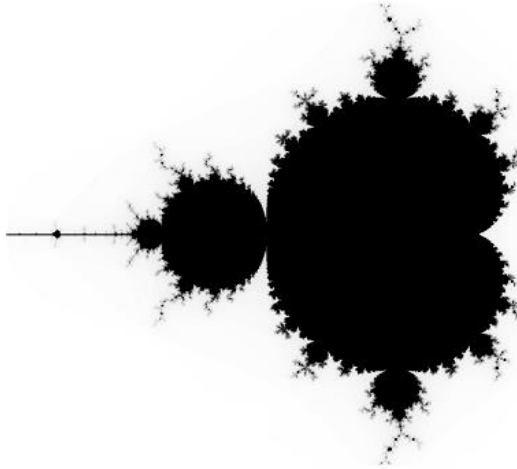
This book contains mature content.

Dedicated to my "Unforgettable"

Part 1: Symmetry

"All matter is simply undulations in the fabric of space."

- [William Clifford](#) 1870



Chapter 1

8 May 1902

Horloge, ignoring the chilling yowls of a troop of Howler monkeys above him on the steep mountainside, continued to adjust his apparatus.

"What is it now?" he asked turning from the equipment when a boy he had hired for a few francs as a guide tapped his shoulder. He turned to see a stranger with a pistol trained on him.

"What you want man with that gun?" the boy demanded bravely.

Recognizing the weapon, Horloge pulled the boy close.

The man just glared at them both, oblivious to the churning volcano in the distance.

The boy looked fearfully up at his employer. "Mr. Horloge?"

"It's all right," Horloge said calmly, grasping the boy's shoulder.

"Move and hands in the air," the man finally spoke while waving the weapon to direct them away from their gear.

"Do you know what day this is?" Horloge asked coolly as he pulled out a tarnished pocket watch from his vest and then thumbed it open. Winking away sweat, he took a casual glance at the digital display. The day was, in fact, May 8th, and it was surprising that the man did not react more to his question.

"Damn," Horloge said between clinched teeth, knowing he had taken a big risk staying so long, but the ongoing recording of the eruption was crucial.

"The day? The day is your last, asshole," the man said.

"It's 1902," Horloge said emphatically, knowing eruption of Mount Pelee on the northern end of the Caribbean island of Martinique was imminent. The eruption killed over thirty-thousand people in fewer than five minutes, boiling the town of Saint-Pierre in a thousand-degree Celsius bath of gas, ash and debris— what geologists call a nuée ardente.

Horloge also knew official records noted only two survivors; they were not the boy or him.

"Move," the man commanded while taking aim at Horloge and then stopping to stare at the equipment.

A large drop of sweat somehow clung to the end of the boy's nose as a strong tremor rocked the peak and the mountainside. The stranger fell to the ground as great Poui tree in full yellow bloom tumbled amid rocks, dust and red earth in a terrifying roar down slope.

Struggling to stand on the remaining, crumbling ledge the man choked violently as a wave of volcanic gases enveloped them all but the boy and Horloge instinctively held their breath.

Horloge blindly pulled the boy back yet again before a massive lurch of the earth, coinciding with a low-frequency rumble, threw them all to the ground. Struggling to his knees, Horloge screamed to the boy above the growing roar, "Get to the instruments!"

Horloge glimpsed through blistering ash the man struggling to raise his weapon when a massive flash and pressure wave consumed all his senses. Partially sheltered by the eroding cliff, he heard a torrent of bullet-like, mini-fireballs whiz overhead. Stumbling in the growing darkness, he shoved the petrified boy towards the equipment as the man tried in vain to re-aim his weapon. Lightning illuminated small, bloodless holes enveloping the man's body as the weapon spat a flash of its own, exploding the trail in front of Horloge that hurled him back towards his equipment.

The boy was gone. Above him, Horloge saw the stranger suspended by a violent updraft of volcanic gases and swirling ash. A continuous barrage of pyroclastic debris ripped and pulled the body to pieces then finally away into a dark sky.

12 Feb 2052

"The GS has got to be joking," Professor John Mackinac said, resolutely studying the current semester's calendar tacked onto the wall behind his desk.

"The United States Geologic Survey never jokes," Carl Watkins, the professor's post-doctorate, quipped.

"I can't believe we're still waiting on their required sample locations," John said.

"They change their mind and fully fund the original proposal even with some helicopter support thrown in, all with the stipulation of new sampling, but no locations for over a month," Carl said. "Doesn't make much sense."

John sighed, sympathizing with his post-doc over the current budget constraints on the GS, which meant headaches for both. "More delays and we won't even get a break from the weather," he lamented knowing the Caribbean island of Martinique was an enjoyable alternative to Ann Arbor in winter. Even though it did not snow much in Michigan anymore, he still hated the usual relentless February rain.

John's workstation announced an incoming message.

"And here's the punch line," he said shaking his head in disbelief at the coincidence. "It looks like we've got all the sample locations' coordinates as well as a new GS team leader on the project, a Victoria Johnston, and she is seeking a vid-con before leaving for Martinique."

Shrugging his shoulders, Carl said, "I guess given the increase in funding that's not too surprising."

"Nothing would surprise me when it comes to governmental funding," John said with disgust.

He had a department review coming up, and this project made him nervous; he could not put his finger on it, but it just didn't feel right. Any

setbacks now could be precisely the excuse the dean needed to delay his tenure again and that would cost him research funding.

"At least we've got a field program that's finally moving forward," Carl said.

"I guess we should get the viz space booked for the GS. I'll tell Sophie in the office to sort it out," John said.

"Will we using the Joseph and Louisa's villa as base camp again?" Carl asked hopefully.

John knew he was thinking about Louisa Andrews' home cooking. "Don't worry," John said, "I'll let Joseph know to expect us, but don't get too excited yet as we still have to talk to our new friend in Reston first."

On the way to the department's visualization room, John glanced at the various antique geologic maps and cross sections they passed in the hallway. He adored these relics of earth science not only for their historical value, but to him, they were an art form.

They joined a virtual team of earth scientists from Lansing waiting for them in viz space. It was fifteen minutes past the planned start time, when an unusually tall woman connected from Reston.

"Dr. Mackinik, it's good to meet you. Victoria Johnston," she said. "I'm the new Chief Research Scientist with the GS for this project,"

Carl couldn't help but lean back from her large image.

"Please call me John, and it's 'Mack-in-awe'." John hated to correct people on his last name, but he had too many 'nik-nac-mac-attacks' as a kid to let it go unchallenged. "And, this is Dr. Carl Watkins. If we can just set up the media interface, we've got a presentation, and it'll cover most—"

"Excuse me professor," Victoria interrupted. "I just wanted to meet you in person, so to speak, and go over our required sample locations. I am familiar with this project; the original proposal was very complete, and your progress updates have been comprehensive. However, the

previous samples although interesting, are less than conclusive. These new samples could be critical to the project's success."

"I've got the sample location base map here, let's roll it out," Carl said, always ready for any contingency. He pulled a rolled-up map out of its protective tube and caught John's gaze with an anxious look.

John insisted on often using paper maps; he was infamous in the geology department for the indulgence. While Carl unrolled the map and got it situated on a table in the center of their viz space, John said, "Thanks for funding the full amount of the proposal allowing more sampling this year. I know initially that was impossible."

"Let's just say your project is timely," Victoria said with a subtle smirk. "Although we will have to cut the helicopter support, budget issues again," she added flatly. "Also, we'll be overseeing the laboratory analyses of any new samples, so just send them to my attention at the Reston office."

The change in geochemistry labs shocked John; it was not a good procedure if you wanted consistent analyses, but he had a bigger concern.

Pointing to a small area on the map, he said, "I'm not sure I understand the reasoning behind these locations to the southeast near Mount Piquet."

There was only one cluster of small yellow triangles marking the new sample locations on the map. "They're more than ten kilometers away from the Pelee caldera," he said.

"We are finding that during the early moments of a violent eruption, such as the Pelee nuée ardente, the chemical composition of the gas cloud can change rapidly. This is because of dramatic increases in entrained debris, water and atmosphere," Victoria explained dully. "All leading to possible reactions altering the chemical signatures of the ejecta and perhaps the surrounding strata it touched."

John knew all this. "Why only in this area?" he asked. He could tell his colleagues from Lansing were also uncomfortable about the new locations, and his uneasy feelings about this project had just resurfaced.

"Our previous field programs' results suggest the nuée ardente traveled mostly west, away from Piquet." Carl added.

Victoria flipped through the stack of files she had brought with her and then showed a paper page to John. "We dug up some rather cryptic notes from a botanist describing unusual mineralization in that area and thought it was worth having a look," she said. "The locations themselves came from our sat-image group. They did their best to pick accessible ones."

John looked at the page. It was from a small notebook, obviously old and worn. It contained a short comment in French about white crystals and an exceptionally well-drawn sketch of both mountains, Pelee and Piquet. John assumed a mark on the northern flank of Piquet showed the location of the usual mineralization. Written on the top of the page was Martinique 1932.

"It could be just quartz or even calcite," John said looking at Victoria. "You think Pelee could've altered rocks this far away?"

"That's the nature of the proposal isn't it?" she said tersely while avoiding eye contact.

"Okay, sounds like a plan." John conceded the point, rolled up the map and then handed it to Carl. They were supposed to go all the way to Martinique and back again because of a cryptic note from a botanist. Maybe the USGS had a sense of humor after all.

Purposefully looking at his colleagues from Lansing, Carl asked, "How tied to the exact coordinates are you?"

"They are starting points only," the projects geochemist, Dr. Larry Sullivan said. "The terrain will dictate how close and how thorough you can be. Just look for anything out of the ordinary, changes in

mineralization or texture; subtle thermal alteration can be tricky to spot. Hopefully, the geochem lab work will provide the definitive results."

"That should wrap things up," Victoria said quickly. "Anymore questions?"

There was none. The meeting was obviously over.

"Did you think the meeting was a bit bizarre?" Carl whispered to John after Johnston had terminated the Reston connection.

John nodded and said, "Let's hope these new locations produce some useful data." He sighed and tried not to think about what the consequences of more worthless samples could mean to his ongoing research.

John and Carl's flight to Martinique at thirty-five thousand feet over the Florida Keys and down the arc of the Lesser Antilles was spectacular. The infinite shades of blue in the shallow waters contrasted the brownish-green keys with threads of encircling white sands.

Staring out the cabin window, John pictured the colossal Atlantic tectonic plate falling down past the top of the earth's mantle while grinding away at the underside of the Caribbean plate. The collision was uplifting the islands and melting the crust deep beneath. All forming the volcanic chain they were here to study. He took a sip of his beer, happy to be going into the field again.

They landed unusually on time mid-morning, and it was a quick trip from Lamentin airport to their base camp at Louisa and Joseph's bungalow in the hills high over Martinique's western coast. From there it was only a short hike to reach the trail leading up Mount Piquet. The closest small yellow triangle on the map was almost eight hundred meters above. It would take the rest of the morning to reach it.

After several hours hiking, Carl announced. "GPS indicates we're close to the first location."

Carl was extremely capable with most of the department electronics and gadgets, so John had made him responsible for their orienteering.

Taking his cap off, John wiped the sweat of his face with his sleeve. "Let's take a break and catch our breath," he said then passed a water bottle to Carl as he took a seat amidst the tropical flora. After a quick scan for snakes, he re-hooked the lace on his right Fabiano and wondered how many more field seasons the comfortable, old boots would see and sighed, knowing their time was running out.

"We've been walking this ridgeline for an hour," Carl said trying to blink sweat out of his eyes, "and it's impossible to see anything through all this vegetation."

"Just a bit farther," John said hopefully.

After pushing through particularly dense undergrowth, they both burst out into sunshine and gasped. The trail ended abruptly at a large gully almost fifty meters wide.

Carl strained to make out the trail across the gap. "It's hard to tell if this trail continues on the other side."

"What's the GPS telling us?" John asked as a single bead of sweat dripped from his nose.

"There is still another hundred and fifty meters to go."

"Another damn landslide," John said stating the obvious while looking down at the rubble below. He could see the gully also extended upwards another fifty meters or so to where the slope became vertical.

"Great, we can't go up and around that vertical face without climbing gear," John said. "We'll have to try to go down here, around and backup, but be careful, there's no sense in wrenching an ankle or worse."

"Where's a 'copter when you need one Doc?" Carl said with a wink and scrambled down the steep, boulder-strewn slope, leaving John to follow while shaking his head at his post-doc's rashness as well as another terrible pun.

Descending the difficult slope took time but they finally reached a break on the grade where most of the debris from the landslide had come to rest.

"What a mess," Carl said as he took in all the large boulders cropping out between trees and ferns.

Carl clamored to the far side of the boulders. "There're some recent slumps exposing fresh outcrops over here," he called out while waving his rock hammer overhead to catch John's eye.

"Let's have some lunch before we start," John said as he joined Carl and pulled two boxed lunches that Louisa Andrews had prepared for them that morning out of his pack. He sat down on the nearest boulder and handed Carl a spare water bottle.

They ate in silence as John sensed his post doc's apprehension at yet more landslide debris. He wondered if Carl knew the landslides had destroyed any hope of reaching the rest of Johnston's locations as he noticed his young colleague shaking his head.

"What?" John asked.

"I don't know how you do it," Carl replied. "You're hardly sweating or winded and you don't even work out."

"Probably just good genes," John mused. "We might as well collect some samples around here," he added trying to sound optimistic.

"Where do we start?" Carl said looking at hundreds of choices represented by the boulders.

"Let's take a good look around for anything remotely resembling Johnston's unusual mineralization. After that, we'll just have to be random. You got any other ideas?" John asked.

Carl shook his head. "Sounds like a plan. Do we bias the samples simply by color?" Carl said cleaning the glass of his hand lens that hung round his neck on a worn, dingy orange cord.

"Hopefully, there'll be textural differences," John said lacking confidence in finding anything interesting.

They both set about working their way through the heavily vegetated landslide debris, pounding on the hard rubble with their hammers to chip off flakes for inspection and comparison. It was all part of a decision, whether to bag a sample or not.

It was hot work and after two hours, they were running low on water. A sweep of most of the area resulted in twelve samples marginally suitable for bagging and assignment of an official sample number in John's pad. None had anything remotely resembling the botanist's mineralization. John felt a twinge of guilt at the extra baggage cost the university was going to have to pay for these poor samples.

"Hey Doc!" Carl shouted. "Here's something weird."

Squeezing through two large boulders, John could see that Carl had removed soil and loose rocks from around a conglomeratic rock exposed in a fresh slide scar. The conglomerate, about 20 centimeters in diameter, consisted of a mixture of various other rocks all held together by reddish, gray matrix.

"It's a pyroclastic flow deposit," John said stating the obvious. "Look at the other smaller components; they are similar to what we've been pounding on for the last couple hours. But what's that?" John asked, kneeling down as he saw what had caught Carl's attention. "Maybe it's a root cast?" John knew that sometimes minerals would replace a plant's root during fossilization.

"It's too regular," Carl argued on his hands and knees while peering through his hand lens at a white tube.

"There are only a few of millimeters exposed," John said as he took a turn to look closely at the tube with his hand lens, a Ruper 10x. "But it should be good enough for X-ray diffraction. Grab it and let's finish up," he added.

"Think this will qualify as unusual to Dr. Johnston?" Carl asked a tad sarcastically.

"It looks man made," John replied. "Ceramic maybe. But it tops the short list of good samples we have so far."

"What list?" Carl asked, with a confused look.

"Exactly," John said with raised eyebrows. However, he was unconvinced even this curious sample would help the Geologic Survey's project.

After taking a few photos, Carl set about removing the conglomerate containing the tube from the soil. He used a permanent marker to write the last sequential number, 13-C, on one end and put the rock in his pack.

John couldn't believe their field program had lasted only one day.

It was two weeks later, back at the university, when John received a vid call from Johnston. He knew it was too early to be expecting geochemical results from the GS's lab on their samples.

"John," Victoria said casually, "The global volcanic risk assessment project is on hold indefinitely; the budget has been slashed."

"That's unfortunate," John said with a curse to himself. "But we'll be ready to send you the final field report next week. I'm afraid there were no signs of the botanist's mineralization. And unless you call an odd piece of man-made ceramic interesting, I guess that's it."

Carl carefully extracted the slightly conical, white tube of 13-C from the conglomerate and had sent it for X-ray diffraction analyses a week ago. It turned out to be composed of mainly silica, with lesser amounts of aluminum and carbon. Out of curiosity, the lab had run an electron microscope sweep of the specimen. It showed a subtle honeycomb pattern on the tube's outside. Carl had not included the unusual specimen in the samples sent to Reston for analyses.

"You never know what you'll discover in the field," she said seemingly lost in thought. "At least we'll get some in-house analyses to compare to the world-wide database."

"Let's hope your geochemist can extract something useful from the other samples."

Victoria didn't answer.

"Let us know if we can help further...ah, when ever," John said feeling awkward in the conversation.

"I will Dr. Mackinik," she said and then closed the connection.

John sat back in his chair looking out his window at the scenic campus. Considering the less than stellar results from the Martinique project, he wondered where he would find other thesis topics for his new graduate students.

Below John's office in the basement, Carl had already finished the Martinique report for the USGS. Now absorbed into net research, he searched for anything to do with ceramics and guns with tapering barrels. He had no success, but he was getting many comments on several forums where he had posted a few images and information on its discovery and simple chemistry. Various forum posters called the tube a gun barrel from the future, a time-inconsistent artifact or TIA. And like the Angkor Wat stegosaurus, the theorists asserted it was proof of time travel.

Chapter 2

2 Mar 2052

John sat in the front porch of his 1940's bungalow that offered a great view of the campus. Previous faculty tenants had enclosed the porch against what were once harsh winters, but John had the windows fully open to enjoy a warm March breeze.

Reading the latest Geological Society of America journal, he spotted an EV slowly drive by and stop; it then reversed and parked in front of his home. He watched as woman and man got out of the car; both wore similar navy blue jackets and looked almost young enough to be students.

"Hi there!" John called, getting up to stand in the porch's doorway. "Can I help you?" he said as they walked past the mailbox on which his wife had hand-painted a multitude of starbursts. He wondered if they were campus security.

"Dr. Mackinak?" the woman asked. Her dark auburn bob bounced as she trotted up the concrete steps to the porch.

"Actually it's Mack-in-awe," John replied with a sigh as they approached him.

"My apologies," she said. "This is Agent Donald Wultz from the FBI, and I'm Agent Jenny Scott from Homeland Security. May we talk to you?"

They both showed John their government identification.

John's stomach tightened. Could this be about Carl and the damn internet theories? A week ago, he had a long conversation with the dean and department chair about the whole affair; it was not pleasant. John knew his near obsession with research and not department politics irked the dean to no end even though his introduction to geology was one of the most popular of the entry-level science courses. He was beginning to think his complexion or too broad nose might be factors in his tenuous

relationship with the dean. He shook his head trying to rid himself of the possibility.

Inviting the agents in, he asked, "Coffee or tea?"

"Nothing thanks," replied Jenny.

Wultz added, "I'll pass."

"Dr. Mackinac," Jenny said, "as you probably are already aware, there are significant stories on the net about time travel that leads back to your department."

John shook his head again at the continuing TIA nightmare.

"There have been concerns raised," Wultz explained looking quizzically at John, "at certain levels in our government about potentially harmful political ramifications this TIA may represent. As you know, trust is critical to our relationships outside the US and stories like this just feed terrorist propaganda."

"Are you saying this TIA stuff is a matter of national security?" John asked in disbelief.

"We just have to check things like this out these days," Jenny added.

"So, what can I do for you?" John asked.

"If you can tell us the history of the TIA, that would be a start," she said, taking out a pad from inside her jacket.

"It won't take long. We can talk in the kitchen," he said ushering them through the bungalow.

John saw Jenny observe the few family photos on his fireplace's mantle in the living room. "My foster parents," he said with a nod to an elderly couple in a canoe. "And my wife Helen and daughter Steph," he added, touching gently another frame. "They died in an EV crash almost five years ago," he said smiling at the iconic uniforms they both wore in a self-pad pic at the annual convention they never missed. "Drunk driver," he added automatically.

"They look like big fans?" Jenny said obviously recognizing the uniforms and adding a fairly good impression of a heart-felt smile.

"You could not even guess," John said flatly and moved a dusty guitar from the kitchen table, laying it gently on a nearby counter. "Can't even get it in tune," he said embarrassed at his ineptitude with anything musical. He refilled his coffee mug and pointed the pot to the agents who had taken seats at his kitchen table "Sure you don't want a cup?"

"Positive," Jenny said for them both.

John told them about the volcanic risk analysis project the USGS scrapped and the three associated Martinique field programs. He guessed they probably knew all this, but he went over it all anyway. Finally, he described briefly how Carl found the sample known as 13-C.

Agent Wultz just sat and listened, while Jenny used her pad occasionally.

"Can you go over the analyses that occurred on the project's samples?" Jenny asked head down, looking at her pad.

"I'm sure it's all in the USGS final report," John said.

"We'd like your personal recollection," she said manipulating the touch screen on her pad again, "if you don't mind Doctor. There seems to have been issues with finding these data at the GS."

"All the samples were photographed and geologically described in our field report," John explained. "Carl sent them to the USGS for geochemical analyses, but I think the analysis could have been better"

"Why was that?" Wultz asked.

"The GS changed the lab doing the analyses for the last set of samples," John replied. "It's best to stick with one lab for consistent results."

"Any idea why the Geological Survey did this?" Wultz asked.

"They got a new chief scientist just before the third field trip; it was probably her decision, but I don't know the specific reason. At any rate, 13-C was not included within the report, but it had several pictures taken of it that you've probably seen on the net. It was the only thing atypical on the last field trip, and out of curiosity, we sent the sample for X-ray

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