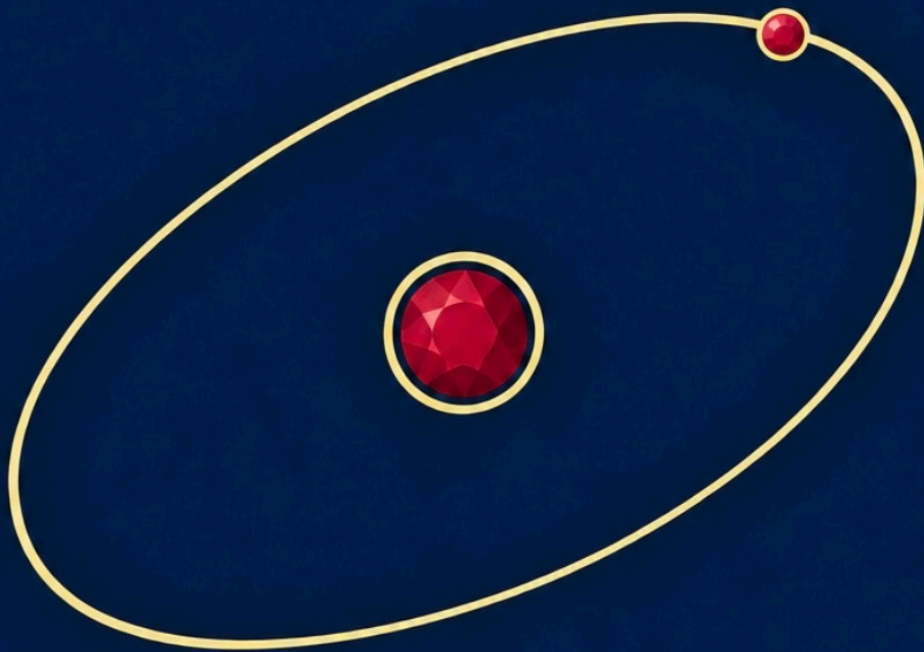


BOOK 7

SQUIGGLE AND THE RUBY FORGE MYSTERY



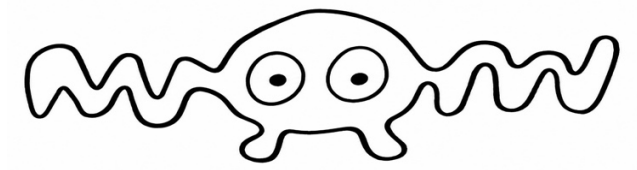
Christopher Smythies

BOOK 7

SQUIGGLE

and the

RUBY FORGE MYSTERY



By Christopher Smythies

Chapter 1

I am Squiggle the Photon, born from the fusion of two hydrogen atoms in the galaxy NGC 3972 66 million years ago, traveler to the Milky Way, and resident at Goldendale Sky Village. Rachel is my human companion, the villagers are my friends, and the L-HOP is my home.

I was in the L-HOP, studying star maps of the northern sky with Rachel, when Jenny, the owner of the Red Light Lounge, knocked on the door and poked her head in.

"There's a visitor wanting to see you at the Lounge," she said. "Just popped out of a wormhole. An ambassador from a nebula millions of light-years from here. Says he needs your assistance in a matter of critical importance."

"He does, does he?" I said, pushing away at least 36 constellations. "Better see what he wants then, hadn't we?"

The ambassador was a chubby gentleman with wavy hair and a small, neatly curled handlebar mustache. He was wearing an extravagant diplomatic uniform trimmed with gold, with enormous fringed epaulettes on the shoulders and a jeweled medallion at his throat. When he saw us coming, he broke into a big smile.

"I am Ambassador Flatus," he said, shaking my wiggle and then Rachel's hand, "a diplomat from the Ruby Forge Nebula. Very pleased to meet you!"

"Ruby Forge?" I said, dipping into my deepest memories. "Isn't that in NGC 3972? I passed through it on my way here 66 million years ago. Almost got smothered by its gas and dust."

"You made history when you traveled through the nebula," said Flatus. "My ancestors heard your Mayday and took immediate action. They turned all the gas and dust ahead of you into stars. Cleared a path so you could escape. Their star factories worked in overdrive to get it done in time."

"So that's what happened!" I said. "I always wondered what saved me."

"And now," said Flatus, "there's something you can do to save *us*."

"Oh? What's that?"

"Ruby Forge is divided evenly into two empires—the Goodland and Badland Empires. I represent Goodland's interests in Badland, just so you know. For millions of years, Ruby Forge's factories have been producing stars on a much larger scale than anybody else in the universe. The reason is simple: hydrogen gas is by far the most important element needed to manufacture stars, and there is a huge river of the stuff—the Ruby River—that flows through space between our empires."

"Interesting," I said, trying to remember if I ever saw this river.

"Normally, the factories in each country honor carefully worked-out agreements and take no more than they're entitled to," continued Flatus, twiddling one end of his mustache between two fingers. "Unfortunately, over the last ten thousand years, the citizens of Badland have become greedy. They want all the hydrogen for themselves and have just finished building a dam across the Ruby River upstream from us. If it becomes fully operational, our star factories will have to shut down. That'll mean higher prices for everything and economic hardship. A nasty war could break out."

“What do you want me to do?” I asked.

“Come back to Ruby Forge with me and join a team on a secret mission to destroy the dam.”

“That sounds dangerous.”

Flatus ignored my concern. “You will travel through space to a landing on the river above the dam,” he explained. “There you will board a vessel disguised as a hydrogen atom and float downstream undetected. Once you’re close enough to the dam, you’ll attach antimatter charges to it and blow it up. Then you return home, mission accomplished. What do you say?”

At first, I didn’t say anything, but Rachel had fewer qualms about staying silent.

“Why don’t you just bomb it from space?” she asked. “Why do you have to send in a team of saboteurs?”

“The dam is heavily defended by surface-to-space missile batteries. We assess that a conventional assault would likely sustain unacceptable losses.”

“Okay, then why Squiggle?”

“Because we saved him once, so we thought we would give him the opportunity to return the favor. Besides, he’s small enough to fit inside a hydrogen atom . . . and he’s smart . . . and he’s brave . . . And he’s . . .

I’m a sucker for flattery and came to a quick decision. “Yes, I’ll help—”

“Squiggle!” cried Rachel. “Not another word!”

“He’s right!” I persisted. “They helped *me* when I was in trouble. Now it’s my turn to help *them*.”

“But war wasn’t threatening to break out back then. Now it is. And I won’t be there to rescue you if you get into trouble!”

“It’ll be okay, Rachel. You’ll see.”

Rachel marched off, leaving Flatus and me alone together.

“All right,” I said, turning to the ambassador. “I’m ready. Show me the way to your wormhole.”

Chapter 2

When I stepped out the wormhole, I found myself in a completely different world. The peaceful prairie land of GSV was instantly replaced by the chaotic, grimy interior of a star factory.

From where I was standing, I could see five production lines. Only one of them was running, though. It stretched from one end of the factory to the other. At the beginning, enormous clouds of cold hydrogen gas were fed into huge chambers, where gravity squeezed them into dense clumps. Farther along, the clumps had collapsed into glowing protostars, growing hotter and brighter as they continued to contract. Next came the pre-main-sequence stars, blazing fiercely as they approached the final stage. At the far end of the line, the temperature and pressure inside their cores became so great that hydrogen fusion suddenly began. One by one, brilliant new main-sequence stars rolled out of the factory and popped into

space, fully formed and ready to shine for billions of years. Everywhere I looked, I could see robots twisting and turning their arms as if they were dancing.

Flatus came up behind me and ushered me forward. “This is the Burning Daylight Star Production Facility,” he said. “See those big pipes over there? They bring in hydrogen from the Ruby River. Right now, the flow inside them is very low because of that dam upstream. Won’t be long before it stops completely. Without stars, the heavier elements needed for plants and life can’t be made, and life in this part of the galaxy will eventually grind to a halt. That’s how serious this is.”

Flatus escorted me from the main factory floor and into a nearby conference room. Inside, a group of people were sitting around a long wooden table, talking among themselves and eating cheese pizzas out of boxes. When they saw me, they fell silent.

Flatus headed over to the pizza and helped himself to a slice.

A small, bald man in a camouflage uniform motioned me to an empty chair next to him. “Thank you for coming,” he said as I sat down. “I am Admiral Muon, and I’m in command of this operation. Help yourself to some pizza.”

“I’ll pass, thank you,” I said. “No mouth.”

“So sorry!” said the admiral, blushing. “Didn’t mean to be so insensitive.”

“No worries.”

“Allow me to make some introductions,” he quickly continued. “All the humans here have a critical supporting role to play, but you won’t be dealing with them directly, so no need to clutter up your memory with their names. Over there, however, is the team that you’ll be joining. You’ll get to know *them* extremely well.”

I followed the direction of his pointing finger and saw four seats in the corner of the room. Three of them were occupied by subatomic particles. The fourth appeared to be empty.

“First, Captain Quark, commanding officer of the *Rutherford*—the vessel assigned to your mission.”

Captain Quark’s appearance was similar to mine, only he had arms, a nose, a mouth, and no wiggles. He had intelligent, thoughtful eyes and a magnificent naval beard that looked as though it was carefully trimmed every morning. His dark blue uniform was immaculate, and his cap sat perfectly straight on his head. He gave me a brisk nod.

“Next to him is Petty Officer Gluon. He’s forever holding everything together.”

Gluon was a small oil-besmudged ball with wild red hair and a tool belt around his waist. He looked like a particle who had just crawled out of an engine room and would much rather crawl straight back into it than be in a fancy conference room.

“And next is Seaman Neg. He’s the *Rutherford*’s lookout and will spend most of his time in the crow’s nest.”

Neg was even smaller—an eagle-eyed young sailor who seemed incapable of keeping still. Even while sitting in his chair, one foot was tapping rapidly against the floor.

“And finally, Commander Neutrino, our intelligence officer. He has an extraordinary ability to pass through solid objects as big as planets without any difficulty.”

I looked for Commander Neutrino in the fourth chair but couldn’t see him. However, I did hear a faint, high-pitched voice coming from the chair’s cushion. “Hello,” it said. “I’m occupying this chair so nobody sit on me, please.”

“And now it’s time for mission briefing,” said Admiral Muon. He touched a button on the table, and a three-dimensional map appeared in the air above us.

A river of hydrogen atoms wound its way across a vast nebulous landscape. Halfway along, there arose an enormous embankment of dust stretching from one rocky outcrop to another. Downstream of it, the flow of the river was reduced to barely a trickle.

“That,” said Muon, pointing to the berm, “is the dam.”

I stared at it and was impressed by its size. “We’re going to blow *that* up?”

“We are. The problem is getting you there unnoticed. The Badland Empire controls everything upstream. They have patrols along both banks and inspect every vessel approaching the dam.”

“So how do we get past them?”

Muon enlarged the image. Hundreds of tiny hydrogen atoms appeared on the river, drifting toward the wall.

“The *Rutherford* is actually a naval vessel disguised as a hydrogen atom, equipped with a positive proton and a negative electron. Sometimes, these vessels have neutrons too, but not this one. To anyone watching, she will look exactly the same as all the other hydrogen atoms in the river. But she won’t be. Hidden aboard will be enough antimatter to blow that dam to pieces. You’ll drift downstream with the other hydrogen atoms until you reach it. Then you’ll attach the antimatter charges, set the timer, and get out of there as fast as you can.”

“I’ve never been anywhere close to antimatter before,” I said.

“You’re right next to some now.” The admiral pointed at a machine that looked similar to a microwave oven sitting on a nearby shelf. “That’s the Doomsday Box. In there is where we’re keeping the charges for this mission.” As if he could read my thoughts, he added, “It’s perfectly safe as long as it remains within its magnetic containment field. You definitely wouldn’t want to drop it, though. Just a tiny amount of the stuff is enough to vaporize this entire factory.”

While the admiral had been speaking, Flatus had been busy shoveling in as much pizza as his stomach could hold. Apparently full at last, he looked around for a place to sit and plopped himself into the fourth chair which he must have thought was empty.

Fearing for Commander Neutrino’s life, I sprang out of my seat and hurried over to rescue him. Everybody laughed when they saw the alarm in my face.

“Don’t worry,” chuckled Admiral Muon. “It’ll take more than being sat on by Ambassador Flatus to hurt Commander Neutrino. Now, if everybody’s ready, let’s go and see if the *Rutherford* is ready.”

Chapter 3

The *Rutherford* didn’t look like any seafaring vessel I had ever seen before. It wasn’t meant to. Instead, it had been outfitted to look exactly like a hydrogen atom, with a large central sphere—the “proton”—for Captain Quark, Petty Officer Gluon, Commander Neutrino, and myself to ride in, and a much smaller peripheral sphere—the “electron”, or crow’s nest—for Seaman Neg. I had seen plenty of protons and electrons before—back in the days when I studied with them in my birth star’s elementary school—and I can affirm that whoever built this vessel had studied their physics.

When my team and I were safely at our stations on board, Admiral Muon approached, taking one slow, careful step at a time. His hands were firmly gripping the metal box I had seen earlier in the conference room—the one that contained the antimatter charges. He handed it gently to Captain Quark, who thanked him and stowed it somewhere below decks.

When we cast off, Quark stayed on the bridge and steered the *Rutherford* through the local space with great skill. There was a lot of dust around, and care had to be taken to avoid the thicker areas lest we get stuck before we'd hardly started. Gluon kept the engine running smoothly. He spent most of his time out of sight, tinkering with mechanical stuff that nobody understood except him. Neg was perched at his lookout post in the electron, far from everybody else but in constant communication. Neutrino was nowhere to be seen.

After three days of navigating our way through nothing but dust, things suddenly got clearer and Quark gripped one of my wiggles.

"There it is!" he said with excitement. "The Ruby River!"

I peered into the gloom and tried to see where he was pointing. After a few minutes I was able to discern something that looked like a river of water, except this river consisted almost entirely of hydrogen. It was a majestic sight, and I was reminded of the Columbia River near Goldendale Sky Village. As we sailed closer, I was able to see individual hydrogen atoms flowing along by the billions, each one a proton and an electron, and looking exactly like the *Rutherford*. Then, we silently slipped into the mighty river and became just another hydrogen atom.

"Prepare to dive!" ordered Quark.

"Aye, aye, sir!" replied Gluon from the engine room.

"Dive! Dive!"

"Dive?" I asked. "Are we a submarine?"

"We're anything I want us to be," said Quark, "and right now I want to be underneath the surface, and not above it. We're in enemy territory and it's critical for us to stay undetected."

Gluon flooded the ballast tanks with hydrogen and the *Rutherford* sank to periscope depth. The periscope itself, however, wasn't some sophisticated optical device that enabled the captain to see what was going on above surface. Instead, it was the boat's peripheral electron, skimming along at wave top level with Neg inside. The *Rutherford's* lookout held a pair of binoculars to his eyes, and was constantly scanning the horizon with them, searching for any signs of trouble.

After four more days, Neg finally had something important to report. "The river is getting wider," he called below, "and its flow is slowing down!"

"That can only mean one thing," said Quark, stroking his beard. "We're getting closer to the target. Seaman Neg! Tell me when you see the dam!"

"Yes, sir!"

Only five minutes later Neg reported back. "I see it now! Straight ahead! Low on the horizon!"

"Any signs of the enemy?"

"No, sir!"

Quark quietly smiled. "They're not expecting us," he said. "This is going to be easier than I thought." He removed his captain's hat, and replaced it with a steel helmet. "Petty Officer Gluon! Half speed, if you please. It's time to destroy a dam!"

Chapter 4

When the *Rutherford* reached the dam, Quark gave the order to surface and maneuvered the *Rutherford* alongside.

"I can't believe they're not protecting their dam any better than this," he said, searching the surrounding dust slopes for signs of the enemy and not seeing any. "Commander Neutrino! Are you on board?"

A tiny voice answered from somewhere. "Yes, sir!"

"You're the intelligence officer. Any idea what's going on? Why aren't they shooting at us?"

"Sir, according to my information, this dam should be heavily defended. I'll find out what's going on."

"Petty Officer Gluon!"

"Sir?"

"Bring me the antimatter charges! And make sure you don't drop them!"

"Yes, sir!"

Gluon slowly climbed out of the engine room, holding the Doomsday Box in his hands. When he made it to the bridge, he carefully placed it in front of the captain and backed away.

"Squiggle," Quark said, turning to me. "Do me the honors and open it."

I stepped forward, pressed a button on the front of the box, and opened the door. Inside, sitting on a round glass plate and looking a little soggy, was a slice of cheese pizza.

Nobody said anything.

I looked at Quark. Quark looked at Gluon. Gluon looked at the pizza.

"Pizza, anybody?"

"Not funny!" roared Quark. "This box looks like a microwave oven because it *is* a microwave oven!"

"Somebody must have picked up the wrong box," I said.

Quark gave Petty Officer Gluon a withering stare . . .

. . . and Gluon became unglued.

"It was a mistake!" he shrieked. "They looked exactly the same!"

"How are we going to blow up the dam now?" Quark demanded. "Our mission will be a complete failure! And it's all your fault!"

Gluon threw himself on the ground and sobbed.

"Can you get off me, please?" said a tiny voice underneath him. "I was here first."

I heard Neg's voice coming from the electron. He was urgently trying to tell us something.

"Speak up, Seaman Neg!" roared Quark. "Nobody can hear you!"

"THE ENEMY, SIR!"

"What about the enemy?"

"The enemy is approaching fast, sir! And they look like they mean business!"

Chapter 5

When he saw the enemy force, Captain Quark immediately knew that any resistance would be foolhardy. They were facing a helium atom—the *Ramsay*—four times the mass of the *Rutherford*. A battle would be short-lived, with the outcome certain. It was time to surrender and hope they didn't believe in torture.

"Looks like your intelligence was accurate after all," he said aloud, hoping that Commander Neutrino was somewhere close enough to hear. "The dam *was* heavily defended."

"They're signaling us!" cried Neg from his lookout post.

"What are they saying?"

There was a long silence, then Neg said, "Been a long time since I studied semaphore."

Quark raised a pair of binoculars to his eyes and quietly read the sequence of flag positions being waved at him. "I'll be gobsmacked . . ." he eventually declared.

"What are they saying?" I asked.

"They're inviting us over for a cup of tea."

Ten minutes later, the crew of the *Rutherford* and myself were welcomed aboard the *Ramsay* by Captain Boson. He was a pleasant enough particle who didn't look like the torturing kind.

"Thank you for coming," he said politely. "We have a lot to discuss."

Quark introduced each of us—Gluon, Neg, and myself—as we climbed aboard. Nobody could be sure if Commander Neutrino was with us, but I suspected he wouldn't miss this opportunity to see the interior of an enemy helium atom and had to be somewhere nearby.

"Come this way," said Captain Boson, ushering us into the *Ramsay's* wardroom, where a magnificent afternoon tea had been laid out. "You must be thirsty after your journey. How would you like your tea?"

Everybody, except me, asked for milk and sugar. I muttered something about not having a mouth, but I'm not sure Boson heard me because he handed me a cup of tea anyway. I set it aside when he wasn't looking. When we were all sitting down, Boson started speaking.

"Goodland is experiencing a severe shortage of hydrogen. Ambassador Flatus and other leaders believe it's because the Badland Empire has dammed the Ruby River and are stealing all the hydrogen. I can assure you, nothing is further from the truth. Badland is also suffering, and nobody knows why it's happening."

"I see hydrogen everywhere," I said.

"That's only because we built this dam to store what few supplies we have, but I can assure you—everywhere else, it's hard to find. Our star factories are barely operational and will have to close soon."

"I don't believe you!" blurted Quark. "Where's Commander Neutrino? He has access to all the intelligence. He'll tell you!"

Everybody looked around, but Neutrino was nowhere to be seen.

“I don’t blame you for not believing me,” said Boson. “In times of great shortages, people are bound to grow suspicious of each other. After we finish our tea, I’ll prove that I’m telling the truth. I’ll take you to every factory in Badland and you can see for yourselves what kind of condition it’s in.”

“Commander Neutrino! Your assessment, please!”

Still nothing from Neutrino.

“One of us might be sitting on him, Captain,” I said. “If we all take a moment to stand up . . .”

Everybody stood up. I turned out Neutrino was underneath Petty Officer Gluon.

“Thank you,” said Neutrino. “I, for one, would welcome the opportunity to inspect the inside of a Badland Star Factory.”

“Then it’s settled,” said Captain Boson. “Drink up your tea and I’ll send you on your way.”

The Badland Empire had twenty-four star factories. Commander Neutrino said there was no need to check every one so we picked one at random. We were met there by Ambassador Burp, the Badland representative to the Goodland government. Like his opposite number, Ambassador Flatus, he was also portly and had a moustache. He escorted us onto the factory floor and told us we were free to go wherever we wished.

“I can assure you,” he said, “we don’t have much hydrogen either.”

The five assembly lines were all shut down and not a single star was being produced. When we asked the engineers to open the spigot for one of the hydrogen pipes, no gas came out. We were satisfied Boson and Burp were telling the truth—the supply situation in Badland was even worse than in the rest of the nebula.

“How are we going to find out what’s happening?” I asked aloud, expecting Neutrino to hear me.

He did. “We follow the hydrogen.”

“Follow it where?” asked Quark.

“Upstream. It’s disappearing somewhere between here and the source. We need to find out where, and why.”

“I’d better get in contact with Squirm,” I said. “We’ll need a wormhole or two.”

After politely declining Captain Boson’s offer for a second round of tea and bidding him and the *Ramsay* farewell, we returned to the *Rutherford*. Gluon fired up the engines, Neg squeezed into the crow’s nest, and Quark took up his position on the bridge, barking out one order after another. I telephoned Squirm and told him we needed a series of wormholes to take us up the Ruby River. When he told me how much a complicated journey like that would cost, I instructed him to send the bill to the Goodland government. Satisfied with the arrangement, Squirm’s worms opened up a wormhole near the *Rutherford* and we were on our way.

Chapter 6

For the next few days, the *Rutherford* traveled throughout Badland, searching for the source of the Ruby River. However, the mission was much more difficult than expected. The

river was not a single channel of hydrogen flowing through space, but a highly complicated system of forks, tributaries, and lakes. Neg did his best to keep the *Rutherford* going against the current from his vantage point in the crow's nest, but they ended up going around in circles anyway. Quark eventually lost his patience and ordered Gluon to cut the engines.

"This is the first river I've navigated that doesn't have a source," he muttered.

"Maybe we haven't tried going in all possible directions," I suggested.

"What do you mean?" protested Quark. "We've gone up, down, forward, back, and sideways. What other direction is there?"

"The fourth dimension—time."

"Time? The *Rutherford* isn't a time machine."

"Are you sure? Let's ask Squirm."

I reached Squirm by phone once again and he told me that his wormholes certainly could offer easy, convenient—but not cheap—travel through time. When he quoted the actual price, I quickly realized that not all particles on board the *Rutherford* would be going.

Quark authorized the mission and asked for a volunteer. I was the first to step forward.

"How far back in time do you want to go?" asked Squirm.

I could see my four-handed friend with my mind's eye, sitting at his cluttered desk in Clapham Junction, busily taking notes with one of them and doing something else with the other three. "How far back should I go?"

"Depends on your mission."

"My mission is to find out what's happening to the hydrogen in the Ruby Forge Nebula."

"Then your destination should be the Big Bang—or, at least, as close to it as possible. I can't get you any earlier than that. It's strictly prohibited."

"What's the Big Bang?"

"That's when the universe suddenly began to expand."

"How long ago did that happen?"

"13.8 billion years."

"Wow!"

I remembered the Quasar Gang from the days of the Magnificent Seven. They had started their journey 12 billion years ago. I was about to travel even further than that—in just a few minutes! Mind-boggling!

"This is how it works," continued Squirm. "One wormhole will take you to the beginning of time, and then thousands of them will rapidly bring you back to the present again. Each time one opens, you'll get a snapshot of what's happening in the universe at that particular moment. Put all the snapshots together and it'll be like watching a movie. Should give you a pretty good idea of what's happening to the hydrogen."

"When do I start?"

"As soon as I can get enough digger worms together. It'll take lots of them to get this job done, you know. That's why it's so expensive."

Considering how many wormholes had to be dug, I was very surprised when Squirm called me only a few days later and announced they were ready—one to go back billions of years, and thousands for the return trip. It made me think that either Quark or Neutrino was in contact with their superiors, doing whatever they could to cut through government red tape so the mission could proceed as quickly as possible. Whatever was going on behind the scenes, the wormhole that would transport me to the Big Bang soon opened up right next to the *Rutherford* just as ordered. All I had to do was step into it, and I would be gone.

The crew of the *Rutherford* lined up on deck to see me off.

“Good luck, Squiggle!” said Quark, smartly saluting me. “We’ll wait right here for your return.”

Gluon wiped his oily hands with a rag and grabbed a wiggle. “Have a safe trip!” he said, shaking it vigorously.

Neg said, “Stay positive, no matter what!”

Neutrino, as usual, was nowhere to be seen. I did, however, hear a tiny voice saying something, but it was too faint to make out any words.

When all goodbyes had been said, I stepped off the *Rutherford* and over to the wormhole. Moments later, I took one more step and launched my journey to the beginning of time.

Chapter 7

The time travel wormhole was a long one—hardly surprising considering it crossed 13.8 billion years. I was beginning to wonder how much further I had to go when I encountered a locked door that prevented me from going any further. A do-not-ignore sign stood in front of it.

STOP! ADMITTANCE FOR AUTHORIZED PERSONNEL ONLY!

So I stopped, but not for long. After only a few seconds, the walls of the wormhole around me suddenly dissolved and I dropped like a potato into a cosmic crockpot full of quarks—all of whom looked just like Captain Quark minus the beard and the uniform. A cup of gluons was thrown in after me. They stuck the quarks together, creating protons and neutrons. Once carefully measured quantities of electrons, photons, and neutrinos were added, the whole mixture began to look like a primordial particle stew. After only three minutes of boiling, the proton and neutron ingredients started to form the first nuclei—mainly hydrogen and helium. The temperature was far too hot for electrons to stay attached, so no actual atoms existed yet. Still, it must have been a delicious sight for anyone with an appetite, which is something photons, like me, never have.

At this point, I was rapidly and seamlessly transferred from one wormhole’s exit to the entrance of another. Three hundred and eighty thousand years passed by in a flash, and now the crockpot had sufficiently cooled for electrons to combine with protons to form the first hydrogen atoms. I was looking at countless copies of the *Rutherford*, all chugging around, looking for something to do. As much as I wanted to, I wasn’t allowed to linger. The system of wormholes shifted into a higher gear, and I moved on.

The Dark Ages were next—a period spanning more than a hundred million years when the universe was filled with enormous quantities of hydrogen left over from the crockpot. This was clearly the source of the Ruby River which had eluded us when we searched for it in the first three dimensions instead of the fourth. From my perspective, nothing was amiss here. Gas was everywhere, and was slowly being gathered by gravity into denser clumps. The shortage problem had to be occurring later in the history of the nebula, so I patiently waited for the wormholes to take me there.

About 100–200 million years after the Big Bang, I saw the first stars ignite, fusing hydrogen into helium. When I spotted newborn photons pouring out, I remembered my own humble beginnings in the NGC 3972 galaxy and became quite emotional. I thought about the long journeys ahead of them and wished them well, wherever they might end up.

Four billion years and several hundred rapid wormholes later, I noticed that the amount of hydrogen available for making new stars in the Ruby Forge Nebula was finally beginning to drop. After just a few more rapid transfers spanning a few million years, the trend was unmistakable.

That was when the truth dawned on me.

The nebula had started with an enormous supply of hydrogen straight from the cosmic crockpot. But when the first stars began to shine, they started using it up, fusing hydrogen into helium and, eventually, heavier elements. Over billions of years, more and more hydrogen became locked away in stars and stellar remnants, leaving less available for making new stars. And now the factories of Ruby Forge were beginning to suffer the consequences.

Now that I'd figured out the problem, the next challenge would be to find a solution. For that part of the mission, I needed to get back to Ambassador Flatus as quickly as possible. I crossed my fingers, and hoped that Squirm's worms would not pick this moment to go out on strike.

Chapter 8

Judge John Neutron was well known throughout the Ruby Forge Nebula as a mediator who was skilled at resolving some of the most intractable disputes. When I returned from my wormhole journey to the beginning of time and reported all that I'd learned about the hydrogen shortage to Ambassador Flatus, the judge, who was a friend of the ambassador's, offered to review the situation and find a way forward. He worked hard to understand everybody's point of view, holding multiple meetings with leaders from both sides and asking a lot of questions. When he was ready, he invited everybody to the conference room in the Burning Daylight Star Factory where my adventure in this part of the universe had begun.

I was one of those who attended. Sitting around the table were the crew of the Rutherford—Captain Quark, Petty Officer Gluon, Seaman Neg, and presumably Commander Neutrino—Ambassador Burp, Captain Boson of the *Ramsay*, Admiral Muon, Ambassador Flatus, and a few of Ruby Forge's political leaders. The judge sat at the head of the table, looking distinguished with his three-piece suit and gold watch chain.

"Thank you for coming today," said the judge, holding a folder in his hands. "I've spent considerable time studying the facts, and have reviewed statements from Their Flatulencies Ambassadors Burp and Flatus. I'm pleased to announce that I've reached a conclusion that I trust will be satisfactory to all parties."

Everyone leaned forward.

He put on a pair of reading glasses, opened the folder, and took out a sheet of paper. "I have here a copy of Squiggle's report," he continued. "I'll read the conclusion.

"The hydrogen shortage was not caused by either Badland or Goodland. The problem is much bigger than that. For billions of years, stars have been consuming hydrogen and converting

it into helium first before moving on to heavier elements. Some hydrogen is returned to space when stars die, but much of it is eventually locked away in stars, planets, and other matter. The supply of free hydrogen available for making new stars is gradually declining.”

He took off his reading glasses and placed them on the table.

“So you can continue arguing over what remains, build more dams, blockade each other’s rivers—or you can start working together.”

“What do you propose?” asked Flatus.

“Simple. Share the remaining hydrogen fairly. And instead of using factories like this one only to manufacture new stars, convert some of the production lines into recycling lines. Collect the gas and debris thrown back into space by old and dying stars, separate out the usable hydrogen, and return it to the system. You cannot make more hydrogen appear out of nowhere. But you can stop wasting what you already have.”

For a few moments, nobody said anything.

Then Burp looked across the table at Flatus, and Flatus nodded.

The two ambassadors shook hands and while the others started to applaud.

“Let’s celebrate!” cried Petty Officer Gluon. “Pizza anybody?”

“*NO!*”

While the citizens of the Ruby Forge Nebula had their work cut out for them, my own mission was complete. It was time to catch a wormhole ride back to GSV. I said my goodbyes, promising to return one day to check on progress. When the wormhole opened up next to me, I stepped inside, and was soon on my way home.

THE END