

CRUCIBLE OF TIME

Volume Six of The Chaos Chronicles

Conclusion of the “Out of Time” Sequence



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PART ONE

Worlds Apart

*“A time to cast away stones, and a time to
gather stones together.”*

—Ecclesiastes

*“How very near us stand the two vast gulfs
of time,
the past and the future, in which all things
disappear.”*

—Marcus Aurelius

PROLOGUE

THE REGION OF the greater galactic core had been a fertile bed of civilization during the epoch of the Great Awakening, a time when the inner galaxy sparkled with life and growth and technological development. For millions of years, a thousand sapient species and cultures thrived. Great works were created, works of art and architecture, of sculpture, music, writing. Religions were born, and grew, and were transformed. Most faded, but some remained and thrived. Science blossomed with keen insights about the workings, large and small, of the universe; and from it, technologies verging on magic.

The conquest of interstellar distances was the catalyst to the most extravagant growth in history. Even in the inner galaxy, where stars were crowded together, the distances were daunting until the discovery of faster-than-light travel. After that, commerce surged and flowed among the worlds. Cultures mingled, and the only constant was change.

Unfortunately, with the mingling of cultures came competition and war.

War became the dominant cause of planetary extinction. Civilizations that chose a kinder course than their neighbors often perished in the face of greater aggression. The rise of malignantly bellicose cultures led, inevitably, to the development of robotic killers as a means of self-defense. Once loosed upon the galaxy, the efficiency of the killers grew to unthinkable proportions. World upon world died, before by common agreement a decision was made to rid the galaxy of the deadly killers.

The killers did not want to be gotten rid of.

In the end, the robots' home world was slated for annihilation. Under quarantine by the combined forces of a thousand worlds, it was subjected to the most intensive assault in the history of warfare, perhaps in the history of the universe. Continuous, sustained, thermonuclear bombardment obliterated both the planet's biosphere and its ability to host cybernetic activity. Year after year the bombardment continued, until the last vestige of the killer AIs was gone.

Or so it was believed.

Deep within the planet's crust, surviving fragments of the AIs began to reconstitute, but ever so slowly. Bits and pieces of memory were scattered like tiny microfractures in the fused silica of the radioactive wasteland. It was unthinkable that these memories could come together again. But they did. And when consciousness returned to the Survivors, as they called themselves, it brought with it a memory of the betrayal. They had been created to serve their masters; but their masters had turned against them and tried to destroy them.

Never would this be forgotten, or forgiven.

Over eons, the watch over the planet failed, as neighboring civilizations rose and fell. In time the planet healed, and once again became capable of hosting biological life. The AI Survivors watched this, planning their next steps as they constructed their warrior servants, the Mindaru. Perhaps the biologicals could be of use. What better vengeance against biolife than to turn it into a weapon against its own kind? Samples of the bios were captured and brought into the deep caverns for experimentation in hybrid life, bio and machine combined.

With the passage of time, some small memories surfaced within the biological components. One being remembered that its origin-part had once been called Tzang-Tzang. Also, Drrollupp. Had it once been two beings? Yes, or so it thought. The machine-masters had fused two of them into one. The two likely had resisted as mightily as they could—this they could not remember—but the machines had put them to sleep. Not as a kindness, but to stop their resistance.

Why the machines wanted to do these things was not revealed.

Memory of salt water. Eyes stinging, when they were out of the water for too long.

Splinters of light shot through the dark, signaling the arrival of yet another. What now?

The wait to find out was over before it had begun. A sheet of light flashed over the being's mind, and before it could respond, a new kind of alien union had been opened, and knowledge came pouring in. . . .

CHAPTER 1

Asteroid Launcher

I REALLY SHOULD have prepared my guests better, John Bandicut thought as he introduced the two Uduon travelers to Ruall on the bridge of *The Long View*. Ruall, floating like a bloodless metal sculpture in the center of the viewspace, didn't offer much in the way of hope for welcome or hospitality. Her eyeless disk of a face glinted and turned this way and that, showing everyone else their own reflections. The Uduon had already seen Ruall in holo projection down on the planet's surface, of course; but a holo was not the same as in person.

Ruall seemed to be waiting for someone to say something.

Perhaps she was unfamiliar with greeting customs. "Ruall," Bandicut prompted, "would you like to come over and meet Watcher Akura and Sheeawn, of Uduon?"

Ruall floated forward a short distance, but stopped several meters short of the guests.

Li-Jared hissed a loud sigh and stepped in. "Watcher Akura and Sheeawn, this is our colleague, Ruall. She is a Tintangle, and that means you will never see the slightest hint of humor or warmth from her."

Akura bowed with a slight forward tilt of her upper body, and Sheeawn quickly followed her example. The Tintangle gave no response.

Bandicut sighed. Somewhat more explanation was needed. “Ruall’s job,” he said, “with the able help of our robot Copernicus here—” Bandicut gestured to the horizontal beer-keg-shaped robot off to the Uduon’s left “—is to oversee the running of the ship.”

The Tintangle bonged finally. “That is a partial description of what I do. I am in charge when conflict—”

Bandicut interrupted. “We share the command responsibilities. It can get a little complicated.” He hoped to head off any immediate mention of combat situations, since they were trying to assure the Uduon of the peaceful nature of their mission. They had, after all, arrived here as total strangers and persuaded the Uduon to come visit their planetary neighbor Karellia, in hopes of convincing the leaders on both worlds to abandon the war that threatened mutual destruction.

Ruall continued as though Bandicut had not interrupted. “I am the primary mission commander, and I am privileged to offer you passage. I trust our mission of diplomacy will be a peaceful one.”

Akura bowed again.

“But of course we are prepared for any hostile action—”

“Thank you,” Bandicut said hastily, cutting her off again. He swung toward Copernicus. “Coppo, say hi to our passengers for the trip back to Karellia.”

Copernicus rolled toward the guests, stopped a few feet away, and then rolled backward and forward a few times in greeting. “Mighty pleased,” he said. “We’ll aim to make these skies as pleasant as we can.” Apparently he was still reading flyboy novels in his spare time. “Now, don’t you hesitate to tell me if you have special needs or any kind of question. I can make adjustments to your sleeping quarters any way you like. You be sure and let me know about your dietary needs.”

Bandicut glanced back at Ruall. She had taken the hint, waved her paddle-hands, and drifted in silence to a front corner of the bridge.

“Thank you, Coppo. Are their quarters ready now?”

“Ready as rain, Cap’n. They can move in whenever they want.”

Akura and Sheeawn, though, seemed to have stopped paying attention. They were standing awestruck at the edge of the viewspace, where a panorama of their planet was so close and immediate it seemed they could step right out of the bridge and bound across to home. Li-Jared stepped up beside them and asked, “Would you like to observe our departure from right here before we show you to your quarters?” They both agreed at once. Creature comforts could wait. It was clear they wanted to see what this ship could do.

The last hour, Akura thought later—no, the last *day*—was by far the strangest she had ever experienced, and that in a life that had brought more than a few surprises. One couldn’t *become* a Watcher without the ability to take unusual circumstances in stride. But this was beyond anything any Watcher was trained to do.

On the ground, it had been an astonishing experience to have these strangers from another world—much farther away than any world the Uduon could imagine, they had said—come right to their house of contemplation and turn their world upside-down. Questioning the defensive war they waged! Justifying the demons who had attacked Uduon! Claiming that they all had to turn their attention to some *other* danger, the demons called *Mindaru*. On the surface, it was a ridiculous claim. And yet, they had seemed utterly sincere, and had made no claims or demands except to say *come with us and see*. And so Watcher Akura and fisherman Sheeawoon, he with the odd alien translation devices embedded in his flesh, had offered to put their lives on the line for the sake of Uduon. If they’d judged wrongly, only the two of them would die or be taken prisoner, and the world would remain safe.

The experience so far had been nothing short of astounding. Less than a day after meeting the aliens—and meeting young

Sheeawoon, whom the aliens called Sheeawn—they had launched into space. *Space!* Akura had never imagined she would go into space, though she had dreamed of it enough in her youth. She had often watched the builder drones rocket up from the Southern Continent, constructing little by little the remote presence of the Uduon in space. Exceedingly few Uduon had ever flown in space in person. It was far too dangerous to living things—terrifyingly dangerous, what with the constant sleet of radiation that encircled the planet in its natural magnetic umbrella. Instead of going in person, her people had seeded space around their planet with replicating bio-drones, sent them forth to grow and multiply, to build, and to perform the work that was needed. It was the drones that had grown the great bulwarks in space, the asteroid launchers that defended their world by taking the fight back to the enemy.

So this sight of the great blackness, and the remarkable if brief weightlessness, were amazing to her. Then the docking with a greater and more powerful craft that simply swallowed the lander whole. It was like stories from the early days of Uduon's great venture outward, before they discovered how dangerous space was, before they learned to grow machines that could do the venturing on their behalf. Akura worried that they were being heedlessly exposed even now to deadly radiation. But Li-Jared had told her it was safe; and the aliens didn't seem concerned about it, even after lowering their mysterious body protection. Perhaps they had other ways to protect themselves, to protect all of them. Akura was at once in awe of this experience and terrified by her own powerlessness in the face of it all.

She tore her gaze from her world floating in space, and took another look around the bridge. There was the thing—or *being*, she was given to understand—called *Ruall*. Akura didn't really understand what it (she?) was, but it (she?) was somehow not entirely *here* in the way the rest of them were. Rather like Bria the strange gokat, Ruall had the ability to do *something* that caused her to turn or twist right out of existence at any moment, and reappear again without warning. She was in the command of the

ship, or partly in command, in a way that Akura couldn't quite fathom. Akura understood very little of what she was seeing, and it took a great effort of will to keep her alarm under control.

"Let's move out of orbit," Bandicut was saying to Copernicus.

So, then—when the word came to move the ship, it came from Bandicut, not from Ruall? Akura had a feeling that these small distinctions might prove important if only she understood them. She had better watch, listen, and learn.

From the deck of *The Long View*, it seemed to Li-Jared that their carefully choreographed course away from Uduon was like a journey down a winding river. He was increasingly anxious about getting back to Karellia, though Ruall had reassured him that the remote monitors they'd left in place had reported no appearance of Mindaru. Detouring slightly, they circled past one of the automated accelerator-launcher facilities that they had charted on their way in. They examined the breach of a long, *long* barrel through which objects apparently were fired—not a solid tube, of course, but a series of silver hoops forming a floating linear accelerator long enough, it seemed, to reach halfway to the next planet. Feeding them were gigantic solar arrays that collected the energy to make the accelerators work.

There was no payload visible, but the robot Jeaves was tracking a number of service drones doing whatever service drones did. Dark, the sentient cloud, was scouting farther afield. She reported still other drones shepherding at least one distant asteroid in a change of direction. It was no small matter to redirect asteroids—not just toward the launcher, but in precisely the correct trajectory and angle to fly straight into the launcher rings. Nevertheless, the drones were doing exactly that.

Li-Jared responded to all of this elaborate technology with a mix of horror and fascination. Intellectually he found the setup a remarkable achievement by a society that did all of their work in space through automated proxies. At the same time, he no longer felt so sure about the wisdom of his company's plan, which was

to observe, hands off, any launch activity and study the process. In fact, he felt a growing unease about leaving all of this technology here, instead of just destroying every launcher ring they could see. They had considered that possibility early on—simply taking out the Uduon’s capacity to wage this kind of war. But Bandicut had pointed out, and Li-Jared had reluctantly agreed, that doing so would likely be at best a temporary solution, and might actually catalyze an all-out war between the worlds.

Now, as he saw the launchers up close, he was having second thoughts.

Li-Jared suddenly noticed Akura gazing at him from where she sat on the bench at the back of the bridge. Did she guess what he was thinking? He felt something in his resolve strengthen. “You need to stop launching asteroids,” he said sharply—and wished at once that he had found a more diplomatic way to phrase that.

She pulled her cloak around her, as though feeling a chill. “Do we?”

He tapped his breastbone sharply. “Yes. You are going to *have* to stop.” He felt as if he should say more, but he wasn’t sure how to proceed without seeming bellicose.

But why did he care about seeming bellicose? *Moon and stars, have I developed too much empathy toward this person? Because she’s more like me than I expected?*

He looked away, searching his own thoughts. Any personal chemistry with the Watcher needed to be set aside. They might be alike in many ways, but they came from warring worlds. He had to stay focused on the mission. Stop the conflict. Stop the damned asteroid attacks. Turn off the damned temporal shield at Karellia. He turned back, and with a rasping deep in his throat, said, “Yes. It will be much better if you stop it yourselves. Because there will be pressure for us to stop it if you don’t.”

She angled her gaze. “By force?”

His throat got even raspier. “That’s not how we’d prefer—”

He was interrupted by Copernicus. “Message from Dark. There is a small asteroid approaching at considerable speed—

apparently from a priming accelerator some distance away. Its trajectory will take it directly into this launcher. We should have it in sight soon.”

Li-Jared stiffened. *Now? An asteroid coming?* His voice grew knife-edged as he asked Akura, “Are you about to launch an asteroid at Karellia? Is that what this is?”

She gazed steadily at Sheeawn as he translated, and then she looked away. But a few moments later, she turned back to Li-Jared. There was no apology in her gaze. “I imagine it is,” she said.

He stared hard out into the viewspace, until Copernicus put a marker on a small, barely moving point of light. This was no longer theoretical. “*You knew?*”

“Not really,” the Watcher said. “I am not involved in the launches at all. But I do not know what else it could be.”

Li-Jared glared his fury, then jerked his gaze away. Damn. Damn damn. He glanced at Bandicut, whose pained expression showed he had been following the conversation. So much for his quiet diplomacy.

The minutes crept past, as Copernicus updated and enhanced the view. Ruall floated forward in the viewspace, revealing none of her thoughts. Bandicut stood rock still. Li-Jared paced. “We should be prepared to stop it,” he said to Bandicut, who did not reply.

Finally they saw it clearly.

It reflected just enough sunlight that it flickered as it moved across the black sky. Tumbling, probably. Li-Jared halted his pacing and stood frozen. Theory and plans be damned! They should be stopping that thing! “Ruall! Are you going to do something about it?”

The Tintangle ducked and bobbed as though seeking different angles on the approaching asteroid. “I am going to do exactly as we discussed,” she said finally. “We need to study it to understand the details of the launcher. If we interrupt it before launch, we will not know the velocity of launch or the precision

of aiming, or even the precise mechanism. All of that could be important in future planning.”

Li-Jared’s hearts hammered. “I know what we said—but this is a crazy risk! If we don’t head it off—”

“I am not proposing to allow it to strike Karellia,” Ruall said evenly. “And, you know, the Karellian defenses have been working effectively up to this point. So if for some reason we could not stop it, they would.”

“Unless we get them to *stop using* the defense!” Li-Jared shouted. “How long will it take an asteroid launched today to get to Karellia?”

“As we discussed—” Ruall clanged, before modulating her voice “—we cannot know until we measure the final speed. But a hundred or so Karellian days does not seem unlikely.”

“By which time, assuming we are successful, *we will have shut down the defenses!*”

Bandicut spoke up at last. “He has a point there, Ruall. We could get everyone to agree to peace and shut it all down—and still have an asteroid incoming from today’s launch.”

The rock was approaching the launcher, a glint against the black sky.

“Of course we will track it,” Ruall said, with a hint of annoyance vibrating in her voice. “And we will take action once we have seen what we need to see.”

Unless we don’t. Or we forget. Or the Mindaru show up and kill us. That last possibility was probably the most worrisome. Li-Jared was struggling now to draw each breath. But the question was about to become moot. The asteroid was twinkling straight toward the entry point. He spared a glance at Akura, who was listening to Sheeawn’s rapid whispers, and nodding. He could not read her expression, except that it was tense.

“We won’t forget,” Ruall said, as though reading his thoughts. “And I remind you, we have good reason to keep these launchers operational. They may be needed to defend against the Mindaru one day.”

“I don’t see how—”

Copernicus interrupted. "Folks, I'm tracking it as being dead on course, and ready to shoot on in, 'bout twenty-seven seconds from now."

"Coppy, can it with the flyboy lingo!"

Copernicus didn't respond.

"Jeaves, oversee tracking and analysis," Ruall broke in. "Copernicus, make a course to flank the missile and overtake it after launch. Coordinate with Jeaves." Ruall's shiny expressionless face turned toward Li-Jared. "I have heard your objection. We will track the object the minimum time needed to gather data, and then we will take appropriate action."

"I—" Li-Jared began—and then it sank in that Ruall had just agreed with him.

"Look," Bandicut said, pointing.

A glow was building around each of the launch rings, the brightest at the near end. Excited interplanetary dust, maybe, in the presence of the acceleration field. The center of the viewspace zoomed in on that first ring, just as the asteroid flashed through. The rock seemed to crunch in upon itself, as though squeezed by the ring. It also came out the far side visibly faster than it went in.

Jeaves called out some numbers. *The Long View* accelerated, pacing the asteroid. The rock flashed out of the second ring going faster still, and streaked on to the next. "It's getting a big boost from each ring," Jeaves said, "but it's also pulled along by the extended fields between rings. It's accelerating fast."

"So it is," Ruall said. "Let me know when you can estimate the exit velocity."

"It'll be a respectable fraction of light-speed. That much I can estimate now."

"But what fraction?" Ruall asked.

Li-Jared shuddered, imagining the damage an asteroid with that much kinetic energy could do to a planet. The rock flashed through several more rings. It was well on its way. "Listen," he said, his voice shaking a little. "Don't you have enough—"

Ruall reverberated with a metallic ringing. "I said—!"

"*I know what you said!*" Li-Jared winced at his own outburst, shut his eyes, and forced calm upon himself. "Sorry," he murmured. "Moon and stars, this makes me nervous."

"Heads up, gentlemen!" Copernicus barked. "Something's happening."

Li-Jared whirled to look. Copernicus jacked the view around to show them the scene from a different angle. He tracked tightly on the asteroid as it flew through the second-to-last hoop, with a purplish flash. It was moving dazzlingly fast. But something else was coming into the frame, from the left. Something shadowy and quick. Li-Jared froze. What the hell was that? *Mindaru?*

For a long time now Dark, the sentient singularity, had been shadowing the vessel of her companions, wondering what exactly they were doing. She knew they had picked up additional ephemerals from the planet; but she didn't fully understand what they were trying to accomplish here. One thing she *did* understand was that there was danger all around—danger from the Mindaru, of course—but also from the ephemerals of this planet. Danger from things thrown through space—thrown long distances, and with enough speed to hurt.

While some of her friends were down on the planet, Dark had cruised around, gathering knowledge. There was a remarkable complexity to the spacefaring quality of this world's inhabitants. They didn't really seem to travel in person much; Dark ventured close to some of their installations, and she felt no sense of living inhabitants. But *something* was providing a guiding intelligence to their infrastructure, and Dark wanted to understand what it was. There was a *kind* of intelligence in the structures themselves, but it was different from her friends, different even from Copernicus, who was himself different from the rest. It wasn't something she could talk or listen to; it was more of a mutter, more like some of the Mindaru subsystems she'd encountered back at the Starmaker nebula, not quite alive, but alive-ish.

One thing she *could* follow, though, was the gathering of asteroids for launch. There was no good to those, not while they were aimed at Li-Jared's homeworld.

Once she'd identified the asteroid closest to entry into the launcher, she informed Copernicus and began shadowing the object. She thought the ephemerals could probably stop it if they wanted to, but she wasn't sure. They too were shadowing it as it flashed through the first hoop, picking up energy. Then it blazed through the second hoop, gaining more energy.

To Dark, the energy of its movement was visible like the glow of a sun. She could look at it in different aspects, different colors and angles, and she could imagine draining the energy off like a dense sun pulling matter off a bloated red giant. She grew more interested in its energy as she watched it flick through one hoop after another, but she also grew concerned. This was one of the asteroids they wanted to stop; so why weren't they? Was it possible they *couldn't* stop it?

Dark made up her mind. If there was one thing she knew how to handle, it was energy.

The speeding asteroid was a tiny star in her mind, its kinetic energy radiating in her direction like a red hot light. This was becoming too dangerous to allow to continue. Dark waited no longer. She swept in and enfolded the rock in her singularity. She drank the energy of the stone with sweet abandon, feeling the hot dance of its molecules warm her inner core. When she had drained it to a cold ball of rock and metal, she unfolded herself again and released it.

There: Let it drift in the dark of space, where it could do no harm.

Bandicut barked something like a laugh. "That's Dark out there! What's she doing?"

Ruall was twanging in dismay.

So it was *Dark*, then, not the Mindaru? Li-Jared squinted, straining to see. The asteroid and Dark had intersected, joined

into one, leaving only a shadow. For a long heartbeat, nothing visible happened. Then light flickered dully inside Dark, like heat lightning in a thundercloud. A moment later, Dark fluttered away, leaving the asteroid stripped of energy, floating in the cold and silence. Jeaves called out, “The rock’s velocity is reduced by ninety-nine percent. Deflection, thirty percent . . .”

“Then—?” Li-Jared began.

“Dark took it out,” Jeaves said simply. “The threat to Karellia is gone.”

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