

BEN BOVA

## LIFE AS WE KNOW IT

They were all there, all the Grand Old Men of the field: McKay, Kliest, Taranto--even Sagan, little more than an ancient withered husk in his electric wheelchair. But the fire still burned in his deep, dark eyes.

All the egos and superegos who had given their lifetimes to the search for extraterrestrial life. Often they had been derided by the media, scorned by the politicians, even scoffed at by their fellow scientists; this was going to be their day. One way or the other.

Jupiter was going to reveal its secrets to them. Today. Life on another world at last. Make or break.

I could feel the tension in the room, like just before a thunderstorm, that electrical smell in the air that makes the hair on your arms stand on end. Careers would be made today, or broken. Mine included. That's why everyone was here, waiting impatiently, chattering nervously, staring at the display screens that still showed nothing but crackling streaks of random noise.

The mission control center was a big room, huge really, but now it was jammed with bodies, hot and sweaty, buzzing with voices in half a dozen languages. The project scientists, all the top government officials, invitees like Sagan, hangers-on who inveigled their way in, everybody who thought or hoped they'd capture some of the glory of the moment, and more than a hundred news reporters and photographers, all crammed into the mission control chamber, all talking at once. Like a tribe of apes, jabbering, gesticulating, posturing to hide their dreams and ambitions and fear.

They didn't want to miss the first images from beneath the cloud tops of Jupiter. Even if it killed them, they had to be at mission control when the probe's first pictures came in.

Most of the reporters clustered around Sagan, of course, although quite a few hung near Lopez-Oyama, the center's director. Our boss.

Beautiful Allie stayed at Lopez-Oyama's side. Allison Brandt, she of the golden hair and pendulous breasts. I dreamed about Allie, saw her flawlessly naked, smiling at me willingly. In my waking hours I thought about her endlessly, picturing myself doing things with her that not even my dreams dared to imagine.

But she stayed beside the director, next to the power and the attention. I was merely an engineer, neither powerful nor glamorous. Still, I longed for Allie. Lusted after her. Even as she smiled for the photographers I noticed how she had artfully undone an extra couple of buttons on the front of her blouse.

"Imagery systems check," droned the voice of the mission controller. The huge room fell absolutely silent. I held my breath.

"Imagery systems functioning."

We all let out a sigh of relief. Me especially. The imagery systems were my responsibility. I built them. If they failed, the mission failed, I failed, six dozen careers would go down the tubes, six dozen frustrated scientists would be seeking my blood.

Our probe into Jupiter was unmanned, of course. No astronaut could survive the crushing pressures and turbulent storms beneath the cloud deck of Jupiter. No one knew if our robotic probe was sturdy enough to reach below the cloud tops and survive.

Over the years, the earlier probes had shown that beneath those gaudy colorful swirling clouds there was an ocean ten times larger than the whole Earth. An ocean of water. Heavily laced with ammonia, to be sure, but water nonetheless. There was only one other world in the solar system where liquid water existed -- Earth. We knew that liquid water meant life on Earth.

Did it on Jupiter?

"Jupiter represents our best chance for finding extraterrestrial life."

Lopez-Oyama had said those words to the congressional committee that ruled on NASA's budget, when he went begging to them for the money to fund our mission.

"Life?" asked one of the Congressmen, looking startled, almost afraid. "Like animals and trees and such?"

I watched those hearings on TV; we all did, sitting on the edges of our chairs in the center's cafeteria while the politicians decided if we lived or died. I had picked a seat next to Allie, although she barely acknowledged my presence beside her. She stared unwaveringly at the screen.

With a tolerant little shake of his head, Lopez-Oyama replied, "It probably won't be life as we know it here on Earth, sir. That would be too much to hope for."

"Then what will it be like?"

"We just don't know. We've never found life on another world before." Then he added, "But if we don't find life on Jupiter, then I doubt that life of any form exists anywhere else in the solar system."

"Do you mean intelligent life?" asked the committee chairwoman sharply.

Lopez-Oyama smiled winningly at her. "No, ma'am," he said. "Intelligent life would be too much to expect. I'll be happy if we find something like bacteria."

Now, as the moment of truth approached, the scientists cramming mission control were busily spinning theories about what the cameras would find in Jupiter's global ocean. They couldn't wait for the actual pictures, they had to show how clever they were to impress the reporters and each other. A bunch of alpha male apes, preening and displaying their brains instead of their fangs. Competing for primacy and the attention of the news reporters who were clustered around them,

goggle-eyed, tape recorders spinning. Even the women scientists were playing the one-upmanship game, in the name of equality.

To her credit, Allie remained quiet. She was as clever a scientist as any of them, but she refused to involve herself in the primate competition. She didn't have to. Her ranking in the hierarchy was as secure as could be.

None of them paid the slightest attention to me. I was only the engineer who had built the imaging system. I wasn't a scientist, just the guy with dirt under his fingernails who made the machinery work. I'd be ignored unless something went wrong.

To tell the truth, I paid damned little attention to them and their constant gobbling. My eyes were focused on long-legged Allie, by far the most desirable female in the pack. How could I make her notice me? How could I get her to smile in my direction instead of clinging so close to the boss? How could I get to be an alpha male in her lustrous eyes?

"Data coming through."

From nearly a thousand million kilometers away, my cameras were functioning. Had already functioned, as a matter of fact, more than ten hours ago. It took that long for the telemetry signal to travel from Jupiter to our antennas out in the desert.

Suddenly all their jabbering stopped. Mission control fell absolutely silent. The first images began to raster across the main display screens, line by line. Live, from beneath the endless cloud deck of Jupiter.

Each display screen showed imagery from a different wavelength. We had blue, green, red, infrared and even radar imaging systems. Despite all their theories, none of the scientists had been able to tell me which wavelengths would work best beneath Jupiter's cloud deck.

I had asked them how much sunlight filtered through the clouds. None of them could tell me. Which wavelengths of sunlight penetrated the clouds? None of them knew. I had to grope blindly and include as broad a spectrum of instruments as possible.

Now I swivelled my gaze from one screen to the next. The blue system was pretty much of a washout, nothing but a blur, as I had expected. The atmosphere must be filled with haze, a planet-wide fog of ammonia and sulfur molecules.

"That looks like wave tops!"

The infrared image indeed looked as if it was plunging toward the surface of a turbulent ocean. Radar showed more detail. Waves, crests and troughs racing madly across the screen. A rough sea down there. A very turbulent, storm-tossed ocean.

"Immersion in three minutes," said mission control. The probe was going to hit those waves. It was designed to sink slowly to a depth of about a hundred kilometers, where it would -- we hoped -- attain a neutral buoyancy and float

indefinitely.

Of course, if we saw something interesting at a shallower depth the probe could eject some of its ballast on command and rise accordingly. The trouble was that it took more than ten hours for any of our commands to reach the probe. We had to pray that whatever we found wouldn't go away in the course of ten hours-- just about a full revolution of the planet, a whole Jovian day.

I summoned up all my courage and sidled closer to Allie, squeezing slowly through the crush of bodies. They were all staring at the screens, ignoring me, watching the ocean waves and the streams of low-level clouds streaking past. Storm clouds, swirling viciously.

I pushed between Allie and Lopez-Oyama. Not daring to try to say anything to her, I looked down on the boss's balding pate and half-whispered, "I didn't think we'd get much from the blue at this level."

He was so short that he had to crane his neck to look at me. He said nothing just nodded in his inscrutable way.

Allie was almost my own height. We were nearly eye to eye.

"The infrared is fabulous," she said. To me!

"It is working pretty well, isn't it?" Be modest in triumph. All the books of advice I had studied told me that women appreciated men who were successful, yet not boastful; strong but sensitive.

"It won't work as well once it's underwater, though, will it?" she asked.

I suppressed the urge to grab her and carry her off. Instead, I deliberately turned to look at the screens instead of her cool hazel eyes.

"That's when the blue or blue-green should come into its own," I said, trying to keep my voice from trembling.

"If the laser works," said Lopez-Oyama. It was almost a growl. He was distinctly unhappy that I had stepped between him and Allie.

Mission control announced, "Impact in ten seconds."

The whole crowd seemed to surge forward slightly, lean toward the screens, waiting.

"Impact!"

All the screens went blank for a heart-stopping instant. But before anyone could shout or groan or even take a breath, they came on again. Radar was blank, of course, and the infrared was just a smudge. But the blue and blue-green images were clear and beautiful.

"My god, it's like scuba diving in Hawaii," Allie said.

That's how crisp and clear the pictures were. We could see bubbles from our splash-in and light filtering down from the ocean's surface. The water looked crystal clear.

And empty. No fish, no fronds of vegetation, nothing that looked like life in that ammonia-laced water, nothing at all to be seen.

"Not deep enough yet," grumbled Lopez-Oyama. If we found nothing his career was finished, we all knew that. I caught a glimpse of the congressional committee chairwoman, up in the special VIP section behind plate glass windows, staring hard at him.

For more than an hour we saw nothing but bubbles from the probe's descent. The faint light from the surface dwindled, as we had expected. At precisely the pre-programmed moment, the laser turned on and began sweeping its intense light through the water.

"That should attract anything that can swim," Allie said hopefully.

"Or repel anything that's accustomed to swimming in darkness," said one of the scientists, almost with a smirk.

The laser beam ballooned in the water, of course. I had expected that; counted on it, really. It acted as a bright wide searchlight for me. I wanted to tell Allie why I had chosen that specific wavelength, how proud I was that it was working just as I had planned it would.

But her attention was riveted to the screen, and Lopez-Oyama pushed to her side again, squeezing me out from between them.

Lopez-Oyama was perspiring. I could see drops of sweat glistening on his bald spot.

"Deeper," he muttered. "We've got to go deeper. The ocean is heated from below. Life forms must be down there."

I thought I heard a slightly desperate accent on the word "must."

"Spectrographic data coming in," announced mission control.

All eyes turned to the screen that began to show the smears and bands of colors from the probe's mass spectrometer. All eyes except mine. I kept my attention on the images from the laser-illuminated sea. They were becoming cloudy, it seemed to me.

"There's the ammonia band," someone said.

"And carbon compounds, I think."

"My god, those are organics!"

"Organic compounds in the water!"

"Life."

"Don't jump to conclusions," Lopez-Oyama warned. But his voice was shaking with excitement.

Allie actually clutched at my shoulder. "Can your cameras see anything?"

The water was cloudy, murky, even where the laser beam swept through; it looked like a thin fog, glistening but obscuring.

"The ocean's filled with organic chemicals at this level," one of the scientists said.

"Particles," corrected another scientist.

"Food," somebody quipped.

"For who?"

"Deeper," Sagan said, his voice surprisingly strong. "The organic particles are drifting downward. If there's anything in that ocean that eats them, it's down at a deeper level."

The probe was designed to attain neutral buoyancy at a depth of a hundred kilometers. We were approaching that depth now. It might not be enough.

"How deep can we push it?" Lopez-Oyama asked no one in particular.

Immediately a dozen opinions sprang out of the eager, excited, sweaty chattering apes. Earlier probes had been crushed like soda cans by the immense pressure of the Jovian ocean. But I knew that the probe's limits were not only structural, but communications-based. The probe could not hold more than a hundred kilometers of the hair-thin optical fiber that carried its comm signals to the surface of the ocean. So even if it could survive lower depths, we would lose touch with it.

"What's that?"

In the hazy light, a dark shape drifted by, too distant to make out any detail.

"Follow it!" Lopez-Oyama snapped.

Then his face reddened. It would take some ten hours for his order to reach the probe. In his excitement he had forgotten.

Allie turned to me. "Are the close-up cameras working?"

They were. I gestured toward the screens that showed their imagery. The dark hulk, whatever it was, had not come within the narrow focus of either of the close-view cameras. Both screens showed nothing but the cloudy water, tinted sickly green by the laser light.

"Another one!" somebody shouted.

This time the shape drifted past the view of one of the close-up cameras, briefly. We saw a bulbous dark dome, almost spherical, with snake-like appendages dangling from its bottom.

"Tentacles!"

"It's an animal! Like an octopus!"

I scanned the numerical data on the bottom of the screen. The object, whatever it was, was three and a half kilometers from the probe. And it was four hundred and thirty-two meters long, from the top of its dome to the tip of its tentacles. Huge. Fifteen times bigger than a blue whale. Immense.

"It's not moving."

"It's drifting in the current."

"The tentacles are just hanging there. No activity that I can see."

"Conserving energy?"

"Maybe that's the way it hunts for prey."

"Trolling?"

It looked dead to me. Inert. Unmoving. It drifted out of the close-up camera's view and all the heads in the room swivelled to the wide-angle view. The dark lump did nothing to show it might be alive.

"What's the spectrograph show?"

"Not a helluva lot."

"Absorption bands, lots of them."

"Chlorophyll?"

"Don't be a butthead!"

Allie was the only one who seemed to realize the significance of what we were seeing. "If it's an animal, it's either in a quiescent, resting phase . . . or it's dead."

"The first extraterrestrial creature we find and it's dead," somebody grouched.

"There'll be more," said Lopez-Oyama, almost cheerfully.

I looked across the room at Sagan. He was leaning forward in his wheelchair, eyes intent on the screens, as if he could make something more appear just by concentrating. The reporters were gaping, not saying a word for a blessed change, forgetting to ask questions while the underwater views of the Jovian ocean filled the display screens.

Then I looked at Allie again. Her lovely face was frozen in an expression of . . . what? Fear? Dread? Did she have the same terrible suspicion that was building in my mind?

It was almost another hour before we saw another of the tentacled creatures. The probe had reached its maximum depth and was drifting through the murky water. Particles floated past the cameras, some of them as big as dinner plates. None of them active. They all just drifted by, sinking slowly like dark chunks of soot meandering toward the bottom of that sunless sea.

Then we saw the second of the octopods. And quickly afterward, an entire school of them, hundreds, perhaps a thousand or more. The sensors on the probe went into overdrive; the automatic analysis programs would count the creatures for us. We simply stared at them.

Different sizes. Lots of small ones-- if something a dozen times the size of a whale can be called small.

"Babies," Allie murmured.

A family group, I thought. A clan. All of them dead. There was no mistaking it now. My cameras showed them clearly. Big saucer eyes clouded and unmoving. Open wounds in some of them. Tentacles hanging limply. They were just drifting along like ghosts, immense dark shadows that once had been alive.

Time lost all meaning for us. The big mission control center fell absolutely silent. Even the most assertive and egocentric of the male apes among us stopped trying to make instant theories and simply stared at a scene of devastation. A holocaust.

At last Lopez-Oyama whispered, "They're all dead. The whole fucking planet's dead."

Then we saw the city. A sort of collective gasp went through the crowded mission control room when it came into view.

It was a structure, a vast, curving structure that floated in that mighty ocean, graceful despite its immense size. Curves atop curves. Huge round ports and beautifully symmetrical archways, a gigantic city built by or for the immense creatures that floated, dead and decaying, before our camera eyes.

The numbers flickering at the bottom of the screens told us that the city was hundreds of kilometers away from our lenses, yet it filled the screens of the narrow-view cameras. We could see delicate tracteries along its massive curving flank, curves and whorls etched into its structure.

"Writing," someone breathed.

A dream city, built of alien inspirations and desires. It staggered our earthbound senses, dwarfed us with its immensity and grandeur. It was enormous yet graceful and entirely beautiful in an eerie, unearthly way. It was dead.



As it swung slowly, majestically, in the powerful ocean currents we saw that it was only a fragment of the original structure, a piece somehow tom off from its original whole. Jagged cracks and ragged edges showed where it had been ripped away from the rest of the city. To me it looked like a fragment of an enormous Easter egg shell, beautifully decorated, that had been smashed by some titanic unseen malevolency.

"War?" someone's voice whispered plaintively. "Did they destroy themselves?"

But I knew better. And I couldn't stand it. I turned away from the screens, away from the views of dead Jupiter, and pushed through the crowd that was still gaping stupidly at my cameras' views. I was suffocating strangling. I had to have fresh air or die.

I bolted out the main doors and into the corridor, empty and silent, deserted by all the people who had crammed mission control. The first outside door I could find I kicked through, heedless of the red EMERGENCY ONLY sign and the wailing alarm that hooted accusingly after me.

The brilliant late afternoon sun surprised me, made my eyes suddenly water after the cool shadows inside the building. I took in a deep raw lungful of hot, dry desert air. It felt like brick dust, alien, as if part of me were still deeply immersed in Jupiter's mighty ocean.

"It's all Mined." Allie's voice.

Turning I saw that she had followed me. The tears in her eyes were not from the bright sunshine.

"All dead," she sobbed. "The city . . . all of them . . . destroyed."

"The comet," I said. Shoemaker-Levy 9 had struck Jupiter twenty years ago with the violence of a million hydrogen bombs.

"Twenty years," Allie moaned. "They were intelligent. We could have communicated with them!"

If we had only been twenty years earlier, I thought. Then the true horror of it struck me. What could we have told them, twenty years ago? That a shattered comet was going to rain destruction on them? That no matter what they had built, what they had learned or hoped for or prayed to, their existence was going to be wiped out forever? That there was absolutely nothing either they or we could do about it?

"It's cold," Allie said, almost whimpering.

She wanted me to go to her, to hold her, to comfort her the way one warm-blooded primate ape comforts another. But what was the use? What was the use of anything?

What difference did any of it make in a world where you could spend millions of years evolving into intelligence, build a civilization, reach a peak of knowledge where you begin to study and understand the universe around you, only

to learn that the universe can destroy you utterly, without remorse, without the slightest shred of hope for salvation?

I looked past Allie, shivering in the last rays of the dying day. Looked past the buildings and antennas, past the gray-brown hills and the distant wrinkled mountains that were turning blood red in the inevitable sunset.

I saw Jupiter. I saw those intelligent creatures wiped away utterly and implacably, as casually as a man flicks a spot of dust off his sleeve.

And I knew that somewhere out in that uncaring sky another comet was heading inexorably for Earth to end all our dreams, all our strivings, all our desires.