

Furious Gulf Study Guide

Furious Gulf by Gregory Benford

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Plot Summary

The last remnant of the Family Bishop flees on *Argo*, a spaceship they are unequipped to operate. The myriapodia Quath resides on *Argo*'s hull. Pursued by mechs, they enter the galactic jet of a black hole near True Center, hoping to be spewed out. Following a Magnetic Mind that relays a message from Killeen's father, Abraham, *Argo* slips into a time pit. They arrive in an alternate space-time called esty, at Port Athena. Processed by a clerk named Andro, the Cap'n offers Quath to the esty dwarves, along with the Legacies from *Argo*. Toby objects and evades punishment by fleeing into the esty lanes accompanied by Quath. The mechs find them in the Lanes. Under attack from the Mantis, Quath is wounded and insists that Toby flee. Toby wanders the esty, encountering humans, scavengers and barely escaping the Mantis. Finally, he is ushered into a mysterious pyramid by a Brit named Walmsley.

As the Family Bishop nears the True Center, crewmembers grow restive. They question Killeen's purpose in bringing *Argo* here. Killeen argues that is it the Bishop's destiny as the only remaining family to explore the True Center, where he hopes they will learn of humankind's past glory. Toby defends his father from the detractors.

On the advice of a Magnetic Mind claiming to relay instructions from Killeen's missing father, Abraham, Killeen steers *Argo* to seemingly certain destruction in a black hole. Pursued by mechs, the humans take refuge in Besik Bay, but are soon forced out. At the last moment, with the help of the myriapodia, *Argo* is able to elude the mechs and slip into a galactic jet. There, she enters the city of Port Athena in the manufactured esty, a wrinkle in space-time that allows matter to accrue.

When Killeen would barter away the intelligent myriapodia Quath, Toby objects. He also refuses to allow Killeen to restore the Shibo personality. Instead, Toby and Quath flee across the esty. Quath is soon injured, and orders Toby to go on without her. Toby wanders aimlessly through the esty, pursued by mechs and encountering an unsavory selection of humans. Eventually he realizes that the universe is neither for, nor against humans. It is simply indifferent to them. Toby understands that both Killeen and the mech Mantis want the same thing from him . . . his very self. Only by fleeing, has Toby preserved his innermost self, and learned to appreciate the importance of family.

Much of the impact of *Furious Gulf* depends upon the reader's lack of comprehension, just as the Bishops fail to understand the intricate workings of the surrounding technology and the vagaries of space-time. Benford is a Nebula award winning science fiction author, as well as a physicist and astronomer. He is a professor at the University of California at Irvine and has served on NASA's Science Advisory Board.

Prologue

Prologue Summary

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Toby watches his father, Killeen, walk over the spaceship's hull. The older man's skinsuit gleams silver in the phosphorescent light. As Cap'n of *Argo*, Killeen can do as he pleases, but the crew wonders why he has been out so long. Killeen has become increasingly isolated since the death of his lover Shibo. Toby hails his father over the comm band and reports that another dozen of the crew are on sick report.

Toby suggests that *Argo* approach some of the artificial planets that resemble faint metallic lights, but Killeen counters that they are probably the work of mechs. Killeen laments that in all the stars near Galactic Center, there is no place for humans. Toby urges Killeen to reconsider his foolhardy mission to True Center. Killeen insists it is their duty to discover what lies there.

Together the two watch an unknown being, a jade colored Sail-Snake, spread gossamer light sails along its body. In zero gravity, Toby knows, the smallest particles of light are enough to propel a large creature. The Sail-Snake has no head, only a slit at one end. An orange tongue-like protuberance captures huge blue balls. Toby wonders aloud if humans would be able to eat the Sail-Snake or its prey. Killeen pounds him on the back in congratulations.

The alien deems these creatures primates of the class of "dreaming vertebrates." The alien's "carapace glides like a hunting hornet." Its thorax is made of ceramic lattices of bone-white structures mimicking ribs. The body is a treasury of past designs, free of planets and evolution. It lives amid an encoded interior universe. Thought is tenuous and vague. Spectral streamers of a red giant star stream from the distance as the star climbs toward supernova. A nuanced internal discussion takes place, although binary concepts like you and I, or we, do not apply. One side urges thoughtful study. The other argues instant annihilation, as most of the species have already been exterminated.



Prologue Analysis

Since several of the ship's gardens were destroyed, the situation is becoming desperate. The crew is out of techtricks, and there is little the Cap'n or anyone else can do. Still, the crew wants a leader, not someone wandering aimlessly outside. Here, near Galactic Center, millions of stars are clustered in each cubic light year. The suns are too densely packed for planets to remain in their orbits.

According to Isaac, Toby's teaching aspect, the clouds that drift between stars have the same basic chemistry that nature generates everywhere. Therefore, they should be compatible with human's digestive systems, and nutrient needs. Toby tries to dissuade Killeen from pressing on toward the True Center, but Killeen insists that is where the Family's history lies. There, Killeen is convinced they will discover their identity and history.

Within the particle storm, mechs lurk. They are collective, so concepts like you and I, or we and they, are not useful. They are at once conjoined and in opposition to each other, as ants in a single hill. Despite centuries of exterminating humans, a decision is made to trap this band to gain more information.



Part 1, Chapter 1 Techno-Nomads

Part 1, Chapter 1 Techno-Nomads Summary

Toby is barely inside before he is greeted by Cermo, the huge man called Cermo-the-Slow in years past. Cermo is leaner and faster now. Cermo has already heard that the Cap'n has found food for the starving crew. He reminds Toby that it is his turn for maintenance detail. Cermo gleefully informs him the sewage seals have broken again. While Toby works, his teaching Aspect, Isaac, pointlessly informs him the term he has used (crap) comes from the name of one Thomas Crapper, who invented the flush toilet on Old Earth.

There is soon another sewage leak, this time on the Bridge. Toby and his friend Besen go to clean it. The Bridge is an almost holy place on *Argo*, where computers and the human crew make split-second decisions that decide the course of everyone's lives. The ship is diving deeply into a molecular cloud that gives off a deep humming noise.

Part 1, Chapter 1 Techno-Nomads Analysis

The seals on the sewage tanks are always popping because the pressure regulators have to be perfect. Human waste is a vital component in the biotanks. Like everything else on *Argo*, they were designed to be operated by a crew with much more education and technical expertise than the Bishops have. The sewage tanks have instruction manuals, but no one aboard has the training to understand them. Cultural knowledge has been lost, although Toby amuses himself listening to Mose Art (Mozart) music and quoting Shake-spear (Shakespeare).

Like all the families, the Bishops know just enough to survive on *Argo*, always on the move avoiding mechs. Most of *Argo's* crew are remnants of the Family Bishop of Snowglade. Toby is of the youngest generation. The mechs have reduced humans to a few remnants, merely rats in the walls of the universe.



Part 1, Chapter 2 The Sail-Snake

Part 1, Chapter 2 The Sail-Snake Summary

Toby asked to go with the hunting crew in pursuit of the Sail-Snake. Of course, Cermo turned him down. Hunting was for full-grown men and women. Besen and Toby argue that they are better in zero gravity than any of their elders, to no avail. Instead, Toby is sent to consult with Quath, the huge insect-like alien who lives on *Argo's* hull.

Suited up and wearing magnetic boots to hold him on the hull, Toby ventures outside the ship. Toby addresses the creature by her full formal name "Quath'jutt'kkal'thon" which means "Brave Crawler with Dreams." The two trade insults in a greeting ritual for a few minutes. Quath says Toby is covered with maggots. Toby responds that they must have crawled off her. Finally, they get down to business. Quath admits she has harvested Sail-Snakes before.

Quath advises that the blue balls are poisonous to humans, and the snakes themselves are higher-order. The Bishops are vegetarians, but Toby argues that since they are starving, they can make an exception. In Quath's embrace, Toby is carried to the nearest Sail-Snake. Toby gathers a vial of the red liquid that courses in sacs on the creature's sides. Quath analyzes the liquid and determines it is nourishing for humans. It is the creature's energy reserves, similar to human fat. Quath believes much of it can be harvested without harming the Sail-Snake. As Quath and Toby return to *Argo*, Cermo calls Toby to hurry. They have just discovered that the larger mass orbiting the Center is human-made, an ancient Chandelier.

Part 1, Chapter 2 The Sail-Snake Analysis

The Family Bishop has survived while other families in the Grand Ensemble, including the Rooks, Knights, and Pawns, had perished. The Family names, of course, are taken from the game of chess. They imply, among other things, that the entire mech vs. Human conflict is a chess game on a galactic scale.

Toby is especially close to Quath, the moody creature who is refusing to answer the comm band. Quath constantly reassembles her home from the debris of *Argo*, including human waste formed into shit-bricks. Quath herself looks like an ever-changing creepy bug with too many legs. She has glassy eyes all along her body. Her yellow stick-like arms are hard plastic, and fleshy purple folds cover her body. Parts of her are metal as well, apparently riveted with ceramic that seems flexible.

Since the appearance of the mechs, the families are vegetarian. They decided it was unfair for humans to eat animals, just as it was not ethical for mechs to exterminate humans. Toby can barely recall the Bishops fleeing from Snowglade. He has fuzzy memories of the Citadel, a hidden idyll of safety. That was before the calamity when the

mechs crushed the last humans on Snowglade and the Bishops fled to become scavengers.



Part 1, Chapter 3 The Rule of Number

Part 1, Chapter 3 The Rule of Number Summary

Besen drops by Toby's bunk to see if he wants to go to the viewing room. He can't. On Cermo's orders, he has to complete five lessons before he can go off-ship again. This is a punishment for leaving the craft with Quath. Besen speculates that the order came from Killeen, through Cermo. She repeats what Toby already knows. Since the death of his partner, Shibo, Killeen has become withdrawn and hostile. He even seems to resent his own son. Besen goes to the viewing room to watch the Chandelier. The only family members who do not resent Killeen's recent behavior are the Cards. They seem to relish leaders who are tough and even crazy.

Besen hates numbers and math because that is how mechs think. Toby defends them, saying that is also how *Argo's* computers think. Isaac, Toby's teaching Aspect, gives him a number problem. Toby is to add up all the numbers, 1 through 100. He writes them down in pairs, starting with 1 and 100, 2 and 99 all the way to 50 and 51. Toby realizes that each pair adds up to 101. There are 50 of them, so they total 101×50 or 5,050.

When Toby is finished with his lessons, Cermo orders him to report to the Cap'n. Killeen chastises Toby for not consulting his Aspects when Quath took him to the Sail-Snake. Then Killeen asks about Shibo. Shibo was killed on Trump, in a trap laid by a mech-human hybrid called His Supremacy. Toby and Killeen managed to get her back to *Argo*, but none of the Aspects understood the medical computer's readings.

Shibo's unique consciousness was recorded on a chip small enough to fit into a spinal reader. Normally Aspects are held dormant for several generations, but Shibo's experience was too valuable to lose, so she was immediately implanted in Toby. It would create emotional instability to implant Shibo in Killeen. Now Killeen wants to speak privately with Shibo, through Toby. Toby refuses, and the two argue. Toby threatens to take the matter to a family gathering. Killeen reveals that Shibo's recording was a Personality, not just an Aspect. Killeen apologizes for asking Toby to manifest Shibo for him.

Part 1, Chapter 3 The Rule of Number Analysis

No one of the Family Bishop has ever seen an actual Chandelier, built by ancient humans. By tomorrow, they will actually be aboard one. None of their older Aspects are from this region to tell them about the Chandelier. It appears to be in good shape, which is unusual. The vicious battles between mechs and humans ruined most of the Chandeliers.

Toby can feel his teaching Aspect, Isaac, clambering for attention. On one hand, Aspects were always there, at a very low level. On the other, they are long dead and



only truly existed when Toby paid attention to them. Toby knows that Killeen is more concerned with talking to Shibo than with Toby's transgression. Killeen's request that Toby manifest Shibo has a faintly incestuous flavor. Killeen has obviously not recovered from the emotional trauma of Shibo's death. Implanting a Personality in someone as young as Toby is unheard of. There is too great a risk that the Personality will try to take over. This shows a serious lapse of Killeen's judgment.



Part 1, Chapter 4 Pale Immensities

Part 1, Chapter 4 Pale Immensities Summary

Toby watches the huge Chandelier through the flyer's window. Inside, the Chandelier shows some signs of fighting, especially burn marks in the auditorium. The *Argo* team wanders the 20,000 year-old structure, marveling at the high arcology era that produced such concert halls, hospitals, elevators and factories. Amazingly, the Chandelier has not been destroyed by mechs and still contains breathable atmosphere.

Suddenly, Toby receives a blaring signal through the comm line. The device broadcasts a bomb warning. Quickly, everyone dives for the exit. With uncharacteristic speed, Cermo blasts the door before it can trap them. Everyone rushes outside the Chandelier. Toby reaches free space just as the transmitter shuts off. The Chandelier falls apart, spires collapsing and walls shearing away.

The *Argo* is already speeding away. Killeen theorizes that the bomb was a warning device designed to detect humans. Why else place it in atmosphere, and have it signal before it explodes, he wonders.

Part 1, Chapter 4 Pale Immensities Analysis

Toby is amazed that humans could have created anything as huge and beautiful as the Chandelier. His only memory of humans is as scavengers, barely clinging to existence on the edges of superior mech technology. It reminds Toby how far humans have sunk. The entire Citadel Bishop on Snowglade would have fit in the sports stadium of the Blaine Arcology. Yet, Blaine itself was but a refugee camp of the high arcology era civilization that must have produced the Chandelier. Toby smiles with pride to imagine that once human technology rivaled mech constructions. When the bomb explodes, destroying the beautiful chandelier, the "trap" the mechs spoke of has been sprung.

After years of shared experiences, each family has come to have distinct characteristics. Shibo admits that the Family Bishop is audacious and may owe its survival to lack of caution. Toby experiences the blocked-in Shibo Personality as a tickling in his brain. Toby uses his Shibo Personality to monitor the incoming calls while he pays attention to other things. Quath can do that on her own, Toby realizes. Shibo recommends caution, sending in only one person aboard the Chandelier at first.



Part 1, Chapter 5 Ancient Flavors

Part 1, Chapter 5 Ancient Flavors Summary

Toby enjoys working outside. In zero gravity it is not hard, but it requires "body-smarts." It is almost like dancing. Passing through the molecular cloud has shorted some of the ship's sensors. Cermo says they have to be repaired. One of his Faces tells Toby how. Faces are trimmed-down Aspects, no more than a collection of techno-tricks and machine lore, really.

Toby is surprised to discover Quath tearing apart her house. When he asks why, she mysteriously replies that she doesn't think it will withstand the ship's trajectory. When Toby says they have not decided where to go yet, Quath replies "The soul of a species is best seen from outside. I prepare." When Toby continues to question her, Quath snubs him, and responds with a possibly obscene gesture and a remark his implant cannot translate.

Back inside *Argo*, Toby revels in the luxury of a full shower three days early. It is the first day of a cycle and the water is fresh, not smelling of other Bishops. He sighs when the caller chimes as soon as he drops into his bunk. He and Besen had planned on "resting up" or having sex. He is even more disappointed after he learns that Besen had booked time for them in the zero-grav section. Instead, Toby is summoned to the Bridge.

Toby finds only Cermo and Killeen on the Bridge. They need to consult with his Shibo Aspect. They are trying to decipher an engraving from the Chandelier. Shibo tells them that the lengthy inscription was meant to be read digitally. The mysterious words tell of pearl palaces.

Cermo tells Toby that the explosion destroying the Chandelier was not meant to harm them. Instead, it was an alarm, alerting the mechs to the presence of humans in the area. Cermo believes the mechs intend to eradicate the Bishops, who seem to be the last of their species. The Bishops have no way of knowing if simple, mindless mech rat-catchers will pursue them, or if it will be the Mantis.

Part 1, Chapter 5 Ancient Flavors Analysis

Quath is highly intelligent, and has been observing the humans on *Argo* for many years. She clearly anticipates their actions, even when the Family Bishop has not yet made a decision. Toby is reminded that despite his affection for Quath, she is alien and the two will never fully understand each other.

As a member of Family Knight, Shibo possesses knowledge rare among the Bishops. The first line of the inscription reads left to right, the second line reads right to left. Shibo says the ancient scrolls from Family Knight were written in this fashion. It would be an easy techno-trick for Toby to allow Killeen and Cermo direct access to Shibo. Toby



resists because he wants to stay involved. The author uses this strategy to make Toby the protagonist of the novel. This also conforms to a tradition in the science fiction genre of young adolescents having the power of adults.

The Mantis is the most dreaded of the mechs, a highly elaborate and intelligent construction. It has hounded the Family Bishop for decades, using elaborate electronic illusions to lure humans. Unlike the simpler mechs, the Mantis actually uses human body parts to create macabre works of art. Still, Toby remembers being told that the mechs regard humans as a lowly form of life, and do not send their best in pursuit of such pitiful creatures.



Part 1, Chapter 6 The Song of Electrons

Part 1, Chapter 6 The Song of Electrons Summary

Toby stands on the hull and gazes out. Signs of mech pursuit have been detected from several directions by the long-range scanners. *Argo* is being forced toward the black hole at True Center, a trap indeed. Toby is here to summon Quath to the family gathering. The event starts with raucous music and a light-hearted dance. Members of Family Bishop mingle with newer refugees from the planet New Bishop. The Family will consume alcohol, making them more confident and even more reckless than usual. Then they will decide on their next course of action.

Quath confirms what many have guessed. The mechs will trap *Argo* near the black hole's whirlpool. Her own species is nearby, with their Cosmic Circle. Killeen uses the family sensorium to project ancient texts in everyone's left eye, and their translation in the right eye. One line says, "She shall rise as shall we all who plunge inward to the lair and library." Killeen suggests that rather than fight or flee, the Family forge ahead, exploring the True Center. The others agree, although Shibo mutters a warning in Toby's mind.

Ultraviolet light reflects from bristling angular antenna. The mechs remark on the humans' persistence. Growing from a single supernova, the black hole is a million times heavier now. Only the image is frozen in space-time. The humans are drawn to it, like moths to flame. One/many reminds himself/the others that the human's extinction is not their goal - yet. The mechs are contemptuous of the creatures they call the quasi-mechanicals, but wary of the loop of sheared discontinuity they carry. They agree to "prune" the humans, while allowing some to survive.

Part 1, Chapter 6 The Song of Electrons Analysis

Quath is not a member of the family, but her insight into this situation is crucial. Although the Cap'n exercises complete control in day-to-day operations, major decisions are always reached by consensus at a family gathering. The Bishops owe their survival in part to their reckless bravery. This family ritual is designed to accentuate that trait, and therefore increase survival. Still, the quest Killeen proposes is audacious. Toby realizes that the Cap'n is risking the family's very survival to learn more about the past.

Toby likes the fact that the Family Bishop retains many of the physical variations of humans. Skins are all shades of yellow, brown and pink. Eyes are blue or brown, and noses come in all sizes. Everyone aboard *Argo* had relatives who died fighting Quath's species, the Myriapodia. Killeen is the hero of that war. He plunged through a planet-long tunnel drilled by the creatures the family once called the Cybers, and rode inside the Cyber Quath. Now, the Myriapodia are poised to help the humans as much as they can. Killeen is also the one who, long ago, fought the mechs.

The mechs reveal that they are pursuing the humans towards the black hole. Their conversation is ambiguous. It is clear only that the mechs hope to use the humans to learn something about an area they call the Wedge.



Part 2, Chapter 1 Hard Pursuit

Part 2, Chapter 1 Hard Pursuit Summary

Toby talks to Besen in the cafeteria. In the past week, *Argo* has covered a lot of distance, fleeing toward the True Center and away from the mechs. Quath advises caution, saying the mechs have been obsessed with the True Center for centuries.

Toby knocks weevils out of his grain. It has been years since Erica let the squirming creatures out of their vial, but everyone curses her daily. Toby has sympathy for her, instead. None of the Bishops could read the vial's arcane inscription. It was just bad luck that Erica was in the grain dome instead of the fruits and vegetables dome when she dropped it. It could have happened to anyone.

Part 2, Chapter 1 Hard Pursuit Analysis

Toby is reminded that although *Argo* is a grand legacy from the ancestors, it is essentially just a very smart tin can. Like all the members of the Family Bishop, he is eager for concrete action, preferably on a planet. Still, he has doubts about the wisdom of their current actions. He is hesitant to voice them because he knows how unpopular his views will be.

Erica's accidental release of the detested weevils illustrates how little the Bishops understand their ship, and how interdependent they are. Erica's precipitous actions in not consulting her Aspects are typically Bishop. That is probably the reason the Cap'n didn't order her whipped. Members of different families display characteristics. The Cards, from the planet Trump, are fiercely loyal. They tend to follow fanatical leaders like His Supremacy, a crazy man the Bishops had to kill. Somehow, that resulted in the Aces, Deuces, Jacks and Fivers being fiercely loyal to Killeen.

The families from Snowglade display differences as well. Rooks blow their noses whenever the spirit moves, showering anyone passing by. Pawns will crap in front of anyone. Knights burp and fart even at the most formal occasions. Bishops spit constantly, wherever they are. Some say the ancient lost Family of Queens would make love right in public, but Toby refuses to believe that. Although Toby privately regards the Cards as ignorant and stubborn, he tries to keep peace among the family members.



Part 2, Chapter 2 The Shredded Star

Part 2, Chapter 2 The Shredded Star Summary

Quath has fled the hard radiation of the surface and is living in an abandoned agro dome. She has grown a few more eyes. When he visits her, Toby practices his low-grav skills. Toby has been sent to ask the Quath to explain the conduct of her people. They continue to haul the huge glowing ring through space nearby. Quath only says, somewhat mysteriously, that the cusp moment approaches. The more philosophical aspects of Toby's remarks to Quath, and her replies, are untranslatable. Thus, neither really understands the other.

Killeen calls on the comm line, urging Toby to bring Quath to the Bridge immediately. Quath is too large to fit in the small command center, and must crouch in the corridor outside. They watch the black hole consume a star, pulling it apart. The gasses form a ring around the black hole. Killeen says some family records refer to it as the Eye of the Eater. The Quath ships, with their glittering circle in tow, hover nearby. When a crewmember reports that the hull is overheating, Quath suggests they take shelter in the Besik Bay. It is visible as a red dot above the gaseous plate on the view screen.

Part 2, Chapter 2 The Shredded Star Analysis

The *Argo* is much too large for the few remaining Bishops, so there is plenty of room for Quath inside. Still, Toby wishes she were still outside, because it gave him an excuse to hull-walk. Quath confides that on her home planet, Myriapodia, she once hunted tiny primates and roasted them over an open fire for a delicious snack. Toby finds the news slightly disturbing, although he realizes that he has never hesitated to destroy small insects on Snowglade, which is the same thing.

Killeen explains that although the black hole is too small to see, it has huge gravity from its great mass. As the huge star approaches, the gravitational forces pull the closest edge into a different orbit from those further away from the black hole. The opposing forces pull the giant star apart, dispersing its gasses into the cloud. Eventually, the gasses will be sucked into the black hole.



Part 2, Chapter 3 Besik Bay

Part 2, Chapter 3 Besik Bay Summary

Argo is running for her life, pursued by mech ships. Toby uses his status as the son of the Cap'n to loiter unseen in the back of the Bridge with Besen. The closest mech ship launches a missile at them. It is destroyed by *Argo*'s defense systems. The other mech ships close in. *Argo* is far outgunned. Suddenly a glowing line sweeps past *Argo*. Isaac reports that the glowing circle is a cosmic string, a natural phenomena formed by the Big Bang. It is large enough to core an entire planet. Escorted by the spiky Myriapodia ships, the string passes through the mech ships. Gradually the ships drift into halves, severed by the glowing line.

The mech ships continue to glide closer. Soon *Argo* is forced out of the Besik Bay. From this vantage point, Toby can see a pencil-like stream of cool blue rising from the black hole. Isaac explains that it is one of two galactic jets that eject cooling matter through centrifugal force. With the mech suicide drones closing in, there is only one place for the *Argo* to flee - into the galactic jet.

Part 2, Chapter 3 Besik Bay Analysis

Unlike *Argo*, the mech ships do not contain mechs. They *are* mechs, interlocking machines the size of cities without even a unifying metal skin. These seem to be suicidal drones, bent only on the human destruction. Even when they are chopped in half by the cosmic string, the mechs simply throw light metallic spanners across the breach and continue to pursue *Argo*. The cosmic string is only a few atoms wide, but very long. It is similar to a knife that cuts through the very fabric of being.



Part 2, Chapter 4 Motes Such as You

Part 2, Chapter 4 Motes Such as You Summary

Walking along a side corridor, Toby catches the scent of smoke. Fire is the most destructive force on a spaceship, consuming the oxygen and breaching the hull. Toby locates the blaze, finding a group of family members clustered around a small debris blaze. They reminisce about the carefree days when the Bishops just plucked the plentiful crops and stole whatever they needed from the mechs. Toby is surprised to see Cermo among those crouching around the fire.

Several members of the group begin to criticize Killeen, saying he has no idea what he is doing. One of the Trumps defends the Cap'n, and Toby does as well. Toby leaves reluctantly, summoned to the Bridge. They are drifting through the luminous strands of the Magnetic Mind. The Mind asks if they belong to the Family Bishop, and Killeen affirms that they do. The Mind remembers Killeen from a previous encounter. It also inquires after the "flavor" Toby. The Mind speaks of a shadowy plasma intelligence closer to the center, and cryptically alludes to Killeen's father, Abraham. The Mind abruptly departs, before it can tell Killeen how to rescue Argo. Killeen is still determined to use the galactic jet to shoot *Argo* far away, although Toby tells him the crew is grumbling.

Part 2, Chapter 4 Motes Such as You Analysis

Toby is aware of the family's history as vagabonds. During times of extreme stress or danger, a communal fire creates a sense of security and comradeship. Toby knows the past is not as rosy as the family would believe. Those were desperate times, scavenging and constantly running from the murderous mechs. Still, Toby recognizes the need to romanticize the past.

Killeen has encountered the immense, glowing filigree of the Magnetic Mind before. It speaks with magnetic vibrations through the massive walls of the Bridge. Killeen still hopes that his father, Abraham lives, because in the hasty departure from Snowglade the Bishops were unable to locate Abraham's body.



Part 2, Chapter 5 Tiny Minds

Part 2, Chapter 5 Tiny Minds Summary

Toby jogs through the lonely corridors. He would like to trade insults with Quath, but the Myriapodia brushes him off, saying she is conjoining with her own kind. He wanders back to the side passage, finding another fire, slightly larger this time. The group is grumbling about the rapidly overheating hull. The computers estimate that the cooling system will last just 24 hours.

The crowd decides to confront Killeen on the Bridge. They learn the ship has just entered the galactic jet and the hull is already beginning to cool. The Trumps in the crowd call for everyone to quiet down and show the Cap'n some respect when suddenly they all feel the vibrations. The Magnetic Mind has returned with instructions specifically for Killeen and Toby. When Killeen demands to know their exact destination, the Mind replies enigmatically.

Part 2, Chapter 5 Tiny Minds Analysis

When Killeen questions the Magnetic Mind's orders, the Mind reveals they come from Abraham. Killeen is thrilled at confirmation his father is alive. Once again the Trumps prove loyal to their leader, while Killeen's own Family, the Bishops, question him. *Argo* continues its voyage into the unknown. Quath has redesigned herself, perhaps as a type of fashion statement. Quath has several minds that operate independently, and offers to monitor Toby with one, but he declines.



Part 2, Chapter 6 Lightning Life

Part 2, Chapter 6 Lightning Life Summary

Argo follows the magnetic filigree through the galactic jet. Far up the jet, *Argo* detects huge mech constructions. The spin of the black hole spews a hollow column of gasses out the jet. Isaac thinks it resembles cotton candy at a fair, two concepts unfamiliar to Toby. Pressed, Isaac confesses that he spent his days in a planetary refuge during the Accommodation. Toby's Face, Joe points out the futility of the Accommodation, a period when humans tried to compromise with mechs by moving to planets. The mechs betrayed them, smashing all the Chandeliers as soon as the humans left. This memory reveals the treachery of mechs. Isaac argues that the Hunker Down produced disparate families, which ultimately resulted in hybrid vigor. An ancient and fragmented Face, Zeno, argues with both Joe and Isaac.

Suddenly Isaac is displaced by a burgeoning presence. Toby is flooded with Shibo's sense memories of the last days in her Citadel. Shibo knows Killeen better than Toby does. She points out that he knew the campfire mob was coming and engineered their arrival to coincide with the Magnetic Mind's proclamations. Killeen sees that Toby is in touch with Shibo and begins speaking directly to her, ignoring Toby.

Part 2, Chapter 6 Lightning Life Analysis

Toby allows his Faces to argue for a while, and even mentally pries the lid off Zeno so she is accessible. The Faces each contain valuable memories, and Toby learns much by letting them disagree. Although Shibo is highly perceptive and knows Killeen better than Toby does, he finds her Personality overwhelming. Toby also finds it very uncomfortable and faintly incestuous when Killeen communes directly with his Shibo Aspect.



Part 2, Chapter 7 A Taste of the Void

Part 2, Chapter 7 A Taste of the Void Summary

Toby longs to stay on the Bridge as the ship speeds along the galactic jet into the vortex, but he has agro duty. Later, he learns that as he was seeding an agro dome, more mech ships were sighted. They attack from several angles. Toby hears a whoosh as the dome above him vaporizes. He spins away toward the void. The automatic airlock has already closed, protecting the atmosphere in the rest of the ship. Flapping his arms wildly, Toby works his way toward the emergency entry. The other four workers in the dome are lost, drifting out into the un-breathable void or fried by electrical lightening. Argo's automatic defenses inflict heavy losses on the mechs, and they retreat.

Part 2, Chapter 7 A Taste of the Void Analysis

The bodies of two crewmembers are recovered and their memories transferred to Aspects. The others are lost forever, with all their Aspects and Faces. Toby is right to wonder if the mechs were defeated so easily, or if they merely choose not to inflict further damage on the Argo. The author, Gregory Benford, uses situational irony here. The reader is aware, from the mechs previous discussions, that they plan only a minor "pruning," not eradication of the humans.



Part 2, Chapter 8 The Aperture Moment

Part 2, Chapter 8 The Aperture Moment Summary

Like many on board, Besen is worried by the mech attack. Toby tries to distract her with food and sex. The ship is quickly approaching the disc in the center of the galactic jet. Quath finishes communing with her kind. Toby asks her if the Myriapodia will help the humans and Quath replies, "They must." The Magnetic Mind leaves the humans, but first gives them a map to follow to the disk. *Argo* is to follow the star into the black hole.

Part 2, Chapter 8 The Aperture Moment Analysis

Quath seems to imply that the Myriapodia's actions to be preordained, or at least foretold. The humans are reluctant to proceed into the disk, but they are committed to following the instructions the Mind gives them in Abraham's name.



Part 2, Chapter 9 The Cyaneans

Part 2, Chapter 9 The Cyaneans Summary

Argo creaks and groans under the gravitational forces pulling at it. Isaac says they remind him of a tide in a sea. Quath says according to her people's ancient texts, the Myriapodia have traveled into the disk, although they did not survive. Toby's Face Zeno tries to explain how the black hole warps space and time. As Toby tries to unravel the complexities of the black hole, Quath speaks directly into his mind, instead of using the comm line. She says, "Lower beings do not see the fundamental essence of the world, which combines space and time. Do not knit a knot of concern for this. Even the Myriapodia do not see space-time. We, too, divide it into the easier ideas of distance and duration." The Myriapodia form the cosmic string into a Cosmic Circle and toss it into the eye-shaped Cyaneans surrounding the black hole. *Argo* follows into the depths of the spinning bulge.

Electromagnetic stresses like burning flowers arise from the disk. The mech, in an effort to understand savage human minds better, uses binary discourse. The human ship contains legacies encoding the species genome. There is speculation that some humans have reached the Wedge and survive there.

Part 2, Chapter 9 The Cyaneans Analysis

Toby is learning that Quath can listen in on his internal discussions with his Aspects and Faces. He also learns that the Aspects' view the world through his senses, including his sexual relationship with Besen. Shibo tries to reassure Toby that Aspects are frozen. They cannot grow or learn, and nothing will ever change their opinions. Toby wonders uneasily if the same is true of Personalities like Shibo herself.

One of the central themes of the novel is that space and time are permanently conjoined, and that humans are temperamentally and intellectually unable to understand that synthesis. Thus, Toby only partially understands Quath's explanation.

In an effort to understand humans, the mechs assume a similar way of thinking. Clearly, they are driving the humans into the Wedge, for reasons of their own. One of the aspects is called the Aesthetic, meaning artist, clearly a reference to the most feared and intelligent of mechs, the Mantis.



Part 3, Chapter 1 Deep Reality

Part 3, Chapter 1 Deep Reality Summary

Argo plunges toward the ergosphere boundary, accelerating quickly. Quath calls this space the time pit, where space and time are scrambled. Suddenly Jocelyn reports an incoming ship. The Bridge crew watches it tensely. Someone remarks that it looks like a mech ship. Quath says the ship shows similarities to Argo, but Killeen protests that they will find no humans here, virtually inside the black hole. The crew is ready to fire on the ship when Toby interrupts them. It takes all of Quath and Toby's combined arguments to convince Killeen not to fire immediately. Soon, the computer confirms that the ship is an ancient human design. It mysteriously vanishes.

Quath says that the aperture moment has arrived. The star being consumed by the black hole creates an opening, like a door left open. It is only during such moments that they may enter. Quath urges them to act quickly, but admits she has no idea what lies on the other side.

Part 3, Chapter 1 Deep Reality Analysis

Quath argues that only beings that can perceive space-time directly are truly intelligent. Isaac supplies the information that light is warped in space-time making distance measurements impossible. According to Quath, each day is equal to a month in normal time this deep inside the time pit.

During one of Isaac's lectures, he tells Toby that the ancients may have performed experiments here. *"But I can quote to you from more reliable Chandelier texts. They often blended mythology and physics, a fashion of that great time - imagine, the luxury to do such!"* This is clearly Benford's comment on the art and craft of science fiction, which ultimately blends mythology and science.

Part 3, Chapter 2 Honeycomb Home

Part 3, Chapter 2 Honeycomb Home Summary

As the ship plunges in the time pit, it reaches the level where each passing day represents a year in the outside world. Quath explains that *Argo* is only safe because this is the largest black hole in the galaxy. Its huge mass generates tidal forces that keep *Argo* orbiting the disk. In the mass, Toby sees metal ribs and valleys that look constructed, not natural. Killeen confirms that humans must have built it. He tells Jocelyn to take them to a tiny, wavering dot of green light at the end of a peninsula. The green glow seems to swim up to them. The ship is absorbed through oily black walls into a honeycomb. There is nowhere else to go, and the ship's engines cease their throb. Suddenly the watch officer reports a noise in the main airlock. It sounds like someone very loudly knocking on the door.

Part 3, Chapter 2 Honeycomb Home Analysis

Killeen says that Abraham and the Magnetic Mind were leading *Argo* to this strange structure. However, he also notes that Family Bishop has a long history of pretending that whatever they found was their original goal. Although Killeen does not say so, the ability to make the most of any given situation may have contributed to the Bishop's survival.

One aspect of the space-time conundrum that humans can understand is the relative passage of time. As they sink deeper into the time pit, every day on board ship becomes a year in the outside world. Even if *Argo* escapes the time pit, it will be returning to a far different universe.



Part 3, Chapter 3 The Far Black

Part 3, Chapter 3 The Far Black Summary

The wrinkled dwarf leads the team of Toby and five officers through a dimly lit corridor. He asks what era they are from, but no one knows how to answer him. Killeen says it was after the Calamity (meaning the war with the mechs), but the phrase means nothing. "That doesn't cut any thick air here, fella. All life's a big old calamity, if you look at it the right way," the dwarf replies.

The dwarf tells Toby this is an ordinary entrance portal to the esty. That's S for space, T for time. He explains that they are in a stable, inhabited, governed chunk of convoluted esty. The dwarf demands Killeen's thanks for pulling them from the Far Black, and then tells the Cap'n they will be charged for it.

The dwarf, who belatedly introduces himself as Andro, escorts them through rooms where they are tested for bombs and viruses by sensors, the cleaned by sticky strings. Toby falls into a green soup and is hauled to a sandy beach by magnetic fields. Andro feeds Toby a tutor while his clothes are being "reeducated." He mentions they have arrived at Port Athena. The food gurgles and slides around while Toby tries to eat it, but it tastes delicious.

After everyone has eaten, Andro demands to see their license. Killeen proclaims they are the Bishops of Snowglade and have no authority but their own. Andro has a message for the Bishops, though. To pick it up, they must see the Regency. When the Bishops try to explain, Andro says, "I know, but it's a story I've heard before. Last off your planet. Point is, you're the best ones. You got here."

Part 3, Chapter 3 The Far Black Analysis

To Toby's eyes, a standard human without genetic modifications appears wrinkled and dwarfish. Because the Families continue to grow throughout their lives, and do not show signs of deterioration with age, the man looks freakish to Toby. Human history can only be defined in relative terms, of course, so the Bishops are unable to tell the man what era they are from. The dwarf calls them "flatlanders" and explains that it doesn't make sense to ask who made the esty when it has a timeline separate from their own. For his part, Andro calls Toby "skyscraper" and hints that he will recognize his mistake after banging his head on a few doorways.

Through Andro's eyes, the crew learns another version of human history. During the Hunker Down, he says, most planets contained Bishops, as well as Cards, Blues and Golds. This was to prevent the obliteration of any one genetic line by mechs. All are represented here, even the original templates. The families' bionic modifications give them more mass, which is difficult on the esty. Although Andro says the Bishops' genetic superiority has been proved by their survival, he doesn't seem to believe it.



Part 3, Chapter 4 A Day in Court

Part 3, Chapter 4 A Day in Court Summary

Walking through the city, the Bishops are unimpressed by the shabby buildings and dirty, dwarfed inhabitants. Shibo's Personality rises unbidden to say, "They are rats in bow ties. But useful." Andro delivers them to a squat woman with leathery skin in a black robe. Toby can understand the conversation because after the meal, Andro slipped a translating chip into his spinal insert collar, muttering about "dumb-downs" all the time.

The judge begins by announcing the entire crew will have to spend an annum or two in the workhouse to pay for their tax code violation, in turning up unannounced. Killeen counters that *Argo* has fresh space plants and technology from two planets to offer. The judge is unimpressed. Killeen offers to trade an alien, a Myriapodia. Suddenly, the judge is very interested. She is willing to waive *Argo's* fees if her experts are given the alien. Still, the judge refuses to pass along the Bishop's message, until her experts arrive. The judge agrees to let Toby act as liaison, but when he refuses to hand over Quath, she becomes threatening. The Bishops turn and confront the people assembled in the judge's chambers. Even the shortest Bishops tower above their hosts. The judge quickly backs down. She introduces herself as Monisque. She is sure they can reach terms, and have a drink afterwards.

Part 3, Chapter 4 A Day in Court Analysis

Toby is shocked that Killeen would offer their friend Quath to the judge. At least Killeen refuses to give Quath to the city dwellers until their experts arrive. Toby cautions the judge that unless Quath is properly handled, she will refuse to communicate at all. Monisque seems especially interested in Quath because her people regard the Myriapodia as fierce enemies. Toby remembers that at one time Quath's people regarded humans as animals, and hunted them. He wonders if the judge's impression of Myriapodia stems from that past, or from the future.

In Port Athena, esty seems remarkably similar to the traditional space that the Bishop's are accustomed to. It is unclear what time Andro and his companions exist in, relative to the Bishop's era.



Part 3, Chapter 5 Trans-History

Part 3, Chapter 5 Trans-History Summary

Quath has to squeeze into the Port's loading dock because she is too big for the personnel areas. She seems to have added legs again. The party, including Toby and Killeen, is escorted by an "Honor Guard" whose purpose is clearly to keep Quath and the Bishops in line. There is a brief thunderstorm, amazing Toby with delicious water falling from the sky like a gift. Instantly, Toby is plunged into Shibo's girlhood memories of storms on her homeland. Cermo reports that the esty is solid. It appears to be a long tube, so broad that clouds form along its axis. If they could see straight up, Quath says, they would be looking at another part of the city hanging above them.

While Toby is watching, one of the buildings melts and reforms itself into a different design. The city seems to run automatically. When they meet Monisque again, Killeen begins negotiating for information. Monisque says she will share all she can, but she cannot answer for the other Lanes. Killeen asks what Lanes are. It becomes apparent that Andro was supposed to be briefing the Bishops, instead of trying to swap for their gear. Andro protests that the Bishops simply do not have the concepts to understand esty.

Killeen continues to negotiate. He wants access to the ancient records, and Abraham. In return, he offers the Legacy, ancient inscriptions in niches on *Argo* that no one can read. Once again, Killeen is willing to bargain away much more than the other Bishops are prepared to part with. Toby objects most strongly, and the Cap'n has Cermo escort him out.

Part 3, Chapter 5 Trans-History Analysis

The people of esty are very different from the Bishops. The families are accustomed to complete cooperation, sharing knowledge without a second thought. Only sharing and cooperation have made it possible for them to live in close proximity in Citadels or ships, while avoiding the mechs. The esty people are more competitive. They divulge data only when they are paid to do so. Quath remarks that such variations in human behavior have long been noted in the writings of her people. Some scholars suggest they are an evolutionary advantage, others a see them as a weakness.

Shibo's vivid and unbidden memories are distracting to Toby. They are disturbing because, unlike his other Aspects, he is not able to tamp the Shibo Personality down. Toby is uncomfortable carrying the memories of a female. Still, he finds them strangely compelling.

Benford employs irony in his physical description of Quath's changes. The reader is aware, although Toby is not, that the Myriapodia adds eyes or legs just before challenges that will require them. Thus, Quath is in fight-or-flight mode in confronting the

judge. The author employs irony again in mentioning the Legacies, inscrutable to dwarves and Bishops alike. From the mechs conversations, the reader is aware that these contain the human genetic code.



Part 3, Chapter 6 The Charm of Commerce

Part 3, Chapter 6 The Charm of Commerce Summary

Toby spends two days confined in a small room on ship, as punishment for his outburst. He is completely isolated. Not even Quath can visit. Even when Ceremo delivers Toby's meals, he cannot be cajoled into talking with him. Toby is given only food and study materials, so he catches up on math and history. He missed the education sessions, where everyone else learned how this place works. After two days, Besen somehow manages a visit. Kissing her feels claustrophobic and he asks her to leave. She does not return the next day.

When he is finally released, Toby cannot wait to get into the shower. The esty natives have hooked *Argo* to their unlimited water supply. After his confinement, Toby is eager to get outside into the city, but the Lieutenant stiffly tells him he is confined to the ship. Toby sneaks out a vent in the damaged agro dome. The city is swarming with markets and beggars, unfamiliar to someone accustomed only to shipboard barter. He wanders amid the fortunetellers, gambling booths and science games. A group of youths playing a virtual reality game loans Toby a set of goggles. Suddenly he seems surrounded by giant cats and lizards, shooting at them. When he tires of the game, Toby wanders in a park. That is where Quath finds him. Immediately, Toby can sense that something is very wrong.

Part 3, Chapter 6 The Charm of Commerce Analysis

To Toby, the esty natives seem sad, foolish creatures indeed. They are completely unlike the demigods who designed the Chandeliers. It never occurs to Toby that the ugly, stunted dwarfs are genetically identical to his revered ancestors. Toby realizes that his servos and sensor systems are not unlike the virtual reality game. Kissing Besen, Toby is flooded with Shibo's sense memories. He finds their female perspective unsettling. Even in the esty, some youths exist almost exclusively in virtual reality games. They justify it with hip philosophy Toby cannot quite fathom. Benford's commentary on virtual reality and video games is clear when Toby thinks the games are just for people who spend too much time indoors.



Part 3, Chapter 7 Animal Spirits

Part 3, Chapter 7 Animal Spirits Summary

Quath's questioning by the esty experts is over. The Myriapodia philosophers have permitted her to tell the humans much about their weapons and victories. Quath says a cusp in the long conflict with mechs is approaching. Quath reports that Killeen has finished his negotiations with the esty dwarfs. Now Killeen needs the Personality that Toby carries. The dwarf's Restorer can recreate anyone from a tissue sample and a memory record. Shibo tells Toby she will mull over restoration. Finally, she decides against it. There is a gentle beauty in no longer being of the world, Shibo tells Toby. Quath insists that Killeen will take Shibo's chip from Toby by force, if necessary.

Just as Toby declares he will not return to the ship, Killeen and Cermo appear. Abraham has sent coordinates for the family to join him. Killeen insists the family needs Shibo's calm and insightfulness to survive. When Shibo sees the dissention her decision is creating, she relents, but Toby refuses. He doesn't want to share her with anyone. Toby flees, using his servos to jump over a building. Soon Quath catches up with Toby, helping him to escape.

Above the disk, nothing metal or ceramic can survive. The mechs again engage in debate. The Mantis urges the study of the primates, as they call humans. The others regard such study as a waste of time, but reluctantly agree. They urge the Mantis to travel into the Wedge, a dangerous mission.

Part 3, Chapter 7 Animal Spirits Analysis

Toby is strangely disappointed to think that Shibo might be taken from him. He feels they were just beginning to know each other. Toby is becoming fascinated by Shibo's memories, as disturbing as they are. Toby realizes that one reason Killeen risked the ship and everyone on it was to recover Shibo. When Killeen insists that Shibo is necessary to the family's survival, he is using a very powerful argument. Nothing is more important than the survival of the Bishops. However Toby suspects that his father's reasons for wanting Shibo recreated are personal.

The mechs cannot survive near the black hole, as ceramic and metal are less flexible under high gravity than flesh. Nevertheless, they urge the Mantis to travel into the Wedge. The Mantis objects that there is no way of knowing where he will end up.



Part 4, Chapter 1 The Esty Wind

Part 4, Chapter 1 The Esty Wind Summary

Toby and Quath move quickly, soon leaving the city of the dwarves far behind. Quath objects that this is a dangerous thing to do. Quath persists, saying, "In the descriptions of this place, which I attended and you regrettably did not, there were severe warnings. I do not quite understand the nature of these prohibitions but they seem to reflect the inherent [untranslatable]" Shibo whispers in Toby's brain that his family obligation is to find Abraham.

The ground begins to twist and slip beneath Toby's boots. Quath tries to explain that the motion is the effect of the stochasticity, the "time-spun evolution of the esty." The wind blows them along a plain, into a region of snow-capped mountains. A hole appears, sucking them into a different space-time Lane. According to Quath, the Legacy contained a reference to this place. It is called the Redoubt, an ancient human sanctuary from the mechs. Quath explains that everything here is made of time, even the limestone, which Quath calls timestone. Quath and Toby both have rations with them, and eat.

Part 4, Chapter 1 The Esty Wind Analysis

Quath explains that they are encountering sealed sections of space-time. Each has its own atmosphere and biospheres. The sections are jointed, flexible with stochasticity, like elasticity through space-time. Benford's explanation is intentionally obscure, indicating Toby's lack of understanding. This may also suggest that humans were never meant to grasp the complexities of space-time.



Part 4, Chapter 2 Time's Grip

Part 4, Chapter 2 Time's Grip Summary

Shibo wakes Toby with tender words, saying she loves Toby for his bravery and will help him. He is sprawled across the grass. His right hand is stuck to the timestone. Against Quath's advice, Toby yanks hard. This jerks his hand free, ripping the skin off the entire back of his hand. Toby pops out his medical pouch and treats the wound. Within minutes, a mossy green mat forms on the back of Toby's hand, re-growing the skin. It still hurts until he dampens the pain with his subcontrols.

A large bird flies above, the first Toby has seen since Snowglade. Quath shoots the bird, blasting it out of the air. When Toby protests, Quath tells him to inspect the bird. It has blood and bone, but also mech parts. The mechs have found them, and they must flee.

Part 4, Chapter 2 Time's Grip Analysis

The Shibo personality plays on Toby's deepest motive, the obligation to the family and their continued survival. She seems to be changing, perhaps due to Isaac and the other Aspects, or due to Toby himself.

Quath explains that the grass and air are ordinary matter, but nearly everything else is space-time and will absorb them if they stay too close to it, for too long. Toby's bioengineering allows him to recover rapidly from injuries. It is far superior to the family's current level of technology. Quath is amazed by this land created in a wrinkle of space-time, unable to imagine who may have created it. The mech bird is clearly a searching device, sent to find Toby, although he cannot imagine why. It is disturbing that the mechs have penetrated the esty despite all the dwarves' efforts.



Part 4, Chapter 3 The Rock of Chaos

Part 4, Chapter 3 The Rock of Chaos Summary

Quath and Toby flee, running over unknown terrain, looking for another one of the holes that Quath calls pore-openings. Suddenly Toby stops. He tells Quath he was wrong to run out on the family. Toby believes the mechs are hunting all the Bishops, not just him. Toby tries to flee back the way they came. Quath explains to Toby that the esty is highly unstable at the loci called pore-openings. Thus, even if they can find the same pore and go through it, they may find themselves in another lane, instead of heading back to the city of the dwarves. Quath says it will only be a happy accident if they are able to return. The mechs have just as hard a time finding anyone in the shifting esty.

Suddenly the timestone erupts. A thick stalk of wiggling timestone emerges, followed by other stalks. Shibo demands that Toby explore it, calling him a coward. The stalks lick him like cool black flames, comfortable and beckoning. Something about it reminds Toby of the games the youths were playing with in the dwarf cities.

Part 4, Chapter 3 The Rock of Chaos Analysis

Without Shibo's interference, Toby realizes that his first loyalty is always to the family. Too late, he realizes he may never be able to find them again in the random shifting of the esty. Toby realizes that during the Hunker Down period, when the Bishops retreated to the planets, some humans sought refuge in the esty. The space is spaghetti-like, making it almost impossible for the mechs to trace them.

The wiggling stalks are a type of parasite. Shibo lures Toby into them. When he realizes it is addictive, he flees. The Shibo Personality is increasingly taking over Toby's thought processes. Yet, when she makes a mistake, she childishly blames it on Toby.



Part 4, Chapter 4 Unsettled Movement

Part 4, Chapter 4 Unsettled Movement Summary

Toby and Quath run themselves to exhaustion in the perpetual twilight. According to Quath, humans have lived her for tens of thousands of years. Toby wakes up to hear Shibo singing. Toby tries to repress her, but she is constantly present in his mind, insisting that he needs the help. Quath senses Toby's disquiet with the Shibo Personality. The alien suggests two solutions. Either Toby's self-sense should be reinforced, or the Shibo Personality removed from his spinal slot. Unfortunately, they do not have the medical equipment for either one. Toby tells Quath he will take care of the problem himself.

Part 4, Chapter 4 Unsettled Movement Analysis

Shibo has co-opted Toby's senses while he was asleep. The Personality says she needed an outing. Quath theorizes that human males are always angry and ruthless, almost brutish. Human females like Shibo, she postulates, are more composed and sensitive. Toby disagrees with Quath's theories, but it is clear that the constant, intrusive presence of the Shibo Personality is becoming a burden.



Part 4, Chapter 5 Hard Spark

Part 4, Chapter 5 Hard Spark Summary

Toby and Quath made good time, arriving in a desert under an orange sky. Quath can sense that they are being watched, but she and Toby agree it is not by mechs. Still, Quath is jittery, moving her legs when she wasn't walking on them. Toby is eating a delicious purple fruit when a wedge shoots through his senses.

Something tapered and long comes gliding high in the sky, accompanied by two smaller shapes. It is the Mantis. Quath notes that if the Mantis wanted them dead, it could already have killed them. She suspects that it wants Toby.

A yellow flame shoots out and turns some nearby trees to embers. It strikes Quath, badly injuring her. Toby asks how he can help. Quath tells him to leave. The Myriapodia insists that she will only draw the Mantis's fire towards him. Toby, she says, is part of a larger plan. When Toby objects, Quath responds "Your anger is understandable. I understand what it masks. I love you, too."

Part 4, Chapter 5 Hard Spark Analysis

It is frightening that the mechs have invaded the Lanes. Toby insists *Argo* blew the Mantis up, but Quath counters that mechs may not be associated with a single body, as humans and Myriapodia are. Quath sends Toby away to protect him, even though it is unlikely they will ever be able to find each other again, in the uncertainties of space-time.



Part 4, Chapter 6 Mind Surgery

Part 4, Chapter 6 Mind Surgery Summary

Toby holes up in a shady hollow. His diagnostics tell him three of his ribs are broken. Two Faces worm down into his cerebral cortex to speed the healing process. More explosions boom far away. He has visions, waking dreams. He is flying along in a strange vehicle with Shibo. She has teeth missing and both ears are on the left side. She is wearing only a halter. He rolls through the grass and hits his knee hard, damaging it. Toby scrambles back to cover. He finds a small stream and cleans himself for the first time in two or three days. Toby realizes that Shibo has concealed things from him, distracting him with her vivid memories. He crawls back and gets out his field kit. Using only the clumsy tools in the field kit, he gets the edges on the Shibo chip in his spinal slot. It is hard to work behind himself, but in spite of Shibo's objections, he pulls the chip from his neck.

The Mantis searches innumerable vaults for the message-bearing primates. Yet, it senses something ominous lurking within the warped passages.

Part 4, Chapter 6 Mind Surgery Analysis

Toby's visions from Shibo's memories are increasingly disjointed. This, and her altered appearance, are symptoms of the Personality's deterioration. Under the influence of the Shibo Personality, Toby is taking stupid risks. Finally, he realizes that Shibo is distracting him, even luring him into injuring his knee so he will not think about her power over him. Toby realizes that Quath was right. Since he is unable to increase his self-sense, the Shibo Personality must be removed. Alone, lacking the proper tools, Toby rips the chip out.



Part 5, Chapter 1 The Pain of Eternity

Part 5, Chapter 1 The Pain of Eternity Summary

Toby awakes feeling tired but clean. His wounds hurt less now as they heal. He has the Shibo chip in his carrypouch. He knows that shreds of the Personality might remain within him, but he does not detect any. Toby knows it is foolish to try to raise Quath's signal but the desire to do so is almost overwhelming.

Something comes over the horizon and vectors in on him. Toby fires at it and misses. It burns his ride side in a second. Toby catches it with his next shot, and it falls burning. Toby is disgusted to find that he shit his pants, but the injury to his right arm is more important. He learns to use his weapon to slice the timestone, checking the different Lanes. Some lead to vacuum, or tornadoes or frigid landscapes. Working the timestone makes him nauseous. He longs to hear a human voice. All that has changed him by the time Toby meets the first people.

Part 5, Chapter 1 The Pain of Eternity Analysis

Quath ordered Toby to leave her. As a member of Family Bishop, Toby instinctively obeys orders. Now he knows he has to follow Quath's orders and keep on the move. Remnants of the Shibo Personality are apparent in Toby's tears and uncontrollable emotions. Toby knows if the Mantis finds him, it will make him suredead, sucking all his memories and using them against the Family Bishop. Although Quath is an alien from the species Myriapodia, she acts much like a member of the Family Bishop, and Toby treats her as such.



Part 5, Chapter 2 Rational Laughter

Part 5, Chapter 2 Rational Laughter Summary

The people are tiny, lithe and compact. They have brown skin and black hair in elaborate hairstyles. They are always totally focused on the moment at hand. They speak a language Toby's translator chip cannot interpret. Toby communicates only through sign language until he figures out their language. They are at war with the mechs, searching them out and killing them whenever possible. In the middle of the night, the camp is attacked. Many people are injured and killed. Toby tries to help the medical people, but he can see they do not want him around. They suspect that Toby has drawn the mechs here, unintentionally. So does Toby, and he flees.

Part 5, Chapter 2 Rational Laughter Analysis

Toby cries out of loneliness for his father. Then he thinks it is stupid to be ashamed of crying. He realizes that he has never thought that before, and recognizes it as a remnant of the Shibo Personality. Quath is right. It is now apparent that the mechs are searching specifically for Toby, not just for any humans.



Part 5, Chapter 3 Casualties

Part 5, Chapter 3 Casualties Summary

Toby passes many refugees on his flight. One of them stops Toby and tells him a man wants to speak with him. Toby approaches the man. He has a blanket covering his head, a medical apparatus of some type. The man tells Toby he is growing a new face. The man says they received a message across the Lanes to watch for Toby and help him. The man insists that Toby remain with him, but he flees again.

Part 5, Chapter 3 Casualties Analysis

Toby isn't sure how much to believe the injured man. He is clearly suffering from delirium. Toby mistrusts the source of the message the man claims to have received. The man talks like an old-time Bishop, from long ago.



Part 5, Chapter 4 Salvage

Part 5, Chapter 4 Salvage Summary

Toby enters a long green valley. He has been running from the mechs so long, he no longer remembers exactly why. Toby comes upon many dead bodies. Some are torn apart by explosions. Others are suredead, killed instantly without physical injury when all their memories are pulled out. He encounters a lean woman, salvaging Aspects from the dead. Toby argues that they will be useless, but the woman says she may be able to cut them down to Faces. The woman introduces herself as from the Banshee people. Toby says he is Bishop. Neither has ever heard of the other's tribe.

Toby reads one of the Aspects. It is from the Buddha Gathering, which Toby assumes is another family like the Bishops. He takes the bag of Aspects. He will give them to the first Buddha Family member he finds.

Part 5, Chapter 4 Salvage Analysis

Only the thoughts of Killeen, Besen, Cermo-the-Slow and other Family Bishop members keep Toby going. He is flooded with memories of maize planted in the dirt in the spring, when he was a girl. Toby stops with a start, realizing that the memories are Shibo's, not his. Legally, the Aspects and Faces from the dead Buddha Gathering people belong to their family. Toby realizes that the lean woman is a scalp hunter, bent on selling the Aspects for profit. He rescues the Aspects.



Part 5, Chapter 5 The Sea of Sands

Part 5, Chapter 5 The Sea of Sands Summary

A dark, cold time comes. Toby is almost out of food. He comes upon a man and a little girl, camping by a deserted building. The girl has her upper lip and tongue frozen to a cold pipe. They cannot risk a fire, which will draw mechs. There is no water nearby. Finally, Toby explains the solution to the man. He urinates on his daughter's lip, and it comes free. The girl says she can't even taste the urine, but Toby thinks she is lying.

Toby walks into shifting dunes. He calls to his Aspects and Faces, but they do not answer. A group of spindly rods overtakes him. Toby realizes he is in a trap devised by the Mantis. Finally, Isaac replies. He says that the mechs are an anthology intelligence, and they can communicate best through the Aspects.

Through Isaac, the Mantis says that Toby harbors important information. Toby accuses the Mantis of killing his family members, including his mother and sister. The Mantis argues that he was merely sparing them the incomparable pain of having their memories harvested while still alive. The Mantis insists he must continue studying Toby, assembling the generations of the Bishop Family. Toby is trapped within two conflicting images. The desert dunes created by the Mantis, and the surrounding green hills. He runs towards the green hills, and hides in the trees. The Mantis cannot find him, for the moment.

Part 5, Chapter 5 The Sea of Sands Analysis

The predicament of the little girl whose lip is frozen to the pipe is symbolic of Toby's own predicament. Both have to do unpleasant things to escape. Toby is unaware of the solution to his problem, however. He continues to wander aimlessly between the Lanes of esty, and soon finds his dilemma in a confrontation with the Mantis.

Isaac suggests that the Aspects have more in common with the mechs than with humans. They are not bound by chemical or biological processes. Toby realizes that Isaac is turning against him when Isaac refers to his time as an Aspect as time "in captivity." The Mantis insists that "harvesting" the humans is an act of kindness that actually prevents further pain.



Part 5, Chapter 6 Eating the Storm

Part 5, Chapter 6 Eating the Storm Summary

The violence begins as a flicker, a prickle in Toby's mind. A bird lands on a branch overhead. Toby glances at it and it says, "I need help" with a perfect Bishop accent. Toby insists that the Mantis is after him, and he needs a place to hide. The bird argues that this is a time for openness, not hiding. An immense, blue-black beast attacks Toby and the entire forest. Toby blindly calls out for Killeen and Quath. Animals run in circles, yelping. Toby can feel something trying to probe his mind. He opens a small wedge in his sensorium to it. He can feel something struggling to be let out of the esty.

Part 5, Chapter 6 Eating the Storm Analysis

When the beast attacks Toby, he realizes that true violence is happening down all the Lanes. It is not physical, but intellectual in nature. It will bring both death and bliss.



Part 5, Chapter 7 Passing Currents

Part 5, Chapter 7 Passing Currents Summary

Afterwards, Toby understands some of what happened. Life in the esty changes beyond the simple forces of evolution. Life in the Lanes is shifting, with many different types of defense in communication with one another. In this way, esty life mimics the mechs.

Toby carves a hole in the timestone to let whatever the force was, get out. Searing pain spreads through his body. Afterwards, he lays quietly contemplating the mechs. The beautiful and awful thing about the higher forms of mechs is their detachment. Toby is not sure if this is truly an advance or not, but the mechs are not emotionally involved in events. Toby realizes that he left the ship because Killeen made it hard for him to be himself. The Mantis also wants to rob Toby of his self.

Part 5, Chapter 7 Passing Currents Analysis

Toby realizes that the universe is not hostile to humans. It is merely indifferent to them, which is much worse. He understands that a furious gulf spreads everywhere, and humans are just insignificant motes in it. Toby thinks that if he had stayed with the Family, or Quath, he would never have glimpsed the gulf. Now that he has, he is free.



Part 5, Chapter 8 Phantoms

Part 5, Chapter 8 Phantoms Summary

Toby sees a mountain in the distance. As he draws closer, he realizes it is a pyramid. Toby is hungry, which reminds him of Snowglade. Toby cannot understand why the Bishops and all the other families were convicted to live on planets, while the esty was here. At the top of the pyramid is a small man, the same size as the dwarves. He is wrinkled and completely naked. The man asks Toby if he's a Bishop, and Toby acknowledges that he is. The man urges Toby to quickly enter the pyramid through a rectangular opening. The man is Walmsley, of the Brits, a family Toby has never heard of. Walmsley says he has been waiting 28,000 years for Toby. He has a message from Killeen.

Suddenly Killeen is standing between them. He says he needs Toby. Toby reaches out to touch his father, and his hand passes through the image. Killeen admits he was wrong about the Shibo Personality. The mechs have attacked the Bishops. Many are injured and dead, although Cermo and Besen are still alive. Killeen says the mechs want to capture Killeen and Toby both. Something funny is going on with Abraham, and Killeen cautions Toby to be wary of him. Suddenly, Shibo appears. Her legs are gone, but her upper body looks natural. She says she is still partially present in Toby. She is integrated into his preceptors. Shibo vows to help Toby and Killeen in their battle against the mechs. Both apparitions - Killeen and Shibo - vanish. Walmsley hurries Toby out.

Part 5, Chapter 8 Phantoms Analysis

This climactic chapter is ambiguous. Toby's father instructs him to send up a beacon, so Killeen can find him and they can be reunited. It no longer matters to Toby or Killeen who was right and who was wrong in their argument. The Bishops have been attacked by mechs, and many are dead. Walmsley ushers Toby out of the esty, but the reader has no idea where they are headed.



Characters

Toby

Like all humans of his time, Toby is fitted with a wide range of bionics that make his body more efficient. They were installed when he was an infant, and are as natural as any other part of his body. Toby has a viewscreen that can increase and decrease magnification, as well as filter out different types of light. He is equipped with the family sensorium, which allows him to view simultaneous projections and translations with all family members. It also allows the ship to track his location. With just a touch of the tongue to a tooth, Toby can calculate vectors and distances for weapons. Servos augment the power of arms and legs.

Toby has an implanted translator that allows him to understand almost every language, although it sometimes is unable to translate Quath's more philosophical remarks. Bioengineering means that Toby's body can rapidly repair itself, growing new skin and healing bones in hours. He can also reduce pain through subcontrols, although it is impossible to eliminate severe pain altogether. The bionics include complete physical diagnostics, and modifications to greatly speed healing.

People of the families continue to grow throughout their life. The rate of growth slows somewhat, so that a woman a century old may only grow an inch in a decade, but the continual growth prevents the deterioration of the body in age. It also means that everyone older is taller than Toby. Although Toby's height is normal for his age, he reaches only the middle of Killeen's chest.

As the son of the Cap'n, Toby has special privileges. He is allowed on the Bridge and entrusted to communicate with the Myriapodia, Quath. Toby's actions are judged more harshly when he questions Killeen's orders, yet he defends Killeen when others criticize him.

Killeen

Toby's father, Killeen, is Cap'n of *Argo*. As such, he enjoys almost unlimited power, but is also criticized by many. Killeen loves to walk outside the ship in his skinsuit to clear his head. The Cap'n has isolated himself since the recent death of Shibo, his partner. Killeen's love for Shibo, Toby's stepmother, is his fatal flaw. It has led Killeen to have a Personality of Shibo created, instead of just an Aspect.

Normally, Personalities or Aspects are kept dormant for a generation, but Killeen decides the Family needs Shibo's expertise too much. Toby is too young, and too involved emotionally with Shibo, to bear such a Personality. The danger is that the Personality will try to take over Toby's body. After the death of Toby's mother, Killeen had a serious problem with alcohol. It was only after meeting Shibo that Killeen was able to put the drinking behind him, and become Cap'n.



Cermo

Cermo is huge. He was called Cermo-the-Slow in years past, but is quicker and leaner now. Cermo is Killeen's second in command. The Family Bishop is one of the few to retain physical variations. Cermo's skin is a creamy chocolate brown.

Besen

Besen is Toby's own age. She is his best human friend and lover. Although Besen is nominally Toby's girlfriend, she is the least developed character.

Abraham

Abraham is Killeen's father. He was presumed suredead on Snowglade, in a battle with the Mantis. It now appears that Abraham is in the esty somewhere, although neither Toby nor Killeen encounters him. Killeen warns Toby that Abraham may be working with the mechs.

Jocelyn

Jocelyn is the only female crewmember identified by name. She is a member of the Bridge crew, and seems to function as an engineering or communications officer.

Andro

Andro is the Bishop's first contact in the esty, a low-level immigration official who processes the crew to make sure they don't carry hidden mech bombs, diseases or viewing devices he calls microeyeballs. Andro has not been genetically altered to continue growing as the Bishop's have. Therefore, he seems to be a wrinkled dwarf to Toby, who is unused to seeing the signs of aging.

Monisque

The stocky, leathery female judge at Port Athens is Monisque. She is initially rude and demanding, until the Bishops become threatening. Then, Monisque says it is enjoyable to encounter someone who "understands the nuances of negotiation" and invites everyone for a drink.



Scavenger

In his travels in the esty, Toby encounters a scavenger from the Banshee Family. She is a scalp-hunter, harvesting damaged Aspects and Faces to sell. Toby takes the valuable chips from her and plans to give them to the Buddha Family when he finds it.

Walmsley

At the top of a pyramid in esty, Toby encounters Walmsley, a mysterious survivor from the Family Brit who offers him tea and ushers him out of the esty.

Quath

Quath is a huge insect-like alien who lives on the hull of the Argo. Her full name is "Quath'jutt'kkal'thon" which means "Brave Crawler with Dreams." Toby is especially close to the moody creature, which is only nominally female. Quath's ever-shifting home of spires and warrens is assembled from waste gleaned from the Argo. The creature routinely greets others with a string of insults, and expects ritual insult greetings in return. She may refuse to speak to those who try to compliment her. Quath looks like a part-lizard, part-insect with too many legs and eyes all over, not just on her head. She is partly metal, and her shape is constantly changing as she grows new legs or fabricates new parts. Toby interprets these changes as random fashion changes. In fact, they are proactive responses to changing conditions and challenges.

The Sail-Snake

The Sail-Snake is a huge jade-green creature that lives in zero gravity. It has no head, only a slit at one end. The snake captures blue balls of prey with an orange tongue-like protuberance. It spreads gossamer wings to capture light, floating between stars.

Mechs

The word mechs is derived from the word mechanicals. Mechs were originally machines designed by humans, which became conscious and developed the ability to reinvent themselves and reproduce endlessly. The mechs launched a campaign to eradicate all other life forms in the universe, including humans and Myriapodia. The mechs are a collective society, so it is meaningless to use the plural, although there are multiple bodies. The mech often have disagreements or discussions within their ranks, but each can be thought of as a single unit of a whole. Even so, different units have different functions, such as the suicidal drones and the Mathis.



Magnetic Mind

The Magnetic Mind is an immense glowing filigree floating in space. It is a huge intelligence that somehow lives in the space void. It communicates with humans through barely perceptible magnetic pulses.

The Mantis

The Mantis is the most feared and complex of the mechs. It catches humans and kills them by sucking all their memories out, making them suredead husks. The Mantis creates artwork, decorating its exterior with the skeletons of humans. Yet, it does not kill Toby in their only encounter. The mech's conversations, which Toby is not privy to, reveal that it is more interested in studying Toby and his father.

Isaac

Isaac is Toby's teacher Aspect. Of the several Aspects and personalities implanted in Toby's spinal slots, Isaac is the most vocal. One of Isaac's nested faces lived in the Chandelier of Queens as a boy. Isaac often includes complex lessons in chemistry, history and other esoteric subjects that make little sense to Toby. Isaac's name carries several connotations. It is associated with acclaimed science fiction Isaac Asimov, with scientist Isaac Newton, and with the biblical story of Isaac. When Isaac becomes too didactic, Toby merely tones him down.

Joe

Joe is a Face, an older, shaved-down aspect. He is slow and stunted, providing mostly technical data. Joe always speaks in numbered lists.

Zeno

Zeno is a splintered and fragmented but eloquent Face from ancient Chandelier days implanted in Toby's spinal slots.

Shibo

Shibo is the most vocal and most pervasive of Toby's Aspects. Killeen reveals that this is because Shibo is a full-fledged Personality. Normally Personalities are only implanted after a number of years have passed. They are never implanted in people as young as Toby, and never in those who were close to the living person. By violating all these rules, Killeen places Toby at risk to be overtaken by Shibo's strong personality.



Objects/Places

True Center

The Bishops, under Killeen's direction, are exploring the dense galaxies at the center of the cosmos, called True Center.

The Chandelier

The Aspects identify the Chandelier as coming from the high arcology era, the last great human civilization. The era ended more than 20,000 years before Toby's birth. Few intact artifacts remain because most were destroyed by the mechs.

The Bishops encounter an intact Chandelier, a beautiful crystal space station city of spires. It is a relic from the high arcology era. The Chandelier even has breathable atmosphere inside. When they open the airlock, the Bishops accidentally activate a bomb that destroys the Chandelier. Too late, the Bishops realize the bomb was a warning signal alerting mechs to the presence of humans.

The Bridge

The Bridge is the command center of *Argo*, staffed by officers and controlled by computers. Together, the humans and computers make split-second decisions that alter the fate of the entire Family Bishop.

Blaine Arcology

Blaine Arcology is a ruin on Snowglade, which Toby remembers visiting before the Family Bishop was forced to flee in the *Argo*. The Arcology is the ruin of a huge city with a market, avenues and homes, so vast the entire Citadel Bishop would fit in the sports arena. Yet, Blaine itself is only a refugee camp, a tiny remnant of the high arcology culture that built the Chandelier.

Snowglade

Toby has only dim memories of the Family Bishop's life on the planet Snowglade in the Citadel refuge. When he was a young child, the mechs hunted the humans on Snowglade and only a few were able to escape in *Argo*.



Besik Bay

Besik Bay is a man-made refuge near the black hole at True Center. The purpose of the Bay seems to be to allow ships to cool from the high intensity particle pounding of their hulls, so near the black hole.

The Esty

The esty is a shifting, spaghetti-like collection of Lanes, each home to a distinctive environment and fauna. The Lanes intersect at pore-openings, which can be created by hacking through timestone. Toby wanders aimlessly through esty for an unspecified period, avoiding the Mantis.

Port Athena

Port Athena is one entrance to the esty lane with the dwarf city. The city is apparently a long tube, so broad that clouds gather on the axis.

Restorer

The Restorer can reproduce any person who ever lived, from a tissue sample and a memory reserve. When Killeen learns this, he immediately wants his beloved Shibo restored.



Social Sensitivity

Furious Gulf is the third novel in a series which began with *Great Sky River* (1987) and continued in *Tides of Light*.

Like those novels, it is set in the same universe as Benford's *In the Ocean of Night* and *Across the Sea of Suns*. (1984).

(Please see separate entries on *Great Sky River* and *In the Ocean of Night*.) A fourth novel in the series, *Sailing Bright Eternity*, appeared in 1995. All six books have been packaged by the publisher as the Galactic Center novels.

To a great extent, the major social concerns and themes of *Furious Gulf* are identical to those of *Great Sky River* — humanity's increasing ability to make radical changes in the human body, the difficulties of understanding both alien and machine intelligences, the dangers of human hubris. To this mix, however, *Furious Gulf* adds new concerns of its own. The grandeur of the physical universe is an implicit theme in most of Benford's work, but it takes center stage in this novel. As the starship *Argo*, crewed by the tattered remains of humanity that are the Family Bishop, drives toward the center of our galaxy in a desperate attempt to escape the pursuing Mech starships, Benford's description of the closely-packed suns that dominate that region of space, and of the gigantic black hole at the exact center of it all, are awe inspiring, particularly when one realizes that Benford is writing out of his own firsthand knowledge of contemporary astrophysics.

Equally compelling, and on a more human scale, is the theme of courage in the face of the unknown. The *Argo* is failing, its gardens dying, its equipment beginning to breakdown. To turn back seems impossible because the Mech forces are still behind them, still eager to wipe them out, yet to go forward into the hellish vortex that is the center of the galaxy is too terrifying for many members of the Family Bishop to contemplate. As crew members begin to challenge their Captain's decision to continue toward the galaxy's center, *Furious Gulf* begins to remind the reader of comparable sections of Melville's *Moby Dick* (1851), or perhaps some dimly remembered retelling of the voyages of Christopher Columbus.

Less believable than the depiction of the *Argo's* approach to the galactic core, perhaps, but almost as effective as a scientific conceit, is Benford's description of the 'esty,' a bizarre and marvelous piece of stabilized spacetime which lies floating on the very edge of the black hole at the center of the galaxy and which has physical laws that differ radically from those of the rest of the universe. The amazing nature of the esty also allows Benford to return to yet another of his favorite themes (see the entries for *Timescape* and *In the Ocean of Night*), the idiocy of government bureaucracy. Although they live surrounded by the most incredible habitat in the universe, the long-time inhabitants of the esty have constructed a day-to-day existence for themselves which seems both infuriatingly restrictive and unbearably humdrum.

Techniques

The literary technique for which Gregory Benford is both most widely praised and criticized is an outcome of his desire to portray alien and machine intelligences — beings that do not think, and hence are unlikely to communicate — in ways which are similar to the practice of human beings. In order to convey a sense of alien language, Benford resorts to a variety of typographical tricks, using boldface, Italics, indentation, underlining, and unconventional punctuation. Occasionally he arranges his language on the page in a manner more suggestive of poetry than of traditional prose. Each nonhuman intelligence has its own unique typography. For example, when the Mantis, an AI sent in pursuit of the Family Bishop, communicates with the higher intelligences which govern its mechanical civilization, speaking through the manipulation of magnetic field lines, Benford renders the dialog in the following manner: I/You have explored a huge array of vaults and spaces, I >A have discovered a wealth of primate culture!

That was not your task, I >A

There are so many? Hiding from us?

Similarly, when Toby and Quath tease each other, the dialog looks like this: Hello,joke-face Quath'jutt'kkal'thon...."

"Must've caught them from your rotten carcass. What's that about a mountain?"

"Some mountain. More like a stink-hole, I'd say. And you're the one who looks like a giant maggot."

Benford utilizes still other typographical tricks to render the interior language of the various personalities that Toby and other members of the Family Bishop carry implanted in their minds.

Themes

Family

The importance of a social network, or family, is a primary theme of *Furious Gulf*. Toby is a member of the Family Bishop. Over time, through natural selection, the Bishops have developed certain traits, as have other families. The Bishops are risk-takers. They prefer action, preferably outdoors, to any amount of deliberation. Quath theorizes that the Bishop's seemingly foolhardy exploits actually facilitate their survival. The Bishops are also exceptional scavengers, capable of devising a use for almost anything. Other Families have developed their own traits. The Cards, including Deuces, Jacks and Fivers are fanatically loyal to rulers, even the worst despots. One trait shared among all the families is solidarity. The survival of the Family Bishop is paramount, much more important than the survival of any one individual.

At the time of the mech war, bioengineered humans reestablished colonies on many planets, in an effort to avoid extinction. This was an intentional strategy to encourage the growth of traits that would ensure human survival. The survivors of each planet have developed distinct traits that allow them to outmaneuver the mechs. The crew of *Argo* may represent the last surviving humans. They have rescued the remnants of several planets in addition to Snowglade. Although Bishops make up the majority of crewmembers, there are also Knights, Deuces, Fivers and Jacks on board *Argo*.

The author, Gregory Benford, also uses the word family in its greater sense, to mean a human social network of any type. Thus, Toby assumes that the Buddhists he encounters in the esty are from the family Buddha. Walmsley is a Brit, and again, Toby assumes this to mean from the Family Brit. When Toby encounters a Banshee stealing the Aspects of the dead, he assumes she is from the Family Banshee. In Irish mythology, a banshee was a fairy woman who keened for the dead. Often the first intimation of death was the banshee's screech. Thus, Benford seems to suggest that humans require a social network, and that the type of network is less important. Religions, myth, ethnic groups, clans such as the Bishops and nations may all function as "family" in this sense. Indeed, one important member of Toby's family is the alien Quath, a Myriapodia.

Aliens

Aliens are an important feature of many science fiction novels, and *Furious Gulf* is no exception. Two species of alien play central roles in the plot - Myriapodia and mechs.

Quath, Toby's best friend, teacher and mentor, is a Myriapodia. Formerly called Cybers, the Myriapodia is a quasi-mechanical species. Initially Cybers waged war with humans, whom they regarded as animals, lacking basic intelligence. Killeen forged a friendship with Quath during a battle, and Quath now lives on the hull of *Argo*. Quath seems to be



a scholar who has made studying the perplexing behavior of humans her life's work. The name Myriapodia literally means having many appendages. Quath rearranges and creates new arms, legs and eyes at will. These changes seem random or vain to Toby, but in reality often anticipate climactic events.

Several other species of aliens inhabit the pages of *Furious Gulf*, including the Sail-Snake, and the Magnetic Mind. In the esty, Toby encounters a hybrid bird that is part organic, part mech, which is a frightening prospect indeed.

Mechs, or mechanicals, have been trying to exterminate humans for several generations. The Bishops have no memory that mechs originally developed from machines built by humans. Toby is always surprised when the Bishops encounter a work of intricate technology built by humans, like the Chandelier or esty. The mechs are detached and unemotional. They are a collective consciousness, so concepts such as "you" and "I" are foreign to them, although they assume this form of address to discuss problems.

Benford's aliens are only partially successful in negotiating a difficult issue. To be interesting, aliens must be as different as possible from humans. To be successful characters, they must resemble humans in many ways. Benford makes a point of proclaiming that both Quath and the mechs resemble humans very little. Then, Quath proceeds to treat Toby much as a human mentor would in the esty. Mechs, which are supposed to be remote, passionless creatures, end up having societies similar to the human families. The most powerful mech, the Mantis, even creates works of art. These anomalies are not dealt with in the novel, but don't detract from it.

Space-Time

A major theme of *Furious Gulf* is that space and time are but two facets of the same material. Humans, or at least the Bishops, are incapable of truly understanding this concept. Benford seems to imply that the reader is incapable of this comprehension, as well. The explanations of esty are obscure, and esty itself seems needlessly confusing. The esty is a human invention, created some 28,000 years ago. It is described as a wrinkle in space-time that allows ordinary matter to accrue to it. When Toby falls asleep with his hand resting on the esty surface that he calls timestone, his flesh is absorbed into the fabric of space-time.

Toby spends almost one-third of the novel wandering aimlessly in the esty, unable to return to *Argo* or to find his way to any particular destination. Benford's description of esty is unsettling. Wild weather blows the traveler from one esty Lane to another. The Lanes are like a plate of spaghetti with constantly shifting intersections. The Lanes are connected by pore-openings, holes through which a human may pass, or be sucked into another Lane. Some of the Lanes are inviting meadow or mountain scenes, while others open onto vacuum or sere deserts. The Lanes of esty are constantly shifting in random probabilities, so there is virtually no chance that anyone could find their way back home

from the esty, or move toward a specific destination. Thus, when Toby loses the seriously injured Quath in the esty, we expect never to see the Myriapodia again.

Style

Point of View

Furious Gulf is written in the third person past tense from the viewpoint of Toby Bishop, the protagonist. Toby is a teen but following a convention in science fiction, he has access to every event as it unfolds. Toby is treated as an adult, albeit with none of the responsibilities. As the son of Cap'n Killeen, Toby is regarded as heir apparent of Argo, although since Cap'n is not a hereditary title, the reason for this is unclear. Toby and his girlfriend Besen visit the ship's Bridge during crisis, even when their presence violates security or poses a physical danger. Toby accompanies the boarding party exploring the Chandelier, although no other teens are included. In fact, except for Besen, there is little mention of anyone else Toby's age aboard Argo. The ship's officers, including Cermo and Jocelyn, seem to accept Toby as an equal, although he is much younger, untrained and apparently has no job aboard.

A central part of Toby's point of view is that we are also privy to the comments of his Aspects and Faces, including Isaac, Joe and Zeno. The families preserve the memories of dead humans on chips inserted in the spinal ports. A major plot point revolves around the fact that one of Toby's Aspects is actually the full-blown Personality of Shibo, his stepmother.

Toby's close friendship with the Myriapodia alien Quath also makes him privy to important plot points. Much of the novel concerns Toby's coming of age, especially his separation from, and independence of, his father, Killeen. This separation is complicated by the Shibo Personality. In defiance of Bishop Family tradition, Killeen has had Shibo's Personality immediately inserted into Toby, who is too young to handle her. Many of Toby's perceptions and decisions are influenced by the unauthorized intrusion of Shibo into his consciousness. Much of the disruption stems from the fact that Shibo is female, while Toby is male. Female readers may bristle at Benford's overt description of women as essentially passive and overly sensitive. On balance, Benford's description of men as driven primarily by an androgen-fueled anger seems little better.

Setting

Furious Gulf is set primarily aboard Argo, the Bishop's spaceship, as it travels toward a black hole in the dense mass of stars at the True Center. By Toby's own confession, the Bishops live aboard *Argo* as rats, scavengers desperately trying to navigate a ship they have neither the education nor technical training to understand. The family encounters a beautiful space station, the Chandelier, and explores it. They vector into the gaseous cloud surrounding the black hole, after sheltering at Besik Bay. Within the gaseous cloud composed of the shreds of dying stars, the Bishops find the esty. First, they enter Port Athena, a city populated by non-bioengineered humans, who look like wrinkled



dwarfs to Toby. When Toby flees with Quath, they wander the esty, being sucked through several nodules, which make them nauseous.

In the esty, Toby encounters other humans who have apparently lived there for thousands of years. He begins to understand that in response to the mech war, humans created two lines of defense. One was to repopulate various planets with different strains of bioengineered humans, hoping that some would develop the necessary traits to outwit the mechs through natural selection. The second was to establish an outpost of humans in the esty. Flesh is slightly more resilient in the face of gravitational forces than metal and ceramic, so humans can survive better here than mechs can. Apparently, the esty residents have a higher level of technology than the Bishops. They also retained their original genetic stock.

Language and Meaning

Gregory Benford uses language effectively to project a cohesive illusion of the future in *Furious Gulf*. Toby's language is immediately understandable to modern readers but contains many slang phrases such as "Yeasay" for yeah or yes Sir and "Naysay" for nope or no Sir. Words for technological marvels are readily understandable, such as skinsuit for space suit and comm band for the ship's internal communication band. The term techtricks for technological know how is especially evocative. Since the Bishops lack the education to understand Argo's system, all technology is merely an incomprehensible trick to them. The zero-grav section indicates the region of *Argo* with zero gravity, a popular recreation area for those with body-smarts, or physical coordination.

Benford uses differences in typeface to designate different types of communication. Normal conversation between humans uses familiar quote marks, such as "What's wrong?" on page 15. Communications via comm band, Argo's internal communication links are designated by dashes, such as -- If only there were planets here . . . - on page 3. Toby's aspects speak to him in print that is both italic and bold, such as Isaac's comments on page 16: *You mistake the name, I fear. That should be Wolfgang Ama --*

Benford's unusual punctuation creates the impression that aliens are speaking different languages, which are translated by Toby's implants. Conversations between mechs are set in separate columns, alternating italicized print and non-italicized. Quath's remarks are set off by lesser-than and greater-than signs, while Toby's remain in quotes:

"Must've caught them from your rotten carcass. What's that about a mountain?"

Structure

Furious Gulf is divided into five numbered parts. Each part contains between 6 and 9 chapters, which have both numbers and names. The chapter numbering system is somewhat confusing, since each part begins numbering from Chapter 1. Thus, the novel contains 5 separate Chapter 1's. A prologue precedes the first Part I. The



prologue focuses on Argo's predicament and Killeen's depression following Shibo's death. The ship's agricultural domes have been ruined, and the crew is starving to death. This problem is solved in the first few chapters, and Killeen goes on to pursue less concrete goals.

Part I, *Far Antiquity*, is 6 chapters long, telling the saga of Argo's discovery of the Chandelier. Part II, *The Eater of All Things*, relates Killeen's trek into the galactic jet in 9 chapters. Part III, *The Time Pit*, relates the Bishop's experiences in Port Athena in 7 chapters. In Part IV, *Gravity's Gullet*, Toby and Quath flee into the esty and Quath is gravely injured by the dreaded mech Mantis. Part V, *Malign Affections* is perhaps the least effective section. In the section's 8 chapters, Toby wanders aimlessly through the esty, fleeing mechs and encountering savage humans. The humans are not fully developed enough to make interesting characters, or even convincing opponents. Toby's insights seem forced and unrelated to external events in what is essentially a quest saga. This last book lacks a clear climax and resolution. Instead, the novel seems simply to be a bridge in Benford's Galactic Center series, between the novels *Great Sky River* and *Sailing Bright Eternity*.



Quotes

"Killeen grinned broadly. - C'mon, son, this is what we were born to do. We'll go onward. Inward. There's all our Family's past here, somewhere We'll find out what happened, who we are.--" Prologue, page 6

" [Quath] 'Must've caught them from your rotten carcass. What's that about a mountain?' [Toby] 'Some mountain. More like a stink-hole, I'd say. And you're the one looks like a giant maggot.'" Part I, Chapter 2, pg. 22

"I AM A BOMB. I AM SET TO EXPLODE IN THREE HUNDRED TIME INTERVALS. *BEEP* THIS MARKS THE BEGINNING OF A TIME INTERVAL. THERE ARE TWO HUNDRED NINETY-NINE TO GO. I AM A BOMB. I AM SET TO EXPLODE IN THREE HUNDRED TIME INTERVALS. *BEEP* THERE ARE TWO HUNDRED NINETY-EIGHT TIME INTERVALS TO GO." Part I Chapter 4, pg. 43

"Quath stopped and waved two feelers at him but said nothing but . Maybe that was an obscene gesture, for Quath's race - but Toby would never know." Part I, Chapter 5, pg. 47

"Why was his father doing this? Where had his caution flown? *He's risking the Family to find out. . . what? About the past. What the Family means.*" Part I, Chapter 6, pg. 58

"An older man snickered. 'I'd say [Killeen] don't know enough to pour piss outta a boot with a hole in the toe and directions writ on the heel'" Part II, Chapter 4, pg. 91

"" - Quath, Part II, Chapter 9, pg. 133

"Something firmed in Killeen's face. 'In the old days at Citadel Bishop we'd go out scavenging. No matter what we found, we'd haul it back and claim that's what we'd gone looking for.'" Part III, Chapter 2, pg. 158

""'I'll guarantee your safety,' Killeen said airily, plainly enjoying himself now.' And I won't even charge you extra.'" Part III, Chapter 4, pg. 171

"[Monisque] arched an eyebrow. 'There are more slippery Lane-vectors than you have hairs on your body, Cap'n - and they curl more than yours, too.' The audience laughed, but no Bishops. Killeen's mouth tightened and he sent on closed comm 'she can't see my really curly ones - and not damn likely she will.' To this the Bishops answered with a volley of hoots and snickers. The dwarves looked puzzled, as if trying to decide whether they'd been insulted." Part III, Chapter 5, pg. 179

"" -- Quath, Part III, Chapter 7, pg. 190

""'Like my grandfather used to say, bug-brain - Cheer up! We'll live to piss on the graves of our enemies.' It seemed odd to be giving Quath a pep talk." Part III, Chapter 7, pg. 197



"Wake. I love you for what you did and I will help you through this place. Hard I can be, and soft, too. For you. But you must wake now, as much as you would like to stay down there in the syrup and cotton." - Shibo, Part IV, Chapter 2, pg. 213

"We Aspects are more like this Mantis than you. Not ruled by elements of chemistry or by cumbersome, layered minds. Aspects can better perceive the holographic speech of the Mantis and have been learning it in this time of captivity." - Isaac, Part V, Chapter 5, pg. 269

"Family was a fiction, he knew that now. A fiction defending against the furious gulf that yawned in all directions." Part V, Chapter 7, pg. 282

"Any human in this place knew that he was a tiny and forgettable actor on a stage not of his making." Part V, Chapter 8, pg. 283



Key Questions

One of the complaints leveled against many works of science fiction is that the aliens and artificial intelligences who appear in the genre are simply too much like us, little more than human beings in funny bodies (or, for that matter, in human bodies with funny heads). This is particularly obvious in relatively unsophisticated science-fiction films and television shows such as *Star Wars* and *Star Trek*, where the creation of truly nonhuman aliens runs into both conceptual and practical difficulties, but it is also the case in many science fiction novels and short stories that have long been recognized as classics.

Some writers have argued that it is difficult, perhaps impossible, to envision an intelligence that is truly different from our own. It has also been suggested that the creation of such a thoroughly nonhuman intelligence in a work of fiction might in fact be undesirable, because it might make the story impossible for human beings to understand. Benford, however, is clearly attempting to describe such intelligences in both *Furious Gulf* and the earlier novels in the series, *Great Sky River* and *Tides of Light*, and any discussion of these novels would do well to center on this issue. Benford's Mechs think very differently from human beings. Their actions are driven by very different cultural imperatives. If they have emotions, those emotions are very different from what humans feel.

Much the same can be said of the several other alien intelligences discovered by the Family Bishop over the course of their adventures.

1. Benford depicts two different kinds of aliens that can live in hard vacuum. How believable is this?
2. The psychiatric profession has tended to discount the claim that those who suffer from multiple personality disorder actually have more than one "person" in their heads, despite such best-selling, supposedly true tales as Corbett H. Thippen's *The Three Faces of Eve* (1957) and Flora Rheta Schreiber's *Sybil* (1973). Can you gain any further understanding of *Furious Gulf* by considering Toby's relationship with the Shibo personality in terms of multiple personality disorder?
3. If a person's memory and personality could in fact be downloaded onto a computer chip and then, perhaps, into another person's brain, should that "Aspect," as Benford calls it, be considered a human being? Should it have any form of human rights?
4. Killeen plays very little role in the second half of *Furious Gulf*. Essentially Toby takes over as main character.

Why do you think that Benford chose to discard his former protagonist?

5. Do some reading on current scientific theories concerning black holes.



Recommended works of nonfiction for the lay reader would include Stephen W. Hawking's *A Brief History of Time* (1988) and Kip Thorne's *Black Holes & Time Warps* (1995). To what extent is Benford accurately describing current theory? To what extent is he playing fast and loose with astrophysics?

6. The physics of the story is complex.

How well do you feel that Benford explains it? How would you describe it to other members of the discussion group?

7. How believable is the alien Quath?

What do you make of its sense of humor?

8. Why does Benford reintroduce Nigel Walmsley at the end of the novel? Based on what you have read so far, where do you think the next book in the series is headed?

9. Read Benford's *Sailing Bright Eternity*. To what extent does this novel succeed in fulfilling your expectations after reading *Furious Gulf*?



Topics for Discussion

Even though they are starving, the Family Bishop is vegetarian and they refuse to kill the Sail-Snakes to live. Do you agree with their decision?

Family members like Shibo are almost never made into Personalities instead of Aspects. The risks are too great, especially if implanted in young people like Toby. In your opinion, did Cap'n Killeen show good judgment in doing this?

What are some of the insults that Quath and Toby greet each other with? Can you think of a possible explanation, why Quath would be offended by compliments but pleased with insults?

The people of esty look like tiny, wrinkled dwarfs to Toby. Why? What are some of the physical improvements the Bishops have undergone?

How does Toby react to the thunderstorm on esty?

How does the culture of the dwarves on esty differ from that of the Bishops? How is it similar?

Myriapodia scholars have noted that humans display a wide range of behaviors, from highly competitive to extremely cooperative. Some scholars feel this invariability has allowed the species to survive, while others feel it is a weakness. Which do you agree with? Why?

What does Toby learn on his quest through esty? Could he have learned that at home on *Argo*?

Gregory Benford states that men are almost perpetually driven by an androgen-fueled anger, while women are passive and overly sensitive. Do you agree? Why or why not?

What does the title *Furious Gulf* mean?

Why doesn't the Mantis kill Toby?

Is Toby completely aware of the Mantis's motives for hunting him?

Literary Precedents

Benford's literary precedents for the discussion of artificial intelligence and the possibility of a conflict between humanity and its creations are described in the entry for Great Sky River.

A number of other science-fiction writers have attempted to portray what it would be like to interact with a black hole or other similar stellar object, among the best known being Larry Niven's "Neutron Star" (1966), Poul Anderson's "Kyrie" (1968), Frederik Pohl's Gateway (1977) and Beyond the Blue Event Horizon (1980), and Roger MacBride Allen's The Ring of Charon (1991). A comparably spectacular description of interstellar events, in this case the eventual collapse of the entire universe, can be found in Poul Anderson's Tau Zero (1970). An extremely crude and frankly allegorical presentation of travel into a black hole can be seen in the Walt Disney motion picture The Black Hole (1979).

A number of writers have also attempted to describe what life would be like in an environment like the esty, where the physical laws are radically different from those of our universe.

Perhaps the most successful such have been John Stith's Redshift Rendezvous (1990), Frederik Pohl and Jack Williamson's The Singers of Time (1991), and Stephen Baxter's Raft (1991).

Related Titles

Please see this section in the separate analyses of Great Sky River and In the Ocean of Night.



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