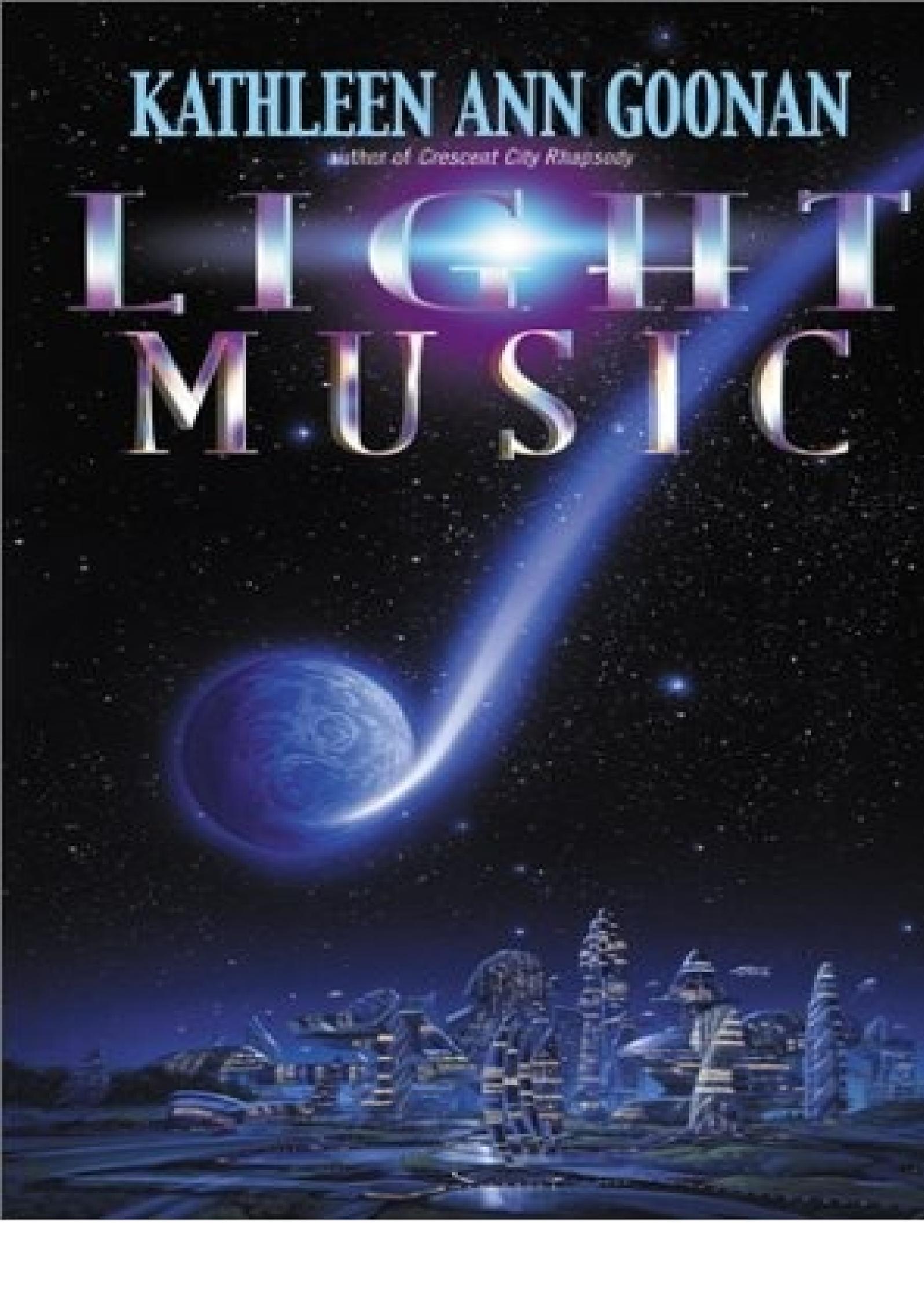


KATHLEEN ANN GOONAN

author of *Crescent City Rhapsody*

# LIGHT MUSIC



# Light Music

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*Kathleen Ann Goonan*

**T**HE **N**ANOTECH **Q**UARTET 04



- 2175 • ELIDED NOWS
- THIS SIDE
  - February 2115
- Argentina, Six Months Earlier
  - The Storyteller: Angelina
  - July 2115 • THE GIRL IN THE MOON
  - August 8, 2115 • SPACIOUS SKIES
  - February 2115 • ANGELINA
  - August 10, 2115 • THE GIRL WHO FELL TO EARTH
  - August 9, 2115 • RADIO COWBOY ON THE BUS
  - March 2115 • ANGELINA: THE LABRYRINTH
  - August 11, 2115 • IO AND SU-CHEN
  - The Yellow Brick Road • JULY 2115
  - August 11, 2115 • DANIA AND COYOTE
  - August 12,2115 • SU-CHEN ENTERS THE CITY
  - August 14, 2115 • IO AND SU-CHEN
  - August 12, 2115 • RADIO COWBOY AND PEABODY
  - October 2194 • EAST KINGSTON, NEW HAMPSHIRE
- THE OTHER SIDE



“With the discovery of superstring theory, musical metaphors take on startling reality, for the theory suggests that the microscopic landscape is suffused with tiny strings whose vibrational patterns orchestrate the evolution of the cosmos. The winds of change, according to superstring theory, gust through an aeolian universe.”

BRIAN GREENE, *THE ELEGANT UNIVERSE*

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*Also by Kathleen Ann Goonan*

Mississippi Blues  
The Bones of Time  
Queen City Jazz  
Crescent City Rhapsody  
Light Music

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*LIGHT MUSIC is dedicated to my parents,  
Tom and Irma Goonan,  
on their Fifty-First Wedding Anniversary,  
and to my wonderful sisters,  
Mary and Susie.*

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The Consilience herein owes much to E.O. Wilson's book, *Consilience*. I also referred to Brian Greene's *The Elegant Universe*, Evan Walker's *The Physics of Consciousness*, Julian Barbour's *The End of Time* (the source of the Nows and the reference to Romeo and Juliet, which is from Figure 31 Space-time as a tapestry of interwoven lovers), and *The Non-local Universe* by Robert Nadeau and Menas Kafotos—all of which stand out among the seemingly hundreds of books which fertilized *Lig Music*.

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# Light Music



2175

## ELIDED NOWS

Matthew

Reverend Dania came to our town five years before I was born.

My name is Matthew. We live in the southeast corner of the Free State of Colorado, not far from the Republic of Texas, where no one ever goes. Dania came from there.

She doesn't like people to call her Reverend, and I don't. I just call her Dania. Some of the old folks call her Reverend, though, and my grandma gets mad at me if she hears me call her plain untitled "Dania."

When she first came to town, she preached what she called "seeing." It had to do with light. You might think that sounds obvious—I know what "obvious" means—but instead it is the least obvious thing imaginable. But it wasn't just preaching. It was a communion service and you had to drink a special wine that Reverend Dania made. She told you flat-out that it was some kind of genetic engineering stuff that would change your homeobox genes—whatever they are—and give you a new gene for the type of seeing that you would be doing. You could also find out about it with the learning slates she kept in the old warehouse she used as a church, with stuff about DNA that I couldn't figure out. She said I wasn't quite old enough.

But one day I got some of the communion stuff, I just ran up there and got some and Mom and Dad kind of shook their heads when I walked back up the aisle. It was sweet and tasted good. I was little then, but now I'm ten. I think they went to Dania's church because of Gramma, or just to be nice to Dania, or something. I don't think that they believe what she says like I do.

But it's really just like the old Jesus church because you have to take it all on faith. Nothing happened when I took it, and nothing would happen soon, and nothing might ever happen.

Maybe that's why so many folks did it.

I remember one Fourth of July when I was seven, which happened to be on a Sunday, everybody in town squeezed into her church-room and drank her communion stuff, maybe kind of as a joke. Except that Gramma gets tears in her eyes when she talks about it; it isn't a joke to her. She says that someday the whole world and everything we know and are able to know will change because of Reverend Dania and her band from Crescent City who went on ahead while Dania stayed behind.

But she finally ran out of the stuff and said that she was too worn out to go and make more. Maybe she stopped believing in it herself.

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Now she just lives right next door to us in her little white house on Third Street, which is why I spend a lot of time with her. Mom says to be nice to her, that she is a good person and maybe just a little depressed because the world is taking so long to change. Never mind that according to Gramma it has changed, and changed, and changed again since she was a girl.

We have a bird zoo, an aviary, I guess you call it. In the aviary there are all kinds of rare birds. Small brown sparrows and robins, who have red chests. Some meanish black birds called grackles and huger black birds called crows.

We're only a block away from the aviary, and in the summer, in the mornings, I like to lie in bed and listen to the singing of the birds. Grandma says we're lucky to live so close. She says that when she's in bed with her eyes closed, it reminds her of when there were birds everywhere, in all the trees. But something that happened before I was born, the Silence, made them forget where to go when they migrated, and millions and millions of them died. They almost became extinct. A lot of other things are extinct too.

For a long time there was something called nan that changed everything, but people like my grandparents stayed away from it, back in this little mountain town, to stay safe. But someday I think that I want to go out looking for nan and find out what it is. Gramma told me a lot about how things used to be a long time ago, when there was television and radio and a lot more people. She's real, real old, a hundred and fifty years old, I think. Dad says that Gramma's stories are true, even though it all sounds very strange.

Dania says that someday everything will be like it used to be, only a whole lot better. She says the birds will be able to migrate again.

Anyway, we go to school in a big brick building a few blocks away. Mom is a teacher in another classroom, and I'm in the second set, but at the top, and next year I'll be the youngest in the third set. Well, that's how come I know so much about birds. Mom taught me.

Dania comes to our set once a week and teaches us songs. She even goes around to the houses where there are babies and teaches them songs too. She says that the songs organize their brains in a special way. Dania is crazy about music. Dad said that she's purely crazy, but Mom always frowns at him when he says that and it's that frown that makes him be quiet right away.

One day when she was supposed to be teaching us music, way back when I was in the first set, she drew some kind of complicated picture with a lot of corners to it and talked about super-strings and things she, called "dimensions." The picture was supposed to be about how just one point contains... well, I can't explain it because I didn't really understand it. But she sees things that other people don't see, everybody knows that. Then she told us kids about how there were more colors and sounds than we could see and hear, but one day we would have a new sense like her so that we could know all of that and the moms and dads got mad and had a meeting and told her she couldn't talk to the kids about things like that. Not my mom and dad, but some of them. The next day she started packing her stuff to leave and there was a big uproar and finally they told her she could stay. She didn't want to at first, but they told her it was all right, she could say whatever she wants, and she does. She talks about a new time that is coming when we will know more and be connected with everything and be able to communicate with each other and everything and even with people who live in the sky extremely far away, like farther than the sun, like in the stars. People laugh at her behind her back, but I don't. I love

her.

Dania is pretty. Her eyes are gray-gold and sad a lot, especially when she talks about Crescent City. Her hair is long and light brown and she wears it in a ponytail. Mom says that she's one of those people who will never get old, and that the time she was in Crescent City was a long, long time ago, before even Mom was born. Gramma is old, but she looks old, and has white hair. She's not very good at walking. Dania is different.

Crescent City was way out in the ocean. Dad's brother went there, or at least left to go there. I think that if Dania could remember Dad's brother, he would like her more.

She said that a lot of people lived there. Almost a million. She had to leave because of a war. She says that she is going back, sometime, and that they are all going to outer space.

That's when Dad laughs loudest, and Mom frowns strongest. That's when I think that the Nows are confusing her, because at other times she seems to think that everyone went to space a long time ago, and she decided to stay behind to be a reverend and a teacher. Gramma says she knows the true story and that Dania stayed because of love, but Dad says that Gramma's just an old romantic and that nobody ever left.

Dania says that the reason that everything is happening is because it's an average. When she drew her drawing, she said that because of quantum indeterminacy, we actually have something to do with what is happening. We average everything with consciousness. But there are other kinds of consciousness. Other levels. I'm not sure what consciousness is, but she says that we'll all learn that eventually. Especially because we got some of the communion stuff before it ran out.

She is very strong and goes walking around in the mountains a lot by herself. I think that when she goes for those walks, for weeks at a time, carrying a pack and heading out toward James Mountain, she is looking for the Nows, and for the things made of light that are stuffed full of Nows. I think that they are so stuffed full of Nows that they leaked Nows into her when she touched them. And fried her brain, too, maybe, like Dad says. Because once I asked her what she does in the mountains and she said, "I look for a good place to jump."

She calls them light-beings, and they lived in the Republic of Texas. All kinds of strange things go on there. Everybody knows that if you head into the Republic of Texas, anything can happen. That's why we all stay here in Colorado. Anyway, they were very bright, and told her all about many things when she touched them. Even though they didn't talk in words but in pictures and in sounds. That's when she learned that time is made of Nows.

Nows are like the points on the diagram she drew. They have something to do with superstrings that are vibrating really, really fast, and that are really, really small. Like beads that fill up a room when there are a million of them are made up of trillions of things themselves. It's hard to picture this, but Mom says it's true, and that a lot of things that Dania says are true, but just hard for most people to understand. Everything we see and feel and hear is because of this, though. And they are all like music, elided music, which is when you slide your voice up and down. It's what makes everything so beautiful, like the shapes of the mountains, the colors of flowers, the sounds of the birds singing.

One summer day I went to Dania's house and she was drinking gin out of a big clear bottle, and that day she told me about cities with flowers on tops of the buildings where things that looked like giant bees flew around, and that helped everybody communicate. She had a photograph of one, and it was old and faded and the things she was calling bees were just black dots in the sky like gnats. I told her and she laughed and said it was true. But that there were other kinds of cities in the world, cities of

light and cities that were giant antennae, and then she said that she was supposed to be doing some work here but she was so tired and sometimes it didn't even seem true any more. She said that it was entirely possible that she was just a holy fool and that she was sorry for everything, that I had to remember that she was sorry for everything that she had done because it would affect my children too and finally it was hard to understand her and she told me I'd better go home.

I did, but I went back later that evening and was going to visit, but through the open window I saw that she was sitting in a chair in her living room crying and I decided not to. Next to her was a tiny old radio that she keeps and it was just hissing away. In the summer nights I hear her turn it on, because my bedroom window is above hers, and the only sound it gives off is that hissing sound. We have an old radio too, and there is a radio tower on top of Golden Peak, and it keeps on broadcasting, and maybe once every two months the signal gets through. But the same old thing is playing over and over again: singing, an old old news show, what Dad says are commercials that we're all better off without and more singing.

I like the singing, myself. She said that the notes come from the girl in the moon. She says weird things like that.

I want to see what she is seeing, when I grow up. I hope that she is right, and that we will all know this thing that she knows, and that this will make her happy. I told her I was going to marry her when I grow up and she just laughed and ruffled my hair and said that she would be way too old for me.

I want to marry her because she looks so lonely sometimes. She tells me about the different things that happened back then, what she knew about them. She says that stories are the curled-up dimensions in superstrings, and that humans are the only creatures that can tell stories and have this special kind of sentience—I think that sentience is kind of like consciousness—and that is why they can see this light, and that is why some of them went away. She talks about the ones who went away a lot. She talks about the girl who played light music, and a South American woman she calls The Storyteller, and the people who are waiting in the sky. She always ends up talking about somebody called Radio Cowboy.

That's when she looks the most sad.

I tell her I wanted to write the stories all down for a school project and she looks far off and says they are all in her head and maybe she'll tell them someday. Maybe.

One day I followed her out to James Mountain. It was summertime and windy and the leaves made a lot of noise and so she never heard me. Or maybe she did and decided to let me follow and let me see.

Because she took a turn off the main trail that I hadn't noticed before whenever Mom and Dad and my sisters and I went hiking and it was awful steep and hard to follow. Finally, when I was really, really tired, she came to a little meadow of golden grass with pine trees all round and in the meadow was a white cylinder about as tall as she was standing in a patch of wildflowers. I know what a cylinder is, and a cube and an ovoid too. She pressed some things on it and then she leaned her head against it and pounded on it with one fist and looked like she was crying. I ran away then.

But I went back last month and the cylinder is still there, and has a band of glowing lights around it higher than I can reach. I haven't told anyone about it.

I still want to marry her when I grow up.

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**THIS SIDE**

“The evolution of the brain... allowed us to construct a symbolic universe that seems more real and more vast than the universe itself.”

—Nadeau & Kafatos, *The Non-Local Universe*



## February 2115

A wave of information-packed light swept through space and washed across the moon and Earth.

More waves followed, moving behind one another at precise intervals which would translate, on Earth, into months.

**J**ULY 8, 2115

### Radio Cowboy and the New Frontier

The pirate attack on Crescent City was swift and brutal, and came while Peabody was visiting the elephant.

Peabody lived for night, and slept through most of each hot, blue-struck tropical day. The small tower in which he lived alone, high above the floating city, bristled with antennae and was crammed with the accouterments of radio reception and transmission: tuners, amplifiers, devices that he had designed and built or grown, and much older electronics garnered from the mainland, all patrolled by rust-eating bacteria else they would have had a life of months instead of years in the corrosive sea air.

Peabody had been in Crescent City so long that most people referred to him as, simply, the Engineer—a reclusive though not unfriendly man who knew everything about the operation of the city.

This suited Peabody.

After he woke, at sunset, he picked with chopsticks at his usual bowl of brown rice and sipped jasmine tea, gradually becoming alert. Several thunderstorms shaded the jade sea in patches. One veered close and darkened the sky.

Cold wind washed the tower. Lightning shot to the sea; thunder cracked. Rain dropped in silver columns, brushing the edge of the city. The spidersteel windows, which he usually kept in mesh form thickened automatically at the first drops of rain to keep his electronics dry.

A line of whitecaps five hundred feet below looked, from this height, like a standing wave, breaking on grass-stabilized beaches. Coconut palms bent beneath gusts of wind. Aquamarine farming lagoons, filled with fish and mollusks and surrounded by nodes of fabricated land, roughened. Peabody watched a white sail furl.

Crescent City, afloat in the Caribbean Sea, grew on acres of artificial land, its sweeping, tentlike lines reaching an apex just above his windows.

On the other side of his tower, the vast bulk of the city stretched out so far that he could not see the end of it, and was home to about one million people and perhaps half as many modified animals. It was quickly obscured by the deluge.

There was within the city, Peabody knew, an impulse to metamorph into a space city, for that had been the original design. Crescent City had been created to be an environment where humanity could learn complete self-sufficiency, and invent technologies which would propel and support them in space. The spacefaring vision of its founder had been long in maturing, for it lacked several vital features—one of them being a destination, and, at least now, sufficient reason to leave. It had been growing for about seventy-five years, and Peabody had lived here for the past forty years as the anonymous Engineer.

He had been born at the very end of the age of broadcasting. Scientific advances in physics, genetics, biology, and chemistry resulted in technological wonders that promised to turn humans into a new species and send them to the stars. Radios and telephones and the Internet accompanied people everywhere, like a new human sense, forming a new mind that spanned the planet.

When Peabody was born, this mind began to shatter. By the time he was an adolescent, it was gone. Radio communication became sporadic and undependable.

Crescent City had been established, in part, to preserve information and further science and learning. Those not born here were refugees from a world blasted back to varying levels of civilization by a mysterious Signal from space which had been washing Earth for just over a hundred years now, creating the radio vacuum called, in Crescent City, *El Silencio*.

Life was salubrious in the vast tropical gardens, on the sheltered beaches and bays, where the best of all that nanotech had to offer enhanced the intelligence and health of the city dwellers. Since there were no private possessions there was nothing to steal. If desired, a citizen could form any style of clothing, any type of furniture, any kind of material possession. When she was tired of it, she could leave it for others, or return it to the matter bank. One's personal territory was small, but most of life was lived in public plazas.

As the population grew, the city itself grew, establishing more pavilions, and building more land via electrostatic webs that catalyzed minerals from seawater.

Growth of new land was a slow process. In the past few decades it had been necessary to establish a waiting list for admittance into the city. Several factions had attempted to grow floating cities in other locations, but Crescent City had been established during the first phase of *El Silencio*, when all the wealth, know-how, and support of a still-extant civilization spurred its growth. Now such an endeavor would be more difficult. Peabody did not know if any other cities had succeeded, though he fervently hoped that they had.

Children occasionally dropped by his tower to learn of the wonders of radio, which still sputtered to life after the glow of sunset left the horizon, its brief transmissions captured by Peabody and added to decades of similar information. Towers throughout the world still transmitted, but *El Silencio* disrupted the waves. Occasionally, pulses of energy swept through space in what had so far proven to be a nonrepeating pattern.

Peabody himself went on the air almost every night from four to five in the morning, or longer if he felt like it, but lately he had found himself with little to say and played some of the multicultural synthesis music that had a way of changing overnight in the style-conscious hothouse of the city.

He could not say that the city had failed.

But humanity, perhaps, had failed the city—the *idea* of the city. It sometimes seemed that he was the only person here who still wondered why radio no longer functioned predictably.

His own mind held a map of the stars, formulated through painful developmental stages during which his corpus colossi had grown larger than that of most people. This curious map was also present in the minds of many children conceived the same day as Peabody. For much of his life, he had tried to forget that it was there. The process of its acquisition, as unsought and as unwanted as a cancer, had been unpleasant.

He and others like himself had been sought for study by the government, who linked their existence to the Silence; his early life had been marred by the constant need to hide from those trying to find him.

Indeed, there was a link. Developmental spurts, generally accompanied by intense, unbearable headaches, bore the same temporal pattern as the pulses. It amazed him that many children here, when they reached the age of majority, actually chose this modification, as if it were a rite of passage.

All of that information, including the star maps, were a part of the Consilience, as was other navigational information, developed by NASA, which he had stolen from Johnson Space Center in Houston when he was young.

Any individual in Crescent City could enter the Consilience, an informational stratum of the city where all of the scientific and mathematical information which made its way here—indeed, all information, no matter how seemingly mundane—was united by the city itself. The Consilience was accessible through a huge variety of interfaces.

The sun blazed briefly after the rain, an orange tongue which the blue sea swallowed. The window thinned and a welcome cool breeze swept across the small living area, which contained a couch, a chair, a futon alcove, and an abbreviated kitchen which included a beer tap.

Peabody poured more tea and watched some kayakers put out to sea for an evening run.

He was, he had to admit, depressed. It seemed to him that none of this wonderful convergence of information would ever be used beyond making everyone physically comfortable. Nanotechnology had a way of satisfying people so that they no longer dreamed. That was his opinion. Its dourness frightened him.

In earlier days, people had flooded into the city, drawn by the Norleans Plague. The scientific community thrived.

But few new scientists took the place of older ones. Perhaps there was some tiny balance-shifting factor about the city that led children to be interested in the biosciences—sea-farming, the challenge of growing fruits and vegetables in this isolated space—much more than physics and mathematics.

Their world was turned inward, toward the small, as they deciphered the riddle of matter and bid it do their will.

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Perhaps the pool was not large enough, here, to produce philosophers of science, those to whom light and its great riddles were of supreme importance. There had been no new scientific revolutions here for years, though every once in a while there were mutterings of breakthroughs on some distant mainland or other, and lately a bit of excitement when the supercollider project, which ringed the city like a vast doughnut about a hundred feet above sea level, was completed and experiments begun. Though the city had survived several Category Five hurricanes, storms had wrecked previous supercollider attempts. This design, completed and implemented by the Consilience, was supposed to be an improvement. Peabody was eager to see results, which might show them a new avenue in the quest to decipher the mysteries of light.

Peabody saw everything in terms of light. His hand as he held his tea gripped light solidified, and he stood in no special place in space. This island Earth was just as empty and vibrating within its atoms and the bonds they formed with one another as any other place in any universe, though perhaps a shade more dense. The only thing that made this place special was his own consciousness, his own glance.

This was the major puzzle to him.

This, and trying to figure out what had happened to radio.

He knew there were others out there who, like him, were trying to put together a new network of broadcasting protocol. But any connections fell apart too rapidly to be depended upon.

Many, including Peabody, believed that *El Silencio*, and its disasterous effects, were the result of deliberate intelligent manipulation of Earth's atmosphere by some distant force—mostly because the sequence of pulses, the Signal, which had since washed Earth seemed to have some kind of order.

This source presumably had an understanding of the nature of light which far surpassed that of humans. Peabody had devoted his life to deriving an equation distilling the revelations into human mathematics. His good friend Zeb Aberly, a radio astronomer, was another like himself, focused on this mystery. But he had left Crescent City years ago.

Peabody's own life might have meant something if such answers had ever been found. Perhaps the answer, the closure, for him and for others in his situation, had been prepared but not sent, or had been sent and missed its target.

As he looked out over Crescent City, he succumbed to darkening intimations which all the fairylike lights of the world beneath him, now appearing as the tropical night closed down suddenly, could not brighten.

It was possible that his life with all its pain and loss was only the result of a question posed in light, and that somewhere out there those who had caused this havoc awaited their answer, the answer he had tried to formulate through a lifetime of observation, study, and puzzle-solving.

Or perhaps it was one huge improvisation and an important musician had left the stage and the tune had changed, far out there in interstellar space, leaving Earth crippled forever.

The human brain, having evolved to deal with certain environmental factors, might simply be unable to fathom the universe in the way that it so desperately wanted to. It was impossible for one mind to hold within it the entire knowledge of what humanity had discovered over the course of its scientific history. Peabody hoped therefore that the Consilience, which was nonhuman and therefore

perhaps not as limited, was using that information to study possible new trajectories regarding solving the most pressing question of the age: What was causing the Silence, and how could it be stopped?

Or used.

Whether or not the city was conscious was often debated, but it did indeed act like a living organism, keeping itself and its denizens functioning as if the humans and animals were beneficial bacterium along for the ride.

Something held him in the city, but he could no longer say what, except that the city itself seemed to want him here. This was an unusual thought for a man long given to practicalities, but the idea that a system as large as this city might have a will of its own was not at all extreme. Perhaps it was wise enough to be frightened of its supposed fate of maturing into a spacefaring entity. Perhaps it was thinking things over, trying to figure out a way to leave the humans, demanding as a raft of kittens suckling an exhausted mother, behind.

If it was conscious, perhaps it was also wise, for it kept any such realization to itself.

The black cat on his couch stretched and yawned. Peabody picked up a stray image from him, a burst of metaperomones which manifested as a few lines and colors on the back of his hand.

This was another of his failures. Many islanders made it their life's work to try to communicate with animals using all kinds of methods, but Peabody, though interested, had never been able to make sense of their thoughts. Images did not dance across the Engineer's skin because his personal symbolic language remained locked within his brain. He was not able to allow it to be translated for the world to see.

His only company, for years, had been a series of cats. They wandered into the tower one at a time and took up residence, lying striped with bands of light on the cool tiled floor, as if they had some sort of pact to keep him distant company.

Peabody did, however, feel a kinship with the elephant that lived on the new pavilion about two miles to the west. He traveled to see it every once in a while, traversing a city almost alien to him via a system of sidewalks which moved through lush orchid-laden jungle where children played without fear of other humans or of venomous creatures. In fact, it was a bit scary how free of fear they were.

It was now full night. Able to see a cosmos no longer occluded by the sun, he was finally awake. Lights and dials winked around him in a waist-high stratum banding the small room. The floor carried like most of the surfaces of the city, a powerfully sophisticated and complex hypertextual information system. Peabody generally had it manifest a map of the world, with tiny glowing lights depicting the sources and types of radio signals he had picked up.

His roof's daylight opacity deserted it, no longer necessary, allowing starstreaked space to fill his mind. He kept the Radio Room dark except for the glow of frequency readouts, which danced through his nights in cadences that suggested something frustratingly out of his ability to understand or to know.

He settled into sampling the signals, hearing the brief thrilling blips from clear-channel stations that had broadcast automatically for almost a century while rarely riding the atmosphere for long. He felt the slight, dreamy sway of the tower in the wind and watched the dim luminosity of Crescent City grow. His hand, as he reached out to quickly twist a dial, was resolutely middle-aged in appearance—the hand of, perhaps, a fifty-year-old, though an exceedingly fit and healthy fifty-year-old. He did not wish to chance the change of younger renewal, for he had seen too many people become younger in mind as well as appearance during the various processes which brought the body the freshness of

youth. As it was, he had still cheated age by fifty years or more. He supposed that effect was part of a present given him long ago by a lover.

---

He noticed lights on the horizon—most likely, their fishing fleet returning. He drank several cups of tea.

Sometimes, lately, Paris had skipped into range for as long as a minute at a time, with throaty singing or, more interestingly, some kind of code. He knew that Paris was a huge antenna, and that it had for many years devoted much energy to enlarging this antenna.

Suddenly, static hissed from one of his speakers.

He moved toward it eagerly as it focused into brilliant, organized sound. The scope of the sound expanded instantly and fused with the map of the radio sky which he had carried in his mind since young, its unseen dimensions picked up by senses few other humans possessed.

A light coalesced in the southern part of the room, inevitable as dawn.

It was that for which he had always waited. He knew it. This light would, at last, tell him *why*.

He took a step toward it, deeply and clearly aware, noting its characteristics.

An ovoid ten feet high. A touch of the visible spectrum wavering through it like a broad rainbow.

The music of it made his chest ache and brought tears to his eyes.

He said, ridiculously, “Yes?”

Thoughts flashed through him, their inferences unfurling into the unseen distance too quickly for him to fathom, in deep, resonant relationships. A billion harmonies stretched his senses to the limit and then past, to the edge of hallucination.

Except that he knew that it was real. External. But meshing with him somehow.

Changing him.

He knew he was experiencing the uncurling of an infinite array of curled-up dimensions.

He was being fed with light, a new form of light. He did not know how or why.

Infinity, before now an abstract concept to him, seemed almost kinetic, dancing in each particle which comprised his body, becoming united to all of time and matter in that crux where everything had begun and expanded outward at unknowable speed.

The light vanished.

The stunned Engineer staggered forward, as if its energy had been supporting him, and stood looking at the place where it had been.

The tower was utterly silent.

He knew no one with whom he could discuss this. He wished his old friend Zeb, the radio astronomer, was here with him. Yet how could he possibly condense this into words? He was a gifted mathematician, but this had opened new geometries which he had barely glimpsed, which he would have to think himself back to, if that was possible.

Something had happened. Something exciting; powerful.

But what? And why?

“Be back in a while,” Peabody told his cat, and received a commanding picture of a fish in reply.

He paused for an instant, surprised and pleased.

Then he hurried from his Radio Room. He was edgy—entirely awake, yet in an electric, dreamlike

state.

As he dropped through a clear tube on an elevator platform, he had a momentary sensation that the lights below and above were points in interstellar space, that he was finally embarked on the epic voyage he had lost faith in.

He headed for the place in which some of the most exciting scientific work of the city had been done, including the initial planning for the supercollider. They had taken to calling it Science Hall. In its heyday, the atmosphere had been that of Princeton's Institute of Advanced Thinking, where at any one time you might find mathematicians, physicists, biologists, and others in heated conversations or engaged in Consilience-aided projects.

He pulled open the heavy, arched wooden door. Much of Crescent City was made of ultralight, ultrastrong buckyball material, material that responded quickly, although within preset parameters, to requests for change. But in some places people had chosen the comfort of well-remembered materials.

He stepped inside, and low lights illuminated the room.

Comfortable clublike couches faced one another in conversation-friendly groups, but other chairs were placed at work stations at which one could access various levels of the Consilience. Rattan rugs were scattered across the floor. Several cocoons provided access to complete immersion in the Consilience, which Peabody tended to avoid because the process involved a certain loss of control.

For a moment he saw the room filled with his old friends, colleagues with whom he had spent months and years in close work. Many, like the radio astronomer, had left Crescent City—frustrated; eager to see what was happening elsewhere.

He sat and recorded his experience with the light, and gave it to the Consilience.

It was just a brief note. He regretted that he could say nothing concrete about its spectrum. All of its brilliance and intensity seemed now to have been, possibly, an illusion.

The loneliness of the room brought back his feelings of futility. He had expected others to be here. Had this only happened to him? Had he imagined it?

He left.

On the thirteenth level, he walked through a jungle which by day was thick with cockatoos, parakeets, talking parrots, and the rebel parrots, who disdained human manipulation and reverted to natural form and tried to convince the other parrots to do so as well.

He tried to see if his friend, a white philosopher-parrot, was among them. She had lived in the tower for three years. Taught a wide vocabulary from birth, she had been especially eloquent when pontificating on Gaia. Eventually, she acquired the parrot-developed imaging grammar displayed on the beaks of those who chose that option, and elected to grow receptors, on her claws, which allowed her to access the Consilience. Not long after that, she suddenly moved down here. But he did not see her.

He heard the chatter and shrieks of a distant band of monkeys, perhaps awakened by some intrusion, and the muted roar of a waterfall. He passed a food pavilion, open twenty-four hours a day, he was not the only person who preferred the night.

The smell of garlic conjured a memory: a small Italian restaurant where he and his wife often dined when he was the Chief Nanotech Engineer of the Flower City of Chicago. But that had been decades ago, and his wife had long since killed herself. That was when he left Chicago in a haze of astonished numbness and anger.

He tried to ignore the memory, despite its power, and resolved to visit the elephant. That was always calming.

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After half an hour of walking, eschewing the small charged scooters one could pick up anywhere, Peabody walked onto a hexagon of land several acres in area.

Graced with plane trees, surrounded by sea, the elephant's domain held a freshwater pond where herons and egrets congregated. Tall grass rustled in the night breeze. Surf boomed against the breakwater and those same lights were out on the water, perhaps closer. The salt breeze was strong.

Standing on the observation porch, he located the dark silhouette of the elephant beneath a fledgeling bo tree.

He watched the elephant. It was oddly soothing. She shifted restlessly and curled her trunk into the air. From time to time, the wind brought him her huffing sounds and musty scent.

He wondered what she was thinking, and how much she knew.

She had been endowed with picturing capabilities, but had never used them despite the most intense and warm efforts of many dedicated researchers. She was the only elephant, though, and was five years old—a child. This elephant, by nature a social creature, had no family.

Peabody's darkness intensified as he considered this. It was a sin, and others beside himself thought so. With this success, more elephants were planned, but land was slow to grow. Debates raged in this small sliver of concern, about whether they should risk two or even three elephants here; if there was sufficient food; if the needs of the elephant outbalanced other concerns. Such debates were common in Crescent City. Votes were called almost constantly, though were often limited to neighborhood concerns. Waves of iridescent color washed the island during a vote, and during important citywide votes, the waves could last for days as new debates emerged and were considered.

He felt the afterglow of the strange light. The night seemed a bit brighter than it ought, comprised of buzzing particles lit from within.

Or perhaps this was just his imagination.

The elephant's trumpet was wild; searing. The boards beneath Peabody's feet vibrated. He had read that elephants communicated with sounds of such long wavelength that they were inaudible to human ears as they traveled through the ground to distant pods and tribes.

Did the elephant ever wonder if her communications were understood? Or, growing up alone, did she perhaps believe that she existed in the image of her keepers?

This was only depressing him further.

To his surprise, the elephant wheeled, turning toward him.

He had a moment of fear, though he knew that this elephant, so far, had been a docile creature. But she was huge!

Her massive head bobbed as she approached, majestic, with missionlike intent. Halting just a few feet from him, on the other side of the low fence, she regarded him thoughtfully with dark eyes huge as dinner plates. He was transfixed.

Then, he received images from her as precise as his radio skies.

*globe of light breaks skin of seasky  
rises*

*we rise with it  
world falls behind  
we are gone  
into blackspace  
our light one of billions  
we burn we  
turn into  
now*

---

Peabody saw it again: The sun rose over ocean's edge, went up and up into black space. The elephant himself, and all of the seeing, conscious beings on Earth rose as well, in tandem, in a swift, exhilarating arc of light.

Earth fell back; became tiny; vanished as the sun mingled with a billion other stars which rotated suddenly, then snapped into new constellations.

He was seeing the cosmos from a completely new vantage point.

Powerful, beautiful, ever-shifting tones, a symphony of light, peeled through him, light that was time, space and place. One quantum event; the field from which everything—every atom, all of time and space, all living creatures, all conscious thought—burst.

The elephant's trumpet shook the ground.

Peabody moved from his century of solitude into realization: This is it.

*This is it.*

He held it in his mind for a moment. Or it held him: this image, this movement, this music. The elephant felt it, understood it, communicated it to him in a way that augmented his own experience and gave it an edge to catch hold of.

He was filled with urgency. It had been real. Now it was reinforced. He had to give this directly to the Consilience—the images, surely a clue to the origin of the signal—and the awe embedded in them.

As he turned to go, the ground lurched slightly. Peabody grabbed the railing next to him. The bank on which he stood formed a direct breakwater against the sea, so this lurch was nothing out of the ordinary.

But it gave Peabody the oddest sensation of... movement.

Ridiculous, he thought, picturing the huge web of cables attached to sea anchors. Nothing could cut them. Only deliberate programming could cause them to release their grip on the anchors.

He rushed to Science Hall in a fraction of the time his outward trip had taken him, using a scooter ignoring large groups of people moving purposefully through the pavilions, their faces tense. A few tried to hail him, but didn't stop.

Inside the Hall, the cocoon's web stretched around him, its cool gellish filaments enveloping receptors which were a part of his skin. He relaxed into its soothing grasp. He loved and feared the Consilience—loved it for its richness, and feared his own sense of being out of control when he was within it.

He requested the hormones of learning. They would help him assimilate and understand what he experienced. This would open him completely to the Consilience, which could be frightening. But he

had to commune directly.

Swimming down into the deep programs of the city, he realized, with a shock, that the city was indeed loosening its grasp on the ocean floor.

Then, distantly, he felt explosions.

—*Jason Peabody: The lights on the ocean are ships attacking me.*

The city was appealing to him directly, knowing that he had helped design her.

He cursed his own loss of urgency. The city depended upon defenses developed not by those who had faced combat at some time, nor by those who had commanded forces. Instead, they were developed by people who could not stomach the pain of others. They were developed by people who respected others and who could not imagine those who did not. Time and time again he had been outvoted when proposing more violent and immediate methods of counterattack, such as missiles.

Presently, the only defenses were insidious and subtle, like slow poisons, nanotech defenses which would change the very personality of the attackers should they take up residence. They would not prevent injuries. And injuries could not be healed if the city itself was seriously damaged.

—Begin to manufacture the defense plague, he directed.

—*I already have.*

—You have awakened?

—*I have been awake for a long time. The light accelerated the process of growth.*

But it did not use the word “light.” It used numbers and symbols which flashed upon him briefly, almost as if the city believed it was addressing an equal, when instead its mind was vast, alien, unknowable.

He had to get out, and do what he could, directly. He struggled to leave the Consilience.

Instead he was seized, like a small fish in the mouth of a large one, and taken deep.

—*Pain at 187.43 degrees elevation 46 feet. And again 187.31.124 and 399.*

Numbers unreeled through Peabody’s mind and being; the city’s mind and being. He experienced three-dimensional real time impact when each explosive hit.

He plummeted wildly through the city’s to panic.

—*It is gone!*

—What is gone?

—*My orienting information. The way I am to go.*

He was washed with fear and did not know if it was his own, or the city’s.

The city was speaking of the information he had stolen from NASA, decades ago when the riches of the world’s technological infrastructure had not been entirely lost. Its directional calculus incorporated the star maps, but was dependent on other information no longer available.

—*Too much damage. I wasn’t able to transfer it in time. You brought it here. You know where to find it. I need it. Now.*

*I will be leaving soon.*

—I’ll go, Peabody assured the city, feeling the weight of untold depths and trans-human conclusions despite the city’s plain language. It was as if the city was trying to talk to a child. Which compared to the Consilience, he was.

He would have to travel to Johnson Space Center, outside of Houston, although the thought of venturing back into the strangeness of post-nanotech America was not a pleasant one. He had hidden in here for a very long time. It was a long shot, but he would do his best to sort through whatever remnants might be there in Houston and recompile the navigational information the city needed.

*A rush of memories: Children crowd into a doorway as he herds cleaning bots down a long corridor with a wide janitor's broom. The bots start out sparkling clear and end up dirt-brown. He is spy; this is his alias.*

*Each day, the children yell, "The Janitor!" and he leans the broom against their doorway and steps inside. He figures it's a day care for employee's children. He wonders where the adults are. He never sees any with the children.*

*There are toys, sleek medical machines, and his first glimpse of the government-developed learning cocoons. He understands what they are only later.*

*The children swarm over him, laughing. "The Janitor! Don't go! Come back soon, Janitor!"*

*After several weeks he is able to do what he came to do. He steals a copy of NASA's maps, which show where the Signal is coming from, put together from international information sources which are quickly dwindling, and leaves.*

—How much time do I have?

—Forty-eight days. At that time there will be a window.

—A window?

—An avenue, the city replied somewhat impatiently. *Through space-time. To the transformational change. The singularity. The homing heart of your quest, Jason Peabody. Once you go, you will finally know. Finally be.*

—Finally?

—You cannot understand it now. Neither can I. We are the bridge...

Peabody was suffused with unaccustomed, unanticipated joy.

He also saw the truth of what the city said—imperfectly, as a child might, but accepting the urgency. If this information was not retrieved and incorporated, the entire enterprise would fail.

It was like calculating trajectories, or doing any other precise, motion-dependent work. There was a target. A great change had washed through the atmosphere, from *somewhere*. Presaging *something*. Even as a plant might put all of its energy into producing a future flower, though it knew not what it did, or a human child develop into puberty, there was some kind of cosmic maturity awaiting them. Some bright awakening.

Peabody glimpsed the edge of this—the possibility of it, the deep workings of its harmonies, of which he, and everything, was a part. There was no Plan; there was only Event, only constant emergence—freeform improvisation, following certain embedded rules which themselves could change.

Consciousness, its by-product, wanted to flash through all of it. Wanted to inhabit all of matter.

Suddenly, another terrible blast shook the walls.

The city which had spoken to him vanished. It was dark, and deadened, as if part of him had suffered a stroke.

He struggled, trapped; tried to shout, but could not even do that.

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