

DINOSHIFT

by

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Stipulation:

The present is inviolable. It cannot be altered by changing the past.

The future is not so inviolable --

When Frederick Marion Degruon published his paper Phased Timeshift Dispersion in the summer of 2119, critics quickly recalled the ancient arguments against time travel. As one writer succinctly put it; "It makes wonderful science fiction. But fiction can tolerate the contradiction, for instance, of a man going back in time and becoming his own ancestor. Science cannot."

Nevertheless it was not long before Degruon was reluctantly persuaded into a TV studio, where interviewer-journalist Gail Sovergarde turned on her famous charm.

"Doctor Degruon, I understand your paper has created quite a stir in the scientific community. I mean, time travel! So I hope you will forgive me if I ask a question I am sure you have already heard a thousand times. Can we now

change the past?"

"No."

A small man, sandy haired and painfully shy, Degruton had decided the only way to preserve his equanimity before this disconcerting female, was to say as little as possible.

"I am so glad you said that." Her smile made him melt.

"Because to change the past is to change the present. Is that not so?"

"That is the accepted--" He shuffled uncomfortably.

"--way of looking at it."

"But a valid one, surely?"

"I suppose so."

"Ah." She nodded knowingly. "So despite your discovery, I still cannot go back and dispose of my grandfather before he had children."

"Good heavens!" Degruton was shocked. "Why would you want to do that?"

Disconcerted by the scientist's literal interpretation of the elderly cliché, Sovergarde hurriedly re-phrased.

"Then if we cannot change the past, what can we change?"

Presuming, of course, time travel is possible."

"Read my paper, Ms Sovergarde. Believe me, the calculations have been checked and double-checked by the top people in the field."

She held up a folder. "Triple-checked, Dr Degruton. I have been assured your reasoning is impeccable. So again I

ask the question. What can we change?"

"Not so much change, as create."

"I beg your pardon?"

"If we go back a couple of thousand years and arrange for the--ah--removal of a certain itinerant preacher before he started his ministry, Christianity would never have happened. Right?"

"Of course. That is obvious."

"Obvious only in another continuum, Ms Sovergarde. Not in our own--in which Christianity is an incontrovertible fact."

"I see." After a slight hesitation, Sovergarde asked thoughtfully, "You are talking about an alternate history, aren't you?"

"Well I--" Degruton looked at the woman with dawning respect. Never much interested in the comings, goings and various scandals associated with the current crop of video personalities, he came to the interview assuming this was just another shallow, statuesque brunette with the gift of gab and an astronomical clothing budget. But with the sudden realization Sovergarde was more than just flesh-and-blood cardboard, the scientist blushed and began to stammer.

"Y--yes, in a--ahemm--sort of--"

Her smile was disarming, and with an effort of will he forced himself to meet her questioning gray eyes. Somehow,

her projection of innocent curiosity inspired confidence.

"You are familiar with the concept of alternate histories, Ms Sovergarde?"

"In a science-fictional sort of way. As I understand it, if someone from our time goes back and changes or prevents some pivotal event of history; instead of altering our past, the time traveller has by his action created a branching alternate in which, for instance, Christianity never existed. That alternate would be another timeline, parallel yet separate from our own."

"Timeline is the popular word. I prefer continuum. Anyway, in the greater multiverse of which our own cosmos is but an infinitesimal part, it is conceivable that infinite possibilities already coexist in an infinite series of continuums. By the way, I erred in when I implied alternates are created. Any manipulation of a past event, simply opens the door to the most appropriate of those infinite possibilities."

"But it is so theoretical."

"Not at all. In fact, my colleagues and I have already demonstrated the concept in the laboratory. The partitions are not impenetrable, you see. We set up an experiment in which we changed an event in past time, returned to the present, and then shifted sideways to observe the consequences of our manipulation."

Sovergarde lifted both hands in protest. "Partitions?"

Sideways? Sorry Doctor, you just lost me."

"The experiment was on a modest scale of course, involving nuclear reactions over nano-seconds of time.

Partitions are simply the boundaries separating the alternate continuums from each other as well as from Prime, which is our own continuum. Sideways refers to our ability to shift across those partitions."

"Getting back to Christianity--"

Suspecting he should have chosen a less controversial example, Degruton sighed. "If our time traveller somehow prevents Christianity 'getting off the ground' so-to-speak, he then has the remarkable option of being able to follow the development of a non-christian continuum at any moment during its history, up to and including the alternate's calendar equivalent of our present."

"But not beyond?"

"Beyond?"

"Into the future."

Degruton looked wistful. "That would be interesting, wouldn't it?" He frowned and shook his head. "Unfortunately, that is one barrier beyond which we cannot go. As with the speed of light, nature has its limits."

"So the future can only arrive the old fashioned way?"

"By becoming the present? Precisely."

Sovergarde pursed her lips with disappointment and

consulted her notes. "About this technique--"

"We call it ShiftDispersion, or S.D."

"Alright, S.D. Does it have a practical application?"

"Does a baby, Ms Sovergarde? Give it time."

"Then do you have anything in mind? I mean, on a larger scale than the experiment you just described?"

"Oh indeed."

"Can you tell me what it is?"

"Not really. After all, we are at the beginning of years of development work. But perhaps--" Degruton hesitated, added weakly. "Really, it is rather premature."

The famous, Sovergarde smile. "Oh Doctor, do tell."

Degruton blushed, took a deep breath. "Dinosaurs."

Ten years later.

The Francis Bacon was a big ship, originally constructed as a bulk carrier for the Mars run. Now rebuilt to carry the massive SD generator in the main hold, her Sovergarde fusion-drive had brought her to station above the ecliptic in just over nine weeks.

Despite the ship's size, personnel quarters were limited and cramped. So the presence of Gail Sovergarde, in addition to a dozen scientists and technicians, was initially resented by those of the ship's crew who assumed the journalist's only asset, other than her looks and her network's financial resources, was her famous grandfather.

But Gail's willing acceptance of routine chores, plus her charmand obvious intelligence, soon made her friends with everyone--including, to Degruton's surprise--the other four women on board.

Degruton's own relationship with this surprising female hadmatured over the years to something he thought was even betterthan marriage. Their commitment had no formal contract, their work frequently kept them apart, yet every reunionhad the giddy, sensual aspect of a couple of teenagersdiscovering each other for the first time.

But it was entirely business when Gail entered SD Control as Degruton and a couple of colleagues anxiously watcheddata scroll across a screen.

"How's it coming?"

Without looking around, Mary Scheaffer waved a hand.

"Hi Gail."

"That bad, huh?"

"Not really.Just the usual glitches."

Gail glanced at the countdown display on the bulkhead.

"Seventeen hours to go. Are we going to make it?"

"Damn right we are." Mike Brown, the other member of Degruton's primary team, swung his chair around and grinned atthe tousle-haired journalist. Even at forty-two, with no make-up, a touch of gray in her dark hair, and clad in a baggycoverall, the journalist continued to attract the

appreciative male eye. Mike added, "What about your doubts, lady? Still have them?"

She shrugged. "I am like a lot of people I guess.

Intellectually I know we can't change our own past, and have proved it. But gut-wise--"

Her mind went back four years, to the first full-scale test of SD. She remembered the nerve-racking hours during which she wondered if man had finally tweaked nature's nose once too often--

From a site in Nebraska, they time-shifted to around 500 A.D. and released a few horses into the broad grasslands of first-millennium America. A dozen mares, a few foals and a couple of stallions galloping away across the prairie, hardly seemed enough for the nucleus of a viable population. Yet Alternate 1-2125, the modern-time equivalent which was the result of that experiment, turned out to be a revelation --with Europe still in the steam age, and its few North American coastal colonies warily co-existing with a continent-spanning Inca Federation.

Unlike Prime, in which a few hundred mounted conquistadors under the leadership of Cortes and Pizarro conquered the Americas for Spain, in A1 the thundering cavalry regiments of the Inca had been more than enough to snuff out the European upstarts.

Despite Gail's misgivings, the return to Prime was

anticlimactic, proving what Degruton and her own common sense always insisted--that because Prime's past was unalterably written into the fabric of spacetime, its present, although older by the six weeks subjective time they were away, remained as familiar as an old and comfortable shoe.

Yet the nagging voice remained, like a constant itch that could not be scratched--

Gail blurted; "It's not so much what we're doing, Mike, as the degree of what we're doing! Introducing a few horses a few hundred years before their time did not seem such a big deal, yet look how that ended up! Now we are about to do something on a global scale." She took a deep breath. "All at once!"

Aware Degruton was also looking at her, she snapped, "What is the matter, Freddy dear? Am I repeating myself again?"

"I am afraid you are, dear." He smiled and rubbed a hand through what was left of his hair. "Anyway, do you think you can stop it?"

It was not a challenge, he was not that type. It was a simple question.

Gail admitted wearily, "Of course not. I only report events, I don't influence them." She hesitated. "But I do

try, don't I?"

"Damn right you do. Fortunately our dedication is immune even to your charms." Degruton stretched aching muscles and yawned. "Anyway, one or a thousand new alternates, it doesn't really matter. Prime will still be there when we get back; slightly soiled and slightly glorious as always, but there."

Gail whispered. "But we're about to create a whole new Earth. Totally different--"

"Create?" Degruton shook his head. "It beats me why you insist on looking at it that way. We are not God, you know."

"I know. It is what worries me."

Although the calculations were meticulous and had monopolized the Luna Institute's computers to the extent a deputation of angry cosmologists demanded Degruton either stop or get out, the results were still based on theory. So when one of the detects reported a mass approximately where and when it was supposed to be, excitement was tempered by doubt as they waited for refinement of the incoming data.

"Coincidence?", Mike wondered aloud. "Or just bloody good luck?"

"We will know for sure in an hour or two," Degruton muttered as he watched the wavering blip on the screen.

"Why so long?", Gail asked.

"The detects are pretty widely spread, in space as well

astime. Twenty-Three is doing its best, which is not too badfor a probe the size of a basketball. Eight is coming withinrange, and Forty-Eight is not far behind. Those three shouldgive us a pretty good fix."

"But you launched more than a hundred!"

He looked up. "I'd have launched a thousand if we had thebudget and room for that many."

"Three percent."Mary paused, added thoughtfully, "You know, that's not so bad."

Degruton nodded. Based on data from thousands of core samplestaken in and around the asteroid's supposed impact pointnear the Yucatan peninsular, the computer's projection ofthe incoming trajectory turned out to be both surprising andfortuitous. The asteroid had been a rogue; a solitary interstellarinterloper arcing into the solar system from highabove the ecliptic. Unlike the countless anonymous chunksof cometary debris which had always orbited the sun, thiswas a loner which theoretically could be located.

Hopefully,they had done exactly that.

Mike checked the readings. "Minus sixty-six million years, give or take a couple of hundred thousand. Close enough, I'd say. Let's arm Bertha."

Degruton shook his head. "Not yet. Bertha stays asleep andharmless until we are absolutely sure."

Sothey waited as the cloud of tiny detects which had

been launched in a fan-shaped pattern north of the sun,
flickered in and out of time and space. Snug in its bulge on
the underside of the Francis Bacon, enough explosive power
to cinder half a continent or divert an asteroid, continued
its mechanical slumber.

The pattern on the screen changed.

"Eight is within range," Mike reported.

"And--?"

"Just a sec." Mike checked the scrolling figures.

"Intersect in two hundred and ninety days."

"Intersect?", Gail queried.

"With Earth's orbit. So far the data's not complete
enough to determine if there will be actual impact.
Whatever it is could still miss by a couple of million
clicks."

"Equivalent to a bullet parting your hair," Mary
explained solemnly. "Unpleasant, but not fatal."

"Not this baby," Mike declared flatly. "It's it!"

"What makes you so sure?", Gail asked as she tried to
ignore the sinking feeling in the pit of her stomach. "As
Mary just said--"

"--if it looks like a duck and quacks like a duck--"

"--it is the asteroid that wiped out the dinosaurs,"

Degruton interjected tiredly as he lifted both hands and
rubbed his temples. He took a deep breath, pressed a switch.

"Gerry? Time to wake up Bertha."

The voice of Captain Geraldine Fuchs echoed the doubts of Gail Sovergarde. "Are you sure? I don't want to commit on a hunch."

"You are watching the data?"

"Of course."

"Then be honest, Gerry. You know damn well it's no hunch."

A sigh. "When will you know enough to commit for launch?"

"We have enough to commit right now. We can tweak Bertha's course as more data comes in."

"OK. We need half a day for check-out. Launch any time after fourteen hundred hours tomorrow."

Later, Gail slipped out of SD Control and hauled herself up the access well to the bridge. She found the captain alone, standing in front of a direct vision port and staring at the stars. The captain did not turn around as the journalist entered. Instead, she wondered aloud, "Do you think we will ever get there?"

"Where?"

Fuchs gestured. "Out there."

"Of course we will."

The captain turned around. Her thin, bony face was expressionless. "What makes you so sure?"

"Because there are people like you and--" Gail

hesitated.

"Degruton?"

"Yes."

"I wonder."

Fuchs returned to the command chair. "I will do it of course. Launch, I mean. And I will watch and dutifully applaud when Bertha explodes and nudges that asteroid so it won't hit Earth sixty-something million years ago."

"And then?"

"I won't sleep a solitary wink until we get back and find home is where and how we left it!"

Gail sat down at the vacant First Officer's station.

"Me too," she admitted. She looked around the deserted bridge. "Where is everyone?"

"Down below, with Bertha. I may be uneasy about it, but I intend to have the job done right."

"Gerry, the concept has been proved. Whatever new alternatives we create or open up, Prime's present is untouchable. It cannot change."

The captain nodded. "You were there when they did the thing with the horses, weren't you?"

Gail nodded. "I was also there when they time-shifted ahead fifteen centuries to see the outcome."

"What kind of world was it?"

"Is," Gail corrected firmly. "She took a deep breath.

"Steam trains, paddle wheelers, gas lights, one or two minor

wars. A Tudor named Henry the Tenth on the English throne, and a North American federation of Inca chiefdoms with not much technology beyond good roads and the telegraph. I could have survived on that world I suppose, but I was glad beyond relief when we shifted back to Prime."

"I can believe that."

Fuchs stared at her visitor from below lowered eyelids. She found Gail Sovergarde pleasant enough, as long as she did not dwell on the contrast between the journalist's lush looks and her own scrawny hair-in-a-bun appearance. "You still wonder if we're spitting in God's eye, don't you?"

"I wouldn't put it that extreme."

"I would. I have a nasty feeling we are going to regret this."

"I already told you--"

"I know. We cannot change Prime's past, and Freddy and his team have already proved it. But I suspect you don't like this dinosaur thing anymore than I do, Gail Sovergarde."

The other woman shrugged.

"OK, so we divert that asteroid. Then what?"

"We spot check over a few million years," Gail replied, relieved the conversation had moved to safer ground. "See what happens."

"Up until the present equivalent time?"

Gail shook her head. "I thought that was the obvious thing to do, until Freddy reminded me that we humans only got started pretty recently."

"What has that to do with anything?"

"So what would we be like today, if our primate ancestors climbed down from the trees during the Mesozoic and not just four or five million years ago?"

"We'd be--" An awed expression crossed the captain's thin face. "Pure intellect?"

"Perhaps. Or maybe we would have long since polluted ourselves to extinction. No one knows. The point is, Freddy would rather not expose us to whatever remote sensing capabilities those distant dinosaur descendants might have. Presuming they do evolve intelligence, we will shift back to Prime long before they develop space flight."

Fuchs nodded, slowly. "It seems Freddy has thought of all the angles."

"I think so. It is why my objections have been--"

Gail's smile was wan. "--muted."

With a huge sigh of relief, the captain leaned back in her chair. "You know, although I felt in my bones there was something wrong, I could not figure out what it was. Now you've told me--and it's pretty awesome--I am glad our lord and master decided to avoid it." She smiled broadly.

"Dammit, I feel much better!"

Berthawas launched on schedule. The detects had done their job, plotting the exact course of the mountain-sized wandererto a point of impact on the Earth's surface corresponding to what would be--in sixty six million years --the Yucatan peninsular.

The asteroid was still one hundred and ninety million kilometers from Sol's third planet, when proximity fuses exploded Bertha's fusion warhead just above the cratered surface. On the screens it was a mere wink of light.

For better or worse, it was done . There would be not be another try. Bertha was a one-shot .

Detect 23 was destroyed by the blast, 8's sensors were overloaded beyond recovery. So it was nearly three days before the Francis Bacon's own instruments, plus data from the lagging Detect 48, finally confirmed that Mesozoic Earth was saved by a margin of slightly less than five hundred thousand kilometers.

A few years later, Gail Sovergarde dictated into her journal;

And then we flitted from eon to eon like gods watching the progress of their children. We saw ice caps advance and retreat. Deserts, forests and plains shrank and expanded according to the great cycles of nature. The dinosaurs themselves changed, becoming smaller, swifter and more

intelligent. The giant carnivores and herbivores were extinct within ten million years after AV (asteroid avoidance), after which a few species of four-footed mammals emerged on the plains. There were no mammal primates.

We overshot the genesis of the dinosaur toolmakers by some hundred thousand years, but not their early villages near the great rivers on both continents. We watched as the villages became towns, as agriculture spread and roads linked the towns in a great web of commerce.

Square-riggers sailed the seas.

There were no wars.

Perhaps the lack of conflict is why technological progress was, by our standards, inordinately slow. It took more than five hundred centuries for the dinosaurs to evolve from early agriculture to the equivalent of a steam-powered industrial revolution. It was another two hundred centuries before the development of the first dirigible, and centuries more before mixed fleets of dirigibles and lumbering heavier-than-air freight carriers flew in their skies. By our time, it was forty-five million years ago when we prudently shifted out from that timeline and returned to Prime's familiar present.

For a few hectic months I traveled with the SD team from city to city, and then to the Mars colonies. I shared the accolades, although even Freddy freely admits my coaching contributed in no small degree to his blossoming as

a public personality.

Still, as always, there were the questions.

Also, as always, the doubts.

No one, not even Freddy, was particularly surprised when the ban was imposed almost exactly one year after our return from the Dinosaur Alternate. Although the SD projects had not triggered the space-time discontinuance forecast by Stennerdahl and others, in its collective wisdom the Assembly instructed the Secretary General to suspend the Shift Dispersion program pending 'further investigation of any deleterious effects on the environment'.

So it was done.

The Francis Bacon resumed its unglamorous role as an interplanetary freighter. Captain Geraldine Fuchs joined the fledgling interstellar program, and I semi-retired from the small screen to become a director of the network. Frederick Degruton did not do much of anything, other than spend most of his waking hours going through the voluminous reports of Project Dinoshift, eating and showering when he was reminded to do so, cat-napping but never getting a proper night's sleep, and frequently muttering something about "What we can do--"

After a couple of months of this, I moved out. Because I assumed we were still friends, I tried to keep in contact with Freddy. But he did not return my calls or answer my

messages. Finally, in desperation I returned to the apartment. As I expected, he had not bothered to re-program themaglock--

He was asleep. For a few seconds Gail stood in the doorway of the familiar bedroom, watching as he snored softly. To her surprise the place was clean. His clothes were neatly folded over a chair, and what she could see of him was scrubbed and clean shaven.

But his face was painfully thin.

She checked her watch. 10.30 am.

In the old days, he was up by six. It was an irritant she had learned to live with, as she ignored his pattering around until she later joined him for breakfast.

That was another life.

Letting him sleep, Gail left the bedroom and wandered into his office. Again total neatness, in contrast to the chaos of tapes, disks, books and paper strewn about the room the day she left. He had two terminals going at the same time, she remembered, each hooked into a different data base, neither ever being turned off. She also remembered their bitter words, when he refused her request to use one of the terminals after her portable crashed while she was uploading to the network.

On the evening telecast of that day, she had to use someone else's copy.

Now there was just the one terminal, turned off, the keyboard placed with mathematical precision in front of the screen.

"Gail?"

She turned. He stood in the doorway, blinking sleepily.

"Hi, Freddy."

He did not seem particularly surprised as he asked, "What are you doing here?" For all the expression in his voice, he could have been inquiring about the weather.

She shrugged. "I was worried. You won't answer my messages."

He nodded. "Give me a few minutes to do this and that, then we will talk."

Gail watched as he went into the bathroom and closed the door. 'This and that' was an expression from their intimate days, and her heart skipped a beat when he used it. On the other hand, neither of them had ever completely closed the bathroom door.

Guess there's not much of the old magic left, Gail mused sadly as she went into the kitchen and busied herself putting out fruit juice, milk and a couple of bowls of cereal.

When he came in, clad in a white shirt and slacks which once fitted but now hung on his scrawny frame like an older brother's discards, the journalist had to force herself not

to overreact. She simply commented, "You have lost weight."

"I know." He grinned. "Guess I had better start eating again."

She went to the auto-chef and called up a pre-set program. It had not been changed. "Eggs, toast and bacon just as you used to like them. OK?"

"OK," Degruton agreed as he began to spoon up the cereal.

During the next half hour Gail did most of the talking while he ate and drank profusely. It was a chatty one-sided conversation in which she described her new job at the network, the day she spent in the company of the Secretary General at the World Assembly Building, her new corner office on the one hundred and thirtieth floor, and the delight of her parents when she introduced them to the cast of the eternally running soap, *Tomorrow's Day*.

Finally, he pushed himself away from the table. "Thank you."

"For the food or the talk?"

"Both. But especially for the talk."

"In the trade, it's known as verbal diarrhea."

"In your case, that is like calling a rose a skunk cabbage. Gail, you are the only person I know who can make even a discussion of potato blight interesting."

"Potato blight? When did--?" She took a deep breath.

"Dammit Freddy, I am having the hardest time not discussing

you!" She glared at him. "No, not just you. Us!"

Degruton reached over and patted her hand. "I know, and I apologize."

Is this about to become one of our re-unions?, Gail wondered giddily as she tried not to look in the direction of the bedroom. She hoped not. He looked frail enough that a simple hug might break him.

But if she was gentle--

Instead, he said, "As much as anyone, you are the one to blame for the past few weeks."

The letdown was so complete, she could only gasp .

"Freddy!"

"After all, you did spend a lot of time and energy trying to get me to call off Dinoshift. So when we finally got home and found everything as it was supposed to be, I was tempted to make you eat your words."

"But you didn't."

"Didn't have the heart for it. Instead, I knocked myself out reviewing the whole project from conception to end. I did not know what I was looking for anymore than you knew what was wrong, but the further I got into it, the more I had a nasty feeling I was missing something fundamental; like not seeing the forest for the trees."

Gail said helplessly, "Freddy, I don't--"

He was remorseless. "Your instincts were right, of

course. I did miss something. And it is because of my bloody stupidity, life for all of us--all of humanity--may become very precarious."

Gail just stared at him. Physically, Degruton had lost a lot during the past few weeks. But his eyes were bright, and his words were those of a man who knew exactly what he was saying. She licked her lips. "What have you found that is so--" She fluttered her hands. "--devastating?"

He beckoned. "In my office."

She followed him into the unusually neat room, and sat down as he tapped keys. He said over his shoulder,

"We were looking for the killer asteroid. Right?"

She nodded. "And we found it."

"Meanwhile, the ship's sensors were scanning the local region of space."

Gail shrugged. "I learned enough while I was on board to know space is not as empty as it seems. The computer routinely plots the movement of every bit of cosmic flotsam within range, and alarms the bridge if anything is a potential threat."

"Exactly. Not being particularly imaginative, the computer doesn't give a damn what it detects, as long as whatever it is is not on a collision course with the ship. In fact, unless instructed otherwise, the computer even ignores any object which changes direction."

"Like a ship, you mean." Gail thought a moment, added,

"Makes sense I suppose. There are a lot of ships--" Her eyes widened. "But not sixty-six million years ago!"

"And even in our time, not above the ecliptic."

Degruton grinned. It was a peculiarly humorless expression.

"You are almost ahead of me, dear."

He pointed at the monitor. "See that trace? It was noted and recorded while we were determining the trajectory of the asteroid. Course approximately paralleling that of the rock, but separated from it by a couple of hundred thousand clicks. Now look at the trace from about the time Bertha exploded, and continuing until we time-shifted out of there."

"It's--" Gail was not an expert, but after months aboard the Francis Bacon, she knew what she was looking at.

"It changed course!"

"That's right. Even after Bertha shoved the asteroid into an Earth-missing trajectory, the object continued to maintain exact station with that confounded chunk of rock."

The grin relaxed, became a smile. "Interesting, wouldn't you say?"

"Interesting," she echoed weakly. She stared at the innocent blip on the screen. "It is a ship, isn't it?"

He nodded.

"Not one of ours?"

"How can it be?" Degruton asked reasonably.

It was not the answer Gail Sovergarde wanted to hear.

Earth's first multi-generation star ship was still underconstruction. It was not scheduled for completion and launchfor at least another five years, and then its crew wouldnot see another world during their lifetime. It was theirunborn grandchildren and great grandchildren who would setfoot on the fourth planet of Epsilon Eridani. So on the thresholdof what was hailed as mankind's greatest (and most expensive) adventure, it was a humbling realization to know analien star explorer had already visited the solar system sixty-six million years ago.

It was as if Degruton read Gail's mind. "You are thinkingit was a visitor from outside.Right?"

She nodded."Of course. What else can it be?"

"Too small," he said. "That trace is of an object comparablein size to the Francis Bacon. Big, but not big enoughto carry generations of star travellers."

The journalist shrugged. "Perhaps it is a scout. One of severallaunched from a mother ship."

"Too big.I told you, only something comparable to the Francis could return an echo that strong."

"FTL."

"I beg your pardon?"

"Faster-than-light!"

"Nah."He shook his head. "Good science fiction, bad

science."

Gail was getting irritated. She muttered, "Small and sublight. So it's either a robot, or manned by a crew kept instasis during the years or centuries of transit."

Degruton addressed the air. "What do you know. She is as smart as ever." He shook his head. "Nevertheless I don't think so. Although you just mentioned a couple of remote possibilities, there is another scenario which is much more likely."

"And that is?"

He told her.

Gail stayed with Degruton that night. She needed his company, although she persuaded herself it was the other way around. Yet Degruton was the one who after months of self-deprivation was now calm and rational, who had suspected a problem, discovered the nature of the problem, and then solved it to his own satisfaction.

That his solution anticipated the probable end of human civilization as everyone knew it, did not seem to bother him. He was transformed into a dispassionate observer, apart from life as a reader is apart from the characters and events in a novel.

Could they tell anyone of his conclusions?

Dare they?

Gail did not understand how Degruton could sleep as if nothing had happened, while she lay beside him and stared at the ceiling.

After all, even if he was wrong and mankind muddled through the next few decades more or less according to the prognostications of most futurists, there was no guarantee it would remain that way. Although 'to the stars' had been the battle cry for generations, and the culmination of that yearning was currently nearing completion in lunar orbit, there were still those who persisted with the disconcerting question, 'But what if the stars come to us first?'

Most people preferred not to answer that question, or even consider it. Although Copernicus had forever dislodged mankind from the center of the universe, an unconscious but stubbornly insistent part of the human psyche held to the myth of human exclusivity. Degruton's new evidence had the potential to shatter that exclusivity--although the threat was not from the stars, but from a co-existing continuum barely thought away in space and eons ahead in time.

Frederick Degruton had solved his problem.

But for Gail Sovergarde; journalist, instant insomniac and a member of the human race, the problem was just beginning.

It could have been the biggest scoop of the age, perhaps even of the past millennium, although that would

predatethe media by a few centuries. Yet despite the nagginginsistence of Gail's journalistic instincts, she continuedher duties at the network as if nothing had happened.It was a burden she doubted she could carry for long.Either she would throttle Degruton, or vent her frustrationson some of the expensive appliances and furniturewhich were still unpaid for despite her exorbitant salary.

She even considered the purchase and installation of a punchingbag.

Butwhat Gail assumed was the scientist's indifference, turnedout to be a psychological smoke-screen covering up an intenseguilt. Degruton was convinced he had opened the ultimatePandora's box, and his guilt unleashed a side of hispersonality which, over hours of equal parts of cajoling andpleading, finally wore the journalist down to acceptance ofhis insistent, "No one must know about this.Ever!"

Ultimately, everyone would know. It was inevitable. But untilthen, as Degruton added with uncharacteristic passion, "Let people live their lives as if the future is theirs. After all, until my stupid meddling, it was!"

Months went by.

Years.

Degruton immersed himself in theoretical physics,

cutting himself off from all practical work. "A balanced equation is a lovely thing," he told Gail, "but only if it remains a mental construct apart from any hardware."

She doubted it was possible for such a divorce, especially considering the economic times and the natural requirement to recover costs. But she supposed the intellectual inertia of the academic establishment would keep the high-profile physicist going for a while, at least until some eagle-eyed bureaucrat cut off his research grants pending a review of 'potential financial benefits'.

The Gaea Messenger was finally launched toward Epsilon Eridani, along with its complement of three hundred men and women, including second-in-command Geraldine Fuchs. In ninety-five years; barring accidents, epidemics, and whatever other hazards might wait between the stars, more than two thousand descendants would establish themselves on the verdant fourth planet.

But before man could reach the stars--

The Messenger was barely beyond the orbit of mighty Jupiter, when the alien ship appeared as if out of nowhere and assumed exact polar orbit just above Earth's atmosphere. The alien did not communicate, did not interfere with local space traffic, and did not react to close inspection by a dozen remotes sent out from Orbiting Complex Three.

The visitor was a one hundred and twenty meter soap

bubble; perfectly spherical, almost completely reflective, and apparently without inertia. When one of the remotes extended a manipulator to touch the sphere, the sphere simply floated away--as if indeed it was merely a thin skin enclosing a vacuum. Eventually men joined their machines at this orbiting mystery, where they applied everything from diamond drills to a fusion torch in fruitless attempts to obtain even a few molecules of the stuff comprising the silkily smooth curvature.

Perhaps it would have been better if there was a minimum reaction to the crude probing, like a man brushing away mosquitoes. At least it would be a recognizable display of irritability. Worse and completely demoralizing was the sphere's indifference, as if mankind's most advanced technology was as ephemeral as a puff of smoke in the wind.

It was on the fiftieth day after the sphere's arrival, something finally happened. It started with a small bulge, which gradually expanded until it was a ten-meter miniature connected to the parent sphere by a narrow neck of glistening material. It remained that way for a few hours, during which men in their service pods gathered to watch this monstrous birth.

Suddenly the smaller sphere separated, wobbled, and began to descend toward the Earth.

When Gail and Degruton arrived at the Cape, the smaller sphere was already on the ground amid a ring of apprehensive dignitaries, scientists and technical people.

"At least they had the sense not to use the military," Gail muttered as she and her companion were ushered through the crowd to where Douglas Gruinne of the World Space Organization stood with Alexander Duvenov of the Physics Foundation. Duvenov, a small intense man whose genius as an administrator overshadowed his previous career in cosmology, glowered at Degruton, "It's about time. If that thing starts popping at us, I want to be damn sure Frederick Degruton is in the line of fire!"

Degruton blinked. "I don't understand."

"Come on man, it didn't come from the stars--we have enough detectors scattered around the system to spot anything incoming half a light-year out! The monster that--that--" Duvenov almost spluttered as he gesticulated at the gleaming ball which had touched down so delicately it had not even bent a blade of grass, "--thing came out of, shifted into our continuum just like the Francis Bacon once shifted out. Remember?"

Degruton felt Gail's hand grope for his. The warmth of the contact steadied him. "You figured it out, did you?"

"That someone might follow you back across the partitions to Prime?" Gruinne shook his gray, shaggy head.

"No, not really. Only when Big Mother popped into existence,

did we suspect shift-dispersion might have something to do with it."

Degruton wanted to feel triumphant, instead felt an intense sadness.

It had happened.

Finally.

He doubted the visitors (presuming there was more than one) intended evil, or if they intended anything at all other than to satisfy their equivalent of curiosity. And he doubted they would be gone soon. Eons more evolved than humanity, they would not be bound by the tyranny of time. For them Earth was a zoo, with mankind the main exhibit. As far as man himself was concerned, the pride which had pointed him toward the stars would inevitably wither to dull acceptance of his subservience in the universe.

Duvenov and Gruinne had obviously figured out part of the answer. But if they knew the whole story--

There was a concerted gasp from the crowd as the side of the sphere rippled and a being stepped out into the sunlight.

The being was neither beautiful or horrible.

It was simply--different.

Definitely humanoid, a little more than two meters tall, with a graceful body topped by a slender head with large golden eyes, the being walked directly to Degruton. At

first the scientist thought it was naked, until he realized the silver-gray skin was a tight, form-fitting covering which left only the face exposed. Dominated by those golden eyes, the face had twin nostril slits, a thin lipless mouth and no chin. There was a faint rough texture to the greenish skin; perhaps all that remained of its dinosaur ancestry.

"You are Degruton." The voice was contralto, without accent and no inflection.

"Yes," Degruton replied. Gail's hand tightened on his.

"You expected us."

So there are more of them. How many aboard the mother ship? Just one? Or maybe a thousand?

Degruton glanced at the nearby gantry from which his and Gail's shuttle had departed to rendezvous with the Francis Bacon. The being's choice of landing spot was almost poetic.

"I--" He swallowed. "--think so."

"That is good. The circle is complete."

"I do not--"

"Who created the conditions for what, small one? It is debatable. However we know what you did, and are grateful. Nevertheless there are alternates, and there are alternates with alternates. When we investigated the past history of our planet and determined the near miss of the asteroid, we wondered what the outcome would have been if the asteroid had indeed impacted. So we effected a minor re-adjustment."

It was too much.

Frederick Degruton and Gail Sovergarde exploded into
hystericallaughter.