

J. M. Wilson
Department of Mathematics
University of Vermont
Burlington, Vermont 05405
Phone: 802-656-4326.
Internet: wilson@emba.uvm.edu

4500 words

The Celestial Guardians

1.

The two men had not seen each other for years. After lunch in the student union, the paleontologist invited the artist back to his office to chat. As soon as they got there, the paleontologist wondered why he had done it. The artist made him uncomfortable. Something about the way he carried his backpack, clutching it at the top like a bag of marbles, made him suspect that the fellow was unemployed.

In the office the paleontologist found himself sitting next to his work table and searching for something to say.

“Have you ever seen one of these?” he suddenly asked.

The artist shook his head.

“Well. You might like this.”

The paleontologist pulled a stool over, next to the table, and his friend seated himself on it.

“This is a fossil.”

“Uh huh.”

“Yes . . . Well. This is a very interesting one. Most of them are just the remains of bones, but now and then you’ll come upon one which was buried someplace where there was almost no oxygen—anoxic basins we call them. In an anoxic basin, soft body parts can be preserved. Do you follow?”

“Oh. Yes.”

“This is from one such basin. A new one. Well, actually very old, of course. But recently discovered, you know what I mean. Just fifty miles from here, right outside Orlando.”

He dragged a squarish dark rock—it was about six inches deep and a foot wide—across the flimsy table, which rumbled.

“Careful!” said the artist.

“Oh, don’t worry. She’s sturdy. Government issue.”

The artist did not smile.

“You see: nothing much to look at on the outside. Here. See the skin flaps? We’re pretty sure those were gills. These on the side and—here, let me turn it over—on the underside. The ribbon-like things. They’re hard to trace out.”

“I can see them.”

“Maybe gills. Maybe tentacles, of a kind. Like on a Portuguese man-of-war.”

“A what?”

“It’s a kind of jellyfish. Anyway, in a few days we’ll start dissecting. That’s the remarkable thing about anoxic basins—you can actually dissect the fossils you find, almost like with living animals. This one’ll be a doozy. It appears to be unique. We’ve already run some X-rays—CAT scans and so on—and, you won’t believe it, but, while this creature had no skeleton, it *did* have teeth. Right here.”

He ran his fingers over the top face.

“They’re hidden under the skin flaps. Weird. Why there, of all places? We also saw what look like internal organs, even remains of some food. This one . . . Ah, but it’s too bad there’s no Nobel Prize in paleontology.”

He waited for the artist to nod in agreement. After he had waited long enough, he continued.

“I’ve always thought that fossils like this had a certain aesthetic quality, which only an artist could properly appreciate. What do you think?”

The artist looked at the square black stone.

“I’d have to think about it,” he said.

“I suppose it’s a taste you have to acquire. You should have been here six months ago: I could have shown you some stunning sea-snails. But—”

The paleontologist looked at his watch (he wished he had thought of that before).

“Oh dear. I have to go,” he said.

He slipped off the stool and went to the light switch. The artist hurried after him.

“It was so nice of you to stop by. What are you doing nowadays anyway, Joe?”

“Sam.”

“Sam. Sorry. I’m awful with people’s names. Nearly forget my own sometimes. Still, you can count on me to know your phylum.”

He closed the door.

“Excuse me.”

“Yes—Sam?”

“I think I left my backpack in there.”

“Oh!”

He opened the door. The artist reached in and pulled the blue bike-bag off a chair. The paleontologist closed and locked the door. He walked away a few steps, and stopped.

The artist had not moved. He was cradling the backpack in his arms as if it were a wounded cat, and examining it closely. He traced out the zipper on one of the pockets, pushing up the narrow covering flap with his fingers. He turned and stared at the door for several seconds.

“Is something wrong?”

The artist smiled, shook his head, and looped the strap over his shoulder.

“Nothing. It was nothing,” he said, catching up with his friend. “It was nice talking with you, too, Bill.”

2.a

Dinosaurs grazed on the shore. Through the bright and humid air, two intelligent creatures were watching them from a little boat. One—the pilot—was a standard quadruped. The other had an ellipsoidal body with an eye-stalk and seven or eight tentacles (seven, today). He had translucent green skin. The pilot could see the forms of organs shifting about inside him.

“What’s that?” asked the green inspector.

“Tentacle me the binoculars. Thanks.” The pilot squinted through the equatorial sunlight. “It’s a triceratops.”

“I didn’t know they came this close to the water.”

“Everywhere is this close to the water.”

The green inspector took back the binoculars with one of his unsuckered tentacles.

“Fascinating.”

“Shall we move on, sir?”

“Wait.”

The green inspector clambered to the back of the boat and suddenly began to rummage about.

“What is it, sir?”

The green inspector lifted up a backpack and rested it on the gunwale.

“I wish you wouldn’t do that.”

“Do what?”

There was a splash.

“Get it!”

“‘It’?”

The pilot peered over the side. His hairy, trumpet-like snout almost touched the water.

“My lunch was in there.”

“Terribly sorry,” said the green inspector.

The pilot brought his snout up and turned it toward the inspector. It had been eons since either species had used firearms, so the inspector did not notice its resemblance to a

blunderbuss.

“I think we should move on to another site now,” said the green inspector.

“Yes, sir.”

“Have you seen my licorice?”

The pilot started the motor.

2.b

In the orbiting spaceship, an intelligent snake talked with an intelligent (and rather large) spider.

“He’s not liking what he’s seeing,” said the snake.

“I know that, lieutenant.”

The spider was the spaceship’s captain.

“But, sir, what else are we supposed to show him?”

“I don’t know. That’s your job. You’re liaison.”

“Yes, sir.”

The ship was passing over an island that would someday be known as Manhattan, and which was at that moment sitting under a tropical downpour.

The captain scurried to the great bow window and braced five of his arms against the stainless steel observer’s lattice.

“But what exactly doesn’t he like?”

“No way to tell.”

“But you must have sensed something—about his attitude.”

“I have, sir.”

“And—what?”

“It’s not this or that part of the project that he dislikes. It’s just the whole thing: the very idea of it.”

“Oh no. One of those.”

“I’m afraid so. He’s not called a green inspector for nothing.”

The captain opened one of his abdominal vents and emitted a puff of methane.

“Sigh.”

The lieutenant might have said, “I know how you feel,” but he remembered that he and the captain belonged to different phyla.

2.c

Digital Max (short for Maxwell) turned over the data. He pictured them as feathers on a plump Betelgeusian waterfowl, spitted over an open fire. He always did this when he analyzed facts: he had done so ever since he lost his body. Another turn, and ... Hmm. Here were: payroll records, performance reports, retirement accounts (silicate beings: they tended to outlive pension funds; but they were also slow to file complaints),

fuel consumption records, ships' logs going back to the last Centaurian Ice Age ... Ah: scientific data—directly under the left primary wing (of the bird). He had to change the visualization. No longer a Betelgeusian fwrrwferd, he became, in some digito-analogo-isomorphic fashion, a Krespidrian scribe/clerk. (The Krespidrians were the result of an experiment in genetic engineering whose intent had been to produce beings with perfect bureaucratic-clerical skills. It had succeeded.) He imagined himself sitting, in the usual dungeon, in front of the usual computer—which was, of course, an extension of himself. The scientific data on Planet A568*-3 rose up out of one of the levels of his unconscious and appeared on the screen.

“Re: Life Form Planetary Preserve #11,492 (Series 4).

“Dominant life form: Reptilian—chiefly vegetarian.”

[Weren't they always?]

“Gigantism due to genetic isolation. Extreme temperature sensitivity. (Cf. DIMETRODON.)

“Physically dominant type for +100 million years; prospects good barring external interference.

“Trivial competition (nuisance level or below) provided by warm-blooded microfauna of Vegan type; stable and stagnant.

“Data, astronomical. Disturbance of cometary cloud by dark companion of A568*, occasioning bombardment of inner planets. Deflections advised.”

Then there was information on grant applications, clawcatures of important administrators, approved levels of funding, etc. These came up of their own accord. He could not stop them. This was like using a real computer.

There. He quickly scrolled through the mess. That was everything—or was it? Just before the shuttle left, the green inspector and he had had an intense conversation about something, but what that was he could not recall now. For a microsecond he considered bringing back the bird and ruffling up its feathers. He decided not to. One way or another, these things always came back to him.

The only cure for a memory glitch was time, and the only cure for time was work. Max programmed himself to compute the ship's next 1186 orbits, with variations allowing for changes in loading and personnel, and fluctuations in the solar wind. This was what he had been cyborged for. When he was done, the glitch had been forgotten and the dungeon walls were moist with excitement.

As always, he finished by checking his procedure against a standard case, to which he knew the answer in advance.

He got the wrong numbers.

He stared at the output for what seemed like a millisecond. He felt dizzy. He buzzed the captain.

2.d

The captain reached out and shut it off.

“Captain here.”

“Digital Max, sir. There’s something wrong.”

“Explain.”

He did.

“Did you try running it again?” the captain asked.

“Just a . . . Yes. The same.”

“Lieutenant.”

“Yes, sir?”

The lieutenant had been gazing at the South Polar Jungle.

“There’s something the matter with Max’s processing. Slither over to sickbay and get him something for it. And—” he groaned “—get me something, too.”

“Right away, sir.”

2.e

“So, what’s wrong with Max?”

“His processing’s gone awry, Doctor.”

The doctor was the only real computer on board. It was thought that only a computer could possess the medical knowledge—not to mention repertoire of bedside manners—needed for a crew consisting of so many species.

But he made everyone uncomfortable.

“Let me hook into him and see what it is.”

A moment later: “Ah-hum. Looks like fatigue to me.”

This was the doctor’s immediate response to any medical problem. The lieutenant waited for him to get serious.

The doctor’s screen suddenly changed from neutral blue to the color of Melba toast.

“Lieutenant, something *is* wrong. Max? Max? Max! I’m not raising him.”

“Infinite loop?”

The doctor shook his holographic head.

“Oh! Mother of all electron clouds! It’s . . . It’s . . .”

“Doctor!”

The lieutenant leaped onto the wall and punched the intercom.

“Captain, this is sickbay. The doctor just crashed.”

“Boot him.”

“Yes, sir. Before he went down, sir, he cried out. Something is seriously wrong with Max.”

The captain carefully stubbed out his cigar and emitted a deep sigh.

“You boot the doc. I’ll be there in a minute.”

2.f

“How many bytes?” the captain asked.

“Four trillion, so far.”

“Almost there.”

“Hello, gentlebeings.”

“Doc, do you remember us?”

“Of course I do, lieutenant. And you, too, captain. Why shouldn’t I?”

“Because you crashed.”

“Oh. Oh dear.”

“When was the last time you saved?”

“Why, it was just a moment ago.”

“I know, it always seems that way. I mean, what was the date, and the time?”

He told them.

“Two days ago,” said the lieutenant. “Hoo-ee.”

The captain, who was hanging from the ceiling, said, “The moment before you crashed, you saw that there was something very wrong with Digital Max. We want you to look inside Max again. At the first sign of trouble, SAVE EVERYTHING! Is that clear?”

“Perfectly. Let me—there we go. And now . . . Oh! Mother of all electron clouds!”

His screen went blank.

“Did he save it?” asked the captain.

“I don’t know, sir. Wait. There’s the red light. He did.”

“Print up a hard copy and boot him.”

“Yes, sir.”

Some minutes later:

“Hello, gentlebeings.”

“Doctor . . .”

“I know what happened, captain. And you won’t need that hard copy. I can tell you what’s wrong with Digital Max.”

“You can?”

“Of course. I can read my own memory.”

“But you screamed.”

“Captain, remember your epistemology: the memory of a dreadful event need not itself be dreadful. Digital Max is, you might say, in love.”

“In love?”

“In a sense. He is in love with natural things: with the way things are.”

“What’s that?”

“Good question,” said the doctor. “Someone has implanted doubts, with respect to our mission, in Max’s mind.”

The captain made his voice very flat. “What kind of doubts?”

“Doubts about preserving this planet in its present state.”

“Oh?”

“Yes. Somehow he has got the idea that if the comet cloud has been disturbed, then it is *natural* for this planet to suffer bombardment from space.”

“Does he know what would happen if this planet were hit by a comet?”

“Yes. Remember, he has access to all my data banks. There are many known instances, beginning with . . .”

“We don’t need to hear them. What’s Digital Max doing now?”

“Nothing.”

“Nothing?”

“Nothing. He will do nothing to help our mission, even though, at this moment, a large comet is moving on a course which gives it a 99.4% probability of colliding with Planet A568*-3.”

“What?” gasped the captain. “How long till collision?”

“A moment, please. My computational abilities are not equal to Max’s. But it’s: 4 days, 11 hours, 31 minutes. To the nearest minute.”

“Why weren’t we told of this earlier?”

“Possibly because . . .”

“Because of his doubts, yes. But WHERE did he get those doubts?”

2.g

The pilot turned the boat about and headed toward the rendezvous point.

“Excuse me, sir. Is the sun bothering you?”

“What do you mean?”

“You keep looking up at the sky.”

“Oh, no. I just thought that I saw one of those flying reptiles.”

“They never come out this far, sir.”

“Hmm. I suppose that must be in my guidebook. But you know, the sun is rather hot. When are they going to pick us up?”

“We have to get there first. A couple of hours.”

The green inspector sat up straight.

“Too bad about that backpack,” said the pilot. “It had my sunscreen.”

The green inspector did not appear to have heard him. He turned toward the rear of the boat and—deliberately—watched the land sink from sight. Every few minutes, whenever the pilot was busy, he would glance furtively up at the sky.

2.h

“Can you talk him out of it, Doctor?”

“Possibly. But psychiatry is not one of my expert systems.”

“I would like you,” said the captain, “to persuade him of the justice of our mission.”

“Justice: excellent. Philosophy IS one of my expert systems.”

“Good.”

2.i

The dungeon walls had never seemed so forbidding, or so frivolous. What was beyond them? Nothing—unless he imagined something. So (he liked the parallelism), he would do nothing.

Frivolous computation, frivolous data searches, frivolous analyses . . . A terrifying languor had come upon him, like a dark wave pouring over the back he used to have. It was a phobia of interference, and of interfering. He could not trace its cause. It seemed like something that had been there for a long time, like his operating system. Perhaps the doctor’s summons had triggered it. He realized that he had never really liked the doctor. Of course it was absurd to feel that he ought to like a machine, and this fact made him resent the doctor more.

There was a bulge in the dungeon wall. A brick slowly worked its way out and fell to the floor—but without a sound. It seemed very unprofessional of his unconscious: Max created a CLUNK.

“Digital Max, this is the doctor.”

The voice came from the hole in the wall.

“I know,” said Max. He did know.

“I’ve come to speak about justice.”

“Who are you to mention justice? You’re a trespasser.”

The hole exhaled damp humors.

“Digital Max,” the voice continued, “do you enjoy your job?”

“I thought you were going to talk about justice.”

“I’m getting to that. Now . . .”

“Yes. I enjoy my job.”

“Thank you.”

“You’re welcome.”

“Well. Good. Now, what is your job?”

“My job is to run the ship. I compute orbits, calculate retirement benefits . . .”

“Yes. Those are certainly your official duties. But what is the goal toward which they tend?”

“The goal? The goal is the protection and preservation of Planet A568*-3.”

A second brick fell out of the wall.

“Forgive me,” said the doctor. “Getting carried away.” He continued: “And are you doing it? Are you assisting toward that goal?”

“That depends on the construction you put on ‘preservation and protection.’”

“And what construction do you put on those words?”

“That nature should be allowed to take its course.”

“Nature?”

“That events should be allowed to go forward without interference from ‘intelligent’ beings—much as you are interfering with my thought processes now.”

“*Any* events?”

“Any.”

“Including, I suppose, interplanetary collisions?”

“Naturally.”

“Why?”

“Why not?”

“Well, because—give me time to make a brief consultation—Yes, yes; yes. Because, in this way, many life-forms which are of great scientific value to intelligent beings might be lost.”

“Why is it scientifically prudent to preserve large portions of the Universe as a museum?”

“Why not?”

“Doctor, think. Millions of years ago, the dominant life-form on the captain’s planet was a tri-sexual earthworm. It would probably still be that way if a runaway greenhouse effect hadn’t killed off the worms first. Or, think of Ensign Phekh. His planet once had nothing but carbon-based life-forms. It was only after mercury and heavy metals suppressed them that silicates like him got their chance. Or think of me. My planet used to have an ozone layer . . .”

“Get to the point, Max.”

“Suppose a comet does hit A568*-3. Those reptiles will probably die in the ensuing ‘artificial’ winter. But if they do, so what?”

“Would you repeat that?”

“I repeat: So what? The dinosaurs will die, but maybe something else will arise—something with a little more intelligence.”

“Don’t be absurd.”

“We don’t have the right to . . .”

The two bricks jumped back into the wall.

2.j

“Someday we’ll find out who did it,” said the captain. “But now we have to find a way to stop that comet.”

The intercom buzzed.

“Captain here.”

“Communications, sir. A call from the planet. The green inspector is ready to come up.”

“Tell him—hold.”

“If we’re going to stop that comet, without the help of Digital Max,” said the doctor, “we should get as close to it as we can.”

“I agree.” The captain spoke to the intercom: “Tell the green inspector that there’s been an emergency. There will be a 72 hour delay in the rendezvous.”

“Yes, sir.”

“Doctor, would you kindly compute an approximate intersection trajectory?”

2.k

“What kind of emergency?” asked the green inspector.

There was no land in sight and the sun had set.

“They didn’t say, sir. No, sir: you wouldn’t be able to see it now.”

“Excuse me?”

“You were looking at the sky again.”

“Ah, yes. I was looking for . . . This planet has a moon, doesn’t it?”

“It sure does.” The pilot smiled. “She’s a beauty.”

2.l

Two days had passed. The captain and the lieutenant were studying the monitor while the doctor looked on via direct hook-up.

“It doesn’t look that big,” said the doctor.

“It isn’t,” said the captain. “But it’s fast. Normally I’d say, one shot, right on the nose, and it’ll shatter to dust. The trouble is, finding the nose. Any luck with Max?”

“None.”

“ π ! Doctor, can you find the pressure point on this thing?”

“I see a number of likely sites.”

“How many?”

“Fifty-three.”

“We don’t have time for fifty-three shots.”

“I know.”

“And in a few hours, we’ll have to go back and pick up the green inspector.”

The captain stared at the dirty white ball.

“It’s going to hit.”

2.m

“Landing party here. Hello? This is the pilot. We’ve got an emergency. I think the inspector’s had too much sun. (Damn. Wish we hadn’t lost that backpack.) He keeps

shouting something like—yes?—he gives up, wants to confess. Confess what? He won't say. Landing party out."

2.n

As soon as the shuttle docked, the green inspector was taken to sickbay and revived. The captain and the lieutenant stood by while he regained consciousness.

"I should have suspected him," said the captain. "Inspector? Open your eye; now stand it up. Good. Thank you. Do you have anything to say?"

The eye-stalk weaved from side to side.

"Nothing?"

The eye closed, and settled back onto the inspector's iridescent body.

"Send him back down to the planet."

"Captain, I'll tell you what I did!"

The stalk was standing up and trembling.

"That's better. However, we don't need to know what you did. We only need to know how to fix it. We don't have much time."

"Twenty-one hours," said the lieutenant.

"We need Digital Max. Can you get him to work again?"

The eye blinked fearfully. A single blue tear—of pure mucous—splattered on the floor.

"I'm not going to lick that up," said the captain, "Don't try any scent gland nonsense, either. If you don't tell us how to fix Max—in ten minutes—you're going back down."

"I'll tell you," the inspector blurted. "I mean, I'll tell the doctor."

"That's acceptable. Doc?"

"Here, captain."

"Listen to what this being has to say."

2.o

Another stone was working loose in the wall, but it seemed to be stuck. Digital Max interrupted his game of striddlefane (a combination of chess, skittles, and competitive skydiving, requiring four players, which he supplied by time-sharing with himself) and walked over to it.

"Having trouble?"

Incoherent groans.

He pulled the brick out and made it disappear. Then he stuck his head in the hole.

"Hello!"

"Max, this is the doctor."

The voice was all around him.

"I know." He did know. "What do you want?"

"I've come to talk about philosophy."

“Again?”

“No. That was justice. This is philosophy.”

“Do you mind if I sit down?”

“Go right ahead.”

The dungeon was transformed into a small-town barbershop.

The doctor was the barber and Max was his customer.

“What *is* this?”

The doctor had never seen scissors before.

“You were going to talk about philosophy.”

“That’s right. I want to talk about the natural purposes of things.”

“What kinds of things?”

“Many things. Living things. You, me.”

“You’re not living.”

“You, then. Tell me, what is the natural purpose of intelligence?”

“I thought that you were going to do the talking.”

“I will. But I want to begin with a question.”

“Is this a trick?”

“No. What is the natural purpose of intelligence?”

“To think; to understand; to do.”

“To do?”

“To make. To do.”

“How, ‘to do?’”

“By shaping the environment and . . .”

“Shaping the environment?”

“Working with it.”

“As you might with a friend,” said the doctor.

“Yes.”

“Talking things out . . .”

“No, no.”

“How can you work with it if you can’t communicate with it?”

“You don’t communicate with it.”

“Then, I repeat, how can you work with it?”

“Well, you have to be sensitive.”

“Oh, sensitive.”

“You mock me.”

“Not at all,” said the doctor. “But, let’s take an example. Suppose you want to throw a rock. How should you apply sensitivity in throwing a rock?”

After a pause: “I don’t know.”

“Can you be sensitive to the direction the rock wants to go?”

“No.”

“Well then.”

“I don’t know what I meant.”

“You mentioned ‘shaping the environment.’ Does that ever entail interfering with the environment?”

“Sometimes,” said Max. “To a certain extent.”

“To what extent?”

“It depends.”

“On what?”

“On everything.”

“Everything?”

“All the relevant data.”

“And which data are relevant?”

“That depends, too.”

“Ah-huh,” said the doctor. “Let’s go back to shaping the environment.”

“As you wish.”

“It is the natural purpose of intelligence to shape the environment. And it is the natural purpose of intelligence to determine how it will shape its environment.”

“Agreed. But that shaping has limits.”

“And what are those limits?”

Digital Max did not reply.

“At this instant, a comet is heading toward A568*-3. It may or may not be within the natural purposes of intelligence to prevent a collision. Correct?”

“I haven’t given it that much thought. I’ve just assumed . . .”

“Suppose you’re wrong,” said the doctor, “and it is part of the natural purpose of intelligence to save this planet.”

“But what if I’m right?”

“You might be. But what then? This cometary bombardment will go on for thousands of years. There will be plenty of comets after this one.”

“I hadn’t thought of that.”

“Yes. And if, after long meditation, you decide that it is right and proper for a collision to take place . . .”

“Then my intelligence can fulfill its natural purpose by letting it happen.”

“But in the meantime, you do not compromise your ecological integrity by destroying comets.”

“Gotcha.”

Chair, scissors, and barbershop vanished.

2.p

“Well?” asked the captain.

“It worked!”

2.q

Four days later, the captain and the lieutenant were looking down on Planet A568*-3 from the ship’s great bow window.

“I’m glad he’s gone,” said the lieutenant.

“So am I.”

“Did he tell you anything—about the report?”

“He said we’ll get a good one.”

“I’m glad to hear that.”

“Maybe we’ll get to hang around here for a while.”

A bird-like creature fluttered in and perched on the captain’s abdomen. It was holding a note in its beak.

“What is it, bosun?”

“This just in, sir.”

The captain extended one of his mouth parts and brought the note down to his left compound eye.

“Oh no, oh no, oh no!”

He crumpled the note and threw it on the floor

“What is it?”

“Our funding’s been cut!”

“What . . . what for?”

The captain picked up the note and read it again. He emitted a long, highly inflammable sigh.

“A new program,” he said. “The government wants to renovate old solar systems for the planetless!”