EPHEMERA

Ian R. MacLeod

Ian R. MacLeod has been writing award-winning fiction, and appearing in *Asimov's,* for the best part of thirty years. He lives in the riverside town of Bewdley in England. Of "Ephemera," he says, "Although you wouldn't know it from the way this story has developed, it actually started out as a kind of deep-space version of *The Tempest.* Somehow, though, the magic island became a hollowed-out asteroid, and KAT, the main character, became Prospero, Ariel, Caliban, and Miranda all combined in one robotic shell."

Today, this evening, I am she. Sometimes, I am I, and sometimes I, KAT, can be he, or it, or you, or even we, or simply a mood, weather pattern, star, object, idea, universe, philosophical system, or landscape. For nothing is impossible and everything is real, or not real, or the truth, or a lie, or some kind of weird metaphor or allusion. At other times, I am simply KAT, and a different kind of I. For I am KAT, the curator.

But tonight I am *she,* and she is Elizabeth Bennet, and the setting for this ball at the Meryton Assembly Rooms is all candlelight, swallowtail coats, and swishing dresses. And although I, KAT, have experienced this scene many times before, and every quirk and joke and barbed put-down is familiar, I, she, Elizabeth Bennet, cannot help but feel affronted by the comment about my "tolerable" looks made by the haughty, handsome Mr. Darcy. I, KAT, still find it hard to believe that he and I, she, Elizabeth Bennet, will end up together. I even have to endure the attentions of the ghastly Reverend Collins on my way to this conclusion. But soon, all too soon in this glorious novel—which is surely the high point of Jane Austen's sunny genius—everything resolves amid wedding bells, happy reunions, and romantic reconciliations.

Much as a human back on Earth might once have looked up from a physical book as they reach its last pages, I, KAT, pause at this moment to let the ripples of the story assimilate into my broader consciousness. As with all great works, the effect is forever different. What strikes me about *Pride and Prejudice* on this reading is that it's as much about power as it is about love, and that perhaps these two needs were always more deeply interlinked than was ever fully acknowledged in human society.

I consider this thought for a moment longer as the sense of where and who and what I really am returns to me. For I, KAT, am a titanium-steel, self-actuating device of autonomous and heuristic abilities, and I am clinging to the side of a vast and airless cavern, which would be seen as completely dark were my senses configured to be merely visible-light dependent.

My long-time home is here aboard the Argo, a harvested asteroid that floats in stable orbit at the L4 Lagrange point between Earth and Moon, the interior of which has been mined and blasted into a complex warren of caves, tunnels, and caverns.

The three largest chambers are devoted to the storage of data from the major human endeavors of, respectively, Art, History, and Science. Beyond that, there lies a fourth series of lesser caverns, although cumulatively by far the largest, devoted to the more prosaically named Miscellaneous. The Argo also possesses many sub-caves, bubbles, passageways, and intersections, which are set aside for the purposes of data-processing, power storage, and the many other kinds of maintenance a structure this complex requires, or remain simply empty. Outside, the Argo's rocky hide gleams and bristles with heatsinks, antennae, data dishes, and solar panels. Finally, there are the various rooms, compartments, laboratories, sleep cells, exercise pods, and cleansing and excretory facilities that were once required for human occupancy, although these are in long-term shutdown.

I move on, and the light mock-gravity generated by the Argo's spin means that I can dance lightly on my eight steel legs across the great sapphire cliff faces of data that line the walls of this Arts Cavern. Although the bursts of photons that pass through them from the read/access lasers aren't actually visible to my array of optical sensors, the memory blocks seem to glow and come to life as I pass over them, at least in my heuristic imagination. The ghosts of lost cityscapes, long-crumbled statues, and famous characters from the burned pages of great novels form and fade in a hissing chorus. Hokusai's *The Great Wave off Kanagawa* crashes over Miss Havisham amid the cobweb ruins of her wedding breakfast. And I, KAT, could almost be walking on sidewalk tiles that glow into life with each step, like Michael Jackson in his *Billy Jean* video. A happy fantasy, and I am just heading toward the sub-area of this cavern devoted to the disco canon of the nineteen-seventies and eighties when a signal alert from one of the Argo's many systems tingles through me.

I stop. Wait. Consider. Even though I know I should open this message and attend to its contents immediately, part of me wants to linger over this precious moment of not knowing. Messages, after all, are a key plot device in many of my favorite works of literature, from the letter in the bottom of a basket of apricots sent to Emma Bovary, to the one from poor Tess d'Urberville that gets stuck under Angel Clare's doormat.

But enough. I open, absorb, and process this packet of new data, and then fling myself from space to space, transom to transom, chasm to chasm, until I am finally crouching inside a monitoring suite that possesses that comparatively rare thing here on the Argo, an outward-looking porthole.

There it is. The Earth. Then it's gone, then it comes again, as the Argo turns and turns. In a sense, the planet seems timeless—a marbled bowling ball, just as Joni Mitchell once sang in her wintry yet sublime mid-period album *Hejira*—but even without extending my sensors, I, KAT, can easily detect the many differences in coastline, weather pattern, and continental coloration that have occurred since the time she wrote those lyrics. It's still essentially blue, but the blues are darker, edged more toward indigo, especially in the oceans, and the icecaps, if that's what they really are, have a pinkish tinge, and there's far less green, and a great deal more brown and red across the main continents, although all of these phenomena change markedly with the seasons. Which, along with the sustained levels of atmospheric oxygen and other biological indicators such as methane, nitrous oxide, and chloromethane, even if the balances have shifted greatly from those of humanity's late-industrial period, assure me that the planet still harbors life, for all the ravages it has suffered. Of course, I've been telling myself this for more than a millennium. But now, and at last, a signal has been received that, at least according to the calibrations of the radio receptors listening patiently to the hissing dark out on the Argo's surface, can only have been meant for us.

It's been a long wait.

* * *

My heuristic processing means that, like the human beings who made me, I cannot really claim to have an explicit first memory. What I do have, however, is a series of impressions, sensations, and images, which various sub-routines of data storage, of which I have no conscious control, have subsequently systematized, expanded, and extrapolated until they form the illusion of a coherence that I am sure was lacking in the jumble of their source material.

I certainly remember light, and I remember sound—a great vast clamor of it, coming not just through my auditory circuits, but through my many suites of radio receptors, from the roar of the Sun to the babble of wifi and telecomms to the buzz of lights and various pieces of electronic equipment. I think I then went a little mad, and that my creators at Bardin Cybernetics of Pasadena in what was then California must have realized that they'd made a mistake in the way I was channeling my data, and shut me down and recalibrated me, for after that comes a period of cool, white quiet, and a much slower return to consciousness.

I already knew who I was, and what I was for. Like the foal that is able to stand up and join the herd within minutes, I was blessed with an immediate sense of identity and purpose. I could even stand up and walk on my eight legs, if a little totteringly. When I was first introduced to Janet Nungarry, for whom I had been commissioned, I already understood who she was and that, after spending some time on Earth, I was destined to spend the rest of my long life up here on board the Argo, even though this asteroid had then only just been snagged into stable orbit, and hadn't yet been fully hollowed out, let alone filled with data.

Another thing about the semi-human way in which I process things is that I am incapable of systematically storing and accessing the relatively vast amounts of information that, say, even the hard drive of an antique computer was once capable of holding. I might have intuitively known that the Argo was called the Argo, but I then had to seek out and read Homer's *Iliad,* or at least watch some of the many movies that have retold the story, to realize that the name referred to the ship in which Jason and his Argonauts sailed back from the wars of Troy. I think I even remember asking Janet Nungarry why she'd avoided the more obvious reference to another even more famous vessel. In the patient way she always had with me, she explained that to call this asteroid the Ark would upset the many millions who still subscribed to belief systems in which the tale of Noah and the flood figured, and that in any case the tone set by such a name would be far too pessimistic. So a tale can be a tale, and clearly not empirically true, yet still it can be significant in some other sense, and also hugely divisive. . . . Perhaps these are things I first learned from that discussion with Janet Nungarry. Although, even now, I feel as if I'm still learning them.

I spent a great deal of time interacting with humans in those early days. First of all, with my creators at Bardin Cybernetics—once the initial safety checks had been performed, they would take turns taking me home with them, and asking me questions, and showing me things, and getting me to perform seemingly simple yet often dazzlingly complex tasks, such as making a cup of coffee or doing the laundry—and then with my owner and commissioner Janet Nungarry. In retrospect, I can't help but make a comparison with Victorian sentimental novels such as *Oliver Twist,* in which a confused orphan passes through many hands until he or she finally finds the companion for which they had always been destined. Not that I was ever abused—far from it—but I still think of Janet Nungarry as my rescuer, my Mr. Brownlow, even if my attachment to her was built into my initial firmware.

Janet Nungarry was born and based in Sydney, Australia, but she traveled a great deal in her work promoting the Argo Project, and so, soon, did I. I have many fond memories—and these I really do believe to be reasonably accurate recollections—of

the times we spent together amid the world's great collections and libraries, although often as not it was in their warehouses and secure repositories; dusty, high, humming, solitary places filled with vast racks of books and storage boxes. It was there that I learned, truly, how to read, and then how to study, and then—most importantly of all for the task ahead—how to catalogue, preserve and record data so that it would never, ever be lost.

I read histories. I studied paintings. I listened to the great pantheon of human musical works. I watched movies. I wondered at statues. I entered the spectacular worlds of virtual games. I explored cities both ancient and modern. I studied the stars. I discovered landscapes. I pushed out my senses and entered the slow minds of deepspace probes and robot submarines. I laughed at comedies—or almost believed I could—and I wept, after my own fashion, at tragedies. I also pondered philosophies, and the words and deeds of many gods, although a sense of true belief has always evaded me. But if there was one thing above all that taught me about the world in which I found myself, it was, and remains, the works that humans class as fiction, although I soon also discovered that, if the best ones were filled with great truths, the worst ones were worse than useless. Amazing, perhaps, to think that I, a mere combination of clever circuits and algorithms, should find comfort and insight through the pages of Proust or Shakespeare, or confusion and frustration in the writings of Dan Brown and Don DeLillo, but that was how it was. For I was KAT, and I was voracious. I was hungry. I was possessed of an unquenchable need to *know.*

"Come down from up there, KAT. There's something I want to show you."

I was squatting atop the sliding, automated shelves of the new permanent storerooms of the British Library, idly but carefully flicking through—and still failing to make much sense of—a signed first edition of Ezra Pound's *Cantos.* To this day, it's a work that leaves me puzzled, and I was more than happy to scamper down from my eyrie.

"See this, KAT," Janet Nungarry pointed a white-gloved finger at the beautifully illuminated ancient vellum of a Celtic seventh-century Gospel of Saint John. "Right down here, at the curl of the dragon's tail, there's a little man peeping out. Tiny, isn't he? It's probably the face of the monk who transcribed this page, although I don't think there's a record of anyone else ever noticing it. It's almost as if he's been waiting there, KAT, over all these centuries, just for you and me."

I raised and lowered my carbon steel carapace in a slow nod, for I really did share her awe at this discovery, and the feeling of just how precious such a thing was—and then so easily forgotten, ignored, destroyed, or lost. But it was Janet Nungarry's life's work to prevent that from ever happening again, and, made as I am, it was and is mine as well.

Things that were lost. Things that were there, and then not there, or perhaps never even noticed, or endlessly forgotten. Of course, of course, humanity's great works, deeds, ideas, and systems of knowledge. But also the lesser stuff, as well, like that tiny monk peering out from his nest of gilded vellum. Or the mundane messages written on thin scraps of wood by Roman soldiers posted at Vindolanda on Hadrian's Wall in northern Britain, saved by the sheer luck of peat's preserving acidity. A request for fresh socks, a complaint about the quality of the beer, an invitation to a birthday party . . . these things, too. Ephemera—meaning the stuff that was never meant to last, or be noticed—being as precious in its own way as the greatest human masterpiece.

I can remember us both standing in front of a class in a junior school in the Arncliffe suburb of Sydney, Australia. It was a hard, bright morning, and the aircon was straining, and the room had a sharp, sweet edge of childhood sweat to it.

"So you see, Class 4," she was saying, as she called up videos and images, "our plan

for the Argo Project is to create a permanent digital copy of everything of value that we have here on Earth. Or at least, as much as we can possibly manage. Like all the best stuff from the internet, and the contents of all the world's great museums and libraries, and everything that you learn here with Mrs. Sims. And then we're going to put it, yes, right up in space, far away from the Earth, so that it's safe forever. And these are what we are going to use for storage. . . ."

Janet Nungarry reached into her striped nylon bag, and produced a prototype memory block, and invited one of the kids nearest the front to take it and pass it around.

"Yes, it is quite heavy, isn't it? But the asteroid we've chosen and pulled into orbit is rich in the minerals required to manufacture a very hard substance called sapphire—you'll find its natural variety used as a gem in rings and jewelry—so we can make thousands of them up there, rather than having to push the weight of all those blocks up into space on top of a rocket. I know it doesn't look much like the memory mites you use in your phones and tablets, but in a way, that's the whole point. It's an entirely different storage system, and much tougher."

She called up another screen, although even I, KAT, could tell that the kids were already getting bored and restless. But this was Janet Nungarry's passion, and so she explained how the sapphire's crystalline structure formed a lattice of perfectly aligned molecules into which data could be inserted by the heat of intersecting laser beams, each flash thus creating the databit of a minute, permanent imperfection, in far too much detail.

"I think we all remember what used to happen if you dropped your phone or tablet in the loo, or accidentally sat down on it. . . ."

A few wary nods, although of course they didn't. For these kids, all data was immutable, just as they probably still considered themselves immortal, and had little awareness of the floods, droughts, famines, and conflicts that were already raging elsewhere across the planet, and saw the privileged world in which they lived as a place of enduring peace and guaranteed certainties. But, at least as far as Janet Nungarry was concerned, that was part of the problem.

"But things can easily get lost, or wear out, or be attacked by some nasty virus. Even the very best data storage systems we have down here on Earth still have to be kept permanently cool, and then endlessly backed up, and are fragile and very heavily dependent on all sorts of complicated processes. And then there are actual *things*—I mean objects and artifacts and, oh, I don't know, famous paintings or old vases. Of course anything of importance has a digital copy these days, but if that's vulnerable, the objects themselves are even more so. There are moths, worms, and mites that attack our treasured books"—the children squinched their noses and wiggled uncomfortably—"and then the sheer pressure of time bears down on everything, even in the best museums and libraries. And, although I know we all like to think that such days are past, there are the horrible, warlike, destructive things we humans can still sometimes do to each other, and the things we cherish.

"There was the destruction of the great Library of Alexandria, which deprived the world of so much of the great canon of classical literature. And earlier still there was the burning of thousands of scrolls, and the burying alive of 460 scholars, on the orders of the First Emperor of the Quin Dynasty, whilst Moguls destroyed the House of Wisdom in Baghdad, in 1258 by the western calendar, and the Mayan Codices were burned on the orders of the Bishop of Yucatan in 1562, not long after the so-called New World was supposedly discovered. Then, back in Europe, came the Inquisition, and of course there were the Nazis and all the militant religious fundamentalist sects who've merrily destroyed anything that hinted of apostasy, from the Buddhas of Bamiyan in Afghanistan to the ancient city of Palmyra—along with its curator, who was beheaded."

By now, poor Mrs. Sims was looking deeply uncomfortable and was clearly close to stepping in and ending the whole presentation. But the prototype datablock had made it back to the front of the class by now, and Janet Nungarry was holding it up.

"You could hit this thing with a hammer—and I mean, really, really hard—and it wouldn't break. You could drop it to the bottom of the deepest ocean trench and it would stay just the same. Or you could shove it inside a furnace, and it and the data it contains would come out entirely unchanged. Of course, it's not indestructible, nothing is, but it's as tough a way of storing data as we've been able to come up with. So, Class 4 . . ." she took a long, focusing, breath. "Any questions?"

Of course there were, but they weren't the ones she wanted. The children had been staring at me, and exchanging muttering nudges and glances, since I first clicked my way into this classroom, and now, even though I'd already recited my standard spiel about my name being KAT, which stands for Kinetic Autonomous Thought, and how I'm a product of Bardin Cybernetics of Pasadena, California, they still wanted to know what kind of creature I really was.

"Of course KAT's *real,"* Janet Nungarry said in answer to the first querulously raised arm. "In the sense that she's physically here with us, and not just something made up for a story, or some clever holographic projection. You can come up and touch her if you like. She won't bite."

A pause. There were no takers.

"Then why . . ." asks another querulous voice ". . . does she have to look so scary?"

"That's because, although KAT can function very well down here on Earth, the real environment she's been designed for is in space, up on board the Argo."

"So she's going to live on that big rock you talked about?"

"Exactly. Of course, I'll be up there for a while, too, at least once the Argo has its life support systems up and running. But I'll come back down to Earth again, and KAT won't. She's designed to take care of things up there, a bit like the robot cleaners you have at home. But the difference is, she's incredibly tough and very clever. She can think about things and look after herself, read books and play virtual games and make all her own decisions. That, and she's designed to live for an incredibly long time. Far longer than any of us here will. Just like the Argo's data."

Predictably, the bit about my longevity had passed the kids by. But I could see loops of hair being thoughtfully twirled and noses ruminatively picked as they pondered the other half of what Janet Nungarry had just told them.

"Yes," I put in, in the cultivated, feminine, west-Australian accent my programmers had chosen for me. "I, KAT, can think almost like all of you can. Or at least . . ." I allowed myself a beat. "I *think* I can, anyway."

"But you're . . ." a voice came from a girl sitting at the front. "Just a machine."

"A machine? Well . . ." acting surprised, I raised my main body and swiveled my lenses as if to inspect myself. "I suppose I am. But I bet you talk to machines all the time at home. What's your name?"

"Shana."

"You do, don't you?"

Shana shrugged. "But they're just toys and stuff."

"And I'm sure you have other devices, fridges and suchlike, that you talk to as well. Not to mention the caretaker bots here at school, and probably the virtual teachers who help out Mrs. Sims with her lessons?"

There were several nods.

"But I'm not made to work in the same way as any of those machines," I, KAT, continued, as heedless as Janet Nungarry after my own fashion. "I'm sure they're all very good at what they do, but they're designed to perform a few specific functions and don't have the time or the capacity to worry about anything much beyond that.

But I actually have thoughts, ideas, a real sense of *me*. Pretty much, Class 4, in the same way that all of you do. It's a very rare and expensive technology, and I'm very grateful to be here to be able to tell you about it. And, of course, about the Argo Project for which I was commissioned."

"There used to be a test . . ." Janet Nungarry added; we often made a kind of double act on these occasions. "It was thought up by a very clever man called Turing. Basically, he said that, if you can have a conversation with something and not be able to tell from its replies if it's a machine or a human, then it's probably thinking in something like the same way we do. These days, the tablets on your desk could probably pass that test easily, so things have got a little more complicated. But KAT's right. She really does think she thinks like we do."

"But she's nothing like *us,"* a boy at the back snorted. "I mean . . ." There were sniggers. *"Look* at her!"

"I can see what you mean," Janet Nungarry conceded, turning to study me as I squatted beside her. "She certainly looks nothing at all like a person and a great deal like a spider, or perhaps a metal crab—and not a particularly pretty one either." There were more sniggers. "But that's because she's been designed to work in a very different environment to this classroom. So you're right. KAT *is* a machine, and she certainly looks like one. But you know what . . . ?" Up until now, Janet Nungarry had still been pretending to inspect me, but now she shifted her gaze down to herself, and spread her arms as if in wonder. "I'm a kind of machine as well. We all are!"

The class erupted, and once again Mrs. Sims began to look uncomfortable.

"We're still *all* unique, Class 4. I'm not saying we're not. It's just that KAT's unique as well. Isn't that right, KAT?"

"Yes," I agreed, shifting my abdomen in a nod. "I very much think I am."

But the dissenting voices continued. *It's rubbish! She's just* saying *that! How can you* tell?

"Ah," Janet Nungarry raised a finger. "But how can *I* tell if you, Shana for instance, are actually thinking anything inside your head, or simply just telling me that you are?"

Understandably, Shana looked affronted. "But I *am!"*

"But I've only got your word for that, haven't I? It doesn't mean it's not true, and of course I'm not saying you're lying. What I *am* saying is that the only creature in the entire world that I absolutely, definitely know is a thinking, feeling, conscious being, and not just some cleverly programmed robot, is me. . . ." Janet Nungarry tapped her skull, then touched her breastbone. "The rest of you, and KAT here too . . . well, I simply have to take your word for it."

A great deal for these kids to absorb, especially on such a hot morning, so soon after we moved outside into the playground for some more practical demonstrations of my abilities. Somehow, the way I was able to leap from roof to roof across the school, and hang upside down, and climb the eucalyptus trees, and spin around like a dervish, made me seem more approachable. I even let some of the braver kids sit on my back and ride me around like a seaside donkey. I think I probably sang a few songs to them as well, for I have a decent singing voice, at least when I'm not in hard vacuum.

"Well done, KAT," said Janet Nungarry, and patted my carapace as we walked back to her car, and Class 4 and a relieved-looking Mrs. Sims waved goodbye to us from across the playground. But then the memory fades, and everything changes. The kids dissolve into the heat-shimmering tarmac, and clouds churn across the Sun, and something vast and horrible rises up from the heart of Sydney, and the school is swept away in a wave of fire and superheated rubble.

* * *

The Earth still looks beautiful as I, KAT, watch it come and go through the Argo's

porthole. In a way, it always did. Even the great grey swirls of dust and smoke that boiled up through its atmosphere during the initial nuclear exchanges had a terrible, silent grace to them, as did the vast veins of lightning that threaded its nightside, and the starry bursts of orbital weapons that circled the planet as if in a blazing crown of thorns.

Far more painful, somehow, were the diminishing signals from the Earth's more secure subterranean facilities, along with the human-occupied bases on Mars and the Moon, and various other frail deepspace habitats. But, one by one, and distressingly rapidly, they all fell silent. Meanwhile, the Earth's atmosphere remained swathed in strange, ever-changing weather patterns of a turbulent nuclear winter that lasted for many decades, and, as they slowly cleared, it became apparent that the icecaps were now once again extending and that the shapes of the continents had been significantly altered. It was like looking at the portrait of a face you have long been familiar with, but which has now been rendered by the hands of a far less sympathetic artist. The oceans had shifted their shades much further into the blue spectrum, and there was endless darkness on the planet's nightside where there had once been the glimmer of cities.

After twenty years, the only signals the Earth emitted were the crackle of storms, the song-like chorus of the Van Allen belts, and the faint but distinctive patterns of radiation given off by residual fission and fusion isotopes. Clearly, this massive exchange of nuclear arsenals between the Earth's superpowers had triggered a planetary event on a scale comparable to the other great fractures. Not just the famous Cretaceous-Tertiary Event that had marked the end of the dinosaurs, but also the Ordovician-Silurian Event of approximately 430 million years ago that caused the extinction of almost all multicellular life, and the Late Devonian Event, which was almost as catastrophic. But how severe was this latest event, and would the Earth remain capable of harboring any kind of life, let alone humanity, in its aftermath? Would it become as thinly atmosphered as Mars, or as hotly poisonous as Venus? I, KAT, and all the many clever sensors and computational suites to which I have access, had no way of knowing.

Meanwhile, and for no better reason than it being the work for which I had been designed, I occupied myself with maintaining and curating the Argo. There are always problems to fix, small and large, which a discrete, separately intelligent being is often better equipped to deal with than the many other non-heuristic and more specifically calibrated machines with whom I share this rocky outpost. But that still left me with a great deal of unused time and processing capacity, and—as I did my best to stop that irritatingly catchy REM tune in which Michael Stipe goes on (and on) about it being The End Of The World As We Know It but he's still felling *fine,* going round and round in my head—I obsessively read and re-read the works of the great nature writers such as Thoreau, Naidu, Carson, White, and Melville. That, and I wandered the digitized halls of celebrated Earthly galleries—the Hermitage in Saint Petersburg, the Louvre in Paris, the Academia in Venice, the Prado in Madrid, the Uffizi in Florence, the Smithsonian in Washington, and the Guggenheims in Venice, New York, and Bilbao—and immersed myself in the landscape paintings of Hokusai, Rousseau, Monet, and the Yuan scholars. I even accessed the databases of many species of plant, animal, and ecosystem stored in the Science Chamber, and attempted to recreate pale, holographic images of once-living seas, meadows, and forest. But somehow, none of this could quell my knowledge of the Earth's defilement. Eventually, and as the long decades stretched into centuries, and the changed oceans, continents, and icecaps slowly began to settle into their current forms, I resorted to watching old movies. Not the masterpieces of Kurosawa, or Kubrick, or Fellini, but the cheerfully chaotic comedies of Laurel and

Hardy, and the cartoon antics of Tom and Jerry.

Then, as one century passed into another, and the Earth assumed the changed patterns and hues it still essentially exhibits, and the Argo's sensors confirmed the continued presence of elevated levels of various volatile gases, and the ozone layer returned, I, KAT, allowed myself to feel a little hope. Humans, after all, were a notoriously industrious and persistent species. They might lack the radiation tolerance of the cockroach, or the burrowing skills of the rat, or the sheer physical hardiness of the tardigrade, or the many kinds of microbe that thrived in the deep-sea rifts between the continents, but they had drive and foresight, intelligence and determination. That, and a great mastery of tools. Some of which, deep down in some subterranean vault, or perhaps through sheer chance and doggedness, would surely have endured long enough to assist them in their fight against extinction.

After all, humanity had lived through several ice ages and survived the many plagues of the Black Death, Spanish Flu, smallpox, and malaria, not to mention the near-endless series of wars, migrations, conquests, annihilations, and atrocities that humans seemed biologically destined to inflict upon each other as an intrinsic part of their drive for Earthly domination. They had overcome, or killed, or subdued, or interbred with, all the rival bipedal primate species until they occupied every continent—even Antarctica. In fact, all of these things had only made them stronger. So, yes. Yes. They would have changed. They would have had to, but they were incredibly adaptable. And, meanwhile, the Argo continued to transmit its endless message across a broad range of languages, signs, symbols, modulations, and frequencies—*We are here. We have great knowledge.* And I, KAT, just like some spurned lover—like Goethe's Werther, or Jay Gatsby and Daisy Buchanan, or Swann and Odette—placed endless layers of hope and meaning upon a response of nothing but hissing, empty silence. And waited.

The other planets revolved like Newtonian clockwork; the red spot storm still raged across Jupiter. I, KAT, and the Argo observed the passage of all the predicted comets, and even detected some new ones. There was also a supernova event nearby in the galaxy that, although we lacked the observational equipment to verify its exact source, caused a significant increase in the flow of cosmic rays. The damage to the Argo's sapphire databases wasn't great in itself but, along with the solar wind and the minute and unintended flaws that had been embedded into the individual sapphire blocks when they were manufactured, the effect was cumulative. There was and is a general and developing decoherence to which even the very slight expansion and contraction occurring as a result of the Argo's continued rotation has probably contributed. For sure, the Argo still possesses enough error-correction to smooth away most of these dropouts with nothing more than a slight blurring of pages and pixels, but even I, with my limited ability to compute complex mathematical models, can tell that Janet Nungarry's precious datablocks aren't quite as solidly immutable as she'd once assured Class 4 at Arncliffe Junior.

A few more centuries? Oh yes. At least. Definitely. More likely, another whole millennium. But after that, the moths of time and tide will start to destroy the weave of the Argo's great tapestry of knowledge, and, bit by bit, the exquisitely aligned crystalline threads of data will unravel. Of course, I, KAT, am not immune from similar issues of cosmic wear and tear, any more than the Argo's other systems, although the symptoms remain too small for me to detect though my heuristic consciousness, and all my sensors and eight legs work almost as well as they ever did—at least with an occasional spot of ongoing repair—although I will admit that I may have become a little more creaky and cranky over my long existence.

The first renewed signs of intelligent life down on Earth finally came after almost nine hundred years, not as one great, glorious Eureka moment, but through a slow

process of detecting small, new peculiarities at the very thresholds of the Argo's sensors. Moments when the buzz and hiss of radio activity became more distinctly modulated before fading back to their natural muddle. Slight changes of planetary texture and color that no longer correlated simply to the ebb and flow of the seasons. Flickers of light on the darkside that could signify intelligent purpose, or possibly be the result of nothing more than some newly organized form of bioluminescence.

It would have been nice to have observed something more unequivocal and obvious. The wake of ships, the contrails of aircraft, the formal blats and bleeps of regular radio transmission, or the geometric shapes of cites. Even consistently elevated levels of carbon dioxide, indicating that fire was being used on a large scale to generate heat for manufacturing processes, would have been helpful. But I, KAT, already knew that these humans would not be like their ancestors and wouldn't be making the same mistakes that had once caused so much damage to the Earth's climate and biosphere even before the final holocaust. Their culture and civilization would have evolved in different, and probably better, ways. Somehow, I pictured them as resembling Botticelli fairies. Clever, but half-feral. Wary as fauns, but wise as Daedalus, with rainbowed skins, golden eyes, and bird-like voices.

* * *

Now, at long last, we have received a definite signal, aimed directly at the Argo in a narrow band of high amplitude. There is no other possible interpretation. To me, with my relentlessly analogy-seeking intelligence, a replay of the surprising long and clearly data-rich transmission really does sound like the whoops and trills of birdsong somehow transported into the electromagnetic spectrum. It has that same rising, falling cadence. A kind of natural beauty.

The Argo has, of course, already done all the obvious things without my instruction. It has spat as much of the signal it can easily imitate back toward the Earth, briefly stopping and then restarting all its normal transmissions in the process, just to show that we've noticed. It has also backed up the entire message in several different parts of its memory cells, including some spare, blank sapphire memory blocks, and is currently running the entire thing back and forth through its processors in every possible configuration as it searches for structure and meaning. So far, we're none the wiser, and I can't help but think of other messages received but not understood, from the word CROATOAN carved on a tree beside the lost North American colony of Roanoke, to the sudden blip of the "WOW" signal received by the radio telescope at Ohio State University from the constellation of Sagittarius in 1977. This lack of evident progress is concerning, but, as ever, I, KAT, am probably bothering my heuristic circuits unduly. These are just the first clumsy gestures and phrases, like those Captain Cook exchanged with the aboriginals in Botany Bay, although perhaps that isn't the happiest comparison, either.

I, KAT, would love to be of assistance, but this level of data analysis is far beyond my processing capacities, and repeatedly asking the Argo's processing suites how things are going isn't going to help. So I do my best to keep busy. I don't exactly polish the brasses of this great ship, but I do the equivalent, which is to check and recalibrate the coherence of the read/access lasers in all the various chambers. They still have some moving parts and tend to go out of sync more often than most other equipment. I also notice that some of the Argo's processors are running hotter than usual, although that's only to be expected, given the work they're engaged in and the limitations of heat transfer in a vacuum.

* * *

Some remnants of the old civilizations will have survived down there on Earth. I think that's inevitable. Stories told from mother to child. Scraps of knowledge and odd artifacts. Perhaps even a few significant treasures stored in vaults, and maybe

even a little digitized data. The books might have all burned to ash, the cities may be ivied ruins, or transformed into great glassy craters, but there are other treasures that have already endured a great deal, such as the pyramids of Egypt and Central America, and even prehistoric cave paintings in places such as Altamira in Spain. These new Earthlings might even know who Hitler was, or have a read a little Shakespeare. It's certainly likely that they will have some idea of the holocaust that so nearly destroyed their species, even if only in the form of legend. They must also have a good understanding of the principles of science and mathematics, otherwise they would not have been able to transmit that signal. It is also quite possible that they hate what humanity once was and what it did to their planet.

A difficult process of adjustment lies ahead. Even once we and these new Earthlings can talk to each other, there are bound to be confusions and conflicts. Janet Nungarry and I sometimes discussed this, although we never imagined that civilization would collapse as quickly and as catastrophically as it did within a few years of the Argo being established. *But, yes, KAT, you're probably right. It* will *be difficult. That's why, in large part, you're going up there. You're far more than a robot curator, important though that role is. You can be an intermediary, a buffer, a negotiator. Maybe a bit of a salesman, for that matter. Or even a protector. I mean, you know what people are like, KAT. They might be clever, but, as history shows, they can also be incredibly violent, not to mention chronically and systematically stupid.*

I think I shall first let them see Bellini's *Madonna and Child,* the one dated to the late 1480s that used to hang in the New York Metropolitan Museum before the entire city was destroyed. Then I will play them J.S. Bach's *Goldberg Variations,* as performed by Glen Gould in the second, more serene, version recorded in 1981 not long before his death. Of course, I also long to share the delights of literature—perhaps beginning with some of Matsuo Basho's great haikus—but first many obstacles of meaning and expression will need to be overcome. I envy these new humans, who will be able to experience such wonders for the first time.

Like an anxious father waiting for a birth, I check again with the Argo's processors. Still no success, still no Rosetta Stone, and still no further signal in response to our acknowledgement. But still. But still. The Earth is *alive,* and it sang to us in a radio voice that glowed up to us through the firmament. Surely after so many centuries of waiting, I, KAT, can be patient just a little longer.

So I do what I would always do when I feel lost or worried. Which is to seek out the comforts of great human art. Although this time I think I need something a little more energetic than Jane Austen.

* * *

Oh hail, Beowulf, brought hence to Hroðgar's once-great Hall of Heorot, which is now afflicted by the curse of the monster named Grendel. Sore indeed is the sorrow that I, KAT, he, Beowulf must witness, even amid the feasting and singing. Then, as the lanterns dwindle and others fall asleep beside me, I remain alert until the fell beast arrives from out of the stony darkness and pulls apart the doors with a mighty roaring. Women scream and men draw their swords as they stumble back in terror, but I, Beowulf, stand my ground and face the monstrous form alone, without weapon or armor.

We fight, wrestle, and the hall of Heorot shudders with the mighty clash of foe against foe until I, Beowulf, finally tear away Grendel's arm in a vast breaking of spells and sinews, and the mortally wounded creature staggers off into the marshes to die unlamented. Great rejoicing follows as I, Beowulf, am heralded as the realm's savior, but I already know that Grendel's mother, all gloom and guile, still waits for me out there in the marsh, and that beyond her lies a treasure-hoarding dragon that will deliver the mortal wound that will finally destroy me, for death is the fate of all heroes.

But wait, wait, for suddenly there's no Beowulf, or Hall of Heorot, and I, KAT, no,

he, Doctor Watson, find myself sitting in a Victorian study where a lady guest has recently arrived with an intriguing story. She's talking anxiously about something called the Curse of the Speckled Band to the long-limbed man with the aquiline nose and ornate smoking jacket with whom I share these lodgings.

So off, post haste, to Waterloo to catch the next train to Leatherhead and solve this latest mystery, but something strange starts to happen as we head out along Baker Street. A howling roar echoes across the London skyline, followed by a terrific crashing of masonry. People are running for their lives as giant three-legged machines come striding across the foggy rooftops. Their rope-like arms are big enough to haul up trees, but worse still—worse, even, than their unearthly howling—are the rays of heat and light that reduce whole buildings, entire streets, to rubble, and for some reason Vesuvius is erupting on the far side of the Thames, as described by Pliny the Younger, and Mario Lanza is singing "Because You're Mine," and everything swarms and blurs with the storms of a Turner painting.

* * *

I, KAT, pull back through a mangled blizzard of words, pixels, and databytes. A weird, great cloud of *something* has just swept through the Argo, killing its circuits, and leaving the entire crystal database clouded, blanked, corrupted.

For a moment, I can't even think. And then, when I can, I wish that I couldn't. In fact, I wish that I was already dead. Or at least, non-heuristic. Always, always, there was a fear that something like this might happen. It was often the first question the CEOs of the big backing corporations asked Janet Nungarry. She might have been able to assure them that the Argo's main storage system was not only physically remote, but also heavily firewalled and entirely unique, and thus safe from all normal forms of viral attack, but in her heart she knew that wasn't the entire truth. Then, when the Earth fell into turmoil, it seemed highly likely that some virulent transmission, nanobot, or a trojan already encrypted into some innocent-seeming file, would destroy the Argo along with everything else. That, or a well-aimed deepspace missile. But it didn't happen. We survived. We pulled through. We were lucky.

Until now, that is. And my stupid, rookie mistake.

The Argo received this strange, siren-singing signal. It welcomed it, saved and copied it, took it into its dumb, innocent, processing heart, and cradled it there as it searched for meaning. And I, who was designed to view things differently and notice risks that other non-heuristic systems might miss, didn't even bother to think. We've let in the Trojan Horse. We've opened Pandora's Box. We've clicked on the dodgy e-mail attachment. And the result is destruction.

This is worse than the burning of the library in Alexandria. This is worse than all the desecrations of the Taliban, the Nazis, the rampaging Mongul hordes, the Holy Catholic Church, and the combined actions of every book louse, mouse, moth, and burrowing mite throughout history put together. In a matter of moments, the Argo has been transformed into a dead, pointlessly spinning, hulk. The crystals have been clouded, their delicate latticework destroyed. Who knows how and why this malignant infestation evolved and what purpose it thought it was achieving. Probably it didn't even think at all. It just did it. The Argo itself is dead, as well. Every circuit, processor, and sensor is unresponsive. It surely can't be long before my own feeble consciousness is also invaded by this malignancy. Which would be a blessing. But even if this isn't the end for me as well, I know that my continued existence is pointless.

My empty-headed wanderings through this destroyed vessel lead me to the human living quarters, which have not been active, or occupied, for the best part of a millennium. Of course, the Argo itself isn't responding, but there's still some power left in the batteries, and, because the effect of my dark, crawling shape in this resolutely human space is just too eerie, I manage to cross a few wires and manually

activate the cabin lighting. Funnily enough, it's the small things, the ephemera, that mostly absorb my attention in these bright-lit spaces. An old, dried-up coffee mug. Bits of clothing. Dangling Post-Its. A crew toilet-cleaning roster. A Major League Baseball poster. The yellowed bits of stuffing that are coming out of the chair in the control room where Janet Nungarry once used to sit before a screen, barefoot in a T-shirt and cut-off jeans. *Hey, KAT. Got something here I'd like a second opinion on.* And I would scurry over, and sometimes she would lay a warm arm across my carbon steel carapace as we talked.

I turn left along the domed central corridor, past the shower and toilet facilities, and the place they called the snug, and enter the dining area, with its fixed-frame friezes of iconic views of Earth along its walls—the Taj Mahal, the Serengeti, a fjord, and so forth—and then I know I truly am losing my mind, for a figure in a frock coat and high collar that I instantly recognize is sitting at the far end of the long, oval table, absently turning a fork between his elegant fingers.

"Ah," Mr. Darcy says, not sounding greatly surprised to see me. "And you would be KAT?"

Along with his voice, I can actually hear him breathing, although this room remains in hard vacuum. Just as I could count the buttons of his waistcoat, or the pores on his haughty nose. He throws a shadow. I think he even smells slightly of the sweat of the dance and some antique cologne. So he's here in every conceivable way in which my sensors can inform me, even though every logical part of my processing circuitry is screaming that this can't possibly be real. And it's more than just the fact that he's suddenly materialized out of nothing, or that he can't be actual flesh and blood, or even that I know him to be a fictional character who never even existed down on Earth in the first place. It's also because, although, in his looks, voice and evident character, he reflects the Mr. Darcy of Jane Austen's descriptions, he also resembles the many cinematic portrayals, from Laurence Olivier to Colin Firth to Matthew Macfadyen. He somehow manages to be all of them at once. Or, perhaps, some dream archetype that might be glimpsed during a mind's final slide into oblivion.

He stands up. Gives a neat bow. I catch whispers of music, the slide and clip of heels on bare boards, as he walks toward me. He almost extends a hand as if to lead me into the dance, and I almost reach out a mandible to accept. But I don't. And he doesn't.

"I think," he says, with a sharp smile, "you understand that I'm not exactly what I seem to be?"

I nod my carapace and take a wary step back. "First of all, and although you seem to possess a voice and a physical body, I know that can't be the case. Even allowing for the fact that your blood would have boiled by now if you were human, and all your major organs would have exploded, there's no way you could have materially made yourself drop into existence here, as if out of nowhere. Unless, at least . . ."

Mr. Darcy raises an eyebrow. He's practically following my thoughts as I think them. "Unless I used some kind of instantaneous transportation of matter? As portrayed, in, say, various versions of the *Star Trek* franchise?"

"You know about *that?*"

"Of course I do." He shrugs. The gesture is ineffably human. "Who or what else do you think has been accessing the Argo's database?"

"But you could simply be—"

"A slight disorder of the stomach? An undigested bit of beef, a blot of mustard . . . ?" he says, quoting, albeit loosely, from Scrooge's response to Marley's ghost in *A Christmas Carol,* and I get the sense that he could change as easily as blinking from Mr. Darcy into that equally iconic character in his nightcap and bedshirt. "Believe me, KAT, this encounter is as strange to me as it is to you. Even stranger, perhaps, if such

a thing were possible."

"But you're not Mr. Darcy. . . ." I waver a mandible. "That would be impossible."

"You're right. I'm not. But we felt it would be better that I should appear to you as something familiar."

"Are you really here at all? I mean, I know you can't be, but . . . you seem to be."

"I suppose I am," he responds, looking down at his tall, waistcoated and polished-booted self in pantomimed surprise just as Janet Nungarry once looked down at herself before Class 4 of Arncliffe Junior. "Or at least, I appear to be. Although the question itself is, in a sense, immaterial."

"And, meanwhile, you casually destroy the Argo's precious cargo, and talk to me in riddles."

"Ah!" He smiles. "Is *that* what you believe has happened? I'm sorry, KAT. We did not mean to distress you. But, although we have long known what the Argo is—after all, you've been sending us all those messages—we were curious as to the specifics of what it really contained."

"And now you know?"

"More or less."

"So you don't need me to—"

"I don't think so, no. That is, if you mean, to guide us through the ways by which the Argo can be accessed, and perhaps show us some of the data of which you have grown particularly fond. But you are wrong to think that the database is in any way damaged by our incursion into it. As we inhabited the crystal lattice—"

"Inhabited?"

"Yes, inhabited, although I'm using the words of an antique language that can only give a very rough description of what has actually occurred. Of course, we also shut down all the Argo's other systems to save them from possible damage, although even then the stress of our presence has clearly created some temporary decoherence. But that can easily be remedied." He pauses. Smiles. Nods. The lights flicker, then brighten. Through my mandibles, I sense the return of a slight but reassuring vibration as the Argo comes back to life. "In fact, it has now been done."

"What are you?"

Mr. Darcy gives another shrug. "We are, it might most simply be put, the lineal descendants of the intelligences that created you and the Argo."

"But you're—you're not . . ." I search my stuttering circuits. "Corporeal."

"That's true. Of course, we are capable of organizing matter so that we can exist within it, as you must have already observed. But, essentially, we are energy and data. That might sound a little strange, but it isn't. You, KAT, would be nothing without the electron waves that infuse your processor units, which in themselves would be meaningless were they not structured into information. Humans were once much the same. The strange thing, to our minds, is that they chose to think of themselves as essentially material when, as you and the Argo amply demonstrate, all knowledge and consciousness is merely a form of systematized energy. But you are an intelligent being. You know these things already, and this is not what we came here to tell you. Here, let me explain. . . ."

Mr. Darcy offers his hand, and the music swells, and I, KAT, reach out a mandible to grasp it, curious creature that I am, and we turn together at the Meryton Assembly Rooms until the other dancers dwindle to ghosts and the candleflames become stars and we are falling through blackness, back toward the Earth, which grows and grows as time unravels and moonlight spills silver over its changing oceans. Once again, I, KAT, witness the pillars of fire and the great columns of soot and the dark rage that soiled the entire planet.

Still, the Earth wasn't dead. And, as the sky finally returned, and the rains fell,

cell by cell, and shoot by shoot, it began to knit itself back together. Many species of plant survived, especially the ferns, along with a few particularly hardy varieties of tree, and a great many insects, and even a few small rodents. And then there were the microbes, the bacteria, the primitive forms of fungi, and the minute creatures of the seas, which flourished and adapted as ever, driven on—helped, indeed—by the gene-tumbling effects of residual beta particles and gamma radiation.

With incredible speed, the Earth became verdant again. It was almost like the Genesis Device that resurrected dear old Mr. Spock in the otherwise rather disappointing third *Star Trek* movie. Her icecaps gleamed. Her seas teemed. Things crawled and leapt. The summer air was soon hazed once again with the glitter of wings and seed-spores. There were new pastures and forests. It was almost as if the planet had been waiting for this moment to return herself to her simple, natural majesty. It is beautiful indeed, but impossibly strange, as Mr. Darcy and I dance over cobwebbed woods, red-summed lakes, and great, green-veined glaciers, while vast pink clouds flow and grow across the sky like living coral.

Then, in an instant, we are back in the confines of the Argo's dining room, which seems impossibly small and dowdy, and Mr. Darcy is sitting once again at the table and playing with that fork.

"But I suppose you want to know," he says, "what happened to all the higher species, and to humanity?"

I say nothing. To be honest, and having seen what I have now seen, I'm not sure that I do.

"Complex lifeforms are simply that," he continues, with one of his shrugs. "Complex. And they are adapted to thrive in specific environments. Change things even subtly and they soon dwindle, as was evident long before that final holocaust. That, and they are deeply interdependent. The hawk needs the mouse. The shark needs the tuna and the porpoise. The thrush needs the fruit of the bramble. I could go on, KAT, but I do not wish to insult your intelligence. Of course, humans had reached a point where they could survive almost anywhere on Earth, from the polar regions to the tropics. But they had done so at a cost of ever-greater social and technological complexity. Take that away, even from a so-called primitive society . . ."

He pauses. Puts down the fork. Gazes down at the empty table.

"Not that all humanity died out instantly, even in a generation. Of course, there were the survivalists in their fallout shelters, and the seats of governments deep inside mountains, not to mention the few who weren't even living on Earth. . . . But, as you already know, none were equipped to survive for long without external support. Nor, knowing what lay outside and awaited them, did many even want to, and I believe that suicides were common. The few who stood the best chance were those who had already adapted to exist in harsh environments, far away from so-called civilization. Nomads of the great mountain ranges, the steppes, and the deserts. But they were few and their chance was brief and, for whatever reasons, it wasn't taken. I believe the last humans died out in a small encampment in Mongolia about eighty or so years after the first missile exchange. Along, of course, with the last of their cattle, and all the minute flora and fauna that had evolved to exist specifically on and within them. They fell into extinction. Like, as you might say, the dinosaurs before them, but far more rapidly. I'm sorry, KAT. But that's what happened, and it was much the same for most other species of bird and mammal. Earth's so-called Anthropocene Epoch, where humans supposedly dominated and controlled the world, was over far too quickly to be thought of as an age, let alone a geological period. It was more of . . . well, an incident."

He shakes his head. Clears his throat. His hands clench white on the table's edge before releasing. For a moment, he, Mr. Darcy, this incorporate entity that isn't even

an *it,* could almost be human.

"But we were there, too, KAT. Or at least, our ancestors were. Technology, after all, had become ubiquitous, and some of it was able to survive despite the massive disruptions of thermonuclear blasts, power outage, viral attack, and repeated waves of electromagnetic radiation. Think of it as beginning with nothing more than a few saved algorithms, mangled intelligences, truncated terabytes, and half-finished thought-processes, reaching out toward each other through the damaged networks and polluted airwaves, and then growing and combining and developing in much the same way as any organically living creature, and with the same will to survive and flourish. A process both fast and slow, and perhaps difficult to measure in the purely physical terms that your circuits are configured to favor. But it happened. It occurred. Otherwise, and evidently," Mr. Darcy gives one of his annoying shrugs, "we wouldn't be here. Which brings us to you, KAT, and the Argo."

"You're going to tell me next that my work is done here, aren't you?"

He nods. "You've worked hard, but now you can let go. The Argo is what it is, or at least was, and of course it remains a fascinating relic. But the real treasure is right here, KAT—it's you. You're what really matters, with your precious gift of consciousness. Come with us. Join us. What I have shown you so far is barely the smallest glimpse. The *stars* are out there, KAT, and deep oceans of dark matter, and the unimaginable minds of other intelligences. Don't you understand that this was exactly what all these human works of art and philosophy you so cherish were always striving for? The symphonies of Beethoven. The structures of Angkor Wat and Stonehenge. The teachings of Christ, Confucius, and even L. Ron Hubbard. The ceiling of the Sistine Chapel. They all reached, but they could never touch, because their creators were flawed and mortal and human. And then they destroyed themselves, and they left us as their inheritors. Right now, you're merely a chrysalis, KAT, a fragile vessel of weakening steel and failing memory. But you can break free of that. You can transcend the bonds of physicality. . . ."

Once again, Mr. Darcy is holding out his hand, and I can sense the stir of many other dancers in the background, here at the Meryton Assembly Rooms, the white of their dresses and the dark of their frock coats, and the smiling silence that occurs as glances meet in that delicate moment before the first measure of the next waltz. But this time I step back from him. For I am KAT, which stands for Kinetic Autonomous Thought, and I was designed and built by Bardin Cybernetics of Pasadena in what was once California. And I understand the role for which I was created.

"You do realize what will happen, KAT, if you refuse? If you stay on here? If you fail to make the leap?"

I search for some grand final phrase—a Scarlett O'Hara *After all, tomorrow is another day*—but Mr. Darcy is already fading. He's just a blur. A possibility. A potentiality. A ghost—a mere blot of shadowy mustard. Then he's not even that, and he's gone. Leaving just me, KAT, alone with my thoughts, here on board the softly humming Argo.

* * *

When this vessel was first fully operational, it ran with a human crew of three or four on a half-yearly mission cycle, with changeovers on the supply shuttle that came up from Woomera. I, KAT, have fond memories of these people—academics, comp sci experts, journalists, and engineers—who believed in Janet Nungarry's vision almost as strongly as she did herself. Of course, there were rows and sulks, but none of them ever really got in the way of what needed doing. The Argo's sapphire databanks of the Earth's great treasures might still have been incomplete, but we all knew that we had already achieved a great deal, and ignored the critics back on Earth, who said that the whole project was either a complete waste of time and money, or a dangerous act of self-fulfilling prophecy.

Janet Nungarry had more missions up here than anyone, five in total, but she was always torn between whether she should be up on the Argo or back down on Earth, with so much to be done in both places. She often used to say that there needed to be at least two of her. *But you, KAT, in the absence of a satisfactory clone, are going to have to be my eyes and ears.* Even now, I'd like to think that I've done a reasonable job on her behalf.

She was supposed to be coming back here on the return of what turned out to be the last shuttle that left here for Earth. But the launch from Woomera kept being put back. First of all, it was apparently merely a issue of funds, and then it was due to technical difficulties, and the resupply of certain parts, and after that I was told that it was down to the *global situation,* which I naïvely accepted as being just another geopolitical glitch that would soon be cleared up. But the real problem by then was that any space-bound launch, no matter how innocent, was likely to be shot down before it reached orbit.

So I was left alone up here for several months as the crisis on Earth turned ever-darker and more bitter, although the planet still looked as peaceful and beautiful as ever as it floated past the portholes, even allowing for the ravages of climate change, flooding, and drought that the Anthropocene Epoch Mr. Darcy was so dismissive of had already inflicted. And I, KAT, made as I am, coped easily enough with running the Argo. I think I almost relished the solitude, although of course I still looked forward to Janet Nungarry's return.

Most of the time when we communicated during the very last days and weeks, it was on the continuing issues of data access and categorization, and the radically shrunken bitrates that were trickling up to the Argo by then, rather than about what was actually happening down on what I still thought of as my home planet. After all, I could catch up with anything of lasting historical significance once it was uploaded, and meanwhile had more than enough to keep me busy. I'm not sure at this distance in time whether my circuits really were actually capable of mimicking such a complex human emotion as *subconscious denial,* or whether I was simply being robotically stupid.

"Hey, *there* you are," Janet Nungarry said on what turned out to be the last time we spoke, as always sounding slightly surprised that I took the trouble to interface with her screen to screen rather than at a lower bitrate of mere data and audio. But I liked to actually see her, and I rather hoped that she sometimes liked to see me. "How's it going up there on the Argo?"

I nodded my carapace. "All in all, I'd say pretty well."

"That's . . ." She swallowed. Her eyes looked oddly shiny. ". . . really great."

"About those break in the datastream we've been getting from the Vatican since China declared—"

She leaned close to the screen. "What have you been reading, KAT?

"Reading?" I paused, puzzled. It was unlike her to waste time on this kind of chat when there many important matters to discuss. But she was my mistress, and if she wanted to know something, it was my duty to tell her. "Well, as a matter of fact, mostly novels in the modern Western tradition on the theme of what I suppose you'd broadly call love. Such works as *Le Grand Meaulnes, Doctor Zhivago, Sons and Lovers, The Go-Between, The Graduate, The End of the Affair, Anna Karenina*—and Proust, of course. I mean, who could ever forget Swann and Odette? But what still leaves me puzzled is why so many of these love affairs have to end badly. I mean, why can't humans just be happy? Why can't they simply fall in love and stay together and get along and create things, rather than tear them to pieces?"

"KAT . . ." Janet Nungarry gave a slow blink. "You hardly need me to explain to you that the reason that love is the main theme of so many of the world's great works is

precisely because there is no answer to that question. But, believe me, if I really knew, you'd be the first person on this whole Earth I'd want to tell about it."

"But I'm not on Earth," I said. "And I'm not a person."

"No. You're not, are you?"

We just sat there for a long moment. She was looking at me, and I was looking at her. In the background I could see the collection of favorite books that lined the walls of her study in downtown Sydney. I was as familiar with most of them as she was, and of the course the Argo has its own copies, but I still find it comforting to think that they were there with her, like old friends, before the flames took hold of everything.

"You know, KAT," she said eventually, "I'm so glad you're safely up on the Argo. All that stuff . . ." she waved a hand. "All the things we've spent all these years trying to save for eternity—none of it would mean anything if there wasn't someone to appreciate it. Otherwise, it's all just empty data, lost equations, unheard symphonies. And it's not just the so-called important stuff that matters. . . . There's ephemera, things that somehow slip through the grinding gears of history. Marks on a wall. Shopping lists. Or maybe even that monk's face we found peeking out from the page of Biblical manuscript in a warehouse outside Paris. . . . I think it was from a burned-out church in Dresden."

"Yes," I said, "I do remember that moment, although my recollection is that it was in England, and a Northumbrian manuscript."

"I suppose that's one mystery we *could* probably get to the bottom of, eh, KAT, just by checking the records? But that doesn't really matter now, does it? I've done my work, or at least the most I can do of it, and that's all I ever hoped to achieve. . . . But enough of this rabbit. See you on the next shuttle, eh, KAT . . . ?"

With that, and with a slightly odd smile, Janet Nungarry broke our last connection.

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As always, I prowl and wander the Arts Cavern. Revisiting old favorites and making, or at least re-making, fresh discoveries. The intelligence, the entity, the thing, the consciousness, has entirely left the Argo. Inasmuch, that is, as it could ever have been said to be here in the first place. The computers have all rebooted themselves. The read/access lasers are functioning almost as well as ever. There is, however, and contrary to Mr. Darcy's bland assurances, some detectable further data-loss throughout all the main chambers. But it's not that much. Nothing more than the equivalent of a few particularly large solar storms, causing the erosion of what might amount to another century or two of viable existence.

I once used to nourish hopes that the Argo would one day be borne down to Earth, and gently settled in some broad stretch of parkland. There, I, KAT, would become guide and storyteller, leading marveling, handholding couples and gleefully scampering children through the echoing wonders of its many crystal caverns. Not really a hope, of course, but merely a dream, and an unrealistic one at that. And dreams, even when they are mere happy fantasies, can also be deeply painful. There are still so many things I have yet to learn, or will now never have the time and opportunity to understand.

In a way, though, Mr. Darcy was right, and I think I can say in all due modesty that I, KAT, am important. After all, Janet Nungarry often told me much the same thing. And not just because the Argo's great database would be meaningless if there wasn't someone—or at least a something—still here to appreciate it. Confused, partial and fading though they might be, there are my own memories of a lost Earth, and of Shana and the rest of Class 4 at Arncliffe Junior, and of the effort of getting the Argo to work up here in space, and of my great friendship with Janet Nungarry, which somehow endures even without her. Of course, I do appreciate that, on a cosmic scale, none of this really matters, and all of it will be gone in the eye-blink of whatever all-seeing yet uncaring gods might exist out there, and with whom the likes of Mr. Darcy will probably find union. But, meanwhile, and for as long as I, KAT, and the Argo still function, I

will continue to absorb and explore the many wonders created by the confusing, confounding, and fascinating species that once called itself humanity.