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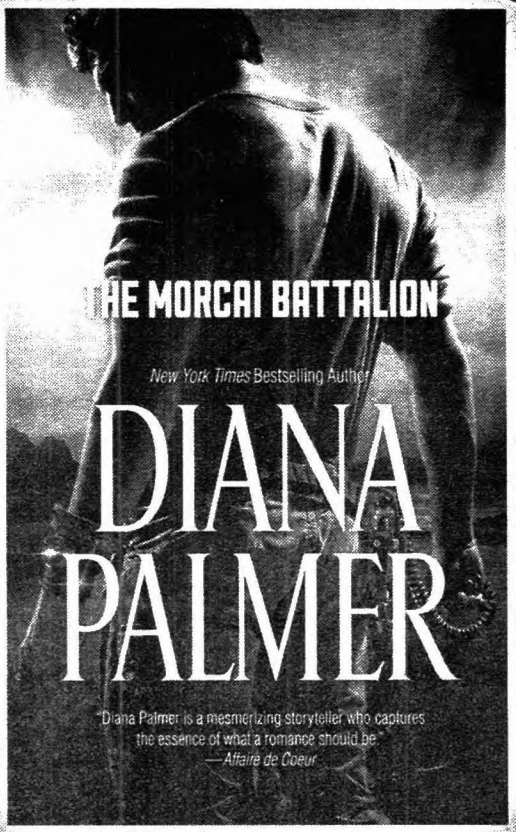

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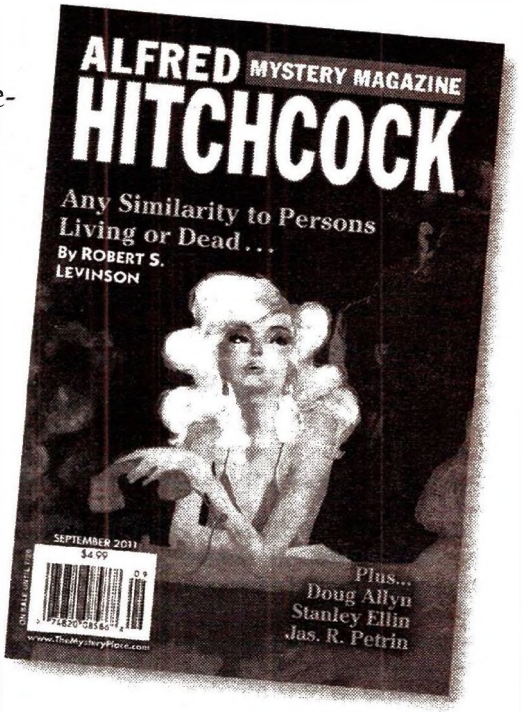

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GUEST EDITORIAL

Ed Finn

CELEBRATE NATIONAL SCIENCE FICTION DAY BY LEARNING TO LIVE IN THE FUTURE

This article originally appeared on the Future Tense channel of Slate Magazine *on January 2, 2013. At* Asimov's *we believe that every day is National Science Fiction Day. In honor of the Good Doctor and anyone else living in the future, we are delighted to have the chance to offer Ed Finn's essay to you now as a Guest Editorial.*

It's 2013, people—we are living in the future. Since the news is still awash with problems we created for ourselves decades or centuries ago (the permanent fiscal crisis, gun control, the political powder-keg that is the Middle East), it may have escaped your notice that today is also National Science Fiction Day.

While you may still be rooting through your holiday gift pile searching for that long-promised jetpack, science fiction writers actually had some grim things to say about 2013. Jack London pegged the coming year for the arrival of the Red Death, a new pandemic. Richard Linklater's screenplay for *A Scanner Darkly* guessed one in five Americans would be hooked on illegal drugs (and if you count criminal hypocrisy, he would not be wrong). And David Brin pretty much called the whole civilizational ballgame with *The Postman* [first published as a novella in *Asimov's,* November 1982], imagining a postapocalyptic hellscape in which only Kevin Costner fans could survive.

And yet, so far, we are two for two on the world not ending in 2013. So let's take a minute to celebrate the idea behind National Science Fiction Day as embodied by the writer and scientist whose birthday it marks, Isaac Asimov. Science and the stories of science that Asimov loved to tell are going strong.

In 2012, we watched the Mars rover Curiosity and its spunky band of rock star engineers explore the red planet, saw the Higgs boson emerge from the ether, traced Felix Baumgartner's twenty-four-mile space-dive, and followed James Cameron seven miles down into the Mariana Trench. Twitter, Facebook, and Google+ helped us share details, rumors, and excitement about these momentous events worldwide. The social media buzz surrounding these events were part of what the New York *Times* has called "an epidemic of science geekiness" that put millions in contact with the latest news from labs and research missions around the world. It also felt like the year in which science became a like-button topic, a zone of what I call "butterfly engagement" in which you watch a short video, share it with your friends, and move on to the next shiny thing.

Now, I'm all for this kind of enthusiastic conversation about science, but we also need interactions that last longer than a few minutes. It's not the fault of scientists (or science writers) that social media naturally encourage slacktivism, in which clicking a button or signing a virtual petition take the place of more substantive forms of engagement. But the rush to amass eyeballs and retweets runs the risk of eliding any actual thinking for the sake of special effects and sound-bites.

This brings us back to Asimov, a guy who took the long view about science

and human progress, perhaps most memorably in his Foundation series, which traced the long arc of human history across millennia. What Asimov knew about science fiction, and science writing in general, is that a good story sticks with you in part because it takes time to tell, and time to absorb.

Fortunately, I think the Internet offers its own antidote to slacktivism in the form of deeper dives: extended conversations, curated archives, long reads, and long tails. The same technologies that can cue up sixty episodes of *The Wire* on a moment's notice can also deliver extended meditations on Asimov's future history <*http://en.wikipedia.org/wiki/Future_history*>, habitable worlds <*www.habworlds.org*>, and thoughtful dialogues <*www.findtheconversation.com*> about the world we ought to make for ourselves.

So why not make this the first day of 2013 that you spend living in a science fiction era? Let social media guide you to the incredible things humans are achieving on and off this planet, and then let science fiction and the deep riches of digital culture guide you to some new ideas, some better dreams, and better futures. ❍

Ed Finn is the director of the Center for Science and the Imagination at Arizona State University, where he is also an assistant professor with a joint appointment between the School of Arts, Media, and Engineering and the Department of English.

The Center for Science and the Imagination brings together humanists, artists, and scientists to reignite humanity's grand ambitions for innovation and discovery. The center serves as a network hub for audacious moonshot ideas and a cultural engine for thoughtful optimism. It provides a space for productive collaboration across disciplines, brings human narratives to scientific questions, and explores the full social implications of cutting-edge research. Learn more at http://csi.asu.edu.

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REFLECTIONS

Robert Silverberg

"... NOT EVEN WRONG"

My favorite scientific putdown—one that I often use myself, in various contexts not necessarily scientific—was the work of the Austrian-born theoretical physicist Wolfgang Pauli (1900-1958), a Nobel Prize winner with a wicked and widely feared sense of humor. Pauli had a particular loathing for sloppy scientific thinking. His own thinking was coolly precise. Pauli was a severe critic of badly done work, a perfectionist who was able to put his finger immediately on a flaw in a theory's chain of reasoning and pronounce it, scathingly, as *ganz falsch*, "totally wrong."

But I would give Pauli's Nobel Prize citation a special footnote for his even more devastating response at one of those times when a fellow physicist showed him the paper of a colleague on which he wanted Pauli's opinion. Pauli read through the paper and said, looking up disdainfully, *Das is nicht nur nicht richtig, es ist nicht einmal falsch:* "Not only isn't this right, it isn't even wrong."

What Pauli meant by that was the other physicist's theory was based on ideas so far from acceptable scientific reasoning that they could neither be proven nor disproven: there was no way to evaluate them at all. The essence of science is the testing of hypotheses. If a concept can't be tested against current scientific knowledge because its basic assumptions are located so far from anything that anyone considers to be scientific, then it can't be proven or disproven, and so is scientifically worthless, however elegant it might be mathematically.

Pauli himself was not unwilling to stake his reputation on bold theoretical concepts that may have seemed "not even wrong" to some of his fellow physicists. There was, for example, his solution to the problem of conservation of angular momentum.

This was a double puzzle. One part of it was the question of beta decay. A neutron that is separated from the atomic nucleus will, in about 18 minutes, decay into a proton and an electron by emitting a beta particle. But the neutron before decay is some 1.5 electron masses heavier than the proton and electron it decays into. In terms of energy, this is some 780,000 electron volts. Where does the missing mass (or energy) go? If it just disappears, the law of conservation of energy is in error—a frightening thought to a scientist.

There was also the issue of missing spin. All known atomic particles have been found to spin like tops. The amount of the spin can be measured, and a unit of spin established. The math shows that in any nuclear reaction, spin—like matter, energy, or electrical charge—can neither be lost nor created. This is known as the law of angular momentum, another term for "spin." But in beta decay the breakdown of a neutron, with a spin of 1/2, produces a proton and an electron, *each* with a spin of 1/2. An extra spin of 1/2 has been created, seemingly. Or, if the proton and electron have opposite spins that balance out, half a unit of spin has been lost. Either way, the law of conservation of angular momentum seems to be violated.

It was Pauli, in 1933, who saved both conservation laws, that of energy and that of angular momentum, by something that looked very much like cheating. He invented a particle that no one had ever seen. It had no electric charge, nor even any mass while at rest. But it had a spin of 1/2. During beta decay, Pauli said, this ghostly particle is emitted by the neutron along with the beta particle. The missing 780,000 electron

votes of energy are carried off, said Pauli, by his particle. And its spin of 1/2 cancels out the spin of one of the other particles, leaving a total spin of 1/2, the same that the neutron had had originally.

It was a very pretty solution. The Italian physicist Enrico Fermi dubbed the new particle the *neutrino,* meaning "little neutral one." The only problem was that there was no experimental evidence that neutrinos really existed. And how could you detect a particle that had no charge and no mass? For a long time it seemed as though Pauli's neutrino fell into his own "not even wrong" class—an idea that could neither be proven nor disproven, but remained simply hypothetical, a convenient mathematical construct that permitted a plausible workaround for a nasty problem but lacked any verifiable reality.

In 1956, though, two American physicists, Frederick Reines and Clyde Cowan, built a neutrino detector out of some six-foot-long tanks of water into which atomic particles from the Savannah River nuclear reactor were discharged. If neutrinos existed, they would stream into the tank and some would occasionally be captured by protons, turning each proton into a neutron and a positron (the positively charged equivalent of an electron). It was the precise reverse of beta decay. Each collision would cause flashes of light, which could be measured by electronic recorders. Reines and Cowan counted the flashes for 1,371 hours and found that they occurred at predictable intervals—which had to signify the emission of a neutrino. Pauli's theory was validated after twenty-three years. When Pauli was told of the experimental result he sent this telegram by way of reply: "Thanks for message. Everything comes to him who knows how to wait. Pauli."

More recently, the Columbia University mathematician Peter Woit has attacked one of the most hotly disputed ideas of modern physics, string theory, in a 2006 book called, appropriately enough, *Not Even Wrong.* String theory is a dazzlingly brilliant concept that I will not even pretend to understand, let alone explain here, because I am no physicist. A few sentences from its Wikipedia entry should give you a taste of it:

> String theory posits that the electrons and quarks within an atom are not 0-dimensional objects, but are made upu of 1-dimensional strings. These strings can oscillate, giving the observed particles their flavor, charge, mass, and spin. Among the modes of oscillation of the string is a massless spin-two state—a graviton. . . . Since string theory is widely believed to be mathematically consistent, many hope that it fully describes our universe, making it a theory of everything. . . . String theories also include objects other than strings, called branes. . . . The strings make closed loops unless they encounter D-branes, where they can open up into 1-dimensional lines. . . .

And so on and on and on. Peter Woit argues that there are no tests that can prove or disprove the existence of strings, branes, and all the rest, and so, however beautiful the theory and however eminent its proponents, it falls into the ". . . not even wrong" category.

Perhaps so. I am not the man to ask. The physicists themselves disagree. But I see where this elaborate hypothesis might cause uneasiness among the more conservative members of the profession.

My own favorite ". . . not even wrong" examples comes not from physics—as I say, I am no physicist—but from medieval scholarly disputation, a fertile area for such things. Consider the celebrated arguments over how many angels can dance on the head (or the point) of a pin. This seems to go back to Thomas Aquinas' *Summa Theologica* of 1270, which discussed such questions as "Can several angels be in the same place?" Aquinas did not in fact speak of angels on pinheads (or pinpoints), nor did any of his contemporaries or successors, and it may be that the whole topic was sim-

ply a scholastic training exercise. Nevertheless, the seventeenth-century theologian William Chillingworth refers in his *Religion of Protestants* to an argument, source unspecified, over "Whether a Million of Angels may not fit upon a needle's point?", and Richard Baxter, in a 1667 treatise on Christian belief, notes that some scholars have asserted "that Angels can contract their whole substance into one part of space. . . . Whereupon it is that the Schoolmen (again, unnamed) have questioned how many Angels may fit upon the point of a Needle." And it has, ever since, been pointed to as a prime example of the unanswerable theological question that grows out of a total absence of verifiable data that might allow proof or disproof.

A proper scientific answer to the question would require the researcher to measure the area of a standard pinhead and also to measure the feet of a sufficient number of angels to provide an average foot size for the entire angel population. Then one need merely divide the space available on one pinhead by the size of one average angelic footprint, see how much of the pinhead that would occupy, and multiply by two to get the space a single angel would take up, and then multiply again by the number of angels it would take to fill the entire pinhead. Thus if one normative angel would take up one tenth of a pinhead, it's easy enough to see that ten angels could dance (moving carefully, I suppose, in such a crowd) on that pinhead. If angels turned out to have smaller feet, more of them would fit on the same pinhead. It's just a matter of simple arithmetic.

An easy solution, yes, except for the problem of gathering data about the size of angels' feet. Since angels, like strings and branes, can't be rounded up in any useful quantity to be measured—in fact, their very existence is a matter of some doubt—we can't calculate the space that a single angel would consume on a pinhead, and so we can't go on to calculate how many angels *in toto* would fit on that pinhead. We could say, speculatively, that ten angels, or a thousand, or ten thousand, or an infinite number of angels might fit on one. But we have no way of proving it. It would just be a guess, and one guess would be as good as another. We can't even prove that angels exist at all—or disprove it, for that matter. So any calculations about angels and pinheads can't be accepted as correct, but neither can they be rejected as scientifically false. They aren't even wrong. There's no data to work with.

Peter Woit feels the same way about string theory. What the brilliant, acidulous Wolfgang Pauli would have said about that and other recent speculations in physics, I have no idea. For all I know, he would have embraced string theory in full fervor—or maybe not. (He isn't here to ask, so whatever guess I might make would be not even wrong.) His own neutrino theory seemed like a wild plunge into the unreal to many physicists, after all. But it turned out that neutrinos existed. And his 1945 Nobel Prize, for which he was nominated by Albert Einstein himself, was for his "decisive contribution through his discovery of a new law of Nature, the exclusion principle or Pauli principle," which involved spin theory and the whole structure of matter. Measuring the spin of an invisible particle might very well seem like measuring the number of dancing angels on a pinhead. But, again, Pauli was on to something real.

And so we should not think that his famous ". . . not even wrong" putdown meant that he was the enemy of all speculative thinking in physics. Far from it. But it is not only a funny line, it is an instructive reminder that the essence of the scientific method is proof. If an idea, however brilliantly it's argued, can't be proven (or disproven) because it's based on concepts that can't be tested in any rational manner, there's no way to incorporate it in the body of scientific knowledge. It can't be accepted as right; it can't be dismissed as wrong; it must simply be set aside, because it's . . . not even wrong. ❍

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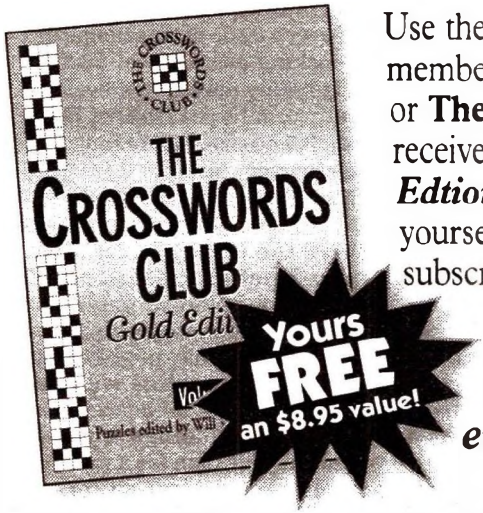

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On the Net

James Patrick Kelly

SF ECONOMICS 101

incoming

Have you ever entertained the notion of writing for *Asimov's?* Maybe you thought that novella in the January issue needed a different ending. Perhaps you told yourself that even a zombie could write a better novelette than the one you just finished, and that it was up to you to show Sheila some *real* science fiction. Could be that you wondered why you had never seen a story about Mayan starships or intelligent alien marsupials and decided that you were just the one to give it a shot. (Sorry, **the marsupials have been done** <*freereads.blogspot.com/2012/10/lovestory-part-one.html*>.) If you have ever had daydreams like these, know that you're not alone. Every one of the writers appearing on the table of contents in this issue has had similar feelings.

After all, how hard could it be to write a science fiction story? All you need is a beginning, middle, and an end, a cool idea, some shiny tech and a couple or three characters. Simple! And didn't you hear somewhere that the pay is pretty good? *'Mov's* is supposedly near the top of the food chain in SF's short fiction ecosystem. Why, you could quit your boring day job and step up to a glamorous career as a science fiction writer!

If you've actually gotten this far in your reverie, you probably have clicked over to our **manuscript guidelines** <*asimovs.com/info/guidelines.shtml*> and read the following: "*Asimov's* pays 6-8 cents per word for short stories up to 7,500 words, and 6-6.5 cents per word for longer material." And this: "We pay $1 a line for poetry, which should not exceed 40 lines." So let's do some math. If you jump immediately to the top rate, you'll earn $600 for a 7500 word short story. That means that if you publish a story in each and every issue of this magazine, you'll be knocking down a cool $6000 a year. Unfortunately nobody, not even my phenomenally prolific pal **Robert Reed** <*robertreedwriter.com*>, has managed to place fiction in every issue.

Okay then, so you'll start with the short stuff and then move on to novels. That's where the money is, right? In 2005, **Tobias Buckell** <*tobiasbuckell.com*> performed a generous public service on his blog by surveying his fellow science fiction and fantasy professionals in order to determine **what we earn from our books** <*tobiasbuckell.com/2005/02/07/*>. His findings might induce a wobble in your plan for a meteoric writing career. Seventy-four writers responded to Toby's post. Their median advance was $5000 for a first novel. But wait—as you progress, your novels will make more money, right? Fifty-seven authors in the survey had sold more than one book. Their median advance? $12,500. Of course, this data set has some age on it and the economics of publishing have changed a lot with the rise of e-books and the attendant renaissance in self-publishing. Yet, median advances for second, third, and fifth novels have either held steady or gone down a bit since then—if word on the street is to be believed.

Here's another career planning data point to consider, courtesy of **John Scalzi** <*whatever.scalzi.com*>. In addition to being the current president of the **Science Fiction Writers of America** <*sfwa.org*>, John is another generous blogger and all-around Good Guy. You may have heard that he was discovered on the internet after serializing his novel ***Old Man's War*** <*scalzi.com/books/omw*

preview.html> on his website. **Patrick Neilsen Hayden** <*nielsenhayden.com/makinglight*>, an editor at **Tor** <*Tor.com*>, read the book there and bought it. Prior to that happy accident, John had made an earlier "practice" novel, ***Agent to the Stars*** <*scalzi.com/agent*> available as shareware on his site, with the request that readers who liked it send him $1. John's "bypassing-the-publishing-gatekeepers" origin story has inflamed the imaginations of every aspiring SF novelist who has heard it. (However, it is important to remember that he didn't exactly bypass the gatekeepers; rather, he impressed the hell out of one of the most astute of them.) Here's the story behind the story: In 2007, John reviewed **his earnings from the first eight years of his SF career** <*whatever.scalzi.com/2007/02/23/*> on his blog. In 1999, he raked in a whopping $400 in donations from *Agent* readers. Over the next three years he averaged about $1000 from *Agent* readers and made one short story sale. In 2003, he earned $6000, most of it from the first part of the advance from *Old Man's War*. The year after that, $5000, from *Agent* readers and an advance for another novel. By 2005 advances from three novels and a short story sale totaled $15,000. It wasn't until 2006, eight years into his SF career, that John saw any serious income.

As for myself, I was twenty-six when I quit my day job in public relations to become a "full time" science fiction writer. Alas, although I've had some writing successes, I have only rarely in the intervening years earned enough on which to live purely from SF writing. Perhaps I might have managed it had I been as productive as a John Scalzi or Toby Buckell, but I wasn't. So how did I get by? I took part for many years in the **non-monetary economy** <*timebanks.org/wp-content/uploads/2011/08/Non-Monetary Economy.pdf*>. Okay, okay—I was a stay-at-home dad and househusband. But some economists estimate that if household labor and civic volunteerism were reasonably valued, it would increase the gross domestic product by half. Think about that the next time you're washing dishes or helping the kids with homework or volunteering at the local SF convention. Lately, my income scramble hasn't been as frenzied as it was back in the day, but that's because I've got a side gig teaching at the **Stonecoast MFA in Creative Writing** <*usm.maine.edu/stonecoastmfa*>.

Sorry to rain on your parade, Ms. Aspiring Writer. Not only is it hard to write well, the pay isn't all that great. Few of us make a living wage. So why do we do it?

reputation

Of course, the answers for each of us are personal and subject to change. It is when those answers no longer satisfy that the discouraged novice gives up, or the frustrated pro falls silent. Suffice it to say that money isn't the only measure of value. If you believe that "whoever has the most toys when he dies, wins"—as the old bumper sticker had it—then you're probably not cut out to write SF. Our toys are largely imaginary.

But aside from the pleasure to be derived from the care and feeding of the muse, there are other intangible benefits to being a writer. I have been thinking recently about the various segments of the non-monetary economy.

> We interrupt this column for a brief rant: Why is it that so few of our writers bother to include economics in their worldbuilding toolkit? Is it because courses in economics were something that only business majors took in college? Is it because economics is so tangled with politics that they despair of separating well-documented research from passionately held belief? Why must hard science fiction obey the laws of physics and yet ignore the insights of our best economists? For instance, just how large must an economy be to sustain the construction of L5 colonies? Or to **terraform Mars** <*bigthink.com/ideas/37744*> in the face of an uncertain return on investment? Or to **launch a fleet of expensive starships** <*www.princeton.edu/*

~pkrugman/interstellar.pdf> which might not make it back to Earth for decades or even centuries? And our fantasy writers are equally culpable. History teaches that the rise and fall of dynasties are primarily due to economic factors. The **king must raise taxes** <*http://en.wikipedia.org/wiki/History_of_tax_resistance*> in order to pay for his war against the Dark Lord. What is the value of labor in a world where magic works? What currency do dwarves accept in exchange for their armaments and do they care about their balance of trade? When I challenge my MFA students on these matters they often as not shrug and ask *What does it matter? Will anyone care?* I think Nobel Prize winner **Paul Krugman** <*krugman.blogs.nytimes.com*> just might. Revisit **his conversation about economics and SF** <*vimeo.com/6900065*> with **Charles Stross** <*www.antipope.org/charlie*> at the 2009 World Science Fiction convention.

Whew! Where was I? Oh, right . . . segments of the non-monetary economy. A notion that has gotten some currency recently with the rise of social media is that there is a **reputation economy** <*forbes.com/sites/danschawbel/2011/02/28/the-reputation-economy*>. If and when there are reliable metrics to measure online perceptions of you and your work—whatever that might be—polishing your reputation might actually translate into new dollars in your wallet. The pre-internet **Q Scores** <*qscores.com*>, first developed by Marketing Evaluations, Inc. in 1963, attempt to quantify the familiarity and appeal of celebrities and politicians, companies and products. This and other similar services help companies like General Mills decide which sports figures to put on Wheaties boxes and NBC to pick the stars for next season's sitcoms. More recently, thanks to the **social media apps of the web 2.0** <*thefuturebuzz.com/2009/01/12/social-media-web-20-internet-numbers-stats*>, the reputation economy is becoming a marketplace for the rest of us. It may be that someday **your online presence will replace your résumé** <*forbes.com/sites/danschawbel/2011/02/21/5-reasons-why-your-online-presence-will-replace-your-resume-in-10-years*>. How might someone track her stock in the reputation economy? **Google** <*google.com*> herself obsessively? Pay daily visits to **Addictomatic** <*addictomatic.com*>? Add the number of her **Twitter** <*twitter.com*> followers to her **Facebook** <*facebook.com*> friends and divide by the square root of her reviews in the **blogosphere** <*en.wikipedia.org/wiki/Blogosphere*>?

The company behind the **Klout** <*klout.com*> website says it has an answer, by purporting to score your influence across your entire social network. *For free!* But if you ask me, when their **methodology** <*articles.businessinsider.com/2011-12-02/tech/30466708_1_klout-score-facebook-comments*> gives the President of the United States a lower score than some technology blogger, it loses all credibility. As currently implemented, Klout exists more to market Klout than to provide useful information about your rep; if you credit their sketchy numbers, all it will get you is a **pernicious case of social anxiety** <*money.cnn.com/2011/11/15/technology/klout_scores/index.htm*>.

The fact is, while it seems clear social media is indeed creating a larger reputation economy, precision tools to measure our places in it are not yet at hand.

exit

Having typed that, I believe there are actions that writers—or anyone, for that matter—can take to protect their reputation and foster goodwill through social media. In the next installment we'll consider the gift economy and the role that the **Creative Commons license** <*creativecommons.org*> has come to play in access to online science fiction.

In the meantime, why not take an economist to lunch and then go ahead and write that story! ❍

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THE FOUNTAIN

G. David Nordley

We were newly arrived on Earth, and all four of our royal feet hurt. But we had a courtyard to cross and then a formal introduction to the empress of Earth to endure, before we could begin our plea. We would endure this gravity for the sake of the urgent diplomacy involved.

Ignoring the oppressive high pressure, a fountain in the palace courtyard gushed water upward many times our own four segment height—two meters in local measure—then fell down in curtains blown to our left by a slight breeze. It was a memorial; once before, human beings had gone to the stars to right a wrong, and not all had returned. That had been a tragedy—but it meant our mission was not without hope.

Awful news had poured in from lightyears away. All projections indicated that within one hundred to three hundred local years, one innocent intelligent race would be exterminated by another, whose intelligence was a matter of debate, but whose technological abilities grew exponentially. Preparations to do something about this would have begun promptly, and they would have to involve this planetary system's resources. There were no others close enough.

A dark sky with roiling clouds overhead promised a sprinkle or two, as did the slight ionization of the air sensed by our antennae. The lining of our mouths tasted the subtle tart chemistry of the brightly colored plants around us.

A tall thin human approached, clothed in the same standard dark blue of all the palace staff we had seen. It was a black-haired male, clean-shaven, and his decorations indicated a high place in the local hierarchy. As he came nearer, we recognized the Honorable James Omata, the royal coordinator of alien affairs with whom we'd

had many conversations during our hive-ship's deceleration from near lightspeed. We read his face through a mask of discipline to indicate curiosity and some excitement at meeting us in person despite our long virtual association.

As cosmic luck would have it, our voices could make the sounds of their speech fairly well, except for the "th" and "ch" sounds, which we approximated with a hard "sh." We turned to our spaceport escorts and said, "We thank you so very much; please enjoy the rest of your day."

The human woman who was their leader smiled and bowed slightly. With that they turned quietly, but with choreographed precision, and walked away from us as Omata approached. This species of individuals, only lightly bound to each other by instinct, evidently enjoyed the pretense of acting as if they had one mind.

"James, it is so good to see you," we said as we came nearer.

"I feel the same way, your Majesty. Her Majesty is concluding an audience," his eyes rolled up ever so slightly, "with the crown princess, and asked me to escort you to the throne room personally. I believe she wanted you and me to have a few moments together."

"And made a virtue of necessity!" Our hive-queen laughed, a series of staccato clicks in our species that James knew well. The behavioral eccentricities of the crown princess had become well known to us during our three-year-long deceleration near lightspeed.

"Such things are why she is called 'Her Wisdom . . .'"

". . . but not to her face," we finished his sentence.

He nodded with a smile. "How are you holding up under all this gravity?"

"Our preparations have been excellent. Can you see the antenna stiffeners?"

He looked carefully. "Not at all."

"Our high collar looks natural to you?"

"I would not suspect it of holding up your head."

"Good." Fashion and utility had fortunately converged. The exoskeletal supports beneath our capes cradled our four walking legs so perfectly that we hardly noticed them, and the capes covered the mechanism so well that we seemed to flow along as if on wheels, rather than clatter like metal spiders. The net supporting our lower abdomen seemed perfectly tuned to offset the local pull by six tenths. We nodded to James, a gesture that both recognized his compliment and demonstrated our costume engineering.

We did not mention our feet.

We chatted about the affairs of our coming; human tours of the hive ship, updates of the galactic library, the unfortunate problem of an aggressive new race only two hundred light years away. At length, he touched his head; unlike ours, their telepathy was biologically engineered and still had signs of being a new addition.

"It appears the empress is offering a slight change of protocol, should it suit you. Would you be willing to meet the crown princess along with Empress Marie today?"

We made some more clicks of laughter. "Tell her we would be delighted."

As we walked by the fountain, the wind shifted and we felt a very slight spray. What a luxury that would have been for our desert-dwelling ancestors, a billion years ago!

The ceremonial room was impressively huge, doubly so, given the gravity of this world. It was ancient by their standards, having once been the place of ritual for a religion, and before that, the local headquarters of a large empire. It once had several floors surrounding an interior courtyard; now it was a huge shell, with crossed wooden beams far overhead, along with, no doubt, as many invisible strengtheners as needed to keep the five-thousand-year-old structure together.

It had been, we remembered, ten times that amount of time since *we* had last seen

our homeworld. Such is the lot of galactic roamers. What must it be like for them, when the universe is new, bright, and full of the yet-to-be experienced? No hive-queen still lived from those days of our race, and records were never quite like experience.

A few dark-blue-clothed humans walked around the periphery, sneaking an occasional look at us, perhaps not realizing that our compound eyes brought everything to us in great clarity except for the half-steradian cone opposite our mouth, and not perhaps realizing that we were entirely comfortable with their curiosity. Our children did much more than look, as they were our extended eyes and ears and their images and sounds flowed seamlessly into our hive-queen. The humans were much more their own agents than our children were, but their experiences of our entrance would also find their way into what passed as Empress Marie's racial consciousness.

What we would do here was for all time. There are few first things to be had in this ancient Galaxy, and our presentation to the human Empress Marie was one of them.

They announced our presence in a formula perhaps as old as the building. Trumpets and drums played and those humans, who looked so alike and moved together in such coordination as to seem like hive children, marched alongside us, then peeled off to the sides of the huge room. Our hive children, as arranged, did likewise.

We drank in this ceremony, and greatly appreciated their staging it despite our aching feet. We were suitably awed, and thrilled by the experience—one of those moments of wonder all too rare in the cosmos. We thought again of their individuality and how difficult it would be to get an equal number of hive-queens to behave in such a ritualized, choreographed manner.

Our hive-queen alone walked up to a place before the platform on which sat the throne and stopped. In immense ages past, a hive-queen would never have been so alone; ancient emotions rose up and were quieted.

Empress Marie sat on a huge and much-gilded chair. To her right was a simply—even scantily, for them—clad young human female with a somewhat bemused smile on her face. She would be Crown Princess Ann Isabella Masami Windsor Carolina. To her left was a powerful-looking and well-decorated human male holding an ornamented stick of almost our hive-queen's height. He would be the Lord Master of the Staff, the right honorable Thaddeus Zwicky, who led the humans of this palace.

He thumped this staff twice on the wood of the platform and announced us again: "hive-queen Anathor of the Children of Light accompanied by his most honorable Royal Counselor of Alien Affairs, James Thelvin Krentin Omata."

James had spent many pleasant hours with us concocting a way of representing our title and provenance in their language; as a result, we were the "non-thunderers," a loose translation of our hive-queen's enlightenment name.

There was a slight pause as the empress looked from side to side at her courtiers, to make sure, we thought, that it was her turn to speak in this ceremony.

"Our greetings to you and your race, Queen Anathor," Empress Marie said.

"Our greetings to you and yours, Your Royal Highness. May this day be well met in our mutual histories." Those were our lines in this ceremonial play James and Thaddeus had written.

"Hi, Queen."

That was the princess, clearly off script. It saddened us only in that it would sadden those who had put such work into this once-in-the-history-of-the-Galaxy ceremony. The princess was at the age when many of her dozens of predecessors had abdicated, not wanting the duties of her mother; she clearly didn't think much of them, but she had not abdicated, yet.

We nodded to her, which was the best we could do in the way of a smile, and temporized, hoping we would not create a Galactic Incident and endanger the succession nor our mission, "Our greetings to you as well, Your Highness."

We heard James let out a slight sigh, probably of relief and probably not audible to those of his race. Thaddeus' face was immobile, but his eyes had begun to water slightly and his grip on the staff seemed very tight. Our antennae are quite sensitive across a variety of senses, and we realized we would need to bring all of them into play at this point.

We made a conscious effort to control the fluttering of our antennae and keep our posture straight; James at least would have recognized the signs of stress in our species, and some other humans may have put in the study effort, too. They were likely having quite a chitchat about us on their net, and while none of the individuals would match our organic brainpower, they would exceed it collectively. Anyway, organic brainpower was beside the point; their "Earthmind," an orbital cybernetic repository for generations who had given up physical form, would certainly be involved. Not that any of this vast assembly of brainpower could do much about the behavior of a young human female who was a hive-queen onto herself.

"You can call me Annie when this is over," she said. "Hey, we have the same name! Who would have thought that?"

She was looking right at James, who held his face rigid. But one did not have to be a well-sensed hive-queen with several years of studying human beings to tell that the man was extremely upset at this turn of events and would so much rather be somewhere else. We saw a slight frown on the Empress Marie's face. Not good.

Well, we are not for nothing a starfaring hive with twelve hundred and thirty-four first contacts behind our myriad lenses.

"We fear that we did, Your Highness. Many things went into selecting a name for us in your language, and the likeness of this one to your own pleased us greatly, even if our dear friend the honorable Counselor had reservations. If it does not please you, Your Highness, it is not a word of our language and it would be a small matter for us to make adjustments."

"It pleases *us*," Empress Marie said quickly and somewhat severely. "It pleases us greatly. We are honored by your presence among the worlds of humanity and at our court."

She was back on script, and that was our cue. "And we are honored to be here."

"Let this be the beginning of a long and fruitful relationship between our races."

The princess laughed. "Fruitful? Fruitful?" She laughed again, then put a hand in front of her mouth in a belated gesture of decorum.

Empress Marie shut her eyes briefly and her lips tightened. James sagged. Thaddeus gripped the staff even more tightly, if that were possible.

"So shall it be," we added, hoping we did not offend the princess too badly by ignoring her remark.

The empress spoke to James. "We entrust our visitors to your care." Then she turned to our hive-queen. "Our world is your world, our house is your house."

"Maybe they'll put it on the market?" The princess giggled again, for the benefit of an audience that would eventually span the galaxy and beyond.

"By your leave, your Majesty," James said, ignoring the princess completely.

"You may leave." The empress said in a formal, controlled voice.

The humans and our children bowed to the empress. We nodded to her, and she back to us, not that we were her equal but that what we represented put us on equal standing. It was somewhat a condescending act to the representative of a ten-billion-year-old galactic civilization of twenty-eight thousand races and over a million inhabited star systems, and James had worried about that, but we had insisted.

We were here to ask a horrible thing of this bright new collection of worlds and its peoples, whose bad luck it was to drift through the wrong part of space at the wrong time.

Trumpets sounded. Then, to the sounds of horns and drums, we backed away from the throne about twenty meters, turned, and as our retinues flowed in behind us in stately choreography, walked slowly in recession from the throne room.

"Well, that's over," James said as massive doors closed behind us. It was clear he had no love of such ceremony. The showers had come and gone while we were inside and the air tasted of fresh and alien scents.

We stepped out of the anteroom into what had become a clear day, filled with the intense radiation of their star. We had taken effective measures of protection, but the light still had a sting to it.

"The ceremony was very beautiful, moving, and interesting," we replied. "In more ways than one, as it happened. We would greatly appreciate it if you would convey our personal gratitude to Thaddeus and our appreciation of his preparations and steadfastness."

James smiled. "I'll be very happy to do so, but if you would like to meet him personally, I can make some time in the schedule?"

Though James had not met us physically until today, we had worked together so long he had developed an intuitive understanding of us.

We nodded. "Thank you, so much. We have another thought, concerning the banquet seating arrangements?"

"Uh, yes. What I imagine discomforts you is the potential discomfort of those around you, am I correct?"

It is a wonder how this alien appears to read our minds. We rested a pincer on his shoulder, which we know to be a gesture of comfort and camaraderie among humans.

"You are thinking of changing them, given what happened in the throne room. But given that the integrity of the ceremony is likely to be altered, one way or another, and we regret this as much as you, we would find it most interesting and entirely comfortable if the princess remains as placed. In such case, any alteration would be entirely *her* doing, and not *ours* in fear of what she might do. We would not want to give or appear to take offense to anyone. But, of course, the comfort of the empress would be the overriding concern."

He nodded. "Then we won't alter the seating arrangement on your account. Despite her discomfort, Marie sees these things as part of her heir's education. She does not give up hope easily."

We knew the history of the empress' efforts at succession and patted James' shoulder again. If we could be of some assistance, we would.

He smiled. "Well, let us go to your quarters." He gestured to a large cylindrical structure that had been set up in the center of an athletic field. In its core would be a room of a few meters diameter in which a magnetic field gradient would thrust the water molecules of our bodies upward, and so cancel much of the awful gravity of this planet. We would have three hours to rest our feet before the ceremonial banquet.

But not our minds. The grumpy empress was beloved, and while she had no legislative power, we thought her assent or opposition would determine what the humans would do. How would her difficult daughter affect that? And was there anything we could do about it?

The banquet was a traditional human ceremony in which we had wanted to participate, despite our very different sustenance procedures. It preserves, in a way, much of this race's antecontact culture. It is the rare alien art form that our race can appreciate in its symmetry, its choreography, and its orchestration of a wide variety of senses. The underlying purpose of all this runs slightly afoul of a difference in our biology, but that is beside the point.

Our royalty sat together with theirs at the head of the table. While the placement and service were formal, there were no conversational scripts.

"Nine hundred and seventy-eight million years, with no meaningful change?" Empress Marie asked. "How does that feel?"

We clicked and nodded. She knew how to interpret that. "We have personally experienced only a hundred thousand or so of that, allowing for frame of reference changes and hibernation. And much of that time is filled with experiences like this, which are a feast for the appetite of curiosity."

We shall forgive ourselves for our cleverness in constructing a human metaphor.

She smiled, "I'm happy you are pleased. Our staff lives for such ceremonies, and takes these anachronisms very seriously. It is quite an art form for them. I am a constant part of this, like the walls of this building," she sighed, "but the staff change every fifteen or twenty years, to give others a chance, and so the creativity is always fresh."

We studied her. Human biological science had long since arrested their physical development at what was approximately thirty-four years of age. But while their bodies renewed themselves, their minds continued to accumulate experience. And this showed for those who have studied their faces and body language.

"You have done many of these," we observed.

She hesitated a moment, likely to query some database.

"Thirty-three thousand seven hundred and twenty-eight state banquets." She shrugged her shoulders. "With the help of Earthmind, of course, I can remember each of them in every detail. Seven hundred twenty-three years ago, a server tripped and spilled seven main courses when we entertained a Kleth ambassador at our Martian estate." She smiled. "I was quite amused, but, of course, didn't let on. I'm afraid I'm less of a poker face now."

"Oh, Mom's still pretty good at it," Princess Ann injected.

It was a fact we had not thought to research. The one thousand one hundred and thirty-eight years she had been empress is a trivial star-frame time interval for a space-hive-queen. But it was now clear to us how much of an endurance test this might be for a human. Empress Marie was weary. She alternated between moments of arch perkiness and stoic passivity.

"This isn't how you normally dine, is it?" a young woman next to the princess asked us, sounding casual.

Our antennae stiffened. This was a potential disaster. Intelligence flowed into us. The speaker was a Lady Linda Sanchez. She was a lady in waiting and friend of Princess Ann. She was connected to . . . Chaos! Her great-great uncle was a populist xenophobe.

As this information flowed into us, we felt the touch of James on our left rear leg. James was the only human we had told about royal feeding. Human beings were not universally sophisticated and the majority still thought of their own species instincts as moral laws of the universe. It had been James' judgment, and ours, that it would be very difficult to obtain the support we needed if royal feeding became common knowledge.

Of course, if we had not been so clever as to advise James on how to handle the banquet seating, this situation would not have arisen. Well, we had made our hive and now we had to lay our eggs in it.

"There are differences, of course. We have a grazing area with fruits and seed plants. We pick what we choose to eat, cut it into quite small pieces, and inhale it, the solid substances being diverted to our digestive system by a sort of screen. The details of our anatomy are in our cultural exchange data if you wish to know more."

"I do," Lady Sanchez said. "You eat your children, don't you?"

"Lady Sanchez," James said. "This is not appropriate for this time and place."

Empress Marie seemed frozen.

"I won't be corrected by a bug lover. Anathor, will you answer the question or will you continue your concealment?"

"Linda!" Princess Ann exclaimed, "not now!"

"Are you one of them, too?" Sanchez asked. "My mistake. We the people of Earth and its worlds need to know the truth about these monsters."

"Linda! I'm your friend."

"Ann," Empress Marie spoke at last. "You were used." She hesitated, then sighed. "We don't get to have friends."

"We?" Ann said. "We?"

James looked at the empress and we followed his gaze. Her shoulders sagged, her head lowered, she seemed infinitely tired.

Had the only concern been the relations between the humans and the Children of Light, I would have answered the question in detail; indeed, we would not have omitted the information in the first place and likely would have had our meetings in some distant place of no concern to xenophobes. But there was much more at stake here.

Somehow information had gotten out. If not from James, where? The galactic library node at Proteus? That had been informed before our visit and its caretaker mind had agreed on discretion. There had been no previous queries about our species.

We looked around. The man seated next to Lady Sanchez was deep in conversation with the woman next to him, and appeared not to have heard anything we were saying. Ms. Omata, seated next to her grandfather James, could be trusted.

"Lady Sanchez," we started, "in our prehistory, we evolved a far more collective existence than your race has. We share our sense data and thoughts more readily through the electric organs we evolved. Our sense of individuality is much different. . . ."

"Queen Anathor, you do not have to answer this . . . impertinent question," Empress Marie said, imperial ice in her voice. "Lady Sanchez is no longer part of the royal household and it is our pleasure that she be escorted to the entrance without delay."

"Mom!"

"I'll scream!" Linda Sanchez said as men dressed in dark blue approached her.

One of the men behind her held up a soft ball on a stick and nodded to James. A sound canceler; no such scream would be heard more than a few meters away.

"Princess Ann," we said. "The possibility seems very great that Lady Sanchez' friendship with you was not sincere. She is of a family with a great dislike for non-humans, and her loyalty to that family is great."

"My loyalty to *humanity* is great, Anathor. Why don't you show us this feeding? Let people see what you really are! Will you answer the question or will we answer it for you?"

Empress Marie gestured to the men in dark blue. They moved forward. What would this scene look like to billions of human viewers?

"I beg your peace, Your Royal Highness," we said quickly, "but those do appear to be the choices. We do not ask that you tolerate this, but only that you delay what you must do for a few minutes, for the sake of appearances."

Taking a few moments of shocked silence as assent, we flew on. "Our social evolution preceded the evolution of tool use and the expansion of our minds to comprehend the universe. Our brains are given very strong rewards for following these presentient instincts; and those of us who choose to maintain a corporeal existence, for tradition's sake, also choose to tamper with these instincts in only very limited ways, for our intention is to be who we are. The royal feeding is part of that inheritance."

Everyone froze, including the escorts who had come up behind Lady Sanchez.

"We are neither like your hive animals, nor like your human communities, but are somewhere between. Our children, with whom you have been eating and conversing, have few individual goals. They are not robots, and they are not simply parts of our collective body, but they are not as independently motivated individuals as you are. You have no analog to this among your life forms or, we understand, nor any you have encountered. We ask that you set aside such analogies as you can and take us for what we are."

"Only one of us is female, and lays eggs. This hive-queen is strongly protected. The hive, in presentient days, did not allow her to leave the hive to forage on her own. Over millions of your years, the hives evolved a simple system to feed the queen and fertilize her eggs. One of their members would gorge himself, then offer his fattened body to the hive-queen. The urge to do so was very strong, and the reward during the process was also very strong, perhaps similar to what you feel in your mating act."

Princess Ann suppressed a giggle and the color of Lady Sanchez' face reddened substantially. We had, by accident, touched on something meaningful to them.

"In a space-hive, with a constant population, and no reasons for the hive-queen to not forage on her own, the question of royal feeding does not arise."

In this, we were being disingenuous. Our hive did not spend all its time in space, and there were needs for replacements from time to time. Nor, when our biochemistry decided it was time, would a hive-queen deny to any of her children so anointed the one great individual joy of their existence. But we were truthful enough about this hive-queen's recent history.

Lady Sanchez' glistening eyes locked onto us. We could taste her hatred in the air around us, emotion having caused a sweat that overpowered whatever inhibitors she wore. It was an incongruously lovely taste.

"Tell us how you do it. Or if not you, as you say, your other hive-queens do it. Tell us. You bite your children open and suck them dry. That's what you do, isn't it?"

"In so many words. The bite of the hive-queen is accompanied by fluids that produce euphoria, anesthetize, and digest the organs of the chosen, except for the nerves and brain, which experiences the euphoria, and the seminal cells.

"The hive child's head remains conscious for several minutes, communicating the joy it feels." The hive experiences what we suppose, in human terms, a group orgasm would feel like. But we did not describe this in our literature; there is something to be said for an economy of information under such circumstances.

"And if you don't have a fattened hive child handy, you'll take something else," Lady Sanchez snapped.

"That is not biologically possible," we said. "What made you think that?"

Lady Sanchez looked distracted and confused.

"Records have been found on other worlds. Your censored galactic library does not have a monopoly on information."

So *that* was the source of their information; propaganda from a race of conquerors our ancestors pacified a billion years ago, one that was unfortunately more like humans than us.

James sighed. "Milady perhaps is receiving information, from sources she trusts, that it is indeed not biologically possible."

"Do you have any more questions, Lady Sanchez?" we asked.

She shook her head and rose to be escorted out, but with a look back at a shocked Princess Ann that said their relationship was not entirely a hoax. Perhaps it had been sacrificed for too little. So we hoped.

Empress Marie laughed, a deep, cynical, bitter laugh. "Now you all should have a very good idea of what 'figurehead' means. If I command that you now finish your

meal and make pleasant conversation, will everyone get up and go? Or, if I command you to get up and go, will that then ensure that everyone finish what our culinary artists have tried so hard to make and which is now no longer so fresh?"

"Mother!" Princess Ann exclaimed.

"As you wish, your Majesty," we said, forked a small morsel of fish, placed it in our mouth, and sucked it down.

Princess Ann laughed, James laughed, and soon Empress Marie was unable to help herself. So the banquet resumed in a nervous semblance of good cheer.

This was well needed, for the real hard part lay ahead.

"Your Majesty," James said to us as we left the banquet table for our quarters, where the substantive discussions were to occur. "That was well played."

"We did what we could, under the circumstances."

"Empress Marie . . ."

". . . did, we think, no more than what she had to do. Thus, she did no harm. She could so easily, and so understandably, have made the situation much worse."

"She has been empress for a very long time."

The night had grown clear and the temperature had come almost down to what was normal for us. The brightest stars shone down on us past the lamp glow. It was beautiful, but we looked forward to releasing our bodies from the force of this gravity. We'd had some thought of touring the planet and seeing first hand the relics of the ascent of its people. We pruned our list of such things with every step our mechanical frame took.

"Whatever happens this evening, would it be possible for us to have some words alone with her?"

"Queen to queen?" James smiled. "My guess is that she would like that. She has nobody of her station to talk to. You may do."

"I have one other request, which you may find strange. Could the Princess Ann attend our session this evening?"

James stopped. This clearly surprised him. Then he nodded. "You think she should understand what's at stake."

"We do."

"You think Empress Marie thinks so as well."

"We do."

"If you will permit an impertinence, you may both put too much hope in that young woman."

"Your people play a game called contract bridge."

James nodded. "Yes?"

"Princess Ann is the key to what is left of Empress Marie's . . ." we searched for a word that meant willingness to strive, to try, to lead, ". . . heart. When there is only one distribution of cards that will allow you to win, you play the hand as if that were the distribution."

James nodded.

The magnetically generated release from gravity was even more welcome the second time than the first. The dome overhead showed the stars as if it were transparent, and decorated paper screens covered the massive coil walls of the room.

It was room enough for eight; our children rested their bodies in a nearby pool that was equally effective, but less conference-like.

James and our hive-queen were joined by an Admiral Sun Zhao-Li and his aide, a diminutive dark woman called Commander Jai. Prime Minister Eisen and the Uniformed Services Secretary, Jacques de la Soire, came during our introductions.

Then we all stood for Empress Marie, who immediately waved us down.

"Be about your business. If I have to say something, I will. Otherwise, just ignore the old bag."

Prime minister Eisen suddenly turned bright red, a very obvious display to our infrared-sensitive vision.

"The walls have ears, Hans. Don't bother with an apology, I am an old bag."

Princess Ann walked in then.

"You came," Empress Marie said, sounding somewhat surprised.

Princess Ann nodded. "I came." Some redness surrounded her eyes. "If you're going to destroy the universe or something, I may as well be in on it."

We clicked and motioned her to a human chair. We were the hosts here, in a temporary simulation of a home thirty thousand light years distant.

"Princess Ann," we said, "the destruction of universal civilization is actually in play, should we fail badly enough, but only as a very low order of probability."

"That is a gross overblowing of fact, yes?" Eisen said.

"But it does get one's attention," Admiral Sun said.

We nodded. "We are at least 97 percent certain that, even in the worst case, the outbreak would be contained within about twenty-five hundred light years by other forces being assembled. You all have the brief?"

"Annie come lately, I'm afraid." Princess Ann said.

"If you touch the net, Your Highness," Commander Jai said, "it should now be there for you."

"We shall summarize," we said. "A very rare event has occurred; the breakout of an exponentially expanding technological species that resists efforts of communication and may not even be conscious, as most of the universe understands awareness.

"They are percolating outward at an average of a tenth of a light year per year, but very unevenly; almost half the speed of light in some directions. They are now about one hundred light years away, in the direction of your constellation of Canis Major. For convenience, we can call them the Canids.

"There is another proto-technological amphibious species on a world around a red dwarf about forty-eight light years away from here, and more toward Orion. They make music, poetry, and some crude pottery. For convenience, we can call them the Oriona.

"The Canids reform the surfaces of the planets they encounter to suit their own parameters, destroying all surface and oceanic life in the process, so this second species is at great risk. They have reformed fourteen life-bearing worlds and probably many more in the time the information has taken to reach us."

"So for us, it's about twenty-five hundred years before the cavalry arrives, about five hundred years late, give or take a millennium?" Empress Marie asked, with not a little irony in her voice.

A slight exaggeration, but we nodded.

"That all must be verified," Eisen said.

"I have not been complacent since receiving Anathor's data," Admiral Sun said. "It is consistent with everything we know. For example, there has been a recent 60 percent decrease of oxygen pressure in the atmosphere of a world sixteen light years from the outbreak world. It is down to 11 percent. Another fifteen worlds show similar changes of lesser magnitude."

That was about half of Earth's oxygen and a quarter of ours. We looked at the crown princess, whose eyes were wide and mouth slightly open; she knew the significance of that number. The information was new to her, and she was still in a slight state of shock from last night; she had said nothing since the summary started.

Though it was not necessary with our compound eyes, it was useful in the way of human body language to turn our head to each of the conference participants. "What

we suggest is that we spend the next two decades converting about 10 percent of the mass of your asteroid belt into a fleet sufficient to provide an overwhelming numerical advantage over whatever forces they are sending toward the Oriona world."

"A tenth!" Eisen shouted. "You can't be serious! The bodies of the Solar System are the common heritage of all humanity. Most of the larger ones are settled, with families, communities on them. This is outrageous!"

"Are you sure a tenth will be enough," Admiral Sun asked quietly, "to end this, if the show of overwhelming force is not sufficient?"

"End this?" Princess Ann asked.

Empress Marie looked at her daughter. "A final solution, my daughter." She turned to us, her visage grim. "We are asked to contemplate genocide, are we not?"

Her two dark pupils focused on us, boring into us in a way no compound eye could communicate. She was, of course, linked to their Earthmind and the whole of the heritage of this species from the time they were able to transcend biology, and even before, by cruder means of recall. Their parallel collective experience dwarfed even that of our billion-year star hive.

She continued. "Queen Anathor, this ramshackle galactic civilization, with its library nodes scattered here and there, with its relative handful of anachronistic wanderers flitting randomly from this star to that, this galactic civilization so wise and so hands-off that it can't respond to genocidal evil in less than a couple of millennia, this galactic civilization wants *us*, the newest kids on the starfaring block, to do its dirty work for it. That's where we are at, isn't it?"

Despite our vast seniority, we did not feel very superior at that moment. But we did know better than to prevaricate. "Yes. We should mention that in the process, you would be saving yourselves."

"Oh? Admiral Sun, if we just sat still and built weapons, we could handle these vermin when they get to us, couldn't we?"

"If! Not when!" Eisen said. "You are being too credulous!"

The Admiral ignored that and spoke to his empress. "Your Majesty, a prepared defense has a great advantage over any offense, but I have no way of knowing what our opponents' strength would be at that point."

Eisen harrumphed. "In such a preposterous event, the political problem would belong to someone else; we all will have passed from the scene," he said, then caught himself, "except your Majesty, of course."

We tried to put our pincer claws into the notion that the possible extinction of one's species was a "political problem," and noted that this remark brought an even greater tightness to Empress Marie's face, and that she had, unconsciously perhaps, formed a fist with her left hand. As had James.

"Your Excellency," we addressed Eisen, "another intelligent species, as well as countless worlds that may sometime develop thinking beings, are also at risk."

He snorted. "About that, my voters are not likely to much care."

"And you, Hans?" Princess Ann asked. "Do you give a fart?"

A brief smile touched Empress Marie's face, even as she shook her head at her daughter.

"I represent the people of the solar system and beyond. Myself, not."

"With your leave, Admiral," Jai said.

Sun nodded

"Perhaps we could follow both courses of action, even though it might cost us *two* tenths of the asteroid belt, or the equivalent excavation of Mercury. If we simply wait here, we would put all our hopes on one battle. Perhaps we should give ourselves two chances."

Sun smiled, and nodded. "My student."

Jai bowed to him.

They were beginning to take ownership of this calamity, we noted. That was a good sign. We also wondered that this loose non-hive of associated individuals had a warrior class, whereas our hives had not evolved one. A primitive feature, perhaps, but for now, a useful one.

"It's late," Empress Marie said. "We'll all want to consult, study, and think a bit more. Tomorrow afternoon, here, Queen Anathor?"

"We are at your disposal, Your Royal Highness."

"We as well," Admiral Sun said.

"More talk," Eisen said. "Ach! Very well. Better than starting a war over fish today."

"The Oriona are amphibians, Hans," Princess Ann said, "like frogs. If we save them, maybe I'll get to kiss one some day."

Eisen grunted, while Jai put a hand in front of her mouth to hide a smile. Empress Marie sighed very slightly. Admiral Sun stood and bowed to us, and his empress in turn. "Your Majesty," he said softly and walked from the room, Jai trailing.

Eisen pushed himself up, nodded curtly to the empress and left.

Empress Marie looked at her daughter. "I just don't know what . . ." and then was overcome with laughter. "I just don't know what to do with you. Queen Anathor, you wouldn't know, but the frog kissing remark was a comment on my efforts to produce an heir who would actually want this job. I've been through thirty-seven consorts."

"And fifty-six crown princes and princesses, counting me," the crown princess added. "But you've had a lot more children than that, haven't you, Queen Anathor?"

"This queen has laid 573,835 eggs in her lifetime, but that is an ordinary, even a small number for a hive-queen of our species, whereas your mother's fifty-six is a very impressive number for one of yours."

Empress Marie rolled her eyes up and laughed a bit, but the laugh died quickly.

"Your species normally mates for life, we realize," we added.

She waved a hand, "When a lifetime was fifty years or so."

"There would have been a cost," we said, knowing human beings perhaps better than most knew themselves, "to every marriage, to every separation, to every child who rejected this heritage." It was very clear to us why Empress Marie was so tolerant of Princess Ann's disrespect of form and tradition. In spite of all evidence, she still had hope. "And you have borne all this for the sake of your people."

This would not be something that was any news to Empress Marie, but we wanted the crown princess to hear it.

"I should just abdicate. A robot could do this."

"Mother! Queen Anathor, she would never carry through on such a threat. I'm sure she's been saying that she would for a thousand years."

We clicked. "We have had similar thoughts ourselves, for a thousand thousand times your mother's thousand years."

"Hive-queens abdicate? That wasn't in the background material."

"It is a variant of royal feeding. Two queen eggs are laid, and when the larva has drunk in all the knowledge of the hive, and emerges from their final molt, the old queen feeds them her body. It is the greatest and final joy of her life. It is a joy such tasks as this mission make seem very attractive."

"But the Galaxy has a cancer in it, and we must not think of ourselves," Empress Marie said.

"Exactly," we replied, and turned to the crown princess.

"Well," she said, "I'm going to think of myself at least just a bit longer and get some sleep. G'night, queens."

But in contrast to her brash language, she touched each of us, gently, then turned and left.

Empress Marie turned to us. "I hope she hasn't irritated you, Queen Anathor. Though it seems nothing much does; you're an inhumanly good diplomat."

We clicked. "We are, of course, not human. But, your Majesty, we can be irritated. Five hundred and twenty thousand years ago, we encountered another breakout such as this. They had powerful religious instincts, and their leaders found themselves physiologically bound by their religious duty to their priest caste to carry out exterminations of nonbelievers. Yet they realized the logical wrongness of this in the real universe. So they contrived a frontal attack on our overwhelming numbers and would not stop until we were forced to change their genome; what survived was no longer them. It was a racial version of what humans called 'suicide by cop.' Being forced into that irritated us."

"I see."

We waved our pincers in mimicry of the human gesture of helplessness. "It wasn't as clear as it is in this case; there were negotiations, deceptions, minor conflicts, and then a crisis. We had to act. The propaganda your xenophobes found was left over from that encounter."

We sat silent for what seemed several minutes.

"And still you roam the Galaxy?"

"Some must. Most roamers are cybernetic beings, of course. So, we are a bit old fashioned. It helps in contacts with young races. But, we, too can be replaced by robots."

Then Empress Marie laughed and said, "By Chaos, we can feel sorry for ourselves! I should be doing a better sales job on Ann, or I'm looking for number thirty-eight and number fifty-seven. If I can. Or maybe Hans will just change the constitution and make himself president, chancellor, or dictator, or something."

"We are new here, of course, but would think that in this crisis, your people, and the Oriona, and the Galaxy, and perhaps even the Canids, are much better off with you leading your hive."

Empress Marie sat down, no, she fell into the chair as if exhausted, as if weighed down by a mass that even the low gravity of our quarters could not ameliorate. We pulled our stool over to her side and sat with her.

"I'm really just a figurehead," she said, "a romantic, royal, ceremonial prop. We never went as far down the road of collectivity as your species has, but we still have our own hierarchical instincts. So, someone needs to look like they're at the top. People are more comfortable that way, regardless of reality. I have no real authority. Hans can do whatever he gets the votes for and I have to go along with it unless it becomes an Earthmind issue, in which case I have to go along with what Earthmind wants. Oh, of course, when nobody knows what to do, I'm the royal executive flipping decision-maker. Throw me up in the air and see if I land flat on my face or my butt."

We gave that the clicks that would be expected, though she didn't sound humorous at all.

"You've had to go to war before," we noted.

"I have. Over three thousand people died because of it. That fountain outside is their memorial. Queen Anathor, that was three thousand individual, unique consciousnesses. Imagine three thousand hive-queens."

There had never, to the best of our knowledge, been as many as three thousand hive-queens in our species at one time. We, of course, knew of the war she had then felt she had to support. Parliaments and politicians aside, if she had chosen to publicly oppose it, that fleet would not have gone.

"I have done this before, and now I've hung around so long I get to do it again." She held up her hands and looked at them. "They don't come clean, do they? So what's another sanguinary bath?"

"You would not tolerate evil done by your own species, even at so great a sacrifice. You did not know it then, but you have gained the respect of all the dozens of civilizations that are in the light cone of that event. It was part of why we have turned to you in hope."

"Have you? I'm not the woman I once was."

We sat silent. So much hinged on the hope that she was still that woman. But somewhere inside, she had to realize it.

"She came to the meeting, didn't she?"

She meant the princess, of course, conjured in her mind by the hope of laying her burdens down.

"She did." Ann's presence, her interest, premolting behavior aside, was the hope that sustained her.

Empress Marie nodded and took a deep breath. "A long day tomorrow. I shall call my escort."

We accompanied her out to the great stone square and felt the mist blown from the great fountain again. A car came and whisked her away. We looked up and saw maybe a handful of stars. Our eyes, like human eyes, limit the amount of light they admit, and the courtyard was well lit. A woman came toward us; the crown princess, our children told the hive-queen.

"You want to see the stars, Queen Anathor?" she asked.

"We do. But the lighting is too . . ."

Princess Ann raised a hand to her head. "Zwicky will take care of it."

The lights vanished and a million stars burst forth. The high gravity of Earth needed only a thin layer of air for its atmospheric pressure, and the stars shone down with almost the clarity of space. Our ancestral soup of an atmosphere was almost three times as thick overhead and hardly ever cloudless.

The princess produced a light that shined up into the sky as if to infinity. "The three bright stars in a row are the belt of Orion."

Seeing alien star maps is vastly different from having their stars shown to us in their natural depth. Our eyes now traced the imaginary lines in the sky and saw the figure humans saw at the dawn of their civilization.

"They sort of point to that very bright blue-white star, Sirius."

We nodded. "So, our fate lies between those stars."

"Hard to tell who all you mean to include with that 'our,' Queen Anathor."

A grammatical ambiguity that worked in our favor! We clicked softly.

"We are surprised to find you still awake, Your Highness."

"Oh no you don't. Ann. Just Ann."

We said nothing.

"I couldn't sleep. Too much to think about. I think better walking around."

"Your mother thought well of you, this evening. We did too."

She shrugged. "I haven't abdicated yet. Until I do, I should keep up with things. You never know. At any moment . . ."

"Your mother's inner strength is greater than she knows."

Another long period of silence followed, filled with the tastes of flowers, the mist of the fountain, and the hard bright stars above.

"Why does she do it?" Ann asked.

"Have you ever read the stories of Robert Heinlein," we asked, "from the days when your species first dreamed of leaving their planet, and then, finally, haltingly, did?"

"The story *Double Star* is given to anybody with royal blood. *Glory Road* as well. Not necessarily by our parents, or the palace staff, however."

"Then you know about paying it forward."

"Yes. Mom has a debt she wishes to pay forward? It must be some debt."

We nodded. "Twenty thousand years ago, your species might well have perished in the ice ages. It was not us, but some other wanderers. It is all in the library."

"If you ask the right question! Chaos!"

"Your mother has spent a lot of time with the library records. Only a few of each species choose to lift their kind. Only a few are such heroes."

"Mom?"

"You know she is. And you know what it costs her."

"Yeah, well the reason I'm going to abdicate is that I'm not up to that kind of thing."

We didn't answer.

"Well, I'm not. Sorry to disappoint."

We touched a claw to her shoulder.

"I'm twenty-two years old. You and Mother are trying to get me to think in terms of centuries, millennia, eons. It's too much. I have no reference. I'm just not . . ." She looked up at the stars.

"You're not, perhaps, getting the sleep your species needs." We knew all about protesting too much.

She laughed. "You've got that right, Queen Anathor. I'd better get in now. It's getting chilly." She gave us a wan smile and left.

The temperature seemed just fine to us, of course.

When the next day's conference started, Princess Ann was last in again, but only because the prime minister, somewhat late himself, bulled his way past her as if she weren't there. She was dressed differently today, in severe gray pants and a tunic with a high collar and a small blue gem at its clasp. Her hair was back and tight.

We went over everything again, and the prime minister still resisted doing anything.

James, who had said almost nothing yesterday, finally turned to Eisen. "Is there anything that the Children of Light have presented that you question in any way?"

Eisen sighed. "Omata, what *I* question, or do not, depends on what the voters believe, and that changes daily."

"Facts mean nothing, then?" James asked.

"In terms of what decisions I make, what I decide to do, to put it bluntly, no, they themselves are not important. I must work with what voters *believe* are the facts. Though I must say we have here not facts as much as probabilities and judgments. Most are very disputable and are so disputed."

"One," James said, "the Canids exist, sterilize worlds, and are expanding. Two, the rest of the galactic civilization cannot get here before they do in another inhabited world. Three, we can meet them half way, or wait until they get here."

The prime minister shook his head. "Or we can meet them two-thirds of their way here. Or they may self-destruct before they reach anything else. They may already have self-destructed. Or they may not come here and expand in some other direction. If, and I say 'if' advisedly, we must do something to antagonize them, we can do that when the public is fully on board with it."

"What if that's too late, Hans?" Princess Ann said, speaking for the first time.

"What if, what if, what if. The what ifs can be someone else's problem."

Empress Marie spoke. "Queen Anathor, if we do nothing, what will you do?"

"Head for the Oriona system."

"With one ship?" Admiral Sun asked.

"Their Sun has an asteroid belt. With fortune, there would be many more than one

ship before the Canids arrive. As the prime minister has pointed out, there are many what-ifs in this situation. Some of those would allow for our success."

"Most would not," Admiral Sun said.

"To guard against that, we would create an Oriona ark and send it outward toward the converging galactic forces. Even if the defense fails, their escape would be success of a sort."

"Your Highnesses," Admiral Sun said. "There would be at least two ships headed toward Orion. Whatever is written of the history of my kind, it will not be said that I was a coward or turned away from such duty."

"You will not act against the orders of the minister of conflict resolution," Eisen said.

Admiral Sun smiled and bowed slightly toward him. "I would not then be part of the ministry, of course, your Excellency." Then he turned to us. "At *least* two ships."

"A suicidal fools' errand," Eisen said.

"I'll go with them," the crown princess said with a shrug.

That stunned all of us into a silence.

"Nonsense, overblown nonsense," Eisen blustered. "Consider your duties."

"I am. I need to see more of this Galaxy while Mother's still around."

"Your Highness," James said, great worry on his face.

Empress Marie reached over to touch James. We marveled at the complexity of the interactions between the humans compared to the simplicity of our own.

Empress Marie turned to the prime minister. "Hans, your problem is perceived political backing. Very well, I will make a speech."

"Your Majesty, the government has not yet decided that there should be a public airing of this, nor what the form would be, nor that it should have any advocacy, and particularly not from the head of state."

"I will make a speech, and then you will have new political realities to deal with."

"That is not your role as a constitutional monarch."

"Then fire me. It appears I have a successor."

The prime minister sat silent for a moment, and then said, "There are bills for constitutional change presented at every session."

"Hans," Princess Ann said, "the sessions have been an average of ten years apart."

"I could call one."

"It would be a vote of no confidence," Princess Ann said. "Touch the net, do the numbers. You won't beat Mom."

James laughed, "Of course, your Excellency, then it *would* be someone else's problem."

"Do not patronize me, Omata. At least, Your Royal Highness, allow the government to draft the address."

The way he said 'Your Royal Highness' tasted of contempt, and the resulting smile on the empress' face reminded us of the baring of fangs by one of this planets carnivores.

"I will draft it, with James' assistance."

"One of your former consorts?"

A quick check showed that James had been consort number twenty-five, but had never totally left the empress' life, and this was rumored to have been a factor in the departure of number thirty-seven, who, we now suspected, may not have been Ann's biological father. With human leadership there are often two stories, the official and the real. We struggle to keep up.

". . . and that of Earthmind, of course," Empress Marie continued with ice in her voice. "We will give you an advance copy."

"Earthmind," Eisen spat the word out. "The dead cannot rule the affairs of the living."

"Your Excellency, the survival of the human race, and the survival of Earthmind, is their business as well," James said.

The prime minister sat silent, bent over with his face in his hands. Nobody said anything.

"If it matters," we said, "even the first ones tell us the greatest lesson is that what the universe lays on us pays little heed to the wills of minds within it."

"Not my will but thine be done," James whispered. It was a quote from a human religion that lived on in their culture. Wisdom is wisdom, wherever found.

"Hans," said Empress Marie, in a softer voice, "we will make no mention of what has happened here. For those outside, it will be as it always has been."

He sat up and shook his head. "No. I am no war leader, and I have clearly lost the confidence of your Majesty. I must consult the others of my party first, but you shall have my resignation within days." He stood up. "We haven't had elections in over a hundred years. Perhaps it is time. At any rate, you will do what you will do and my presence here serves no further useful purpose. By your leave, your Majesty."

Empress Marie nodded and he left. We never saw him again.

"The casualties have begun," she said into the silence that followed the prime minister's departure. "I have a speech to write."

With all the others gone, we walked out into the gravity with James and Ann, into the great plaza to watch the droplets of the great fountain ascend to the stars and fall back in their endless cycle. There was not much more to say.

The next twenty-three revolutions of their planet about their sun brought more change in both them and us than the previous thousand. The star became almost ringed with machines to absorb its power and send it to the growing fleet. For ourselves, we laid another thousand and twenty-four eggs. There were no royal feedings; we needed every hive-queen we could produce. We could wait. Interestingly, we had now become "Empress" Anathor in human language, a queen of queens.

When the day came, we joined the human dignitaries. In deference to our feet, we met on the deck of the Mars gravity level of Fiji Tower. Prime Minister Thaddeus Zwicky personally escorted us to Empress Marie, Prince Consort James, and Admiral Jai of the home guard.

All but Thaddeus wore some version of their military uniform, a show of solidarity with the thousands that would soon follow Admiral Sun and Princess Ann toward Orion.

James motioned us to our place and waved to the stars above us. "The light from propulsion beams reaching the first wave should arrive at any moment," he said.

Almost before he stopped speaking, a thousand new stars ignited above us, then grew tails that flowed back toward us like contrary comets bound away from the Sun. Two hundred and six of those were hive-ships of our hive's daughter queens.

"Fare well, our sons and daughters," Empress Marie said.

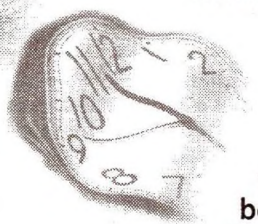
They did fare well; the Canid hive did, in fact, recognize overwhelming superiority and the most awful deed contemplated proved unneeded; they retreated to their home system without violence. Three hundred years later we, the Children of Light, left Empress Ann and the human stars for another story. Marie sent her farewell from Earthmind.

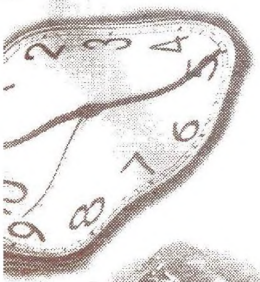
The Orionas, blissfully unaware of any of these events, continue to make their pottery, their poetry, and their music. Perhaps, in another turn of the galactic wheel, they will also pay it forward. ❍

RIVERS

In the darkness,
a luminous
torrent:
the great
sky river
a hundred
billion stars
We are
stranded on
a lonely
island
marked by
dust lanes
a turbulent
whirlpool
moving
inexorably
through spaces
too vast
for
comprehension
flowing too
slowly for
mortal eyes
to see.

Inside us,
surrounding
us: the
river
of life
branching,
flowing
through
our veins
from
generation
to
generation
Warm, salty
ebbing
and
cresting from
heartbeat to
heartbeat,
surging
inexorably,
flowing to an
invisible
sea.





Before us,
behind us:
the river
of time
We long
to gaze
beyond
the bend
to that
cataract
that we
can hear
in the
distance.
We are
caught
in the rapids,
borne downstream
rushing inexorably
to the future we will never see.

—Geoffrey A. Landis

SKYLIGHT

Kristine Kathryn Rusch

Kristine Kathryn Rusch's Diving universe novel, *City of Ruins,* just won the Endeavor Award for Best Science Fiction or Fantasy novel by a Northwest writer. The novel contains, in expanded form, the novella, "Becoming One With the Ghosts" (*Asimov's,* October/November 2010), which won our Readers' Award. Kristine's fourth Diving novel will appear later this year. The most recent novel in her acclaimed Retrieval Artist series, *Blowback,* came out in December. Kristine is also editing *Fiction River,* a new anthology series. The first issue has just been released through WMG Publishing. An exciting new character must pick up the pieces of her life in the author's latest story for *Asimov's.*

Skye stands over the unbelievably fat man, feet spread as far as they go so she can straddle him, and clutches the spear in her right hand. His eyes are wild, but he's past begging. Tears stain his face, and his lower lip trembles.

She doesn't hate him. She should hate him, right?

She doesn't look up, either, because if she looks up, she fails, but she feels like stepping aside. Even though she's in a simulation, everything feels real—there's an actual wind blowing her long black hair (over her face, dammit), her footprints depress the grass around the fat man's body, and the light of the fading sun seems too bright to her untrained eye.

Plus she can smell this guy. He smelled like garlic when she first arrived at his estate, pretending to be an escort that he had hired, and now he smells like sweat. Not healthy manly sweat, but flop sweat, tinged with fear so powerful that if there were predators in this simulation, they would come from the woods beyond in droves.

But there are no predators here, not even her. She's supposed to be one, but it's just not working for her.

"I asked this before, and I'm going to ask it again," she says, *sotto voce* to her handler, just like she's supposed to if something goes horribly wrong with the simulation. "A spear? Really?"

She knows the answer. Her handler has given her the same answer for two full days. *You have to be ready to use everything around you.* The story she's acting out here is a simple one: the fat man's bodyguards disarmed her at the door, so she grabbed what was near to hand.

But she hadn't arrived at any door, and there were no bodyguards. She just appeared inside the estate, near the fat man, conversation already in progress. She

stood with her hands folded in front of her while he talked, and scanned the room that overlooked the manicured grounds, searching for weapons.

The fat man had no idea she would grab a weapon (and the spear was handy), then end up like some kind of warrior, chasing him down that perfect lawn until he tripped and sprawled in front of her. Not half an hour ago, those bulging eyes twinkled with the idea of sex.

Now she's supposed to plunge that spear into him. Preferably into his heart where he'll die immediately, but considering what he's (supposedly) done, impaling him in the eye isn't bad either. It'll make him scream and hold him in place and then she can go back for a more suitable weapon, like a knife or a laser pistol.

She'd prefer a laser rifle—hell, she'd prefer some air-to-ground missiles—because she doesn't like looking at this guy's face. Even if it is simulated face.

It's a simulated face that's crying, because, apparently, that's what the fat man did the day he really died, when a real assassin killed him nearly a decade ago.

Skye stabs the spear into the ground beside her, then uses it for balance so she can step away from the fat man. He sits up, his lower lip still trembling.

"Thank you," he says, his voice wobbling. "Thank you, thank you, thank you."

This is the point where her best friend MingLee said, *Screw it,* plucked the spear out of the ground and ran the guy through. She wasn't supposed to tell Skye the experience in this simulation (or any simulation for that matter), but she had, in whispers, when they were off the Guild grounds, on holiday.

I guess that's when I knew I could do this, MingLee said. *They say you have to have a lot of anger in you to qualify, and I had no idea I had any anger at all until that fat man sat up and treated me like his savior for letting him go.*

He isn't treating Skye like a savior. He's thanking her, sure, but she can see in those bulging eyes of his that he's trying to gauge her, to see how badly he can fool her before he manages to escape.

She sighs. "You're really a piece of work," she says to him, then shoves him backward with her booted right foot.

He starts crying again. She'd wager that in other simulations, people would kill him for those tears. But she's not other people.

Nor is she a good candidate.

She thought she was angry about everything. Apparently, she's not.

Still, what anger she had started the day she arrived at the Assassins Guild. She'd been ten, ragged and hungry, so thin that she could see the outline of the bones in her hands. She'd been told she was going back to her parents, and instead her uncle (if indeed, he was her uncle: it had never been proven) brought her here.

The Assassins Guild looked like a prison to her, but then, everything on this part of Kordita did. The Guild took up the area of a small city and it was a fortress, literally and figuratively. Outside its gates, it seemed so formidable that she had no idea how people would enter it.

The gates, seemingly made of blond river stone, towered above her. Columns rose on the right and on the left, apparently holding up the actual door in the middle.

Only it wasn't a door so much as the image of a door. If she put her hand in it (and she didn't at that moment; she only learned this later), she would discover that the image rippled, faded, and showed the actual entrance behind it. The entrance had three different airlocking systems, filled with all kinds of identification monitors and DNA checks.

Almost no one entered the Guild this way; those who tried usually died. But her so-called uncle hadn't known that, not that he would have cared.

He spoke to that rippled door as if someone were there.

"I'm leaving the kid here per her parents' instruction." He glanced over his shoulder to see if she was listening. She was, but she was also trying not to look at him. He had a long thin face, something like her mother's but not enough like her mother's to think they were related. Besides, his black eyes were shifty, looking at Skye, then looking away, like people did when they lied.

He turned back to the door, and said, "Either you let her in or you don't. It's not my business. I will say, though, that I doubt she'll live longer than a week without a good meal. And that's on you guys, not that *assassins* would care about anyone's life, right?"

No one answered. Nothing happened at all. There wasn't even any indication that anyone had heard his message.

Skye thought he would try again. But apparently, she didn't even warrant a second try.

He shrugged, and backed away from the door. Then he turned toward her, tousled her hair, and gave her the fakest smile she'd ever seen.

"Good luck, kid," he said almost like he meant it, and walked away.

Her breath caught. She wasn't going to yell after him. She knew better than to do that. But part of her couldn't believe he was walking away.

He was the last tie to her parents. How would they find her? She couldn't imagine that they would want her someplace called the Assassins Guild, but she couldn't imagine a lot of things about her parents, things that they would later say or do.

Of course, they wouldn't try to find her. They never did.

She swallowed and raised her chin as her so-called uncle disappeared over the horizon.

She didn't cry. He wasn't worth the tears. Besides, she was already used to people discarding her. Her parents had tried for years, and had finally succeeded six months ago—only because she stopped trying to find them.

She wasn't going begging back into their good graces. Not any more—she could feel that resolve, even now.

She sat down, wrapped her scrawny arms around her scrawny legs, and rested her cheek on her knees. She could still hear her so-called uncle cursing even though she could no longer see him. He was going on about money owed, payment denied, and revenge exacted.

Not that she cared. She was done. No one wanted her, and she wasn't even sure she wanted herself.

She decided to wait until he'd been gone at least an hour. Then she'd try to find her way back to that slow-moving train he had taken her on. Maybe she could take it back to the city. She knew how to survive in a city; she could pick a pocket, steal an identity, and scrounge food better than anyone she knew.

She had a plan. But surprisingly, the Guild changed it.

And they changed it by opening the gate.

Skye sits in the debriefing room. She hasn't expected to come here; she was told she'd be debriefed inside the simulation. Apparently she failed so badly that no one wanted to visit the interior of the simulation with her.

The debriefing room is purposely devoid of anything except a table, two chairs, and of course, the replay walls that are able to show her failure in both 2D, 3D, and full virtual. Right now, the walls are off.

Maybe she's going to get thrown out of the Guild, although she isn't sure if that's even possible. After all, she owes them a small fortune for fifteen years of room, board, and education. Theoretically, she's supposed to work off the money as she apprentices with someone.

But she's not going to apprentice with anyone now. No one's going to want her. She already has a reputation for failing to play well with others, and now she can't even kill a mass murderer properly.

Or, better put, she can't even replicate the murder of a mass murderer properly.

Oh, wait. She's supposed to call his death an assassination.

The Guild defines *assassination* and *murder* differently. Assassination is a targeted death, done for reasons other than passion. Murder usually happens in a moment of passion, often without planning, but usually in response to some kind of emotional stimulus.

Assassination, properly done, is actually legal. The Guild is registered with hundreds of cultures on dozens of planets, and gets called into service whenever a major criminal (usually a mass murderer) escapes local justice and moves to a jurisdiction that protects him. Or won't give him back. Or simply lets him exist.

Treaty after treaty makes it okay for members of the Guild—and for other licensed assassins—to get rid of legal targets, targets already convicted elsewhere of provable crimes.

Sometimes the Guild even goes after folks whose heinous crimes can't be proven in a court of law, but who are clearly guilty. That requires a bit more finesse, and a lot of proof from either the person (government, business, *whatever)* hiring the Guild, or proof from the Guild itself.

Ten years ago, the fat man was one of the unconvicted—he'd actually bribed his way free. He'd murdered dozens of people, including some of the jurors on his very first trial five years before, the one that made someone—Skye isn't sure who—figure out that this guy was too slippery to convict of anything; he just needed to be executed.

Execution is another word that the Guild says is different from murder. But Skye isn't sure of that either. *Execution,* as she learned in school, is simply what murder/assassination/death caused by others is called when a government does it.

She knows the lecture she's going to get now, in this debriefing room. *You can't have pity for these guys,* her handler will say. Then she'll hear a recitation of everything the fat man ever did, probably the same damn recitation (with actual footage, in some cases) that she heard when she moved to this training level.

It took her a while to get here. Her hand-eye coordination isn't the best. She required extra training just to get through weapons proficiency, and she passed it by such a low margin that she wasn't sure they would move her forward.

But those anger tests, they got her a lot farther than anyone expected.

She might have bad hand-eye coordination, but she has enough anger for twenty assassins.

Or maybe twenty-five.

Or so they told her—before this simulation.

She didn't make friends in the Guild. What was the point of friends? You'd just have to leave them anyway. Or they'd abandon you when it mattered.

From the moment she walked through that door into the Guild, she stayed on her guard. She expected them to throw her out. No one did.

They threw her in a class with a dozen other kids her age. Those kids paid real money to come here—or their parents had paid it. The kids were supposed to learn a trade, and *assassin* was one of the hardest trades of all.

You had to be smart, because you had to outthink your opponents. You had to be strong, but that could be trained. You had to be charming, or else no one would befriend you. And you had to have an ability to be forgettable, or your usefulness would end after your first few jobs.

The Guild tested for all of that—or at least, it tested the things it could test for. It could test for smarts, but charming appeared over time. Forgettable was something that couldn't be tested either. And the Guild believed that anger would become strength over time.

Skye mimicked charming. She told people what they wanted to hear.

All the kids had parent stories, so she had parent stories. Some of them were even true.

Usually the parent stories got exchanged when the kids were in the gardens. The gardens inside the Assassins Guild were extensive, and were supposed to be calming. The kids had their own garden, filled with plants of all kinds—although none lethal. There actually was a lethal garden, locked and hidden, something the students got to use if they made it through regular schooling and moved into Assassins school proper.

Skye loved the garden, mostly because of the sunshine. Lots of stone paths widened into flat areas where kids could lie down and study the bugs in the dirt. She hadn't seen bugs in their natural environment before coming to the Guild; she'd only seen bugs on ships or in restaurants or in low-rent space stations. There the bugs were disgusting, a sign of filth. Here, they were normal and desired, usually to keep the plants alive.

She wasn't sure how she felt about the plants. All the other kids knew what the green ones were called and why some of them had red blossoms and others purple blossoms, but she didn't. She'd never had regular schooling.

In fact, she'd never been in one place long enough to know where she was from. Her parents hadn't named her for the sky she now saw above her, beautiful and blue and clear.

Instead, they'd named her Skylight, to remind them of a daring escape they'd made out of some ancient palace on some faraway planet. She had no idea what a skylight was until she'd come here, and someone had shown her one that existed in the upper towers of student wing.

Even then, that person hadn't known her name. No one knew her as anything but Skye. She wouldn't even tell them her last name.

Not that any of the kids asked. They were more concerned with prestige and wealth and backgrounds of the parents.

"Hey, Skye," some kid would say, "how much money do your parents make?"

That one was easy and true: "I don't know," she'd say. "They never told me."

Or

"Hey, Skye, why haven't your parents come to Parents' Day?"

Harder, but also able to be truthful: "Their job takes them all over the sector. They never know where they'll be from one month to the next."

Or

"Hey, Skye, what do your parents do?"

That one she couldn't answer, not truthfully, not and stay here. *They're pirates* wasn't quite true—they didn't steal *ships* per se, but they did steal things on ships. *They're thieves* made them sound small, and her parents were anything but small. They had grandiose plans, and sometimes those plans even succeeded.

So she'd say something almost true: "I don't know what they do exactly. They can't tell me what they're doing most of the time."

"Top secret, huh?" the kid would always answer, and she'd smile knowingly.

"Top secret," she'd say, and go back to her bug study, or whatever else she was doing.

No one ever asked her how she got here. No one ever asked her why she was here. She didn't even know this place cost money until six months in, when one of the administrators pulled her aside.

"Your probationary period is over," the administrator said. "Congratulations. You're a perfect candidate for our school. We've gotten you several scholarships to get you to age fourteen, but after that, we will need to review your situation."

Fourteen seemed like forever away. She didn't think of it.

Nor did she think much about it when, at fourteen, they explained that she could move to Kordita's biggest city, Prospera, and go to public school at the city's expense or she could stay here, have a top-notch education, and then work off her debt to the Guild once she graduated.

Working off debt sounded just fine to her.

It wasn't like she had plans.

But, of course, back then, she hadn't known what working off debt actually meant.

Václav, her handler, strides through the door. He's whip-thin, muscular, and not much taller than she is. He keeps his head shaved, not because it's perfectly formed—it isn't—but because he lost his hair early, or so they say.

His skull shows his difficult life. Scars scatter across it like tattoos. He can have the skin enhanced so that no one sees the former injuries, but he's proud of them.

Skye thinks they make him look like he has been stitched together by an inept seamstress.

He sits in front of her. He doesn't reach under the table and activate the walls. She at least expects to see her failure in slow motion.

Instead, Václav tilts his chair onto two legs, one elbow resting on the back, and says, "I don't think you were objecting to the spear."

She doesn't expect him to say that. She raises her chin anyway. "It's a stupid weapon, especially at close range."

"Yes, it is," Václav says. "That's why the assassin who actually killed your target didn't use it. In fact, you're the first person to do the simulation to set the spear aside, just like the original assassin had."

Her stomach twists. He's not supposed to tell her how the actual job went. "Why are you telling me this?"

He smiles. His smile reveals laugh lines around his mouth, but not his eyes. She's always found that curious. He has learned to smile and look amused without changing the expression in his eyes at all.

"I think you know the speech I would normally give here," he says. "I suspect you could recite it to me. I also think that it doesn't matter to you."

Her heart pounds. She's not used to being seen so clearly.

"I do want to ask one question, though," he says. "Does it matter to you that after this guy escaped the first time, he murdered sixteen people, including ten children?"

She shudders just a little, and looks down. This is the reason no one tells the apprentices the names of the simulation targets. That way, the apprentices can't look up what really happened. They have to trust their instructors to tell them the truth.

"Or that our projections showed that if he had been allowed to live, he probably would have killed—conservatively—another two hundred people over the course of his natural life?"

She swallows. She wants to say, *Statistics can be manipulated* or something else equally vapid like, *We can't predict the future.* But she doesn't because she knows there is no excuse for what she has done.

She's an apprentice. She's been given a target. She's supposed to assassinate him.

In fact, her instructions were to kill him in any way she can, only she must *not* let him escape.

The word "escape" filters into her consciousness. She frowns. "Did you say he escaped?"

Václav's smile finally reaches his eyes. Still no laugh lines, but the edges turn downward in amusement. As he trained her over the years, she always enjoyed seeing that downward turn more than she enjoyed seeing him smile.

"And the actual assassin didn't use the spear?" she asks. Then she tilts her head. Her breath catches. "This isn't a training simulation. You guys first created this simulation to see where the original assassin screwed up."

Václav claps his hands together slowly.

"Brava," he says. "You are the first student ever to go to the metalevel. Of course, in doing so, you've also managed to fail to qualify as an assassin."

She isn't sure what he means, why it amuses him, or why he finds it all praiseworthy. So she focuses on the failure. "Just because I set down the spear?"

"What do you think would have happened to you had he escaped?" Václav asks.

She doesn't know. No one has ever talked about this. All she has ever learned in the Guild is that failure is not an option.

"I don't know," Skye asks. "What happened to the original assassin? The one who screwed up?"

"She didn't report her failure," Václav says. "The only reason we learned of it was the loss of those sixteen souls."

Skye's breath catches. "You mean, she just came back here and said she succeeded?"

"Oh, no," Václav says. "She was still on his trail. She caught him shortly after the sixteen died, and then she dispatched him quite quickly—and very nastily, if the truth be told. She was angry."

"I'll bet," Skye says softly.

"But she did get reprimanded," Václav says. "And then she got removed."

Skye leans back just a little, as she understands what really happened. "She lied to you. She told you it wasn't possible to kill him on his estate."

Václav's smile grows. Then he looks away and nods, as if Skye's done well. She knows she hasn't, so she's even more surprised.

"Yes," he says. "That's why we created the simulation. We ran it with dozens of trained assassins. Every one of them found a way to dispatch the fat man on his estate. The spear, by the way, proved to be the most popular weapon."

"Only because it's unusual," Skye mutters.

Václav's eyes twinkle. "And here I thought it was because it's ancient, something humans have used since the dawn of time."

Is that humor? From Václav? She can't quite tell.

He says nothing else. She knows this trick. He studies her, and then waits until she breaks. She's not going to break. She knows how badly she failed. She just wants the verdict.

"So," she says, "what's the metalevel?"

His eyebrows go up, moving all of his scars. "That," he says, "is a very good question."

Skye started to get an inkling about the ways she'd work off her debt when she was told she'd go into Assassin School. Some of her peers—most of her peers—got to choose whether or not they'd continue in the program, but she didn't.

When she finally asked if she could choose something else, her advisor had looked at her like she was dumb.

"You know what we are, right?" her advisor had said. "We train assassins."

"But lots of people do other jobs here," Skye had said. "There are scholars and investigators and teachers—"

"All of whom have been through Assassin School," her advisor said.

"I thought only assassins go through Assassin School," Skye had said.

"Yes," her advisor said. "That's right."

* * *

"Before we go any further," Václav says, "you need to tell me why you didn't kill him."

The debriefing room had gotten cold, or maybe Skye had. She had come in here covered in sweat. After all, she had been the only real thing in that simulation, and as a real thing, she had had real reactions to her physical efforts.

She felt damp, sticky, tired, and annoyed.

She's had this discussion with Václav before, often in this wing of the Guild—when she blew her first exam to get into Assassin School; when she failed her laser-pistol test, the one where all she had to do was get the pistol to fire; when she refused to punch MingLee in the face hard enough to cause damage.

Skye should hate these plain, windowless debriefing rooms, because she's been in them a million times, but she doesn't. In fact, she feels just a bit victorious every time she enters.

She isn't trying to fail at being an assassin, but she's told everyone for years now that she's not suited to it. And time and time again, she's proven it.

As if Václav can hear her thoughts, he says, "I don't want the discussion about why you're not suited to be an assassin. We've had it. I want to know why you didn't kill this target in particular. You were nearly there."

His smile is gone, which she expected, and so is that little downturn at the edges of his eyes. He's not happy with her, which shouldn't surprise her. He's usually not happy with her.

"The fat man wasn't worth it," Skye says.

Václav's face reddens. She's never seen that before. She actually got an emotional reaction out of him.

"Not worth it? We can prove that he killed hundreds of people in cold blood. How is that man not worth killing?"

She knows better than to bark out the answer that comes to mind first: *Most people in the Guild have killed in cold blood. Does that make them worth killing?*

Instead, she says, "Not worth killing *to me.* I'd lose a bit of myself. I don't want to do that."

"Lose a bit of yourself," Václav repeats as if he doesn't understand. And maybe he doesn't. After all, he was one of the best assassins ever until he failed his last physical and had to retire from the field. She has no idea how many people he's killed.

Her cheeks warm. "I'd lose a little bit of my—soul. Some people call it soul. Others call it . . . humanity. I don't want to lose that."

Is this the first time she's told him this? Maybe in those words. He's looking at her like she used to look at the bugs. Like she's interesting and strange and imminently squashable.

"You think none of us have humanity?" he asks.

A verbal trap, one that she opened up. She answers cautiously. "I think we're all different."

She wants to stop there. Maybe he will let her stop there. She *hopes* he will let her stop there.

"But . . . ?" he says.

And here it goes: the trap closing, mostly because—for once in her life—she's tired of giving the expected answer.

Tired of lying.

She shrugs. "You believe that what you do puts you on the side of right. I think it makes me the same as the fat guy."

Václav slams his palms on the table. It bounces up and then down. He stands up so fast his chair flips over.

She's never seen him like this. Her heart pounds, but she doesn't move.

He glares at her so coldly that she actually shivers. Then he yanks the door open, slamming it against the wall, and leaves, pulling the door closed so hard behind him that the entire building shakes.

She lets out the breath she was holding.

She'd managed to keep those thoughts to herself for more than a decade.

Now everyone will know.

"Oops," she says softly to herself, and wonders if she means it.

She was nineteen and one year into Assassin School when she finally had enough knowledge to marshal her arguments against continuing her education. She went into the chief administrator's office.

It overlooked the kids' garden, but the windows were so sheltered that Skye had no idea the administrator could watch the kids until this meeting.

So many secrets in this place, some of them built in.

The office itself was asymmetrical, walls jutting out at odd corners, spaces set aside seemingly haphazardly, unless one knew where to look. Skye had always known where to look.

Nothing in the Guild was accidental. Either those walls hid secret passages or secret viewing areas or just plain old secret rooms. Sometimes they were designed merely as decoys, so if anyone broke in looking for the secret passages, viewing areas, or rooms, they'd find one of these places.

But Skye saw all of them, the decoys and the real ones. She just said nothing. She would look at the Guild architectural drawings later to confirm her suppositions. She'd found the drawings nearly a year before when she was researching something else. Of course, the drawings had been miscategorized on purpose, so that no one could do what she had started to do—study the Guild from the inside out.

The head administrator, Umeko Hagen, was a tiny woman whose desk dwarfed her. She hadn't held the job long; she'd been promoted when something no one talked about happened to or with her predecessor. She had hair as black as Skye's and wore it so short that it looked like it had been accidentally lopped off.

"Every student believes she should leave the program at this point," Umeko said before Skye had a chance to speak. "Not many get an audience with me about it."

Skye swallowed hard. "I have talked to other administrators."

"I see that," Umeko said. "They told you to talk to me. They say your argument is persuasive. Is it?"

Skye wasn't going to answer that. It was a silly question, and one meant to put her on the defensive.

"You've probably looked at my file by now," she said. "You know I was dumped here with no say in the matter. You also know that I have said from the beginning that I'm not suited to be an assassin."

"The tests say otherwise," Umeko said, repeating what every administrator had said at this point.

"I may have the personality for it," Skye said. "I may have the background for it. But I don't have the desire."

"The first year is hard—"

"I've never had the desire," Skye said, "and unlike my peers, I don't get to choose my future. You people have chosen it for me."

"The scholarship students all get a choice," Umeko said.

"I'm not a scholarship student," Skye said. "I'm indentured. And that's not legal."

She wasn't sure about the legalities. She couldn't find which legalities applied to the Guild and which didn't. The Guild seemed to be its own country, which meant it

made its own laws. Although she wasn't even sure of that. The secrecy of the Guild had worked against her, and, for once, she wasn't sure how to get around it.

"You made an agreement," Umeko said.

"At fourteen," Skye said.

"Which is old enough under the law," Umeko said. Of course, she didn't say which law. And Skye didn't ask. She did know that on Kordita, fourteen was old enough to enter a contract, provided certain conditions were met.

"But no one explained all the terms to me. They said I'd have to work my room, board, and education off. No one told me that the only people who work here are assassins. I didn't learn that until I was nineteen."

"I thought you were observant," Umeko said.

That insult hit home. "I am," Skye said. "But none of the chefs kill people here."

Umeko grinned. It made her look young. "Touché."

"I understand that I owe you a great debt," Skye said. "I'm willing to get work outside the Guild and send you half of what I earn for as long as it takes."

"You want out of here that badly?" Umeko asked.

Part of her did. But for another part of her, the Guild was home.

"I like it here," Skye said. "But I don't want to be an assassin. Even for a little while. I'd like to chose my own future."

Umeko templed her fingers. "As would we all."

Skye held her breath.

"Do you know the cost of your room, board, and education?" Umeko asked.

"No one will tell me," Skye said. "I have a guess, based on what the others say their parents pay."

Umeko's fingers folded together. "The other students have no idea what their parents pay. The cost of your education, so far, is in the millions."

Skye frowned. "How can that be? I've done some figuring—"

"Yes, but you do not know how hard it is to get into the Guild, how much people are willing to pay for the privilege. You have been given a great opportunity. All we ask is ten years. Ten years, in which you work for us, doing as we ask. Then you may set your future."

Skye clenched her hands into fists. Umeko was her last chance. The other administrators said Skye had a good argument. She actually thought she might be able to control her life right now, get out of school, and move onto something else.

She wasn't going to let go so easily.

"I'd still like to try to pay you back myself, without going through Assassin School," Skye said. "I'll only incur more debt if I do."

"Your path is set," Umeko said. "Believe me, ten years is no hardship. You might only have one job per year. You will travel. Your expenses will be paid. We will pay for your home, your wardrobe, and your weapons. You will have money in savings when you leave us. If you leave us. You are still getting the better end of the deal."

"If it were actually a deal," Skye said.

"Ah, but it is," Umeko said. "You were a scholarship student until you turned fourteen. You could have left us then. You chose not to."

"I didn't know what I was choosing," Skye said.

Umeko's face darkened. "Have you learned nothing? Ignorance is never an excuse."

Skye's fingernails dug into her palm. She'd tried claiming the judgment was unfair once, just once. And she was told that nothing in life was fair.

If anyone had cause to believe that, she did.

Especially now.

For the next two hours, she sits alone in that debriefing room. She can do nothing

except wait. The walls are silent. She cannot access any of the communication devices that she knows are nearby. Exactly one hour into her wait, a side door opens and reveals the debriefing room's private bathroom.

She's been through this before. She will be able to take care of herself no matter how long she's in here.

And it could be hours, or even days.

If she's here for a few more hours, she'll get a meal. More hours, and the lights will dim so she can rest.

She sighs. She supposes she deserves this punishment. Not just because she got rid of the spear and let the fat man go, but because she so badly insulted everyone here.

Finally, the door to the outside opens. A young man she's never seen before waits outside.

Skye's been through this before, too; even if she talks to the man, he won't answer. He'll just lead her to the place she's needed next.

Which is a conference room in the debriefing area. No windows here either, but on the walls, image after image of Skye failing. There's the laser weapons test, the missed punch, the laughter at one of the more serious weapons. The image of her standing by the fat man, hand on the spear, appears every five images or so, and after it, the look on her face two hours earlier when she told Václav that she felt morally superior to him.

She looks vicious in that moment with Václav. Her blue eyes flash, her cheeks are red.

No, not just vicious.

Hateful.

Does she hate them all here?

She's not going to answer that, not even to herself. But she will admit that she's still angry. Furious, in fact. Angry that she's in this position. Angry that she's never had a chance at anything resembling a life like the one she's wanted.

She wants the opposite life from the one they insist she has. She wants to climb into one of the towers here, sit under a skylight, and use the grids and the old books. She wants to study everything, learn everything—not *how* to do something, but *why* it was done, who invented it, what its initial purpose was.

She likes information, and learning, and seeing patterns.

She likes being alone.

She's not alone in the conference room for long. Václav comes in, with Umeko, and five of Skye's teachers. And then they all bow as the director of the Guild walks in.

Skye stands still in shock, then remembers to bow as well. She's suddenly shaken.

Skye has seen Kerani Ammons from afar, but never interacted with her. Skye did not realize that the director is the same size as Skye. The director seems bigger somehow. She glides when she walks, and she presents a calm that no one else in the room has.

This, then, is as serious as it gets. Skye has heard the rumors: the reason no one questions the Assassins Guild is because no one survives the questioning. Those who dissent get the same sentence as the criminals that the Guild pursues.

Skye hasn't believed those rumors until now.

"I have reviewed all of your records," the director says. "Václav tells me that you have seen through most of our tests, including this last. You know how our systems work, perhaps better than we do."

Skye swallows. She isn't sure if she should say anything. Her teachers stand back—all of them good at being forgotten, like the Guild teaches. Skye wouldn't be thinking about them either, except that they seemed to step out of the conversation all at the same time.

They seem to want nothing to do with her.

Only Václav and Umeko stand near her. Skye can't tell if they're beside her to defend her or to judge her.

Or to observe.

"I have but one question for you," the director says, "and I will know if you fail to answer truthfully."

Skye's heart rate has increased. If they're looking for physical tests, she's already presenting as someone either terrified or deceptive or both. She's not deceptive at the moment, but she is terrified.

The director sweeps her hand toward the images. "Did you fail all of these tests on purpose?"

"All of them?" Skye asks.

The director bows her head slightly. "Forgive me. I will ask the question in a way that provides a better answer. Did you go into all of these scenarios with the intent of failing them?"

"Did I take all my classes and all of the tests planning to fail?" Skye asks. She knows she has to be honest. She's just not sure how.

The director studies her for a moment, as if assessing that answer. "You're a good student," she says. "Let's forget the classes for a moment, and speak only of the tests. Did you take them expecting to fail?"

Skye doesn't dare lie. Not to the director. Not now. There's no point. They've probably already judged her.

"Did I expect to fail?" she repeats. "Yes, I did. My heart wasn't in it. But that's not the pertinent question."

Václav glances at her, startled. Is she talking back? She's not sure.

The director nods. "What is the pertinent question?"

Skye swallows against a dry throat. A nervous habit, one she thought she'd trained herself out of. "The question you should ask," she says, "is whether or not I tried to succeed in each of the tests."

"Did you?" The director asks.

Skye lets out a large breath of air. Honest. No lies. She never thought it would be so hard to tell the truth.

"I went into the tests hoping to succeed," she says. "In the middle of these tests, what you asked of me was too much. If I do what you want—if I hurt my best friend or kill a helpless crying fat man in the middle of some grass—then I become someone other than me."

"Is that such a crime?" the director asks.

Crime. Skye has never used that word in her mind, not in connection to this. But she has mulled over all of the terms that the Guild uses and she rejects their subtle distinctions.

She clearly defines "crime" differently than the Guild does.

She's not going to say that, though, because the Guild is often about word games.

"Legal, illegal, crime, not a crime," Skye says, "that's not what I thought about in those moments."

"What did you think about?" the director asks.

Skye squares her shoulders. She's never admitted her true thoughts about anything to anyone. "I thought that if I continued at whatever was I was doing at that moment, I would break."

"And what is wrong with breaking?" the director asks.

Tears fill Skye's eyes. She has to take several breaths to make the tears fade back. She does not blink while they are there. But she does swallow hard again, her throat hurting.

"If I break," she says, "I will come back different."

"What is wrong with different?" The director asks.

"I will be like everyone else," Skye says.

The director nods her head once. "Like your parents."

"Yes."

"Like the man who left you here."

"Yes."

"Like us."

The truth. They have asked for the truth. *The director* has asked for the truth.

"Yes," Skye says.

The five teachers draw in breath. Václav whirls as if she has betrayed him. Umeko looks down.

"And we are so contemptible?" the director asks.

Skye shakes her head. "You've been nothing but kind to me."

"You have not answered the question," the director says.

"You aren't asking fair questions. All I have said from the beginning is that I don't want to be like you."

"And being an assassin would make you like us?"

Skye shrugs. "I would lose what little ability I have to see people for who they are."

"Why?" the director asks.

She's shaking. She's never had uncontrollable physical reactions to words before—at least, not words she's spoken. Words others have spoken, yes, but not her own words.

"Because if I see people for who they are, I can't kill them." Skye says.

The director takes one small step back, as if she's shocked. "No matter what they've done? What monsters they've become?"

"That's the thing," Skye says. "They're not monsters. They're human. Just a kind of human we as a society have deemed unacceptable, because society itself cannot survive with them in it."

Umeko raises her head. Václav turns slightly, looking at Skye as if she is someone he does not recognize.

The director smiles, just a little bit. The smile is not for Skye. The director is looking at Václav.

"There's your metalevel," she says to Václav, as if Skye is not in the room. "We either use her singular talent or we destroy it."

Skye holds her breath. She knows what they mean by "destroy." They could kill her, but they won't. They'll send her into the field, and if she fails to perform, if she tries to flee, then they'll come after her, and then they will destroy her.

If she works for them, and she succeeds, then, by her own admission, she will be destroyed.

"We have rules," Umeko says.

"We do," the director says. "But we have also learned that sometimes things do not go as planned."

Like that simulation, Skye thinks but does not say. And even as planned, each trained assassin proceeded in a different way. She doesn't say that either.

"So," the director says to the others, "we make an exception."

Skye's mouth goes dry.

The director turns back to her. "You will work for us for fifteen years, not ten. You will use your talents as we say, seeing what we send you to see. You will send back your thoughts on what you discover. And you will never ever have to harm another human being—monster or not."

Skye thinks for a moment, then understands. "You want me to spy for you."

The director nods. "Precisely."

Skye is trembling. "What's the catch?"

The director smiles. Her smile is cold. "It is simple, really. We offer our assassins our full protection. Legal, mostly. Some, though, those you thought had trained for other jobs, they live different lives. They were trained as assassins, and they can no longer ply their trade. Many of them cannot leave the Guild for threat of reprisal or even death. We keep them here because keeping them here keeps them alive."

Skye's face grows warm as she realizes what the director is saying. "You won't protect me?"

"That is correct," the director says. "We won't even admit you work for us. Ever. If you get in trouble, you are on your own."

Skye bites back her first comment: *It's not fair.* She bites back her second, *You'd send me into trouble with no backup? No safety net?*

Instead, she blurts, "Five years."

"What?" the director says.

"If I'm to risk my life for you, if I'm to do something this unprecedented, then I work for five years to repay my debt," Skye says.

The edges of Václav's eyes tilt downward. He's smiling without smiling. He looks down.

"Ten years," the director says.

"Seven and a half," Skye says.

"Ten and full protection," the director says.

"Done," Skye says.

The director tilts her head back and laughs. The laugh is infectious, but no one joins her. They look away as if they do not dare.

Finally, the director catches her breath. "You are the first to change our rules," she says. "How does that feel?"

"I'll let you know," Skye says. "In ten years."

"Fair enough," the director says. "Václav will draw up the agreement with our legal team. The others here will be cited as witnesses, plus we have recorded all of this, in case you worry that we will not keep our end of the bargain."

"I don't worry about you." Skye says.

The director studies her for a long moment. Then nods once. "And I no longer worry about you."

Then she leaves the room. The others follow. The images wink off the wall.

The door remains open.

Skye isn't sure what she's supposed to do.

Then she realizes that none of them know what she's supposed to do either.

This is what freedom feels like.

Like climbing out of a trap into blinding light. The next step is hard to see. But it's there.

She just has to find it. ❍

HYPERVIGILANT

Eric Del Carlo

Eric Del Carlo has been busy since his last appearance in our pages—"Friendlessness" (January, 2012). He's had stories published in *White Cat* and *Shimmer;* an original podcast produced by Earbud Theater; and a novel, *Elyra's Ecstasy,* which he co-wrote with Amber Jayne, was published by Ellora's Cave. Eric's new story about trauma and redemption is dedicated to the memory of his mother, Patricia.

240 pounds, 6'5". Coffee skin turning gray with the circulatory system's sudden halt. He looks like an oak frosted by winter. Four semiprofessional bullet holes in his body. Only one made any difference, but it made all the difference. The bank's surveillance footage shows him mouthing a single name repeatedly as he wades along with his MG4 blazing: "Trixie."

Shooting up hospitals was all the rage that spring, so April on into May I sat in a lot of waiting rooms, breathing the antiseptic air, empathing for amokers. I understood very quickly why somebody would storm in cradling an assault rifle. My sitting ignored for hours and hours in crippling plastic seats called no attention whatsoever; I was just one of dozens, of hundreds. To say nothing of the bureaucratic loop-the-loops people were put through, the casual apathies they encountered, the daily catastrophic screw-ups. That's why hospitals drew amokers. But I don't deal with why. I handle the thing itself, when the pot boils over, when the vision goes red and pulsing.

When it is too late for any long-term preventative measure, I am there, simply, to *prevent.*

It wasn't difficult to look miserable, and appearing miserable made me invisible in the long rectangle of the waiting area, thin navy carpeting underfoot, anemic blue walls closing us all in. There was more fear than pain, a lot more, and the comforts were sparse. Everybody felt like, and was treated as, a supplicant.

A headache buzzed in my skull, and I'd made the mistake—the same one I made every time—of drinking the cafeteria's coffee. I could have sat all these hours on a park bench or gazing at an incoming tide and been content. It wasn't the time that was aggravating. The Agency paid me for my time.

But there was more than fear and pain and shame in this room, and it kept tweaking the hypersensitive receptors in my brain so that my muscles would jump, and my system would twang as if to molecular stimuli.

These were just momentary flashes of frustration and anger. Specific, not omnidirectional. Very acute but not the sustained fury I was watching for.

The automatic doors opened, that same monotonous cycling sound I'd been listening to all morning, and someone came in out of the springtime winds.

Synapses lit. I felt the warm terrible injection of adrenaline. Anyone who doesn't

'path—and that's most everybody in the Agency—doesn't understand what it is like. Not in any meaningful way.

I was sitting where I could watch the length of the room. I hadn't just planted myself facing the doors. Not a good idea to be the first thing they see when they walk in.

Lifting my chin and turning my head, as on a sore neck, I saw who had entered. My heart thudded in my chest, and sweat oiled my palms. But I still appeared as a man suffering an agonizing wait to see a medical technician. Sometimes hospital amokers go after staff exclusively. Sometimes it's whoever is on the premises, including bed-ridden patients. I understood why the Agency had me here. I had looked at the files of previous hospital incidents. I habitually read aftermath reports. It's not morbidity on my part. Not even curiosity. It's something almost but not quite . . . maudlin.

Maybe it is nearer the instinct that causes you to say sentimental words over your vanquished mortal enemy.

She was short-haired, dark-haired, face narrow but not pinched. Her bared shoulders appeared strong and tensed. She wore sunglasses, big hoopy things, tinted not opaque. She carried a handbag, and she walked with a purpose.

Fury, my receptors told me. *Fury, fury, fury.* But—

But . . .

Something didn't quite jibe. It was nothing I could put into a report. I could—maybe—sit with another 'path and parse out my responses in that first moment of contact. Perhaps, over several Scotches, I might explain to that peer why I rose and crossed smoothly toward her.

I had the power of priority contact with the on-site security staff as well as the precinct police. I send up a signal; they come. They deal with the crisis, having gotten a substantial jump on the potentially explosive situation. A not insignificant number of lives can be saved that way.

But I didn't make the contact. Instead, I strode up to the woman, putting myself in her path.

She stopped with a jerk. I had come in from nowhere.

I leaned in, the inches intimate between my lips and her ear, and I said softly, "You have a gun in your purse."

Stepping back, watching, I still felt the pump of adrenaline. But there was no heat in my body now. The moment had cooled and crystallized. I was outside myself. This, then, was maybe what it felt like to be the victim, in those final seconds.

Somehow he is in the fountain. It's right out of old Hollywood, deserving of a crane shot that spirals away from the downed killer steeped in the bloodied jet-circulated water. The view widens, and his victims appear around the shopping mall's central fountain, laid out in a pattern that is surely random but which looks to have some algorithmic basis.

We walked outside, and it was already unclear to me if she was leading me or I was escorting her. I didn't touch her.

The wind was strong but not cold. Her short hair was undisturbed; mine blew across my eyes. Litter tumbled up the street.

At the curb she was the first to stop, which made me think I was indeed following. She turned.

"You're a 'path."

"I am a Vigil."

Her eyes were wide behind her sunglasses' big lenses. "Why are you accosting me?"

I repeated what I'd said a moment ago: "You have a gun in your purse." The bag had no strap. She carried it like a football.

"I've got a permit for it."

It surprised a laugh out of me; it sounded like a hiccup. I added, feeling the need to explain myself, "A gun is still a gun."

"You're a 'path." Now she was the one repeating herself.

"I am a Vigil." That is a stock response. The Agency discourages the term *empath*. It leads the public to think of us as mind readers, and that doesn't help anybody.

"Vigil. Very well. Why are you accosting me?" It felt like our little exchange had already lapped itself. Before I could try to contribute something new, she said, "If you're concerned about my legal firearm, where are the authorities? Why haven't you called the police?"

"I . . ."

She pressed. "What do you sense from me, Vigil? Huh? What's troubling you so badly?"

I didn't like that she knew so much about our procedures. Even after a decade of being in the field, most people think Vigils intervene directly in amoker incidents, like we're superheroes—or even just heroes. I have never qualified for weapons use. And I don't want to.

This woman was pissing me off. I wasn't handling her correctly. Then again, I had no method. I didn't deal with people this way.

I glared at her. And opened my receptors, consciously. And—

The fury was gone. Nothing. No trace. There *should* have been a trace, a suggestion, especially after such volatility.

I was dismayed; and it showed.

"Well?" she sneered.

I had nothing. Except a legal authority, which I now wielded clumsily. "What's your business here at this hospital?" I asked stiffly.

She hooked a finger over the sunglasses and tugged them off. Her eyes had lovely depths of amber and bronze. "I'm visiting a patient. José Carubba, room 602. He's recovering from laparoscopic kidney surgery."

Having gone this far, I of course had to check it out, feeling foolish, knowing there would be a José Carubba in 602. There was. I had a look at her carry permit too. Her name was Daphne Verges.

"My name is Bob Galley, and I'm sorry to have troubled you."

I expected something snide from her. She had the right. I wasn't even sure why I'd offered my name. We were standing by the elevators.

Daphne thumbed the button. Her sunglasses still poked out of the pocket of her bare-shoulder top, so I had a last chance to look into those eyes.

"You should ask me out for a drink, Bob," she said.

"Would you like to go out and get a drink, Daphne?"

The elevator doors opened with a chime. "Yes," she said, stepping aboard.

She must have been heading for the altar but got distracted on the way. She's the only one sitting up in the pew, amid Sunday-best bodies. The right third of her jaw and most of the exposed cheekbone are only bony thistles. Her blond hair is scorched and caked with red darkness. Both eyes are open. She appears bored, attentive, a habitual churchgoer who already knows where the sermon is going.

You don't ask about a handgun permit on a first date. I sat with Daphne Verges at a high, round, onyx-bright table and wondered—without panic—what the hell we were doing.

She wanted to talk about school. It was just a conversational feint. I let her get on with it.

"I didn't go to college," I said, when she had finished a lengthy account of her school days.

She blinked extravagantly. Then immediately apologized. I thought that was nice of her. "I don't want to come off as an Ivy League snob."

"You're not," I said, not needing to put any excess reassurance into my tone. I had already found it was easy to speak truthfully to her. That doesn't happen often.

She looked around the club. It was tastefully peopled and decorated. "You bring a lot of women here?" she asked.

"What's 'a lot'?"

"You know I don't go in for jealousy." She lifted her drink to unsuccessfully hide a smile behind it. It was a pleasant bit of flirtatious business.

I let her see my smile. "Well, I don't *know* that . . . exactly."

"But you sense it." She looked at me directly across the table, with a certain soberness. She was letting me know she hadn't forgotten what I was.

"I do," I said. Again, truth. It was refreshing. And peculiar: earlier today I had been convinced this woman was an amoker. There was nothing of that fury in her now. Not a trace. It disturbed me that I had detected it at all.

After that we filled up some time with a few other feints. Neither of us seemed to have any deal-breaking intellectual blind spots or extreme opinions. She had dressed for our date, and so had I; and now I believed it *was* a date.

"You must have been just a boy during the NCW," she said, filling in a comfortable pause.

It wasn't a filler kind of question, though. "Yes." I took a swallow from my drink and set the glass down very precisely. "I must have been."

Her amber and bronze eyes flicked away. "Oh, that was silly, Daphne. Real silly."

"There's something endearing about a woman addressing herself in the second person," I said, and meant it and made sure I sounded like I meant it.

She sniffed a laugh. "That's nice of you."

"You've been nice too." I leaned across the table a bit. "Yes, I was eight years old for the NCW."

"I was six."

"It was probably a different experience for you."

"Well, yes, Bob. It was. I'm sure."

I felt the tension. This was, I thought, maybe the make or break moment of the evening. We had stumbled into a sensitive subject. I was a Vigil. Vigils were peculiar byproducts of the NCW, the Neuro-Chemical War, a two-month period of rampant bioterrorism that transformed this nation forever. That's the party line, of course. *The NCW changed everything.* It just happens to be true.

"Why don't you tell me what it was like for you?" I suggested.

Daphne looked startled. I smiled, to let her know it was okay to talk about it, to tell this woman that I didn't *own* the NCW just because it had made me into an empath and a Vigil.

We got fresh drinks, and she wove me her tale. It was typical of a child's viewpoint—full of fear, confusion, small telling details lost on a six-year-old that later took on vast poignancy. I listened. I was glad to listen. Each mundane turn of her story distanced me further from my own history. It had indeed been a different experience for me. It was different for every prepubescent human being exposed to the terrorists' neurotoxin during those two months.

"Sometimes I can't believe it was twenty-five years ago," was how she finished.

I recognized the moment as another crux. Make or break. Do or . . . well, not die. But I felt no burning need to spend the night alone.

Lifting my glass, I said, "To be alive is to celebrate."

Daphne laughed at the cornpone sentiment. Just like I knew—or sensed, anyway—she would.

Only the stadium security stamp on the back of his bloodied hand lends the scene any irony. He concealed his weapon in lined pouches distributed over his person and assembled the deadly instrument in a restroom during the second quarter. This is a johnny-come-lately. The term "amoker" had already entered the vernacular. Despite this security misstep, defensive measures were tightening everywhere. There were amokers now but not yet Vigils. We were still being discovered and studied; training and implementation were years off yet. This amoker had forty-three seconds of unbridled mayhem, then the crowd took him down and tore him apart like a pack of rabid hyenas.

The afterglow was rosy. Degrees more than rosy, in fact. I held her against me, and it seemed that something that had been in motion a long, wearying time started to slow. We murmured friendly inconsequentialities to each other.

Then she began to ask me questions.

I parried. I evaded. I waited until she drifted asleep, then eased our cooling bodies apart and slipped out of bed.

I peeled an orange in my chromy kitchen and ate the segments one by one while I checked my secured link. There is a lot of Agency cloak and dagger rigmarole that I don't care about. But I'm very conscientious about my particular work, and always stay apprised of my assignments.

Bare feet padded. I looked up, expecting a bare body to follow. Daphne didn't strike me as the modest sort.

She stepped around the corner, squinting against the chrome-reflected light. She wore her slacks, her shirt. She carried her shoes, jacket, and purse.

"Hey," I said. "You, uh, don't have to leave, you know." I, being the modest postcoital type, wore a pastel blue robe.

She set her effects on a leather-topped stool. Tucking the shirt into her pants, she offered a rueful smile. "You don't kick 'em out afterward. Got it."

That had an edge to it that bothered me. I hadn't played any tricks on her, hadn't *lured* her here.

"I don't have any hard and fast rules about that sort of thing." I sounded annoyingly defensive, even though I was still speaking the truth to her.

"I told you, Bob. I don't do jealousy."

This felt like we were three weeks into a relationship, one experiencing a first hint of souring. Nonplussed, I folded my arms and regarded her.

"Giving me the X-ray vision?" she asked. Earlier tonight that would have been coy. Now it was—something else; I didn't know what.

"What's gotten into you?" I asked.

Her smiled widened and strained. "You got into me. Remember?"

"That's cheap," I said. I was sensing her emotions of course, but hadn't deliberately opened my receptors. Damping down isn't something the Agency teaches. A Vigil has to learn that alone, if he or she still wants to function as a person.

Daphne was a whirl of strong feelings. I sensed bitterness that was like calcified rage.

She dropped one shoe—*thwakk*—on my hardwood kitchen floor and stepped into it. *Thwakk.* She stepped into the other.

Reaching for her jacket or purse, she abruptly halted. She jerked her gaze across the counters at me, past a rack of steel skillets hanging at eye level. "Tell me, Bob. Have you, as a Vigil, ever been wrong? I mean, other than today. When you pounced on me for no good reason. Have your special abilities ever failed you?"

I met her glare. "Other than today? No." But today *had* been a screw-up. I cringed inwardly over what might have happened—the worst-case scenario—had I alerted the hospital's security staff or the police. She had, after all, been armed.

Daphne seemed to measure my statement, and decided it was true. "Well, good for you. But not every Vigil can say the same."

"We're not robots. We're people." Some of the prejudice I had encountered in my life, even within the Agency, was quite dismaying.

If she was going to leave, she should do it. It was late; I was suddenly weary and dispirited, and had an early morning awaiting. But the evening had been pleasant up 'til now. Much more than pleasant. Some part of me wanted to know what had gone wrong.

"It was a week past my eighth birthday. I was with my mother. We were crossing a downtown plaza." I was speaking these words, but it was like I was listening again, like when Daphne had told me how it was for her at age six, absorbing the news of the terrible events. She had gauged the reactions of the adults around her. She hadn't understood, of course. These awful things seemed to be happening very far away, almost in another reality.

It hadn't been that way for me. That day became my *entire* reality. And in a sense, it has stayed that way all these years later. Despite the work I do to prevent anything like it from happening again. Despite all the women. Despite every human exertion on my part to live a life beyond that day.

Daphne stood and listened, there in my kitchen at one in the morning. I described the rising voice of the crowd. Saturday shoppers, concentrated in an area. "I thought the commotion meant something wonderful was happening—a parade, a circus. A surprise. I thought my mother had arranged it. I was still giddy from my birthday a week before, which had been such a good one, so many presents."

Then I described the violence, rolling like a wave. At first I had thought it was something we were all supposed to do, like a game, but I realized very quickly I was wrong. The neurotoxin had no taste, no odor; it didn't appear as a mist. Of course not. Why would the terrorists want to give any warning?

"My mother was shaking. She dropped the bag she was carrying. My mother's hands knotted. She let out this . . . *cry*. I knew something was happening to the people around us. But I didn't think it was happening to her. How could I think that? She was my mother—my protector, my sanctuary. Then she turned, and I saw her face. Savage. Ferocious. Not human, not a flicker of humanity there . . ." I drew a ragged breath. The next came more smoothly, and I observed, "She was about your age at the time."

After I said nothing more for almost a full minute, Daphne asked, "It was the first attack? The start of the Neuro-Chemical War?"

I had described the scene in detail. "Yes."

"How did you survive?"

I'd already told the harrowing part. The rest didn't matter. I shrugged. "I got lucky. Jumped down a grate into a storm drain. I was small enough to squeeze through the bars."

She sagged. She reached out to steady herself, grabbing the stool, hand dropping on her purse.

I remembered talking with her at the club earlier. I thought of the intimacies we had enjoyed only a short while ago. Suddenly the whole scenario seemed unlikely, like something that had been arranged.

"Why did you want to see me tonight?" I asked. I was thinking now of the questions she had started asking me in bed. Questions not quite about Agency procedures, but ones that might nonetheless lead to such questions.

Daphne went still. Something flickered across her features. I resisted the temptation to 'path her, to deliberately plumb. She wasn't the usual fare I brought home. I had told her the most intensely personal story of my life. That wasn't anything I normally did.

"Why?" I repeated.

Amber and bronze eyes peered past the hanging skillets. "I got lonely," she said, her voice low.

I was about to reply when my receptors erupted, blaring: *fury, fury, fury—*

No warning, no buildup. Just suddenly and violently *there.*

I recoiled. Daphne still had her hand on her purse. I really shouldn't have been surprised by her gun. Civilians carry them routinely. People worry about amokers, and who can blame them. Everyone fears crowded places. Amokers are interested in high casualties, high-visibility incidents. So says the Agency profiles.

She was moving all in a rush now, opening the purse. Adrenaline lit me up. My left eyelid twitched spasmodically. I had fallen back against the edge of the sink. Now I lunged forward.

I wasn't a hero. Wasn't a superhero. But I lifted a skillet off its hook anyway, pivoted, cocking back my arm, and sent it spinning and careening.

It *whanged* against a reflective facing, missing her by a clear six feet. Daphne turned back with a fist filled up with her handgun. I realized only then that she'd been racing for the front door. The fury was still flooding from her, recognizable as amoker rage—almost a caricature of it, in fact.

She was looking at me down the barrel of her weapon. I stood exposed. In the aftermath report I was going to be wearing this pastel blue robe. I closed my eyes.

Her footfalls *thwakked* their way hurriedly to the door. I heard her wrenching it open, then silence.

I had to open my eyes, had to make myself do it. When I did, I was, for the briefest instant, in a plaza looking up at my mother's contorted face. But the chrome sterility of my kitchen reasserted itself. I went to my link and made priority contact with the Agency.

The small graying man should have been backed into a corner, should have been slumped on his knees, one hand raised defensively and stiffened by death. A bewildered and beseeching expression stamped on his face. There was none of that. Jesse Verges lay on his back on the ground, surrounded by collegiate structures silhouetted against the dusk. He appears peaceful. Put him on a sofa and cover up the perforations the overzealous campus security left him with and he would be a sixty-year-old man dozing on his couch, nothing more. The Vigil responsible for the catastrophically false alert stands back from the body, wearing a dumbfounded look. I don't meet a lot of Vigils, and I've never met this notorious one. We are not really a community. But I share the Vigil's shame anyway, even though I wasn't the one making this worst of all possible mistakes. Maybe empathy is my weakness. Maybe it's a weakness we all need.

Misconceptions still abound, even a quarter century after the squalid two-month spree of bioterrorism that was the Neuro-Chemical War. The terrorists' operations were as shabbily organized as their ideology. They were taken down swiftly—even if it could not have been fast enough.

Those afflicted by the neurotoxin were not amokers. They were victims, as surely as the people they themselves killed during their mindless frenzied rampages.

When I was in high school, some kid said the wrong thing about my mother to me. I had bitten a hole through his cheek before I was finally pulled off him. That was my last year of civilian life. The Agency started collecting us, all who had been ex-

posed to the diabolical neurotoxin as prepubescents and had survived the subsequent chaos.

They wouldn't let me see Daphne. I wasn't a true operative. At least that was how many in the Agency saw me and my fellows. 'Paths were, basically, bomb-sniffing dogs. We didn't deal directly with security matters. We weren't the thinking part of the organization. My trying to subdue Daphne with that clumsily flung frying pan was the stuff of much snickering.

We Vigils merely sensed, within a certain physical radius, when someone was about to go apeshit and start a one-person massacre.

I loitered around the headquarters anyway. They still wouldn't let me in to see Daphne Verges. Until, abruptly, the interrogators *did* want me included.

The debriefing was excruciatingly thorough, probably something like the interrogation itself.

The operative in the suit who escorted me down the dark green corridor to the room was expressionless, but I sensed her unease. I made myself draw it all in—her disquiet, her contempt. Sometimes it's valuable to be reminded where you stand.

I was let into the room. It was just Daphne and two chairs.

She looked up. Her narrow face appeared thinner, but it wasn't from malnutrition or mistreatment. She had just finished lunch.

"Hello, Ms. Verges." I stood behind the unoccupied chair.

She offered a neutral smile. "Really? Come on, Bob. There's no one-way glass. We can talk familiarly." She quirked the smile at one corner to let me know she knew this room was one big microscope.

But there was still a mystery here.

"Okay, Daphne."

"Have a seat, Bob."

I sat.

It had been over two weeks since I'd last seen her. The Agency had picked her up with almost offhand efficiency once I'd dropped her name.

"I'm sorry I threw that skillet at you," I said.

I didn't know what she expected from my visit to this room, but judging from her sudden change of expression, this wasn't it. Her eyes softened, and that just made their depths more exquisite.

She said, "I'm sorry I pulled a gun. I didn't intend to use it, you know. I just needed to get out of your place, in a hurry. I shouldn't have been there in the first place. I thought I might get information from you."

The interrogation had revealed our night together. My private life was a part of this case. There wasn't anything I could do about that.

I had been sent in here to ask about the two sudden bursts of amoker fury she had demonstrated, one at the hospital, the second in my apartment. Persons emitting that peculiar intensity of sweeping rage are the ones who, in this day and age, are preparing to unleash mass violence on as many people as possible.

"I'm sure you didn't mean to hurt anyone," I said.

"You're sure?" She had been in custody awhile. She seemed to have acquired a certain self-possession, or maybe she was just resigned to her new circumstances. Whichever, she was still playful. I had thought about her a lot during the past two weeks. I would have thought about her even if she hadn't stormed out of my home waving a gun at me.

The people who were closely watching the proceedings in this room wanted me to pursue the information I'd been sent in to retrieve—sent in probably against strenuous objections from some parties.

Instead I said, "You were lonely."

She was picking a crumb from her lunch off the gray shapeless shirt she'd been issued. She paused with thumb and finger pinched above the sleeve. "What?"

"You were lonely, you said." My mouth was suddenly dry. I swallowed. I hoped she had wanted something more than information from me. "When I asked why you were with me that night, you said you were lonely."

"Yes." Her voice rasped. "I got lonely. After a year of it . . . I was lonely."

I didn't need my receptors to recognize the sincerity. Once more I spoke the truth to this woman. "I was lonely too."

We knew she was Jesse Verges' daughter, that he had come to visit her at her campus one autumn evening several years ago. The Vigil guarding the school against amoker attacks—campuses, from grade schools to universities, were popular targets that season—sounded the alert. Imminent threat. Take immediate action. Campus security did, and the unarmed and apparently wholly innocent sixty-year-old man was shot down dead.

It was a mistake. It was a bad call. A false read.

The Vigil in question was suspended, reprimanded, retrained, evaluated and eventually reinstated.

And Jesse Verges' daughter was now gunning for that particular Vigil. She knew what he looked like from the photos.

There had been a José Carubba in room 602 at the hospital the day I first met her, and he had indeed been admitted for kidney work. But Daphne Verges didn't know him. She had a gun and a carry permit, but she didn't own the weapon because she feared amokers. She was after a Vigil.

She had studied Agency methods. It wasn't a bad plan. But there was still something we couldn't figure out.

I stared across at her. I was remembering our night together. It stood out from many other nights. For those hours it had seemed like the loneliness had retreated, just a bit, just enough.

But I had my task here. I drew a breath and asked stiffly, "What means did you use to simulate the amoker-like emotional state necessary to alert a Vigil?" The Agency had looked diligently into the matter. She had done this four times before over the past year, they had learned, at four different public locations where a Vigil was likely to be present. Four false readings had resulted, though none had ended in tragedy.

Outside the room they were probably holding their breath.

Inside, I braced myself. I looked away. The *fury* hit, nothing more than a flash, a violent bolt striking and vanishing. My heart sped. My hands shook.

Finally I lifted my gaze and looked at her again. She said, "I was working for my

doctorate in biochemistry at that school. Maybe you geniuses should look into my research." She smiled, but it was a sneering smile this time.

It's something that got into our blood, into our national DNA. The incidents of mass crazed violence that characterized the Neuro-Chemical War have stayed with us, like childhood traumas. And so we act them out now, as adults, as amokers. We've always had rampagers and mass killers—Charles Whitman and Seung-Hui Cho and the rest of the rogues gallery—but now we have them by the score, by the week. Maybe it is what the terrorists intended all along.

The same operative in the suit waited for me. Here was one of the "geniuses," as Daphne had so scornfully said.

"Pheromone aggression," I said, stopping. I didn't follow when she turned to lead me down the dark green corridor.

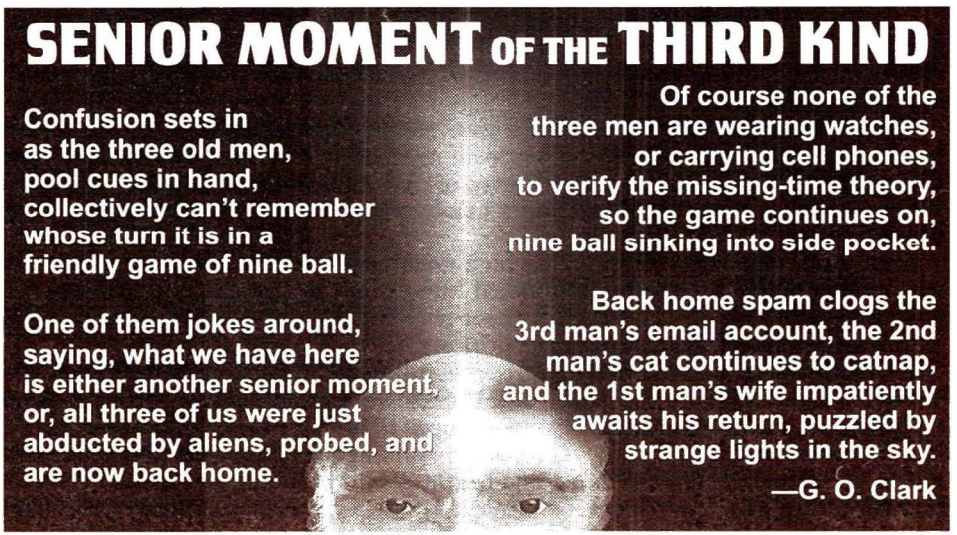
She turned back but couldn't quite meet my eyes.

"Must be an interesting—an *unusual*—branch of biochemistry," I went on, enjoying myself. "Surprising no one picked up on that." The NCW had made bioweapons a field of permanent academic interest. Some students studied it the way others delved into abnormal psychology—to understand human darkness. Daphne had had a flair, and the killing of her father, accidental or otherwise, had galvanized her research and pushed her toward her breakthrough, which until now she had managed to keep secret.

I never had any higher education. The Agency had wanted only my one skill. It was difficult for me to even imagine how Daphne had devised the means to transmit that sense of imminent frenzy by way of aggressive pheromones. The Agency had missed an obvious clue; and I had uncovered it for them . . . for *us*. Maybe I wouldn't have to remind myself quite so often that I belonged here. Maybe it would be a bit less lonely for me.

The operative was still waiting to lead me away. I strode past her, not needing any escort. I already knew my next assignment.

I belong to that first traumatic event of the NCW, not to the systemic shock that followed. My memories of the mayhem are real, factual. I can still see my mother's eyes before the neurotoxin's release. Their depths were lovely. ❍



A LOVE SONG CONCERNING HIS VINEYARD

Megan Arkenberg

Megan Arkenberg is a writer and poet from Wisconsin. In 2012, she won the Rhysling Award for best long form poem. Other work has recently appeared in *Lightspeed, Strange Horizons,* and *Shimmer.* Like many of her stories, Megan tells us, inspiration for "A Love Song Concerning His Vineyard" came about through "the convergence of several unrelated images: a line from the Book of Isaiah, a poster of Mars in a middle-school hallway, the red label on an empty wine bottle, and a name jotted down on a Post-It note and subsequently forgotten."

When I was twelve, my father, who was white, told me that Black women couldn't appreciate good wine.

"Just look, Isaya, at that grape juice your mother drinks," he said, pointing with his mustard-smeared knife at the bottle on my mother's kitchen counter. The cork was wrapped in gold foil, tied with a wisp of pink ribbon. *Sweet Moscato*, the label said in a soft, curling font like a lady's handwriting. My mother had always liked sweet things.

Even then, I knew it was not the wine's sweetness that my father objected to; it was its femininity. My mother had failed him in that regard. He had married her hoping for a Strong Black Woman, a spear-wielding warrior goddess, an ebony idol with a spine of steel. Instead, he got a princess.

My mother was astonishingly handsome, tall even in stocking feet, though she never went out without heels. Her cheekbones were prominent, sharp, and along with her soft, fleshy nose, a slightly paler bronze than the rest of her face; she looked like the metal statue of a queen that children had rubbed for luck. She wore pink and lace, layers and high necklines, and pearls. She had a particular strand of pearls that my father took as a personal affront. This was a time when genuine pearls had

to be off-white, gold, or ivory, sometimes pink. My mother's choker was pure snowfall white, glaring. They looked fake. I think Father thought they were fake, but they weren't; they were genuine, and worth more than the car he drove to and from the chain of liquor stores that he managed.

Remembering my mother, I can almost understand my father's confusion, his general impression that he had been cheated. My mother did not look like a princess. For one thing, she was skinny. Not trim or slender, but honest-to-God *Vogue*-model skinny, with thighs you could cup in one hand. (Maybe two hands—she had small hands. I have huge hands, eleven-piano-keys hands, and my thighs take four hands to circle.) Mother had no breasts to speak of. Father probably connected this vaguely to an idea about the Amazons, who cut off their breasts to improve martial prowess. Mother's breastlessness had no such roots: in fact, she padded her bra with soft perfumed tissue, which made her bosom rustle alarmingly when she moved her arms—a disadvantage in battle, no doubt. Also, it must have chafed.

I was a disappointment on a whole new front. I was not a princess; I was a crybaby. Worse, I was overweight. My limbs quivered like chocolate ice cream. I was an indignity, like my mother's poor taste in wine, that had to be endured until it could be changed—or cast off.

In both cases, my father picked the latter course. And then, when he was alone, he drank himself to death. That's all my mother ever said about it; but you can be sure as hell he didn't drink himself to death with Moscato. He never liked sweet things.

My mother, on the other hand, died because of Mars.

To be fair, Mars was an indirect cause. The direct cause was botulism, which she contracted from a particularly foul crop of Martian-grown romaine lettuce. I'm not saying that's how she would have wanted to go—vomiting was not her style—but salad constituted the vast majority of her sustenance in those later years, so I assume it was on some level psychologically satisfying. For her, I mean. It took me years to process it, to recast her death, to pin the blame on something big enough to support it. On Mars.

The second greatest tragedy of my life—the greatest, before my mother's death—can also be blamed on Mars. His name was Rondell. Like my father, he sold wine.

My mother never liked for me to call her "Mother."

"What would you prefer?" I asked, cool and polite and disinterested as a middling concierge.

"What's wrong with mama? You too old for that now?"

I was, but I didn't want to admit it, as that would open the door to conversation about this intolerable thing called "growing up."

"Father doesn't want me to call him daddy anymore," I said.

She looked at me like I was a frog and told me, delicately and with precise pronunciation, just what I could call him instead.

Anyway. Rondell.

Rondell had a white mama. That's what he called her, his white mama, to differentiate her from the Black woman his father had later married. When we were in middle school, Rondell liked to say he spent as much time as possible in the sun because he wanted to stay dark. I questioned the biological feasibility of this, but he took it as a matter of faith. He always sat in the back of class, right by the windows; he'd change desks to follow the progress of the sun. I later learned that his white mama was in fact of Middle Eastern descent—Pakistani. Her name was Noor. Rondell liked to pronounce it "Noir" and pretend she came from France.

"Wine country," he said. *"Vin de Pays."* He had the most flawless French pronunciation of anyone I'd known before or since. Even my delicate, Coco-Chanel and Yves-Saint-Laurent mother couldn't match his consonants. "Pinot Noir," he'd say, describing a grape as dark as his skin. "Makes red Burgundy. And in November, there's Beaujolais Nouveau. Everyone rushes to get a bottle, but no one knows for sure what it's going to taste like until they buy it. It's like fucking a girl none of your friends have been with, you know?"

He said this to shock me. We were both sixteen; he was still a virgin, although I was not. How do I know this? Because I'm the one he gave his virginity to, about twenty months later, on a wool blanket we spread on the floor of his baby sister's playroom while his stepmother was out grocery shopping. This was the same day he told me he was getting a job.

"Do you think it's safe?" I asked. "Liquor stores get held up a lot, you know."

"Not this liquor store," he said. "This one's on the other end of town. It just sells wine, none of that crap like Steel Reserve or Skol or Black Velvet." ("Crap" was, for Rondell, a more all-encompassing term than it is in conventional usage.)

That job didn't last long. People on the other end of town—I'd say *white* people on the other end of town, but it's not like there's another kind over there—they didn't think an eighteen-year-old Black man knew anything about wine. The last straw, Rondell said, was this asshole who picked up a bottle of Pinot Noir and asked if it was Burgundy.

"No, sir," Rondell said. "It's not French."

"So what's different about it?"

"The grapes are grown in California, not France."

"But it's the same kind of grape, right?"

"Of course, sir. But they aren't grown in France, so it's not a Burgundy wine."

The customer complained that Rondell had an attitude, and he was let go the next day.

There's a few things about growing wine on Mars.

Not as many as there are with growing wine on Earth, I guess, since the Non-Necessary Agricultural Agreement. It's at least *legal* to grow wine on Mars. No one's going to hunt you down for wasting fertile ground-space. And the dryness isn't a problem for grapes, not like it would be for cranberries or oranges or chrysanthemums. But still, take the soil, for example—acid as all hell, at least in the parts we could get our hands on. And then there's the growing season.

None of this stopped Rondell. Or me, for that matter: I hesitate to blow my own horn, to preach from the Book of Isaya, as my father used to say, disliking all pride, but especially the pride of a moon-faced half-white crybaby. But I played my own role with the Martian vineyards. I wrote to the right people and filled out the right forms and made sure that, when it mattered, the sturdy little vine clippings were in their Styrofoam coolers at the shuttle launch, ready to hurtle through space. I'm not saying Rondell was no good at logistics, he was fine, but his brain was on other things. Advertising on pages opposite Rolex, Louis Vuitton, Audi. Wine-tastings with white-gloved waiters and counters of black Italian marble.

I remember the first vintage—2029. Turned out it was a bitch to make decent wine on Mars. I took one good sip and gagged. "Don't rush it," Rondell said, kissing my bare shoulder. But even he turned faintly green.

Once, my father made me so angry that I drank a glass of vinegar.

We'd been having the usual argument. I was shameless; I was ungrateful; I didn't know what to do with nice things. I suspect he enjoyed making me cry. (He was good

at it, but that's hardly high praise—a sudden shift in the weather, a dead spider trapped in its web, reports of a fatal car accident on the television could open the floodgates just as well.) I knew that in his eyes I was despicable. Instead of Hippolyta, he'd accidentally married Aphrodite; and his child, instead of an Athena, was some sort of bear-clumsy, swollen Callisto. Stupid and tedious as a sponge.

But here's the thing about sponges: we're porous. We absorb everything.

"You're ignorant," he was saying, or words to that effect. You may have noticed that I remember little of his exact wording; the fact is, he was not very memorable. His voice was like sour milk, quickly wiped up, bleached out, and forgotten. "You couldn't tell good vine from vinegar."

I said nothing. I knew he was speaking metaphorically, but I didn't really give a fuck. I took a wine glass from the cupboard. I got the gallon of vinegar from the pantry. I poured some of the latter into the former.

Looking into his little, watery blue eyes, I started to drink. I didn't stop until he flinched away.

"Tastes fine to me," I said, wiping the back of my mouth with my sleeve.

He flinched again.

I went into the bathroom and vomited.

I said Rondell was no good at logistics. He was also no good at hate mail.

This was three or four years into the business, when what we were bottling and distributing was finally good. Blends had suddenly shot up in popularity and we were prepared for it, with a heady, velvety mix called Morningstar—Pinot Noir and Merlot from the Martian vineyards, plus a trace of Cabernet from a pre-NNAA vintage we'd discovered near Bordeaux. A burst of red berries and stone fruits, a faint mocha finish, surprisingly drinkable. The reviews were overwhelmingly positive. We even made an awards ballot or two, nothing too high-brow.

Well, I guess it must have been too high-brow for *some* people.

Rondell wanted me to answer all the messages. Thank the polite ones, tuck in a coupon for a free bottle or two, and tell the rest in no uncertain terms to fuck off. He couldn't understand why even clicking through those misspelled messes, those hateful, poisonous pages of tripe where words like "paws" and "gutter" and "filthy" cropped out like foul alien weeds, would make me burst into tears and flee the room.

"But they're wrong," he said, bewildered. "We've got a good thing."

He couldn't understand how them being wrong made it worse.

I've still got a few bottles of Rondell's vintages on a plywood rack in my basement. I carried them from apartment to apartment and house to house, dusted them and smoothed the labels where the glue is starting to wear thin. They might be worth something. I couldn't bring myself to sell them, though.

And drinking them is out of the question. It'd be like drinking my own tears. Sure, they're sweet, and the action is fittingly cyclical; but really, it's just taking back your own salt, reclaiming what your body has rejected and expelled. You've got to trust that your body knows best. Some things you just have to let go.

So far as I can recall, my mother brought up Rondell as a subject of conversation precisely once.

"Is his mama really white?"

"No," I said. We were sitting on the porch swing, sipping sweet white wine from plastic cups. "Maybe. She's Pakistani. Does that count?"

"Nah." A pause. My mother gave the floorboards a kick, sending the swing back

sharply. But she didn't lose her grip on her wine glass. "He was okay, that boy. It's a shame."

This conversation took place two weeks after he died.

Rondell also died of Mars, indirectly. Somebody shot him.

We were giving a demo at the Pan-Am Agricultural Congress. It wasn't very pan-American; everyone was white and balding and spoke with a Midwestern accent. This was in Chicago. The heartland took a particularly hard hit with the NNAA—not the act, as such, which profited corn farmers and some of the wind turbines, but the anti-NNAA reactions, which consisted of pretty much everyone else. Everyone who could afford to was talking about buying off-Earth, not merely from necessity, but as a big old fuck-you to the NNAA. Buying, that is, from us.

I'm not sure if that had anything to do with the shooting.

The gunman was short, pudgy, and white, with sparse, greasy blond hair. I don't know much more than that, because after he walked up to our booth and fired a full round, hitting Rondell four times in the chest, he turned the gun on himself and blew his face off. They searched his computer afterward; I think he hated Pakistanis. All I could think at the time was good riddance, and then I was on my knees, cradling Rondell in my arms and pleading with him not to go.

He went, though. He squeezed my hand, but he couldn't say much. His lungs were in tatters. And I held him and kissed his bloody lips and couldn't cry, no matter how much I wanted to, I couldn't cry. My body was in shock. I'd been shot too, in the fat upper thigh, mere fractions of an inch from the femoral artery. The blood ran down my leg in sheets, black as Pinot Noir.

My father said I'd never find a man who could love me. Did he mean I was unlovable because I was fat, or half-white, or a crybaby? Because I was ungrateful? Because I couldn't appreciate good wine? But in that, as in everything else, my father was wrong.

The last blend Rondell produced was called Simbah. "'The vines of Simbah,'" he quoted, "'whose clusters once made drunk the lords of nations.' Did you catch the reference?"

I lay on my stomach on his blue-sheeted bed, the quilt thrown over my legs and his warm hands tracing patterns down my spine. It was dark but he'd left the lamp on in the hallway, and his gold earring sparkled in the meager light like a tiny star.

"Book of Isaiah," I said. He kissed my hands where they rested on the pillowcase, fingertip by fingertip, and I began the next verse. "'Therefore I weep for the vines of Simbah.'"

"You weep for everything, Isaya." He was smiling, one of his rare and magical smiles.

For joy and gladness are taken away from the fruitful field; and in the vineyards no songs are sung. I turned my hand up and pressed it against his mouth, the soft lips, the hard straight teeth, as though I could capture his smile in my palm. "How come?"

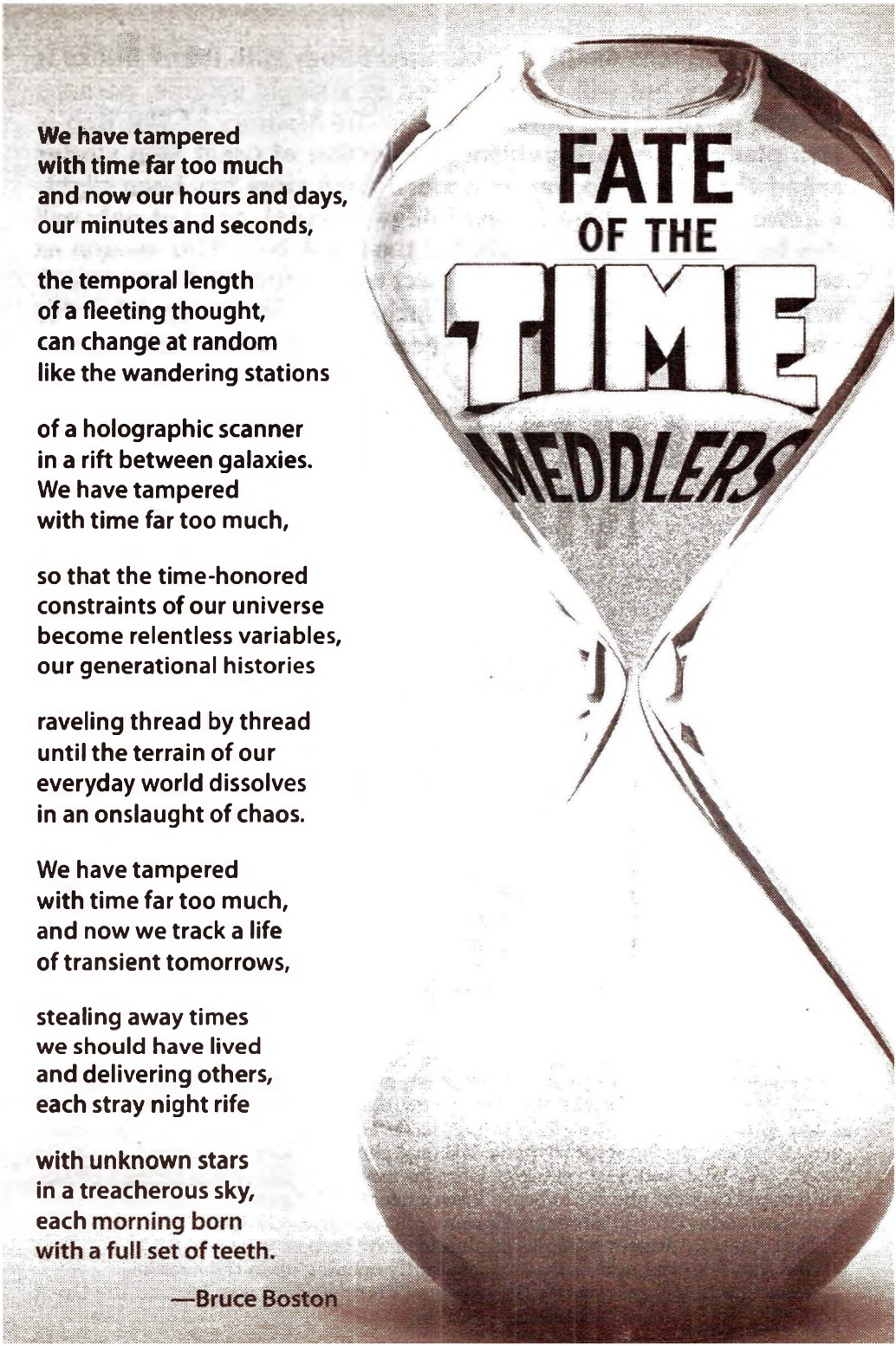
"Hm?"

"How come you named it after something that got destroyed?"

He took my hand in one of his and lifted it away from his mouth. He stared at it for a long time; at the pale brown palm with its deep and fractured lines, at the broad pink-polished nails. "Because they must have been precious," he said at last, "if people wept for them."

"Okay," I said.

And turned my face into his pillow to hide my tears. ❍



We have tampered
with time far too much
and now our hours and days,
our minutes and seconds,

the temporal length
of a fleeting thought,
can change at random
like the wandering stations

of a holographic scanner
in a rift between galaxies.
We have tampered
with time far too much,

so that the time-honored
constraints of our universe
become relentless variables,
our generational histories

raveling thread by thread
until the terrain of our
everyday world dissolves
in an onslaught of chaos.

We have tampered
with time far too much,
and now we track a life
of transient tomorrows,

stealing away times
we should have lived
and delivering others,
each stray night rife

with unknown stars
in a treacherous sky,
each morning born
with a full set of teeth.

—Bruce Boston

Robert Reed tells us that his planned trilogy with Prime Books is still a trilogy, but will be published as a single volume, perhaps in April of 2014. The working title is *The Memory of Sky.* Bob is also planning to "self-publish a collection of Great Ship stories called *The Greatship.* Yes, one word. Each story has been slightly reworked, and there is new bridge material, and not only will this be available as an e-pub, but there will be a POD version as well." Status updates on this project will be found at *robertreedwriter.com.* The collection won't include his 2012 material or his thrilling new "Great Ship" tale about what it means to be . . .

PRECIOUS MENTAL

Robert Reed

1

The man came to Port Beta carrying an interesting life.

Or perhaps that life was carrying him.

Either way, he was a strong plain-faced human, exceptionally young yet already dragging heavy debt. Wanting honest, reliable employment, he wrestled with a series of aptitude tests, and while scoring poorly in most categories, the newcomer showed promise when it came to rigor and precision and the kinds of courage required by the mechanical arts. Port Beta seemed like a worthy home for him. That was where new passengers arrived at the Great Ship, cocooned inside streakships and star taxis, bomb-tugs and one-of-a-kind vehicles. Long journeys left most of those starships in poor condition. Many were torn apart as salvage, but the valuable and the healthiest were refurbished and then sent out again, chasing wealthy travelers of every species.

A local academy accepted the newcomer, and he soon rose to the most elite trade among technicians. Bottling up suns and antimatter was considered the highest art. Drive-mechanics worked on starship engines and dreamed about starship engines, and they were famous for jokes and foul curses understandable only to their own kind. Their work could be routine for years, even decades, but then inside the monotony something unexpected would happen. Miss one ghost of a detail and a lasting mistake would take hold, and then centuries later, far from Port Beta, a magnificent streakship would explode, and the onboard lives, ancient and important, were transformed into hard radiation and a breakneck rain of hot, anonymous dust.

That was why drive-mechanics commanded the highest wages.

And that was why new slots were constantly opening up in their ranks.

According to official records, the academy's new student was born on the Great

Ship, inside a dead-end cavern called Where-Peace-Rains. Peculiar humans lived in that isolated realm, and they usually died there, and to the soul, they clung to preposterous beliefs, their society and entire existence woven around one linchpin idea:

The multiverse was infinite.

There was no denying that basic principle. Quantum endlessness was proven science, relentless and boundless and beautiful. Yet where most minds saw abstractions and eccentric mathematics, those living inside Where-Peace-Rains considered infinity to be a grand and demanding gift. Infinity meant that nothing could exist just once. Whatever was real, no matter how complicated or unlikely, had no choice but to persist forever.

In that way, souls were the same as snowflakes.

A person's circumstances could seem utterly unique, yet he was always surviving in limitless places and dying in limitless places, and he couldn't stop being born again in every suitable portion of the All.

Life had its perfect length. Most humans and almost every sentient creature believed in living happily for as long as possible. But the archaic souls inside that cave considered too much life to be a trap. One or two centuries of breathing and sleeping were plenty. Extend existence past its natural end, and the immortal soul was debased, impoverished, and eventually stripped of its grandeur. Only by knowing that you were temporary could life be stripped of illusion and the cloaks of false-godhood, and then the blessed man could touch the All, and he could love the All, and if his brief existence proved special, a tiny piece of his endless soul might earn one moment of serene clarity.

Where-Peace-Rains constantly needed babies. Like primitive humans, its citizens were built from water and frail bone and DNA full of primate instincts. The outside world called them Luddites—an inadequate word, part insult and part synonym for madness. But the young drive-mechanic was remarkable because he grew up among those people, becoming an important citizen before relinquishing their foolish ways.

Stepping alone into the universe, the man was made immortal.

But immortality was an expensive magic.

It had to be.

Archaic muscles and organs needed to be retrofitted. The body had to be indifferent to every disease, ready to heal any wound. Then the soggy soft and very fragile human brain was transformed into a tough bioceramic wonder, complex enough to guarantee sufficient memory and quick intelligence to thrive for eons.

But transformation wasn't the only expense. The boundless life never quit needing space and food and energy. Eternal, highly gifted minds relished exotic wonders, yet they also demanded safety and comfort—two qualities that were never cheap. That's why the Great Ship's captains demanded huge payments from immortals. Passengers who never died would never stop needing. And that was why the one-time Luddite was impressive: Fresh inside his new body, consumed by his many debts, he was using a new brain to learn how to repair and rebuild the most spectacular machines built by any hands.

Every student was soon hired as a low-wage trainee. The newcomer did small jobs well, but more importantly, he got out of the way when he wasn't needed. People noticed his plain, unimpressive face. It was a reasonable face; fanatics didn't need beauty. The man could be brusque when displeased, and maybe that quality didn't endear him to his superiors. But he proved to have an instinct for stardrives, and he knew when to buy drinks for his colleagues, and he was expert in telling dry old jokes, and sometimes, in a rare mood, he offered stories about Where-Peace-Rains. Audiences were curious about the cavern and its odd folk, the left-behind family and their ludicrous faith. Years later, co-workers thought enough of their colleague to attend his graduation, and if the man didn't show adequate pride with the new plasma-blue uniform, at least he seemed comfortable with the steady work that always finds those who know what they are doing.

* * *

Decades passed, and the reformed Luddite acquired responsibilities and then rank, becoming a dependable cog in the Tan-tan-5 crew.

Then the decades were centuries.

One millennium and forty-two years had steadily trickled past. Port Beta remained a vast and hectic facility, and the Great Ship pushed a little farther along its half-million year voyage around the galaxy, and this man that everybody knew seemed to have always been at his station. His abandoned family had died long ago. If he felt any interest in the generations still living inside Where-Peace-Rains, he kept it secret. Skill lifted him to the middle ranks, and he was respected by those that knew him, and the people who knew him best never bothered to imagine that this burly, plain-faced fellow might actually be someone of consequence.

2

His name used to be Pamir.

Wearing his own face and biography, Pamir had served as one of the Great Ship's captains. Nothing about that lost man was cog-like. In a vocation that rewarded charm and politics, he was an excellent captain who succeeded using nothing but stubborn competence. No matter how difficult the assignment, it was finished early and without fuss. Creativity was in his toolbox, but unlike too many high-gloss captains, Pamir used rough elegance before genius. Five projects wearing his name were still taught to novice captains. Yet the once-great officer had also lost his command, and that was another lesson shared with the arrogant shits who thought they deserved to wear the captains' mirrored uniform: For thousands of years, Pamir was a rising force in the ranks, and then he stupidly fell in love with an alien. That led to catastrophes and fat financial losses for the Ship, and although the situation ended favorably enough, passengers could have been endangered, and worse than that, secrets had been kept from his vengeful superiors.

Sitting out the voyage inside the brig was a likely consequence, but dissolving into the Ship's multitudes was Pamir's solution. The official story was that the runaway captain had slipped overboard thirty thousand years ago, joining colonists bound for a new world. As a matter of policy, nobody cared about one invisible felon. But captains forgot little, and that's why several AIs were still dedicated to Pamir's case—relentless superconductive minds endlessly sifting through census records and secret records, images dredged up from everywhere, and overheard conversations in ten thousand languages.

Every morning began with the question, "Is this the day they find me?"

And between every breath, some piece of that immortal mind was being relentlessly suspicious of everyone.

"Jon?"

Tools froze in mid-task, and the mechanic turned. "Over here."

"Do you have a moment?"

"Three moments," he said. "What do you want, G'lene?"

G'lene was human, short and rounded with fat—a cold-world adaptation worn for no reason but tradition. One of the newest trainees, she was barely six hundred years old, still hunting for her life's calling.

"I need advice," she said. "I asked around, and several people suggested that I come to you first."

The man said nothing, waiting.

"We haven't talked much before," she allowed.

"You work for a different crew," he said.

"And I don't think you like me."

The girl often acted flip and even spoiled, but those traits didn't matter. What mattered was that she was a careless technician. It was a common flaw worn by young immortals. Carelessness meant that the other mechanics had to keep watch over her work, and the only question seemed when she would be thrown out of the program.

"I don't know you much at all," said Pamir. "What I don't like is your work."

She heard him, took a quick breath, and then she pushed any embarrassment aside. "You're the Luddite, aren't you?"

There were various ways to react. Pamir told the nearest tool to pivot and aim, punching a narrow hole through the center of his palm.

Blood sprayed, and the hole began to heal instantly.

"Apparently not," he said.

G'lene laughed like a little girl, without seriousness, without pretense.

Pamir didn't fancy that kind of laugh.

"Jon is a popular name with Luddites," she said.

Pamir sucked at the torn flesh. He had worn "Jon" nearly as long as he had worn this face. Only in dreams was he anybody else.

"What kind of advice are you chasing?" he asked.

"I need a topic for my practicum."

"Ugly-eights," he said.

"That's what you're working on here, isn't it?"

He was rehabilitating the main drive of an old star-taxi. Ugly-eights were a standard, proven fusion engine. They had been pushing ships across the galaxy longer than most species were alive. This particular job was relentlessly routine and cheap, and while someone would eventually find some need for this old ship, it would likely sit inside a back berth for another few centuries.

"Ugly-eights are the heart of commerce in the galaxy," said Pamir.

"And they're ugly," she said.

"Build a new kind of ugly," he said. "Tweak a little function or prove that some bit or component can be yanked. Make this machine better, simpler or sexier, and a thousand mechanics will worship you as a goddess."

"Being worshipped," she said. "That would be fun."

She seemed to believe it was possible.

The two of them were standing in the middle of an expansive machine shop. Ships and parts of ships towered about them in close ranks. Port Beta was just ten kilometers past the main doors, and the rest of Pamir's crew and his boss were scattered, no other face in sight.

"I know what you did for your practicum," said G'lene. "You built a working Kajjas pulse engine."

"Nobody builds a working Kajjas pulse," he said. "Not even the Kajjas."

"You built it and then went up on the hull and fired the engine for ninety days."

"And then my luck felt spent, so I turned it off."

"I want to do something like that," she said. "I want something unusual."

"No," he said. "You do not, no."

She didn't seem to notice his words. "It's too bad that we don't have any Kajjas ships onboard. Wouldn't it be fun to refab one of those marvels?"

Kajjas space had been left behind long ago. Not one of their eccentric vessels was presently berthed inside Beta. But the Great Ship had five other ports, reserved for the captains and security forces. Did G'lene know facts that weren't public knowledge? Was the girl trying to coax him into some kind of borderline adventure?

"So you want to play with a real Kajjas ship," Pamir said.

"But only with your help. I'm not a fool."

Pamir had never given much thought to G'lene's mind. What he realized then, staring at that pretty ageless and almost perfectly spherical face, was that she didn't seem to be one thing or another. He couldn't pin any quality to his companion.

"The Kajjas are famous explorers," she said.

"They used to be, but the wandering urge left them long ago."

"What if I knew where to find an old Kajjas starship?"

"I'd have to ask where it's hiding."

"Not here," she said.

The way she spoke said a lot. "Not here." The "here" was drawn out, and the implications were suddenly obvious.

"Shit," said Pamir.

"Exactly," she said.

"It's not on the Great Ship, is it?"

The smile brightened, smug and ready for the next question.

"Who are you?" he asked.

"Exactly who I seem to be," she said.

"A lipid-rich girl who is going to fail at the academy," he said.

To her credit, she didn't bristle. Poise held her steady, and she let him stare at her face a little longer before saying, "Maybe I was lying."

"You aren't talking about your practicum, are you?"

"Not really," she said. "No, I have friends who need to hire a drive-mechanic."

"Friends," he said.

"Best friends," she said. "And like all best friends, they have quite a lot of money."

Pamir said, "No."

"Take a leave of absence," she said. "The bosses like your work. They'll let you go. Then in a little while . . . well, a long while . . . you can come back again with enough money to wipe away all of your debts."

"What do you know about my debts?"

The smile sharpened. "Everything," she said.

"No, I don't want this," he said.

Then a little meanness crept into her laugh. "Is it true what they say?"

"It often is."

"Luddite minds are better than others," she said. "They work harder because they have to start out soft and simple."

"We all start simple," he said.

"You need to go with me," she insisted.

There was a threat woven into the words, the tone. Pamir started to gauge his surroundings as well as this peculiar creature, but he never heard the killer's approach. One moment, the drive-mechanic was marshaling his tools for some ad hoc battle, but before he was ready, two impossibly strong hands were clasped around his neck, reaching from behind, calmly choking the life out of a thousand-year-old body.

3

The Kajjas home sun was a brilliant F-class star circled by living worlds, iron-fattened asteroids, and billions of lush comets. Like humans, the Kajjas evolved as bipeds hungry for oxygen and water, and like most citizens of the galaxy, biology gave them brief lifespans and problematic biochemistries. Independent of other species, they invented the usual sciences, and after learning the principles of the Creation, they looked at everything with new eyes. But their solar system happened to be far removed from

the galactic plane. The nearest star was fifty light-years away. Isolated but deeply clever, the Kajjas devised their famous pulse engines—scorching, borderline-stable rockets built around collars of degenerate matter. Kajjas pulses were as good as the best drives once they reached full throttle, but stubborn physics still kept them from beating the relativistic walls. Every voyage took time, and worse still, those pulse engines had the irksome habit of bleeding radiation. Even the youngest crew would die of cancers and old age before the voyage was even half-finished.

Faced with the problem of spaceflight, every species realized that there were no perfect answers, at least so long as minds were mortal and the attached bodies were weak.

A consensus was built among the Kajjas. Alone, they began reengineering their basic nature. With time they might have invented solutions as radical as their relentless star-drives, but not long after the project began, a river of laser light swept out at them from the galaxy's core—a dazzling beacon carrying old knowledge, including the tools and high tricks necessary to build the bioceramic mind.

A similar beacon would eventually find the Earth, unleashing the potentials of one wild monkey.

But that event was a hundred million years in the future.

Human history was brief and complicated—a few hundred thousand years of competing, combustible civilizations. By comparison, the Kajjas built exactly one technological society. War and strife were unimaginable. Unity rode in their blue blood. Once armed with immortal minds and the infamous engines, their starships rained down across a wide portion of the galaxy, setting up colonies and trade routes while poking into ill-explored corners. The Kajjas were curious and adaptable explorers, and it was easy to believe that they would eventually rule some fat portion of local space. But the species reached its zenith while the dinosaurs still ran over one tiny world, and then their slow decline began. Colonies withered. Their starships began keeping to the easy, well-mapped routes. Some of the Kajjas never even went into space. And what always bothered Pamir, and what always intrigued him, was that these ancient creatures had no clear idea what had gone wrong.

A few Kajjas rode onboard the Great Ship. They were poorer than the typical passenger, but each had a love for brightly lit taverns, and in moderation, drinks made from hot spring waters and propanol salted liberally with cyanide.

Philosophers by nature and cranky philosophers at that, the Kajjas made interesting company. Pamir approved of their irritable moods. He liked cryptic voices and far-sighting reflections. This was a social species with clear senses of hierarchies. If you wanted respect, it was important to sit near your Kajjas friend, near enough to taste the poison on his breath, and to wring the best out of the experience, you had to act as if he was the master of the table and everyone sitting around it.

Pamir's favorite refugee was ageless to the eye, but eyes were easily fooled.

"We were courageous voyagers," said the raspy voice.

"You were," Pamir agreed.

His companion had various names, but in human company, he preferred to be called "Tailor."

"Do you realize how many worlds we visited?"

"No, Tailor, I don't."

"You do not know, and we can only guess numbers." The words were tumbling out of an elderly, often repaired translator. "Ten million planets? Twenty billion? I can't even count the places that I have walked with these good feet."

The Kajjas suddenly propped his legs on the tabletop.

Knowing what was proper, Pamir leaned between the toe-rich, faintly kangaroo-style feet. "I would tolerate your stories, if you could tolerate my boundless interest."

The alien's head was narrow and extremely deep, like the blade of a hatchet. Three eyes surrounded a mouth that chewed at the air, betraying suspicion. "Do I know you, young human?"

"No," Pamir lied. "We have never met."

He was wearing that new face and the name Jon, and he was cloaked in a fresh life story, too.

"You seem familiar to me," said the Kajjas.

"Because you're ancient and full of faces, remembered and imagined, too."

"That feels true."

"I beg to know your age," Pamir said.

The question had been asked before, and Tailor's answer was always enormous and never repeated. If the alien felt joyous, he claimed to be a youthful forty million years old. But if angry or despairing, he painted himself as being much, much older.

"I could have walked along your Cretaceous shoreline," said Tailor that evening, hinting at a very dark disposition.

"I wish you had," said Pamir.

"Yet I can do that just the same," the Kajjas said, two eyes turning to mist as the mind wove some private image.

Pamir knew to wait, sipping his rum.

The daydream ended, and the elderly creature leaked a high trilling sound that the translator turned into a despairing groan.

"My mind is full," Tailor declared.

"Should I envy you?"

Iron blades rubbed hard against one another—the Kajjas laugh. "Fill your mind with whatever you wish. Envy has its uses."

"Should my species envy yours?"

Every eye cleared. "Are you certain we haven't met?"

"Nothing is certain," said Pamir.

"Indeed. Indeed."

"Perhaps you know other humans," Pamir said.

"I have sipped drinks with a few," Tailor said. "Usually male humans, as it happens. One or two of them had your bearing exactly."

The focus needed to be shifted. "You haven't answered me, my master. Should humans envy your species' triumphs?"

A long sip of poison turned into a human-style nod. "You should envy every creature's success. And if you wish my opinion—"

"Yes."

"In my view, our greatest success is the quiet grace we have shown while making our plunge back to obscurity. Not every species vanishes so well as the Kajjas."

"Humans won't," said Pamir.

"On that, we agree."

"And why did your plunge begin?" the human asked. "What went wrong for you, or did something go right?"

Pamir had drunk with this entity many times over the millennia. Tailor gave various answers to this question, each delivered without much faith in the voice. Usually he claimed that living too long made an immortal cowardly and dull. Too many of his species were ancient, and that antediluvian nature brought on lethargy, and of course lethargy led to a multifaceted decline.

Wearing the Jon face, Pamir waited for that reliable excuse again.

But the alien said nothing, wiggling those finger-like toes. Then with an iron laugh, fresh words climbed free of his mouth.

"I think the secret is our minds," he began.

"Too old, are they?" asked Pamir.

"I am not talking about age. And while too many memories are jammed inside us, they are not critical either."

"What is wrong with your mind?"

"And yours too." Tailor leaned forward. A hand older than any ape touched Pamir's face, tracing the outlines of his forehead. "Your brain and mine are so similar. In its materials and the nanoscopic design, and in every critical detail that doesn't define our natures."

"True, true," said the worshipful Pamir.

"Does that bother you?"

"Not at all."

"Of course not, no," said the alien. "But have you ever asked yourself . . . has that smart young mind of yours ever wondered . . . why doesn't this sameness leave you just a little sick in your favorite stomach?"

4

Choke an immortal man, pulverize the trachea and neck bones and leave the body starved of oxygen, and he dives into a temporary coma. But the modern body is more sophisticated than machines, including star-drives, and within their realm, humans can be far more durable, more self-reliant. Choke the man and a nanoscopic army rises from the mayhem, knitting and soothing, patching and building. Excess calories are warehoused everywhere, including inside the bioceramic mind, and despite the coma and the limp frame, nothing about the victim is dead. Pamir wasn't simply conscious. He was lucid, thoughts roaring, outrage in full stride as he guessed about enemies and their motives and what he would do first when he could move again, and what he would do next, and depending on the enemies, what color his revenge would take.

But there were many states between full life and true death.

He was sprawled out on the shop floor, and standing over him, somebody said, "Done."

Then he felt himself being lifted.

A woman said, "Hurry."

G'lene?

His body was carried, but not far. There was a maze of storage hangers beneath the shop. Pamir assumed that he was taken into one of those rooms, and once set down again he found the strength to strike a careless face, once and then twice again before someone shoved a fat tube down his ruined throat.

Fiery chemicals cooked his flesh.

Too late, he tried to engage his nexuses. But their voices had been jammed, and all that came back to him was white noise and white deathly light.

In worse ways than strangling, his body was methodically killed.

Deafness took him, and his sense of smell was stripped away, and every bit of skin went numb. In the end, the only vision remaining was imagination. A body couldn't be left inside a storage hanger. Someone would notice. That's why he imagined himself being carried, probably bound head to toe to keep him from fighting again. But he didn't feel any motion, and nothing changed. Nothing happened. Lying inside blackness, his thoughts ran on warehoused power, and when no food was offered those same thoughts began to slow, softening the intensities of each idea, ensuring a working consciousness that could collapse quite a bit farther without running dry.

The streakship's launch was never noticed, and the long, fierce acceleration made no impression.

But Pamir reasoned something like that would happen. Clues and a captain's experience let him piece together a sobering, practical story. If any Kajjas ship was wandering near the Great Ship, it would have been noticed. That news would have found him. And since it wasn't close, and since the universe was built mostly from inconvenient trajectories, the streakship would probably have to burn massive amounts of fuel just to reach the very distant target—assuming it didn't smash into a comet while plunging through interstellar space.

This kind of mission demanded small crews and fat risks, and Pamir was going to remain lost for a very long time.

"Unless," he thought. "Unless I'm not lost at all."

Paranoia loves darkness. Perhaps this ugly situation was a ruse. Maybe the relentless AI hunters had finally found him, but nobody was quite sure if he was the runaway captain. So instead of having him arrested, the captains decided to throw the suspect inside a black box, trying to squeeze the secrets out of him.

Bioceramic minds were tiny and dense and utterly unreadable.

But a mind could be worn down. A guilty man or even an innocent man would confess to a thousand amazing crimes. Wondering if prison was better than dying on some bizarre deep-space quest, Pamir found the temptation to say his old name once, just to see if somebody had patched into his speech center. But as time stretched and the thoughts slowed even more, he kept his mind fixed on places and days that meant something to a man named Jon. He pictured Port Beta and the familiar machinery. He spoke to colleagues and drank with them, the routine, untroubled life of the mechanic lingering long past his death. Then when he was miserably bored, he imagined Where-Peace-Rains, spending the next years with a life and beliefs that before this were worn only as camouflage.

For the first time, he missed that life that he had never lived.

Decades passed.

Oxygen returned without warning, and flesh warmed, and new eyes opened as a first breath passed down his new throat.

A face was watching him.

"Hello, Jon," said the face, the hint of a smile showing.

Pamir said, "Hello," and breathed again, with relish.

G'lene appeared to be in fine health, drifting above the narrow packing crate where his mostly dead body had been stowed.

Pamir sat up slowly.

A thoroughly, wondrously alien ship surrounded them. Its interior was a cylinder two hundred meters in diameter and possibly ten kilometers long. Pamir couldn't see either end of this odd space. The walls were covered with soft glass threads, ruddy like the native Kajjas grass, intended to give the Kajjas good purchase for kicking when they were in zero gravity, like now. But when the ship's engines kicked on, the same threads would come alive, lacing themselves into platforms where the crew could work and rest, the weaves tightening as the gees increased. That was standard Kajjas technology. Kajjas machines were scattered about the curved, highly mobile landscape, each as broken as it was old. There were control panels and what looked like immersion chambers, none of them working, and various hyperfiber boxes were sealed against the universe. Every surface wore a vigorous coat of dust. Breathing brought scents only found in places that had been empty forever. Rooms onboard the Great Ship smelled this way. But the air and the bright lights felt human, implying that his abductors had been onboard long enough to reconfigure the environment.

G'lene kept her distance. "How do you feel, Jon?"

"Can you guess?" he asked.

She laughed quietly, apparently embarrassed.

In the distance, three entities were moving in their direction. Two of them were human.

"Our autodoc just spliced a fast-breaker pipe into your femoral," she said. "You'll be strong and ready in no time."

Pamir studied legs that didn't look like his legs, and he looked at a rib-rich chest and a stranger's spidery hands. Starvation and nothingness had left him eroded, brittle and remarkable.

"Our captain wants you to start repairing the pulse drive," G'lene said.

"And I imagine that our captain wants enthusiasm on my part."

She blinked. She said, "Hopefully."

"You know a little something about machines," he said. "How does the old engine look?"

"I'm no expert, as you like to tell me. But it looks like the last crew put everything to sleep in the best ways. Unfortunately there's no fuel onboard, and none of the maintenance equipment is functioning."

"I hope our captain considered these possibilities."

"We brought extra fuel and tools, yes."

"Enough?"

She stared at his skinny legs.

Pulse engines, like flesh, were adaptable when it came to nutrition. Any mass could be fed through the collars, transformed into plasma and light.

Pamir wiggled his bare toes.

The other crewmembers were kicking closer.

"I'm guessing that the Kajjas crew is also missing," he said.

"Oh, yes," she said.

"How long missing?"

The question made her uneasy.

"How long have we been here?" he asked.

That was another difficult topic, but she nodded when she said, "Nineteen days."

The autodoc beneath him was a small field model, serviceable but limited. Pamir studied it and then the girl, and then he flexed one leg while leaving the other perfectly still. Asked to work, the atrophied muscles took the largest share of the new food, and the leg grew warmer, sugars burning and lipids burning until the slippery blood began to glow.

"How about the sovereigns?" he asked.

"Sovereigns?"

"The ship's AIs." Most species patterned their automated systems after their social systems, and the Kajjas preferred noble-minded machines in charge of the automated functions.

"We've tried talking to the AIs," said G'lene. "They don't answer."

Tossing both legs out from the tiny growth chamber, Pamir dragged the fast-break pipe with them. "And what are we? A salvage operation?"

She said, "Yes."

"And at the end of the fun, am I paid? Or am I murdered for good?"

"Paid," she blurted. "The offer from me was genuine, Jon. There's a lot of money to be made here."

"For a badly depleted Kajjas ship," he said, sighing. "It's more than hopeful, believing this derelict can earn much on the open market."

She said nothing.

"But it is exceptionally old, isn't it?"

"That's what our captain says."

"Sure, the Kajjas sent missions everywhere," he said. "They were even happy to poke far outside the Milky Way."

"Which makes this a marvelous relic," she said.

"To a species inflicted with hard times. Nobody with a genuine purse would give a little shit about this lost wreck."

The two other humans were arriving—a woman and a man. They were closely related, or they loved to wear faces that implied some deep family bond.

"This is Maxx," G'lene said, referring to the man.

"And I'm Rondie," the woman offered.

Powerful people, each as muscular as G'lene was round, their every motion and the flash of their eyes proved they were youngsters.

Pamir wondered whose hands had strangled him.

"It's great to finally meet you," Maxx said, nothing but pure, undiluted happiness in his voice. "We keep hearing that you can make this ship healthy again."

"Who says that?" Pamir asked.

"The only one who matters," the fellow said, laughing amiably.

What was more disturbing: Being kidnapped for a mission that he didn't want to join, or being trapped in the company of three earnest, inexperienced near-children?

Next to the humans, the drive-mechanic was utterly ancient.

But compared to their captain, Pamir was a newborn.

"Hello to you, Jon," said the Kajjas.

"Why me?" Pamir asked. "You should know how to fix your own beast."

One last kick made the glass crinkle and flow, bringing the captain into the group. The sound of grinding iron preceded the words, "I have never mastered the peculiar genius to be a worthy engineer."

"Too bad," said Pamir.

Then Tailor touched his own head above the eyes. "And to learn the necessary talents now would require empty spaces inside my head, which means discarding some treasured memories. And how could I do such to pieces of my own self?"

5

Pamir knew that nobody was clever enough or worthy enough, much less lucky enough to truly disappear.

The tiniest body still possessed mass and volume, shadow and energy.

And a brilliant mind was never as clever as three average minds sniffing after something of interest.

The wise fugitive always kept several new lives at the ready.

But every ready-made existence carried risks of its own, including the chance that someone would notice the locker jammed with money and clothes, the spare face, and a respectable name never used.

Like real lives, each false life had its perfect length, and there was no way to be sure how long that was.

No matter how compromised the current face, transitions always brought the most perilous days.

Paranoia was a fugitive's first tool.

But panic could make the man break from cover at the worst possible moment.

Love meant trust, which meant that no face should be loved.

Most of all, the wanted man should be acutely suspicious of the face in the mirror.

Patterns defined each life, and old patterns were trouble.

Except acquiring the new walk and voice, pleasures and hates were the most cum-

bersome work possible. And even worse, fine old strategies could be left behind, and the best instincts were corroded by the blur of everything new.

In a crowd of ten million strangers, nobody cared about the human who used to be many things, including a captain. And among the millions were four exceptions, or perhaps one hundred and four, or just that one inquisitive soul standing very close.

Now look into that sea of faces, stare at humans and aliens, machines and the hybrids between. Look hard at everything while pointing one finger—a finger that has been worn for some little while—and now against some very long odds, pick out which of those souls should be feared.

Humans found the derelict machine drifting outside the Milky Way, and after claiming the Great Ship as their own, loyal robots proceeded to map the interior. Each cavern was named using elaborate codes. Even excluding small caves and holes, there were billions of caverns on the captains' maps. Positions and volumes were included in each name, but there was also quite a lot of AI free verse poetry. Then as the Great Ship entered the galaxy, one paronomasia-inspired AI savant was ordered to give a million caverns better designations—words that any human mouth could manage—and one unremarkable hole was named:

Where-Peace-Rains.

Peace ruled inside the dark emptiness, but there was no rain. Remote and unspectacular, the cavern remained silent for long millennia. Communities of archaic humans were established in other locations. Some failed, others found ways to prosper. Mortal passengers had one clear advantage; being sure to die, they paid relatively small sums to ride the Great Ship. And unlike their eternal neighbors, they could pay a minimal fee to have one child. Three trifling payments meant growth, and the captains soon had to control populations through laws and taxes as well as limiting the places where those very odd people could live.

Forty-five thousand years ago, human squatters claimed Where-Peace-Rains, setting up the first lights and a hundred rough little homes in the middle of the bare granite floor. They told themselves they were clever. They assured each other that they were invisible, stealing just a trickle of power from the Ship. But an AI watchdog noticed the theft, and once alerted to the crime, the Master Captain sent one of her more obstinate officers to deal with the ongoing mess.

Pamir was still a captain—an entity full of authority and the ready willingness to deploy his enormous powers.

Wearing a mirrored uniform, he walked every street inside the village, telling the strangers that they were criminals and he wasn't happy. He warned that he could order any punishment that could be imagined, short of genocide. Then he demanded that the Luddites meet him in the round at the village's heart, bags packed, and ready for the worst.

Three hundred people, grown and young, assembled on the polished red granite.

"Explain yourselves," the captain demanded.

A leader stepped forward. "We require almost nothing," the old/young man began, his voice breaking at the margins. "We are simple and small, and we ask nothing from the captains or the sacred Ship."

"Shut up," said Pamir.

Those words came out hard, but what scared everyone was the captain's expression. Executions weren't possible, but a lot of grim misery lay between slaughter and salvation, and while these people believed in mortality, they weren't fanatics chasing martyrdom or some ill-drawn afterlife.

Nobody spoke.

Then once again, the captain's voice boomed.

"Before anything else, I want you to explain your minds to me. Do it now, in this place, before your arbitrary day comes to an end."

Nobody was allowed to leave and reset the sun. With little time left, a pretty young woman was pressed into service. Perhaps the other squatters thought she would look appealing to the glowering male officer. Or maybe she was the best, bravest voice available. Either way, she spoke about the limits of life and the magic of physics and the blessings of the eternal, boundless multiverse. Pamir appeared to pay attention, which heartened some. When she paused, he nodded. Could they have found an unlikely ally? But then with a low snort, he said, "I like numbers. Give me mathematics."

The woman responded with intricate, massive numbers wrapped around quantum wonders, invoking the many worlds as well as the ease with which fresh new universes sprang out of the old.

But the longer she spoke, the less impressed he seemed to be. Acting disgusted, then enraged, Pamir told the frightened community, "I know these theories. I can even believe the crazy-shit science. But if you want this to go anywhere good, you have to make me believe what you believe. You have to make me trust the madness that we aren't just here. There are an infinite number of caves exactly like this stone rectum, and infinite examples of you, and there is no measurable end of me. And all of us have assembled in these endless places, and this meeting is happening everywhere exactly as it is here.

"Convince me of that bullshit," he shouted.

The woman's infinite future depended on this single performance. Tears seemed like a worthy strategy. She wept and begged, dropping to her knees. Her skin split and the mortal blood flowed against the smooth stony ground, and every time she looked up she saw an ugly immortal dressed in that shiny garb, and every time she looked down again, the world seemed lost. No words could make this blunt brute of a man accept her mind. No action or inaction would accomplish any good. Suddenly she was trying only to make herself worthy in the eyes of the other doomed souls, and that was the only reason she stood again, filling her body with pride, actively considering the merits of rushing the captain to see if she could bruise that awful face, if only for a moment or two.

Yet all that while, Pamir had a secret:

He had no intention of hurting anyone.

This was a tiny group. A captain of his rank had the clout to give each of them whatever he wished to give them. And later, if pressed by his superiors, Pamir could blame one or two colleagues for not adequately defending this useless wilderness. Really, the scope of this crime was laughably, pathetically tiny—a mild burden more than an epic mess, regardless of what these bright terrified eyes believed.

Out of fear or born from wisdom, the woman didn't assault him.

Then the captain reached into a pocket on his uniform.

The object hadn't been brought by chance. Pamir came with a plan and options, and eons later, novice captains would stand in their classrooms, examining all the aspects of the captain's scheme.

Out from the pocket came his big hand, holding what resembled a sphere.

He explained, "This is a one hundred-and-forty-four-faced die, diamond construction, tear-shaped weights for a rapid settling, each number carrying its own unique odds."

Luddite faces stared at the object.

Nobody spoke.

"I'm going to toss it high," said Pamir. "And then you, baby lady . . . you call out any number. And no, I won't let you look at the die first. You'll make your guess, and you will almost certainly lose. But then again, as you understand full well, any fraction of the endless is endless. And regardless of my toss, an infinite number of you are going to win this game."

Swallowing, the woman discovered a thin smile.

"And if I am right?" she asked.

"You stay here. And your people stay here. The entire cavern is granted to you, under my authority. But you aren't allowed to steal power from our reactors, and your water has to be bought on the common markets, and you will be responsible for your food and your mouths, and if you overpopulate this space, the famines and plagues will rest on your little shoulders.

"Is that understood?" he asked.

Everybody nodded, and everybody had hope.

But when Pamir threw the die, the girl offered the most unlikely number.

"One," she shouted.

One was riding on the equator, opposite 144—the smallest facets on the diamond face.

Up went the die.

And then was down, rattling softly as it struck, bouncing and rolling, slowing as sandals and boots and urgent voices pulled out of the way.

Looking at the number was a formality.

The cave would soon be empty and dark.

Yet odd as it seemed, Pamir wasn't particularly surprised to find the simplest number on top, in plain view: As inevitable as every result must be.

6

Reaching with a nexus, Pamir discovered an elaborate star chart waiting for him. The galaxy was stuffed inside a digital bottle, the nearest million suns translated into human terms and human clocks. At the center was the Kajjas ship—a long dumbbell-shaped body with a severely battered shield at one end, the pulse engine and drained fuel tanks behind. Its hull was slathered with black veneers and stealth poxes and what looked like the remnants of scaffolding. The captains never spotted this relic; too many light-years lay between their telescopes and this cold wisp of nothing. Even the Great Ship was too distant to deserve any size—the core of a jovian world rendered as a simple golden vector. Sixty years had been invested reaching the Kajjas vessel, and home was receding every moment. Hypothetical courses waited to be studied. Pamir gave them enough of a look to understand the timetables, and then he seasoned the quiet with a few rich curses.

A second nexus linked him to this ship's real-time schematics. Blue highlights showed areas of concern. An ocean's worth of blue was spread across the armored, badly splintered prow. High-velocity impacts had done their worst. Judging by ancient patches, smart hands had once competently fixed the troubles. But then those hands stopped working—a million years ago, or twenty million years ago. Since then the machine had faithfully chased a line that began in the deepest, emptiest space, only recently slicing its way across the Milky Way.

Pamir referred back to the star chart, discovering that it was far larger than he assumed. The blackness and the stars encompassed the Local Group of galaxies, and some patches were thoroughly charted.

A quiet, respectful curse seemed in order.

A small streakship was tethered to the dumbbell's middle. Pamir knew the vessel. It arrived at Port Beta in lousy shape, where it was rehabbed but never rechristened. Someone higher ranking than the mechanics decided that nothing would make the vessel safe, which was when the high-end wreck was dragged inside a back berth, waiting for an appropriately desperate buyer.

Tailor.

Pamir warmed the air with blasphemies and moved on to the manifests.

And all along, the Kajjas had been watching him.

"I remember a different boy," the alien said. "You aren't the polite, good-natured infant with whom I drank."

"That boy got strangled and packed up like cargo."

"Each of us flew in hibernation," said Tailor. "There was no extra space, no room for indulgences. I was very much like you."

Pamir cursed a fourth time, invoking Kajjas anatomy.

The alien reacted with silence, every eye fixed on the angry mechanic.

"Your streakship is tiny and spent," Pamir said. "Something half again better than this, and we could have strapped this artifact on its back and used those young engines to carry us home quickly."

"Except our financing was poor," said Tailor.

"No shit."

"We have rich options," said Tailor. "We will use our remaining fuel and then carve up the streakship like a sweet meat, dropping its pieces through the pulse engine."

"With a troop of robots, that's easy work," Pamir said.

Tailor remained silent.

"Only you neglected to bring any robots, didn't you?"

"Worthy reasons are in play."

"I doubt that."

The other humans were watching the conversation from a safe distance.

"So why?" asked Pamir. "Why is this fossil so important?"

Two eyes went pale.

"You're going to tell me," the human said.

"Unless I already have, Jon. I explained, but you chose not to hear me."

Scornful laughter chased away the quiet, and then Pamir turned his attentions elsewhere. The manifest was full of news. good and otherwise. "At least you spent big for tools and fuel."

"They were important," the alien said.

Pamir chewed his tongue, tasting blood.

"I am asking for your expert opinion," said Tailor. "Can we meet our goals and return to the Ship?"

"There is an answer, but I damn well don't know it."

"You aren't the boy with whom I drank."

Pamir said nothing.

"Perhaps I should have cultivated that boy's help at the outset," said Tailor. "He could have plotted my course and devised my methods, too."

"That would have been smart."

Tailor showed his plate-like teeth, implying concern. "I cannot help but notice, sir. You have been studying our ships and vectors, but you have barely paid attention to either engine."

"Engines aren't the worst problem."

"But your specialty is the drive machinery," said Tailor. "That should be your first concern. Instinct alone should put your eyes and mind on those elements, not the state of a hull that has survived quite well on its own."

Pamir looked away. The other humans looked confident, relaxed, flashing little smiles when they whispered to one another. Maxx and Rondie did most of the whispering. G'lene floated apart from the others, and she smiled the most.

"Are they supposed to help me?" Pamir asked.

"Each will be useful, yes," said Tailor. "The twins are general starship mechanics, and they have other training too."

"I don't recognize them. They haven't worked near Beta."

Silence.

"So they must be from a different port, different background. Probably military. Soldiers love to be strong, even if their bulk gets in the way."

Tailor started to reply.

"Also, I see six thousand kilos that's blue-black on the manifest," Pamir continued. "You're not letting me see this. But since indulgences were left behind, the mass is important. So I'll guess that we're talking about weapons."

"I will admit one truth to you, Jon. About you, sir, I have a feeling."

"Is that feeling cold blue dread?"

Iron clawed against iron. "There never was a boy, it occurs to me. I think that you are somewhat older than your name claims, and maybe, just perhaps, we have met each other in the past."

"Who's the enemy?" Pamir asked.

"If only I knew that answer," the alien began.

Then Tailor said nothing more, turning and leaping far away.

7

Forty-four thousand years was a sliver of time. The galaxy had moved only in little ways since people dared slip inside Where-Peace-Rains, and nothing inside but the least stubborn, most trivial details had changed within the cave. The same genetics and honored language were in play. Stock beliefs continued to prosper. And there was still a round expanse of cool red granite where the captain had once played one round of chance, the stone dished in at the middle by generations of worshippers and their mortal feet.

Of course there were many more faces, and there was far less peace. Following the terms of the ancient agreement, archaics produced their own power and clean water and rough, edible foodstuffs. Carefully invested funds had allowed them to purchase a scrap star-drive—an ugly-eight reconfigured to generate electricity, not thrust. The drive was set on the cavern floor, not a thousand meters from the holy place where a chunk of diamond determined the world. The machinery was designed to run forever without interruption, provided that it was maintained regularly. And the ugly-eight had run for thousands of years without trouble. But it was being used in an unusual capacity, and not all of its wastes were bottled up. Lead plates and hyper-fiber offered shielding, but the occasional neutron and gamma blast found ways to escape, and the childless men working nearby were prone to murderous cancers.

One engineer had worked fifty years in the most critical job in the world. A bachelor named Jon, he was still holding out hope that the tumor in his liver could be cut out of him, and then smarter, friendlier radiations would have a fighting chance to kill the cancers that had broken loose.

Jon lived in a small apartment within walking distance of the reactor.

Everyone in Where-Peace-Rains lived in a small apartment, and everyone lived close to their important places.

Jon arrived home early. The foreman told him that he looked especially tired and needed to sleep, and Jon had agreed with the prognosis. Nothing felt unusual when he arrived. A key worn smooth by his fingers went into the lock, and the lock gave way with a solid click. But as the door swung inward, he smelled a stranger, and a strange voice spoke out of the darkness.

"Just be aware," it said. "You're not alone."

Robberies weren't uncommon in the world, and sometimes thieves turned violent.

But this was no robbery. The intruder was sitting in Jon's best chair, the seat reserved for guests. The human was relaxed enough to appear lazy. That was the first quality Jon noticed as the room's single light came on. The second detail was the man's appearance, which was substantial, and the beautiful face, even and clean-shaven. His clothes looked like the garb worn by fancy hikers and novice explorers who occasionally passed through the local caverns. Some of those people asked to come inside the archaic community. A few of the immortal passengers were intrigued by archaics, and the best of the interlopers left behind money and little favors.

But there were bad immortals too. They came for one reason, to coax people out of their home, out into the true world—as if one place was truer than another, and as if a person could simply choose his life.

"I let myself in," the stranger said.

Jon took off the daily dosage badge. "You want something," he guessed.

"Yes, I do."

"From me."

"Absolutely, yes."

Nuclear engineers earned respectable salaries, but nobody in this world was wealthy. Jon's fanciest possession was an old ceramic teapot, precious to him because it had been in his family for three thousand years.

The stranger was surely older than the pot.

Stories came back to Jon, unlikely and probably crazy stories. He had never believed such things could involve him, but when he met the man's blue eyes, something passed between them. Suddenly they had an understanding, the beginnings of a relationship. Jon found himself nodding. He knew what this was. "You think that I am dying," he said.

"You are dying."

"But how could you know?"

The immortal shifted his weight, perhaps a little uncomfortable with the subject. Or maybe quite a lot was balanced on the next moments, and he was making his rump ready for whatever Fate saw fit to throw at them.

"I've seen your doctor's files," the man said. "She tells you that you might survive to the end of the year, but I know she's being generous."

Jon had sensed as much. Yet it hurt to hear the news. A new burden, massive and acidic, was burning through his frail, middle-aged body.

He dropped into his own chair.

"I'm sorry," said the man.

Maybe he was sorry, because he sounded earnest.

"You want my life," Jon said.

The pretty face watched him, and after a moment he said, "Maybe."

"Why maybe?"

"Or if you'd rather, I'll pay for your treatments elsewhere."

"I can't abandon Peace," said Jon. "And even if I did, your doctors and your autodocs can't legally cure me."

"Cancer is not the problem," the man said. "I am talking about full treatments. I'm ready to give you that gift, if you want it. Leave your realm and live forever anywhere you want inside the Great Ship, inside the endless universe . . . except for here. . . ."

"No."

Did Jon think before answering? He wasn't sure.

But giving the offer serious consideration, he said, "Never, no."

"Good," the stranger said.

Jon leaned forward. The room was small and the chairs were close together, and now they were close enough to kiss. "Are you wearing a mask?"

"Not much of one, if you can see it," said the man, laughing.

"You want my life," Jon repeated.

"Apparently you don't want to hold onto it. Why shouldn't I ask the question?"

They sat and stared at one another. Next door, a newborn was starting to feel her empty stomach, and her cry quickly built until there was no other sound in the world.

Suddenly she fell silent, her mouth full of nipple.

Jon thought about that mother's fine brown nipple. Then he wasn't thinking about anything, waiting for whatever happened next.

Out from a hiker's pocket came a weapon—a sleek gun designed by alien hands. "Except it's not a gun," the man explained. "In my realm, this is a camper's torch and portable grill. For me, the worst burns would heal inside an hour. But the torch can transform ninety kilos of your flesh and bone into a fine white ash, and I can place your remains in whatever garden or sewage plant you want on my way out of town."

Jon stared at the alien machine.

The man dropped it into Jon's lap, and then he sat back.

Its weight was a surprise. The machine was more like a sketch of a weapon, lightweight to the brink of unreality.

"I won't use the tool on you," the stranger promised. "You'll have to use it on yourself."

"No."

Did he think that time?

Jon hadn't, and after hard deliberation, he said, "Maybe."

"And for your trouble," the man began.

He stopped talking.

"I would want something," Jon said.

Not only did his companion have an offer waiting, he knew everything about Jon's living family. Nuclear technicians didn't dare make babies, what with mutations and cancers and the genuine fear that their sons and sons-in-law would follow them into this grim business. But he had siblings and cousins and a dozen nephews, plus even more nieces. Accepting this illegal arrangement meant that each limb of his family would receive enough extra money, dressed up in various excuses, and their lives would noticeably improve.

Jon passed the fierce machine from one hand to the other.

What looked like a trigger was begging to be tugged.

"No, not like that," the man said, patiently but not patiently. Something in this business was bothering him. "And when you do it, if you do it," he said, "stand in the middle of the room. We don't want to set a wall on fire."

Jon considered standing and then didn't.

The man watched him, weighing him, probably using an outsider's magic as well as his eyes.

"It's not enough." Jon said at last.

"It probably isn't," the man agreed.

"If I do this, you walk out of here with my life. Is that what happens?"

"Yes."

"So this isn't nearly enough. Everybody that I know will think . . . they'll have no choice but to believe . . . that I abandoned them and our cause. . . ."

"That can't be helped," the man said. "It sucks, but what other way is there?"

Jon studied the machine once more.

"I picked you and just you," said the man. "Nobody else fits my needs. And sure, yes, the others will be free to tell themselves that you got weak and gave up. But you know that won't be true, and I'll live forever knowing that it wasn't true. And besides, when I give up this life of yours, I can send a confession back here. I'll tell them

that you died in your home. Hell, if you want, I can tell the world that I murdered you, which will sure make everybody smile."

Jon started to hand back the alien hardware.

He paused.

The stranger reached up, and in one sloppy motion he tore off the mask, revealing a new face, a genuine face. It was Jon's face, rendered completely—the washed-out, hollow-eyed face already halfway to ash.

"Now I have one more gift, if you want it," said the man.

"What is that?"

"I'll tell you who I am."

Jon shrugged. "What do I care? Your real name doesn't matter."

Reaching into a pocket, his tormentor and salvation brought out a diamond with one hundred and forty-four faces.

Jon jumped up, and then he nearly keeled over, fainting. The alien machine hit the dirty carpet, humming for a moment, leaving an arc of charred fiber.

"Careful," said the one-time captain.

"Let me hold it," Jon said.

The man placed the diamond into his palm and closed the hand around it. The immortal's flesh was exactly as cool and sick as Jon's flesh, which was another wonderful detail.

"Is this the same die?" Jon asked.

"No, that trinket got left behind long ago," Pamir said.

Inspiration came to the dying man. Forcing the diamond into the fugitive's hand, he said, "Throw it. Or roll it. Pick your number either way, and if she stands on top, I will do whatever you want."

Pamir closed his hand.

He breathed once, deeply.

"No, I played that game once," the lost captain said, and with that he dropped the diamond back into his pocket. "I'm done letting chance run free."

8

Three hours of sleep and the humans were sharing the day's first meal. Tailor wasn't with them. Since boarding the fossil ship, the alien had spent most of his time cuddling with a distant control panel, trying to coax the sovereigns into saying one coherent word. But despite ample power and reassuring noise, the AIs remained lost, crazy or rotted and probably gone forever.

G'lene felt sorry for the old beast, chasing what wasn't there.

And that was where her empathy ended. Like most aliens, the Kajjas man was a mystery and always would be. She accepted that fact. Dwelling on what refused to make sense was senseless. What G'lene cared about, deeply and forever, were human beings. That was true onboard the Great Ship, and her desires were even more urgent here in the wilderness.

But her three human companions were burdens, odd and vexing, usually worse than useless. The twins never stopped whispering in each other's ears. They went so far as creating their own language, and deciphering their private words was a grave insult. Yet despite their vaunted closeness, they did nothing sexual. With a defiant tone, Rondie claimed that sex was an instinct best thrown aside. "That's what my brother did, and I did, and you should, too." Preaching to a woman who couldn't imagine any day without some lustful fun, the muscle-bound creature said, "Each of us would be stronger and five times happier if we gave up every useless habit."

G'lene was entitled to feel sorry about her loneliness. That's why she kept smiling at Jon, the Luddite. She smiled at him one hundred times every day. Not that it helped, no. But he was the only possibility in a miserably poor field, and she reasoned that eventually, after another year or maybe a decade, she would wear some kind of hole in his cold resolve.

This was Jon's third breakfast as a living crewmember.

G'lene smiled as always, no hope in her heart. Yet this morning proved to be different. The odd homely conundrum of a man suddenly noticed her expression. At least he met her eyes, answering with what might have been the slyest grin that had ever been tossed her way.

She laughed, daring to ask, "Are you in a good mood, Jon?"

"I am," he said. "I'm in a lovely, spectacular mood."

"Why's that?"

"Last night, I realized something very important."

"Something good, I hope."

"It is. And do you want to know what my epiphany was?"

"Tell it," she said, one hand scratching between her breasts.

But then Jon said, "No," and his eyes wandered. "I don't think that you really do want to know."

G'lene knew thousands of people, but this Luddite was the most bizarre creature, human or otherwise.

The twins were sharing their breakfast from the same squeeze-bowl. They stopped eating to laugh with the same voice, and then Rondie said, "Give up the game, dear. That boy doesn't want you."

What a wicked chain of words to throw at anyone.

"But you can tell us your epiphany," Maxx said.

Jon glanced at the twins.

G'lene felt uneasy in so many ways, and she had no hope of guessing why.

Tipping her head, Rondie said, "Whisper your insight inside my ear. I promise I won't share it with anyone."

Her brother gave a hard snort, underscoring her lie.

"No, I think I should tell everyone," said Jon. "But first, I want to hear a confession from you two. Which one of you strangled me?"

Maxx laughed, lifting a big hand.

But his sister grabbed his arm, bracing her feet inside the glass strands before flinging him aside. "No, I'm quieter, and I have the better grip. So I did it. I broke your little neck."

Jon nodded, and then he glanced at G'lene.

"All right, that's done," G'lene said. "What's the revelation?"

"Starting now," said Jon, "we are changing priorities."

"Priorities," Maxx repeated, as if his tongue wanted to play with the word.

"You've been spending your last few days assembling weapons," Jon said to the twins. "That crap has to stop."

Similar faces wore identical expressions, puzzled and amused but not yet angry.

"Our enemies won't arrive inside a starship," said Jon. "Unless I'm wrong, and then I doubt that we could offer much of a fight."

"Our enemies," Maxx repeated.

"Do you know who they are?" G'lene asked.

Jon shook his head. "I don't. Do any of you?"

Nobody spoke.

Jon teased a glob of meal-and-milk from his breakfast orb, spinning the treat before flicking it straight into his mouth.

The ordinary gesture was odd, though G'lene couldn't quite see why.

"Tailor claims that we have to be ready for an attack," said Jon. "Except our sovereign isn't particularly forthcoming about when and where that might happen. His orders tell us nothing specific, and that's why they tell us plenty. For instance, this crazy old wreck is worth nothing, which means that it's carrying something worth huge risks and lousy odds."

The twins didn't look at each other. Thinking the same thoughts, they glanced at G'lene, and she tried to offer a good worried smile. And because it sounded a little bit reasonable, she said, "That Kajjas is so old and so strange. I just assumed that he's a little paranoid. Isn't that what happens after millions of years?"

"My experience," said Jon. "It doesn't take nearly that long."

"You want to change priorities," Rondie said, steering the subject.

"Change them how?" Maxx asked.

"Forget munitions and normal warfare," said the Luddite. "We have one clear job, and that's to finish loading the fuel and dismantling the streakship. Its entire mass has to be ready to burn, when the time comes."

"That would be crazy," said Maxx. "If you can't get the pulse engine firing, then the other ship becomes our lifeboat."

"Except we aren't going to fly any streakship," said Jon. "Streakships are brilliant and very steady and we love them because of it. But if we have enemies, then they'll spot us at a distance, and believe me, streakships are easy targets. On the other hand, the Kajjas pulse engine is a miserable mess full of surges and little failures. Tracking us will be a very difficult proposition. And that's why today, in another ten minutes, I want the two of you to start mapping the minimum cuts to make that other ship into a useable corpse."

"But you promised," said Maxx. "Our enemies aren't coming inside a warship."

"What I promised is that we can't beat them if they do come. We don't have the munitions or armor to offer any kind of fight. My little epiphany, for what it's worth, is that our foes, if they are real, will have one of two strategies: They don't want anybody to have this ship or its cargo, which means they destroy us out here, in deep space. In which case, boarding parties are a waste. Or they want to have whatever we have here, and that's why we have to make ourselves a lousy target."

Rondie scoffed. "Again, we know nothing."

"Or there's nothing worth knowing," G'lene added.

"Physics and tactics," Jon said. "I see our advantages as well as our weaknesses, which is why my plan is best."

"Impressive," said Maxx with a mocking tone, one leg kicking him a little closer to Jon.

G'lene didn't like anybody's face. Where was Tailor? In the distance, hands and long feet working at a bank of controls—controls that hadn't been used since she was a broth of scattered DNA running in the trees, waiting for mutations and the feeble tiny chance to become human.

Jon's gaze was fixed in the middle of the threesome.

"You know quite a lot for a simple drive-mechanic," Maxx said.

"Simple can be good." Jon winked at that empty spot of air. "Now ask yourselves this: Why did our captain hire children?"

"We're not children," Rondie said.

Maxx said.

But G'lene sighed, admitting, "I wondered that too."

"Real or imagined, Tailor's enemy is treacherous," said Jon. "Our Kajjas wants youth. He brought only humans, which are a very young species. And he wants humans that aren't more than a thousand years old, give or take. That way he could study our entire lives, proving to his satisfaction that we aren't more than we seem to be."

"I'm not a little girl," said Rondie.

"You're not," Maxx said nothing.

But Jon was a thousand and the siblings weren't even five centuries old, making them the babies in this odd group.

G'lene watched the angry faces and Jon's face, alert but weirdly calm. Then she noticed the twins' sticky breakfast floating free of its orb. G'lene was born on the Great Ship. Everybody had been. This was their first genuine experience with zero-gee, and she hated it. Without weight, everything small got lost inside the same careless moment, and she didn't know how to move without thinking, and she wasn't moving now, remembering how the Luddite so easily, so deftly, made that bite of his breakfast spin and drift into his waiting mouth.

Jon had been in zero gravity before this.

When?

She nearly asked. But then Maxx said, "I'm going back to work. Plasma guns need to be secured and powered up."

"No, you're not," said Jon.

Rondie kicked closer to the Luddite, hands flexing. "Who put you in charge?" she asked.

"Life," Jon said.

Everybody laughed at him.

But then he asked, "Do you know what I did last night? While you slept, I changed the pass-codes on every gun. Nothing warms an egg without my blessing."

The twins cursed.

Jon shrugged and said, "By the way, I've convinced our human-built AIs that the only voice of reason here is me. Me."

The twins wrapped some brutal words around, "Luddite," and "mutiny."

The mysterious human showed them nothing. He didn't brace for war or smile at his victory. The milky water from a glacier was warmer and far more impatient. Then the twins' anger finally ebbed, and Jon looked at G'lene. Again, from somewhere, he found the sly grin that unsettled her once more. But it also had a way of making her confident, which she liked.

"You never were a Luddite," she blurted.

Jon didn't seem to notice. "Sleep is an indulgence," he told everyone. "We're working hard and smart from this instant, and we'll launch eighteen days earlier than you originally planned. Everybody can sleep, but only when we're roaring back to the Great Ship."

"You're somebody else entirely," she said. "Who are you?"

"I'm Jon, the drive-mechanic," he told them. "And I'm Jon, the temporary captain of this fossil ship.

"Everything else is electrons bouncing inside a box."

9

The field kitchen had no trouble generating propanol and cyanide, and for that matter, spitting out passable rum—an archaic drink that Pamir had grown fond of. What was difficult was finding the moment when the ship's new captain and the Kajjas could drink without interruption. The streakship was being gutted and sliced up, each piece secured against the scaffolding on the old ship's hull. Pamir's three-body crew was working with an absence of passion, but they were working. When everything was going well enough, he offered some calibrated excuse about his life-suit malfunctioning. Then alone, he slipped back inside the long interior room, grab-

bing the refreshments and joining Tailor, drifting before that bank of murmuring and glowing, deeply uncooperative machines.

"For you, my sovereign," said the human, handing over a bulb of poison.

The Kajjas was fondling the interfaces, using hands and bare toes, using touch and ears. But his eyes were mist and dream, and the long neck held the head back in a careless fashion that hinted at deep anguish.

The bulb drifted beside him, unnoticed.

Pamir cracked his bulb, sipping the liquor as he waited.

Then the eyes cleared, but Tailor continued to stare into the machinery.

"I have two questions," said the human.

"And I have many," the Kajjas said. "Too many."

"'The army is one body masquerading as many,'" Pamir quoted. "'You are at war with one puzzle, and it just seems like a multitude.'"

"Whose expression is that?"

"Harum-scarums use it," Pamir said.

"I know a few harum-scarums," said Tailor. "They are a spectacularly successful species."

"You should have hired them, not us."

"Perhaps I should have."

Pamir sipped the rum again.

"I'm not oblivious, blind, or stupid," the alien said. "I understand that you have taken control of my ship and its future."

"Your plans were weak, and I did what was necessary. Do you approve?"

"Have I contested this change?"

"Here is your chance," said Pamir.

Tailor steered the conversation back where it began. "You wish to ask two questions."

"Yes."

Tailor claimed the other bulb, sipping deeply. "You wish to know if I am making progress."

"I don't care," Pamir said.

"You are lying."

"I have a talent in that realm."

Iron crashed against iron, leaving the air ringing. "Well, I am enjoying some small successes. According to the rough evidence, this is a cargo vessel transporting something precious. But the various boxes and likely cavities are empty, and the sovereigns' language began ancient and then changed over time, and meanwhile these machines have descended into codes or madness, or both."

"How old are you?" Pamir asked.

The Kajjas' three eyes were clear as gin, and each one reached deep inside the head, allowing light to pour into a shared cavity where images danced within a tangle of lenses and mirrors, modern neurons and tissues older than either species.

"You have posed that question before," Tailor said. "You've asked more than once, if my instincts are true."

Pamir confessed how many times they had met over drinks.

"Goodness." Laughter followed, and a sip. "I have noticed. You are suddenly acting and sounding like a captain. Maybe that was one of your disguises, long ago."

"There was no disguise," he said. "I was a fine captain."

"Or there was, and you were fooled as well."

Pamir liked the idea. He didn't believe it, but the meme found life inside him, cloying and frightening and sure to linger.

"I'm a few centuries older than ninety-three million years," Tailor said. "And while

I can't claim to have walked your earth, I have known souls—Kajjas and other species—who saw your dinosaurs stomping about on your sandy beaches."

"Lucky souls."

The Kajjas preferred to say nothing.

"I'm waking our engine tomorrow," Pamir said.

"According to your own schedule, that's far too soon."

"It is. But I've decided that we can fly and cut apart the streakship at the same time. We'll use our hydrogen stocks until they're nine-tenths gone, and then we'll throw machine parts down the engine's mouth."

"Butchering the other ship will be hard work, under acceleration."

"Which brings me to my second question: Will you help my crew do the essential labor?"

"And give my important work its sleep," Tailor said.

"Unless you can do both at once."

The mouth opened to speak, but then it closed again, saying nothing as two eyes clouded over.

Pamir finished his drink, the bulb flattened in his hand.

Tailor spoke. Or rather, his translator absorbed the soft musical utterances, creating human words and human emotions that struggled to match what could never be duplicated. Honest translations were mythical beasts. On its best day, communication was a sloppy game, and Pamir was lucky to know what anyone meant, including himself.

"This starship," said the alien. "It is older than me."

"How do you know?"

"There are no markings, no designations. I have looked, but there is no trace of any name. Yet the ship is identical to vessels built while my sun was far outside the galaxy. Those ships were designed for the longest voyages that we could envision, and then they were improved beyond what was imaginable. They had one mission. They were to carry brave and very patient crews into the void, out beyond where anyone goes, in an effort to discover our galaxy's sovereigns."

"Our galaxy's sovereigns," Pamir repeated. "I don't understand."

"But the concept is obvious."

"Someone rules the galaxy?"

"Of course someone does."

"And how does leaving the galaxy prove anything?"

"That's a third question," Tailor pointed out.

"It's your query, not mine. Not once in my life have I ever thought that way."

"And which life is that?"

"Talk," said Pamir.

"Onboard your Great Ship, I once met a Vozzen historian of considerable age and endless learning. The two of us spent months discussing the oldest species of intelligent life, those bold first examples of technological civilizations, and what caused each to lose its grip on Forever and die away. The historian's mind was larger and far wiser than mine. I admit as much. But you can appreciate how the same principles are at work inside both of us, and inside you. The bioceramic mind is the standard for civilized worlds. It was devised early, and several founding worlds have been given credit, although none of them exist anymore. And since the mind's introduction into the galaxy, no one has managed more than incremental improvements on its near-perfection."

"The brain works," said Pamir.

"One basic design is shared by twenty million species. Of course intellect and souls and the colors of our emotions vary widely, even inside the human animal. At first look and after long thought, one might come to the conclusion that it is as you say: We have what's best, and there isn't any reason to look farther."

"We don't look farther," Pamir agreed.

"Humans don't. But the Kajjas once did. That is the point: Our nameless fleet was buried inside a great frozen dwarf world, every pulse engine blazing, driving that shrinking world toward our Second Eye, your Andromeda. The survivors of that epic were under orders to investigate what kind of minds those natives employed, and if another, perhaps worthier mind was found, the fleet would return home immediately.

"At the very most," said Tailor, "that mission would have demanded eight million years. I was born near the end of that period, and I spent my youth foolishly watching for those heroes to return and enlighten us. But they did not appear, even as an EM whisper. Ten and twenty and then fifty million years passed, yet just by their absence, much was learned. We assumed that they were dead and the ships were lost, or the explorers had pushed farther into the void, seeking more difficult answers.

"Few civilizations ever attempt such wonders. I have always believed that, and the Vozzen happily agreed with my assessment.

"Don't you find that puzzling? Intriguing? Wrong? The resources of a galaxy in hand, and few of us ever attempt such a voyage.

"But my brethren did. And afterward, living inside my galaxy, I have tried my best to answer the same questions. It is the burden and blessing of being Kajjas: Each of us knows that he rules only so much, and every ruler has worthy masters of his own, wherever they might hide."

"Sovereigns to the galaxy," said Pamir, his voice sharpening.

"You don't believe in them," Tailor said.

"Have you found them?"

"Everywhere, and nowhere. Yes." The laugh was brief, accompanied by a sad murmuring from the translator. "Everywhere that I travel, there are rumors of deeds that claim no father, legends of creatures that wear any face and any voice. There is even talk about invisible worlds and hidden realms, conspiracies and favored species and species that diminish and succumb to no good opponent.

"About our masters, I have little to say. Except that they terrify me, and because I am Kajjas, I wish that I could lie between their mighty feet and beg for some little place at their table."

Pamir had too many questions to ask or even care about. His crew was noticing his absence. One nexus rewarded him with a string of obscenities from the twins, and with those words, promises to turn him over to the Great Ship's captains as soon as they arrived home.

It was no secret that Pamir could hear them, and Rondie and Maxx didn't care.

And all that while, G'lene said nothing.

"Suddenly," said Tailor, almost shouting the word.

"What?"

"Just two million years ago, suddenly and with the barest of warnings, our old fleet began to return home."

Pamir nodded, and waited.

"The ships appeared as individuals. I won't explain how a person might know in advance where such a derelict will show itself, but there is a pattern and we have insights, and there have been some little successes in finding them before anyone else. The crews are always missing. Dead, we presume. But 'missing' is a larger, finer word. Empty ships return like raindrops, scattered and almost unnoticed, and their AIs are near death, and nothing is learned, and sometimes tragic events find the salvage teams that come out to meet these relics."

"Your enemies strike," Pamir said.

"Yet disaster isn't certain," the alien said. "That might imply that there are no

masters of the galaxy. Or it means that they are the ultimate masters, and better than us, they know what is and is not a threat to their powers."

Pamir drifted closer, placing his body in a submissive pose.

Long feet pulled away from the display panel, surrounding the human head. "The old fleet had one additional command," Tailor said. "If no equal or at least different mind could be found in the wilderness, then the Kajjas had to assemble at some sunless world, preferably a large moon stirred by a brown dwarf sun, and there, free of interference and ordinary thoughts, our finest minds would build a colony. Then in that nameless place, they and their offspring would kill preconceptions and create something else.

"They were to build a different way of thinking, yes.

"And that is what they were to send home, however they could and in the safest way possible."

Approximating the Kajjas language, the human said, "Shit."

Tailor stroked the panel with one hand, watching a thousand shades of blue swirl into fancy shapes that collapsed as soon as the fingers lifted. "I don't know this language," he said. "It is older than me and full of odd terms, and maybe it has been corrupted. There are fine reasons to believe that there is no meaning inside these machines. But it is possible, weak as the chance seems, that the truth stands before me, and my ordinary mind, and yours, are simply unable to see what it is."

The alien was insane, Pamir hoped.

The hand released the display, and Tailor said, "Yes."

"Yes what?"

"I will help make the ship ready for flight. Obviously, nothing I do here can be confused for good."

10

A brick of metallic hydrogen plunged into the first collar, the widest collar, missing the perfect center by the width of a small cold atom. Compression accompanied the hard kick of acceleration, and then a second collar grabbed hold, flinging it through ten of its brothers. Neutronium wire wrapped inside high-grade hyperfiber made the choke points, each smaller and more massive than the ones before, and the cycle continued down to where the brick was burning like a sun—a searing finger of dense plasma that still needed one last inspiration to become useful, reliable fuel.

Pulse engines relied on that final collar of degenerate matter. From outside, the structure looked like a ceramic bottle shaped by artisan hands—a broad-mouthed bottle where it began, then tapering to a point that magically dispensed the ultimate wine. Plasma flowed into the bottle's interior, clinging to every surface while being squeezed. But what was smooth to the eye was vast and intricately shaped at the picometer scale—valleys and whorls, high peaks and sudden holes. Turbulence yielded eddies. The birth of the universe was replicated in tiny realms, and quantum madness took hold. Casimir fields and antiproton production triggered a lovely apocalypse that ended with the obliteration of mass and a majestic blast of light and focused neutrinos.

Then the next moment arrived, bringing another brick of hydrogen.

Twelve thousand and five bricks arrived in order. There were no disasters, but the yields proved fickle. Then the ship's captain killed the engine, invoking several wise reasons for recertifying a control system that was, despite millions of years of sleep, running astonishingly well.

But who knew what a healthy pulse engine could accomplish?

The human captain wasn't sure, and he confessed that loudly, often and without any fear of looking stupid.

Pamir had settled into a pattern. His nameless ship would accelerate hard, pushing at four gees for ten minutes or three days. Bodies ached. Muscles grew in response to the false weight. Then they would coast for a few minutes or for an hour, except the time they drifted for a week, every easy trajectory slipping out of reach.

The ship's sovereigns must have done this good work once, but they remained uncooperative. The streakship's AIs had been salvaged to serve as autopilots, but they weren't confident of their abilities. Pamir gave his crew reasons that wanted to be believed. He offered technical terms and faked various solutions that were intended to leave the children scared of this ancient, miserably unhappy contraption. Tailor required a bit more honesty, and that was why the captain invoked the Kajjas' faceless enemies. Pamir explained that he didn't want other eyes knowing where they would be tomorrow and thirty years from now. "The wounded bandelmoth is hunted by a flock of ravenous tangles," Pamir explained. "The moth flies a quick but utterly random course, letting chance help fend off the inevitable."

"Why not tell the others what you tell me?" the Kajjas asked. "Why invent noise about 'damned stuck valves' and 'damned chaotic flows'?"

"I don't trust my crew," he said flatly.

The Kajjas tapped one foot, agreeing with the sentiment.

"If our children thought they could fly home, they might try it."

"But what I wish to know: Do you have faith in our new captain?"

"More than I have in the rest of you," Pamir said. "I don't believe what you believe, old friend. Not about the galaxy's mysterious rulers. Not about the peculiar sameness of our brains. Not about mysterious foes diving out of the darkness to kill us."

"I believe quite a lot more than that," Tailor said.

"Of course our enemy could be more treacherous than you can imagine. For example, maybe toxic memes have taken control over me, and that's why I took charge of this primordial ship."

"I hope that isn't the case," said the Kajjas.

"And I'll share that wish, or I'll pretend to."

"And what's your impression of Tailor?"

Pamir shrugged. "The ancient boy dances with some bold thoughts. He sounds brave and a little wise, and on his best days profound. But really, I consider him to be the dodgiest suspect of all."

"Then we do agree," said Tailor. "I trust none of us."

They laughed for a moment, quietly, without pleasure.

"But again," Pamir concluded. "I don't accept your galactic sovereigns. Except when I make myself believe in them, and even then, I always fall back on the lesson that every drive-mechanic understands."

"Which lesson?"

"A reliable star-drive doesn't count every hydrogen atom. The machinery doesn't need to know the locations of every proton and electron. No engineer, sane or pretending to be, would design any engine that attempts to control every element inside its fire. And for all of their chaos and all of their precision, star-drives are far simpler than any corner of the galaxy.

"Maybe I'm wrong. You're right, and some grand game is being played with the Milky Way and all of us. But you and I, my friend: We are two atoms of hydrogen, if that. And no engine worth building cares about our tiny, tiny fates."

Robots could have been trusted with this work, if someone brought them and trained them and then insulated each of them from clever enemies. No, maybe it was better that the crew did everything. They worked through the boost phases, and they picked up their pace during the intervals of free fall. G'lene was the weakest: Clad in an ar-

mored lifesuit, suffering from the gees, she could do little more than secure herself to the hull's scaffolding, slicing away at the scrap parts set directly in front of her. Complaining was a crucial part of her days, and she spent a lot of air and imagination sharing her epic miseries. By comparison, the twins were stoic soldiers who reveled in their strength, finding excuses to race one another between workstations and back to the airlock at the end of the day. But Tailor proved to be the marvel, the prize. The Kajjas world was more massive than the earth, but his innate physical power didn't explain his dependability or the polish of his efforts. Pamir told him what needed to be cut and into what shapes and where the shards needed to be stored, and looking at the captain as his sovereign, he never grumbled, and every mistake was his own.

One day, Tailor's shop torch burped and burnt away his leg. He reacted with silence, sealing the wound with the same flame before dragging himself inside, stripping out of the lifesuit and eating one of the bottled feasts kept beside the airlock, waiting to supercharge any healing.

"Captains have a solemn duty," the twins joked afterward. "They should sacrifice the same as their crew."

"Yeah, well, my leg stays on," said Pamir.

The laughter was nearly convincing.

Two years were spent slowly dismantling the streakship. Every shard of baryonic matter had been shaped and put away, waiting to be shoved down the engine's throat after the hydrogen was spent. The only task left was to carve up the streakship's armored prow. Better than hydrogen, better than any flavor of baryonic matter, a slender smooth blade of hyperfiber would ignore compression and heat, fighting death until its instantaneous collapse and a jolt of irresistible power. But hyperfiber was a better fuel in mathematics than it was in reality, subject to wildness and catastrophic failure—a measure waiting for desperate times.

Shop torches were too weak. Sculpting hyperfiber meant deploying one of their plasma guns. Pamir ordered his crew to remain indoors, the humans maintaining the lights and atmosphere while Tailor was free to return to his obsessions. For five months, Pamir began every day by passing through the airlock to wake a single gun. A block of armor was fixed into a vice, waiting to be carved into as many slips of fuel as possible. The work lasted until his nerves were shot. Then the gun had to be secured, and he crawled back inside the ship. G'lene always threw a smile at him. The twins pretended to ignore him, their curses still echoing in the bright air. Tailor was muttering to the sovereigns or searching for cargoes that didn't exist, or he did nothing but sit and think. Pamir needed to sit and think. But first he had to kick his way to the engine, attacking its inevitable troubles.

When the sixth month began, the twins stopped cursing him.

Even worse, they started to smile. They called him "Sir," and without prompting, they did their duties. One evening Rondie was pleasant, almost charming, grinning when she said that she knew that his jobs were difficult and she was thankful, like everyone, for his help and good sense.

Pamir wasn't sure what to believe, and so he believed everything.

Tailor continued fighting with the sovereigns.

"I have a verdict," he said one day.

"And that is?" asked Pamir.

"These machines are not insane. They pretend madness to protect something from someone. And the problem is that they won't tell me what either might be."

"Can you break through?"

"If I was as wise as my ancestors, I would, yes." The Kajjas laughed. "So I am convinced and a little thankful that I never will be."

Three years and a month had passed since their launch, the voyage barely begun.

Pamir shook himself out of a forty minute nap, ate a quick breakfast and then donned a lifesuit that needed repairs. But the hyperfiber harvest would end in another nine days, and the suit was still serviceable. So, alone, he trudged through the airlock and onto a gangway. The plasma gun was locked where he had left it six hours ago. The gun welcomed him with a diagnostic feed, and while it was charging, Pamir used three nexuses to watch the interior. The twins were sleeping. G'lene was studying a mechanic's text, boredom driving her toward competency. And Tailor was staring into a display panel, trying to guess the minds of his ancestors.

Sensors were scattered around the huge cabin. Some were hidden, others obvious. And a few were self-guided, wandering in random pathways that would surprise everyone, including the captain who let them roam.

The peace had held for months.

But Pamir had been strangled and packed away with the luggage, and every day, without fail, he considered the smart clean solution to his worries. Three minutes, and the problem would be finished, with minimal fuss.

Kill the crew before they killed him.

Temporarily murder them, of course.

But those cold solutions had to be avoided. Despite temptations, he clung to the idea that kindness and compassion were the paths to prove your sanity.

Everybody seemed to hold that opinion. G'lene still flirted with the only available man. Maxx offered to drink heavily with his friend Jon, once his hard work was done. And just last week, his sister tried defining herself to this tyrannical captain: Rondie and her brother shared very weak but wealthy parents. They had wanted strong children. Genes were tweaked, giving both of them muscles and strong attitudes. Rondie said that she was beautiful even if nobody else thought so. She said that her parents had wisely kept their wealth away from their children, which was why they joined the military. And then in the next breath, the girl confessed to hating those two ageless shits for being so wise and looking out for their souls.

At that point she laughed. Pamir couldn't tell at whom.

He said, "In parts of the multiverse, both of you are weak and happy."

"A Luddite perspective," she said.

"It is," he agreed.

"Who are you really?" she asked.

"I'm you in some other realm."

"What does that mean?"

"Think," he said, liking the notion then and liking it more as he let it percolate inside his old mind.

That was a good day, and so far this day had proved ordinary.

The twins slept, but that didn't keep them from conversing—secret words bouncing between each other's dreams. Tailor was on a high platform, muttering old words that his translator didn't understand. G'lene was the quiet one. She studied. She fell asleep. Then she was awake and reading again, and that was when the pulse engine fell silent.

Pamir lifted from the gangway. Then he caught himself and strapped his body down, focusing on the white-hot shard of hyperfiber before him.

The airlock opened.

He didn't notice.

Three average people, working in concert, could easily outthink the weary fugitive. Pamir saw nothing except what his eyes saw and what the compromised sensors fed to him. The twins slept, and while studying, G'lene played with herself. Pamir looked away, but not because of politeness. At this point, those other bodies were as familiar and forgettable as his. No, his eyes and focus returned to the brilliant slip of hyperfiber that had almost, almost achieved perfection.

From a distant part of the cabin, Tailor called out.

The shout was a warning, or he was giving orders. Or maybe this was just another old word trying to subvert the security system, and it didn't matter in the end.

The ex-soldiers had cobbled together several shop torches, creating two weak plasma guns. The first blast struck Pamir in his left arm, and then he had no arm. But Maxx had responsibility for the captain's right arm, and the boy tried too hard to save the plasma gun. Wounded, Pamir spun as the second blue-white blast peeled back the lifesuit's skin, scorching his shoulder but leaving his right hand and elbow alive.

Quietly and deliberately, Pamir aimed with care and then fired.

Charged and capable, his weapon could have melted the ship's flank. But it was set for small jobs, and killing two muscular humans was a very small thing.

The first blast hit Rondie in her middle, legs separating from her arms and chest. Cooked blood exploded into the frigid vacuum while the big pieces scattered. Maxx dove into the blood cloud to hide, and he fired his gun before it could charge again, accomplishing nothing but showing the universe where he was hiding.

Pamir turned two arms into ash and a gold-white light.

But where was G'lene?

Pamir spun and called out, and then he foolishly tried to kick free of the gangway. But he forgot the tie-downs. Clumsier than any bouncing ball, he lurched in one direction and dropped again, and G'lene shot him with a series of kinetic charges. Lifesuits were built to withstand high-velocity impacts, but the homemade bullets had hyperfiber jackets tapering to needles that pierced the suit's skin, bits of tungsten and iron diving inside the man's flailing sorry body.

The plasma gun left Pamir's grip, spinning as it fled the gangway.

A woman emerged from shadow, first leaping for the gun and securing it. She was crying, and she was laughing. The worst possibilities had been avoided, but she still had the grim duty of retrieving body parts. The plasmas hadn't touched the twins' heads, and they remained conscious, flinging out insults in their private language, even as their severed pieces turned calm, legs and organs and one lost hand saving their energies for an assortment of futures.

G'lene grabbed Maxx first, sobbing as she tied the severed legs to his chest.

Rondie said, "Leave," and then, "Him."

"You're next," G'lene promised.

"No, no look," Rondie muttered.

Too late, the crying woman turned.

Every lifesuit glove was covered with high-grade hyperfiber. Pamir was holding his own dead limb with living fingers, using those dead fingers like a hot pad. That was how he could control the slip of hyperfiber that he had been carving on. A kiss from the radiant hyperfiber was enough to cut the tie-downs that secured him, and then he leaped at G'lene. The crude blade was hotter than any sun. He jabbed it at her belly, aiming for the biggest seam, missing once and then planting his boots while shoving harder, searing heat and his fine wild panic helping to punch the beginnings of a hole into the paper-thin armor.

G'lene begged for understanding, not mercy, and she let go of body parts, trying to recover her own weapon.

Pamir shoved again, and he screamed, and the blade vanished inside the woman.

Flesh cooked, and G'lene wailed.

He let her suffer. With his flesh roaring in misery, Pamir set to work tying down body parts and weapons. All the while the girl's round body was swelling, the fire inside turning flesh into gas, and then empathy stopped him. He finally removed her helmet, the last scream emerging as ice, the round face freezing just before a geyser of superheated vapor erupted out of her belly.

* * *

"You had some role," Pamir said.

They were sharing a small platform tucked just beneath the ship's prow. The alien had been crawling through an access portal where nothing had ever been stowed. The glass threads had pulled together, building the platform that looked like happy red grass. Pamir hated that color just now. The alien's eyes were clear, and he didn't pretend to look anywhere but at the battered, mostly killed human.

"Each of us has a role," Tailor said.

"You helped them," said the captain.

"Never," he said.

"Or you carefully avoided helping, but you neglected to warn me."

"I could have done more," the creature admitted. "But why are you distressed? They intended a short death for you, just long enough for you to reconsider."

Every situation had options. The captain's first job was to sweep away the weakest options.

What remained was grim.

"I should kill you too," he said.

"Can you fly this ship alone?"

"It's an experiment that I am willing to try."

Tailor had fewer options, and only one was reasonable. "Secure me," he said. "Each day, please, you can tie me to one place. I'll work where you trap me. If I can go nowhere, what harm do I pose?"

"What if you talk to the sovereigns? You could turn them against me."

"Or you can separate their influences from the ship," the Kajjas said. "Feed them power, of course. But please, let this conundrum have its way with me."

"No."

The three eyes went opaque, blind.

"No," Pamir repeated.

"You once said something important," Tailor said.

"Once?"

"I overheard you. When you came back to life the last time, you were talking to the children. You claimed that there was a reason why youthful souls interested me."

"Young minds can't hide secrets," Pamir said.

"But that isn't their major benefit." Iron knives struck one another inside that long throat. "Just finding the treasure may not be enough. A young mind, unburnished and willing, often proves more receptive to mystery."

"And to madness," Pamir said.

Tailor let one eye clear. "Whoever you are, you hold a strong mind."

"Thank you," Pamir said.

"On the whole," said the Kajjas, "I believe that strength is our universe's most overprized trait."

11

Of course there were sovereigns. Pamir always knew that. The sovereigns were vast and relentless, and they were immortal, and he knew their faces: The kings of vacuum and energy, and their invincible children, time and distance. Those were the masters of everything. Their stubborn uncharitable sense of the possible and the never-can-be was what ruled the Creation. All the rest of the players were little souls and grand thoughts, and that was the way it would always be.

The Great Ship was obeying the kings. It remained no better than a point, a conjec-

ture, crossing one hundred thousand kilometers every second. Reaching the Ship was life's only purpose. Pamir thought of little else. The human-made AIs thought of nothing else. The hydrogen had been consumed until only a thin reserve remained, and then the streakship's corpse was thrown to oblivion, each bit unique in shape and composition. Calculations demanded to be made. Adjustments never ended. Slivers of a cabin wall exploded differently than the plumbing ripped out of a fuel pump, and while the Kajjas engine ate each gladly, there was sloppiness, and sometimes the magic would fail, leading to silence as the nameless ship once again began to drift.

Every day had its sick machines.

No week was finished without the engine dying unexpectedly, ruining the latest trajectory.

Anyone less competent than Pamir would have been defeated. Anyone more talented would have known better and given up in this idiot venture on the first day. A soul less proud or more clear-headed would have happily aimed for one of the solar systems on the Kajjas' charts—a living place that would accept the relic starship and two alien species of peculiar backgrounds. But Pamir clung to his stations, and the AIs found new solutions after every hiccup, while Tailor filled his lucid moments moving from platform to cubbyhole, talking to the madness.

Several decades of furious work brought them halfway home.

And then the engine was silenced on purpose, and their ship was given half a roll, preparing to slow its momentum before intercepting the Great Ship.

"You have to pay attention to me," said Tailor.

Pamir was in earshot, barely. But his companion was talking to himself, or nobody.

"I see your stares," the Kajjas said.

Pamir ignored him. From this point on, they had even less play in their trajectories and the remaining time. The Great Ship was swift, but the Kajjas ship had acquired nearly twice its velocity. Very few equations would gently drop them into the berth at Port Beta, while trillions of others shot them ahead of the Great Ship, or behind.

"Do you hear me?" Tailor asked.

Yes, but Pamir pressed on. His companion was another one of the thousand tasks that he could avoid for the time being, and maybe always. What the captain needed to do next was prepare a test-firing of the hyperfiber fuel, and the fuel feeds begged to be recalibrated, and one of his AIs had developed an aversion to an essential algorithm, and he hadn't eaten his fill in three days, and meanwhile the small, inadequate telescopes riding the prow had to be physically carried to the stern and fixed to new positions so that they could look ahead, eating the photons and neutrinos that never stopped raining and never told him enough.

Eating was the first priority.

Pamir was finishing a huge meal when the first note of a warning bell arrived, followed immediately by two others.

Those bells were announcing intruders.

Pamir made himself enjoy his dessert, a slab of buttery janusian baklava, and then, keeping his paranoia in check, he examined the data and first interpretations. The half-roll had revealed a different sky. The telescopes had spotted three distinct objects traversing local space. None were going to collide with Pamir, yet each could well have been aimed at this ship while it moved on an earlier tangent. Each was plainly artificial. The smaller two were the most distant, plunging from different directions, visible only because they were using their star-drives. Measuring masses and those fires, Pamir guessed about likely owners. An enormous coincidence was at hand, three strangers appearing at the perfect place for an attack. The roll-over left him predictable, exposed. It would be smart to conjure up a useful dose of fear. But

the fear didn't come. Pamir wasn't calm, and he couldn't recall the last time when he was happy. But he wasn't properly worried either. A thousand ships could be lurking nearby, each with their engines off—invisible midges following his every possible course. But that possibility didn't scare him. His heartbeat refused to spike, right up until the nearest vessel suddenly unleashed a long burn.

Their neighbor was a huge, top-of-the-line streakship, and if Pamir followed the best available trajectory, that luxury ship and his own thumping heart would soon pass within twenty million kilometers of one another.

But the heart was quiet, and Pamir knew why: The universe did not care about him, or this relic, or even crazy old Tailor.

A loud transmission arrived thirteen hours later, straight from the streakship. In various languages and in data, its owners were named as well as the noble species onboard, both by number and their accumulated wealth. Then a synthetic voice asked for Pamir's identity, and with words designed to sound friendly to as many species as possible, it asked if the two of them were perhaps heading toward the same destination? "Are we joining on the Great Ship together, my lovely friend?"

Pamir invented new lies, but he didn't use them. Instead, he identified himself as Human Jon. With his own weary voice, he explained that this was a salvage operation and he was alone, and his ship was little better than a bomb. That's why he kept trying to maneuver out from the path of others. Invoking decency, he decided to delay his test firings, watching the interloper, wondering what it would do in response.

Devoted to its own course, the other voice wished him nothing but the best and soon blasted into the lead.

And three weeks later, the streakship's central engine went wrong. Containment failed or some piece of interstellar trash pierced the various armors. Either way, the universe was suddenly filled with one spectacular light, piercing and relentless, along with the wistful glow from a million distant suns.

Pamir knew a thousand sentient species well enough to gather with them, drinking and eating with them, absorbing natures and histories and the good jokes while sharing just enough of his blood and carefully crafted past. Bioceramic minds didn't merely absorb memories. They organized the past well enough that sixty thousand years later, a bored man doing routine work could hear the song from a right-talisman harp and the clink of heavy glasses kissing each other, and with the mind's eye he saw the face of the most peculiar creature sitting across from him: A withered face defined by crooked teeth and scars, fissures where the skin sagged and sharp bones where muscle had once lived.

Pamir was younger than many captains, while his companion was a fraction his age and probably no more than ten years from death. She was as human as Pamir, though he had trouble seeing her that way. Archaics living on the stormy shore of the Holiday Seas had sent delegates to meet with this captain. These citizens were to come to terms on tiny matters of babies and fees paid for those babies, and where their people could travel, and where the other passengers could not.

Pamir already possessed the famous snarl.

"You're stranger to me than most aliens," said the novice captain, finishing his first Mist-of-Tears. "If I try, I understand an extraterrestrial's thought process. But if I look at you and try to figure you out, I get tangled. I end up wanting to scream."

The archaic was drinking rum. Maybe it was the taste in the old woman's mouth, or maybe it was his words. Or perhaps she enjoyed the music coming from an exotic instrument. Whatever the reason, she offered a smile, and then looking down at the swirling dark liquor, she told the glass, "Scream. You won't hurt my feelings."

"You're dying. Right in front of me, you are dying."

The grin lifted. "And you feel for me, how dear."

"A hundred years isn't enough time." Pamir wouldn't scream, but he couldn't sit comfortably either. "I know what you people believe, and it's crazy. Religious, scared, mad, foolish, shit-for-brains crazy."

"I'm one hundred and forty years old," she said with her slow, careful voice. Then, after a weirdly flirtatious wink, she added, "I personally believe in modest genetic engineering, ensuring good health and a swift decline at the end."

"Good for you," he said.

She sipped and said nothing.

The young captain ordered another round. Their bartender was a harum-scarum, gigantic, covered with scales and spines and a sour temper, ready to battle any patron who gave her any excuse. Pamir felt closer and much warmer toward that creature than he did to the frail beast beside him.

"There is another way for you," he told her.

A little curious, the old woman looked at him.

"Employ limited bioceramic hardware. A single thread is all that you'd need. Thinner than a hair, planted deep inside that fatty organ of yours, and you could spend one hundred and forty years learning everything quickly and remembering all of it. Then you'd die, just like you want, and your family could have their funeral. A ceremony, an ornate spectacle, and your grandchildren could chop the implant out of your skull. Maybe they could pretend it was a treasure. Wouldn't that be nice? They can drop your intellect into a special bottle and set it on some noble high shelf, and if they ever needed your opinion, about anything, they could bring you down for a chat. That's the better way to live like a primitive."

Cheerfully, almost giggling, the old woman said, "I am not a Luddite."

Pamir hadn't used the word, and he didn't intend to use it now.

"'Archaic' isn't an adequate word either," she said.

"What's the best word?" he asked.

"Human," she said instantly, without hesitation or doubt.

Pamir snorted and leaned forward, wondering if this unfriendly back-and-forth was going to help their negotiations. Probably not, he decided. Oh well, he decided. "If that's what you are, what am I?" he asked.

"A machine," she said.

He leaned back, hard. "Bullshit."

The old woman shrugged and smiled wistfully.

"Is that the word you use? When we're not present, do you call us cyborgs?"

With a constant, unnerving cheeriness, she said, "Cyborgs are partly human, and you are not. Your minds, and your flesh, and the basic nature of your bones and brains: Everything about you is an elaborate manifestation of gears and electrical currents with just enough masquerading in place to keep you ignorant of your own nature."

"I don't like you," said the young captain.

"Try the rum," she said.

He played with the mirrored hat on his head.

Then she said, "But as you helpfully pointed out, I shouldn't be around much longer. So really, what can my opinion weigh?"

Theory claimed that hyperfiber would make a potent fuel. But every theory involved modeling and various flavors of mathematics and usually a fair share of hope. Truth demanded tests, which was why Pamir dropped a single blade of fuel into the ship's mouth. And when the engine survived that experiment, he sent in three others, followed by a hundred more closely packed slivers.

The old model proved wildly pessimistic.

Yields were at the high end of predictions, and more importantly, each explosion was set inside a tiny piece of time. Brutal kicks passed through the Kajjas ship. Plasmas were spewed ahead, velocities pushing against light-speed, and Pamir let himself breathe while the AIs celebrated with party paradoxes and new models of annihilation, plus fresh crops of trajectories that took into account this unexpected power.

Pamir began slowing the ship with high-gee burns, randomly spaced, and despite premonitions for the worst, the old engine never complained.

Was this how the vanished Kajjas explored the far galaxies? Building hyperfiber only to burn it again?

Three months into the deceleration, the ship was in a coasting phase. Glass strands were pulled to the round cabin walls while Pamir worked on another recalibration. Space appeared normal, benign and cold and vast, and then suddenly an adjacent portion of space became hot. Distant lasers were firing on wandering comets and dust, and the nameless grit responded by boiling, turning to gas and wild ions. Within minutes, a billion cubic kilometers had been engulfed by a bright cobalt glow that looked lovely to the scared human eye.

The Kajjas was wearing smart-manacles and three watchdog sensors. The nearest display panel was busy, gold and mauve wrapped around symbols that looked like a genuine language. But Tailor was standing apart from every machine, closely watching something in one hand, something quite small. Pamir had to call his name several times to be noticed.

The clear eyes rose, and the alien called out, "This is a wondrous day."

"But not especially pleasant," said Pamir. "Somebody is shooting at us, and now I'm starting to believe you."

"Then this day is even better," the creature proclaimed.

A single strand of red glass was dangling from his hand. At a distance and even up close, it looked like every other stalk of fake grass.

Pamir didn't ask about glass or symbols.

"I'm here to warn you," was all that he had time to say. "We're still aiming for the Great Ship. I'm not giving that up. But no sane predictable brain would ever try it this way."

12

Modern bodies didn't easily rot.

Trillions of bacteria lived inside the guts and pores, but they weren't simple beasts waiting for easy meals. Every microbe was a sophisticated warrior tailored to serve its host. Service meant protecting the flesh in life, and if that life was cut to pieces by a plasma blast, then the surviving trillions worked as one, fending off wild bacteria while pulling out the excess moisture, rendering the temporarily dead man as a collection of perfectly mummified pieces.

Even broken, Maxx was a tough looking fellow. Pamir gave the autodoc every chunk, every burnt shred, and he kept close tabs on the progress. Dried tissues were rehydrated and then fed. Stem cells cultured themselves, and they built what was missing, and two days later the growth chamber was filled to overflowing with a naked man, hairless and massive. An earthly gorilla would be proud of that body. Leaving Maxx trapped inside the chamber seemed wise, but there was little choice. Pamir opened the lid before the boy was ready to move, and he stood over him, starting to explain what he wanted.

Maxx interrupted. "Where's my sister?"

"She'll be next," the captain promised. "But only after you make a promise, or you lie well enough to fool me."

Too soon, Maxx tried to sit up.

Two fingers and a quiet, "Stay," were enough to coax him back down again.

"I was awake," the boy said. "When I was dead, I was thinking."

"Thinking about Rondie," Pamir guessed.

"Not always, no."

The words carried implications.

Pamir quickly explained what had happened since their fight and what might happen if they held the same conventional course. He said that he had considered using Tailor, but the alien was useless. An insight had infected him, and he was even crazier than usual. As a precaution, Pamir had limited his tools and chained him nearby.

Maxx glanced at the Kajjas.

Then with a slower voice, the captain laid out the basics of his mad plan.

Some part of Maxx was listening. Yet more compelling matters had to be considered. The boy's voice was uneasy, shrill at the edges when he asked, "When will my sister be back?"

Rondie's remains were more numerous and in worse condition, and the autodoc was limited. "Six days, or with luck, five," he said.

"Take your time," Maxx advised.

Pamir said, "I don't do sloppy work."

"That isn't what I mean." Then with a shy smile, Maxx said, "I rather liked it, being alone."

"Solitude has its pleasures," Pamir said.

"Yeah, I promise, I'll do whatever you want me to do," said the resurrected man. "Just please, don't tell my sister what I just confessed to you."

The ship had rolled again, and denying every commonsense vector, it was once more accelerating, hard.

Pamir and Maxx were out of sight, out of reach. Tailor wore manacles and tethers, and an ordinary tool kit was in easy reach. Standing took too much work. Against the thundering engine, it was better to sit deep in the grassy glass. The drill lay between his feet, recharging itself. Five times, the Kajjas had ordered the drill to cut a single precise hole, and then with his own trembling hands, he fed one of the treasures into the breach.

Momentous times, that's what these were. His species had labored for one hundred million years, searching for enlightenment. Tailor couldn't remember when he wasn't preparing for this day. And at long last, he'd broken every code and deciphered old, vanished technologies. No barriers remained. The magic had no choice but work, and that's what he was doing.

Five times he overrode the drill's safeties, coaxing a slender beam of high-UV light to evaporate his flesh and then his bone before eating slowly, carefully into the living template of his mind.

Each hole was perfect.

Into each hole went one of the rare treasures.

During the first four attempts, he emptied his mind of thought, making ready for lightning and epiphanies. Tailor was relaxed and rested, fortunate beyond all measure, thinking about nothing, ready to be seized by truth in whatever serene form it came. And something did happen. Four times, there were sensations, the painful roiling of electrons that became familiar and intense to a point where much more was

promised . . . and then the intensity slackened and slipped, nothing remaining but the residues one endures when rising from a deep, perishable dream.

On the fifth attempt, Tailor changed tactics.

He purposefully thought about quite a lot. Perhaps engaging old memories would open the necessary gateway. Who knew? That's why he built lost rooms in his head, and why he spoke to family members who were dead or so distant that they might as well be. He recalled his first journey in space and his first new sun, and buried inside that flood of old, rarely touched remembrance he discovered a nameless world, watery and deliciously warm but not available to colonize. Why was that? Because there were rules, yes. Supposedly the galaxy had no sovereigns, but the rising civilizations, young and otherwise, had carved laws and punishments out of the potential. This wet world was too promising to be claimed. The furry souls hiding inside their burrows and up on the high tree branches held promise—just enough of this and not too much of that—and their world was stable enough to survive comet blasts and the next half billion years. That was why the Kajjas scout team was just visiting. It had already been decided to move to another nearby solar system, harsher and far more promising.

Tailor couldn't remember when he last thought about that world.

It might have been the human homeland. Who would know? The galaxy never stopped moving, suns marching in every direction. Certainty would take work and patience, and he didn't have either to spare.

He considered calling to Jon. This memory would be a gift.

But the scorching laser had burrowed deep into his mind, much deeper than the others, and the fifth thread had to be eased into position and then sealed in place. Tailor accomplished both tasks with fingers and a torch. The thread only looked like the red glass. Years had been spent walking on the cargo, sleeping with it and ignoring it, and he'd never suspected: One strand in eight million was glass on the outside, mimicking its mates, but it was bioceramic at the core. Each core employed an architecture that was nothing like the standard mind. How it worked was just another mystery. Tailor had found six odd threads already, there were probably several hundred more, and this thread was inside him and talking to his soul, bringing nothing but pain, pure simple dumb pain, as the brain felt the grievous injury, more and more of his ancient memories thrown to oblivion.

Tailor dipped his head, and the translator transformed his noble sobs into sick human sobs.

All the while, the nameless ship was filled with motion, with purpose. The invincible engine was eating hyperfiber and shitting out the remnants. And Jon and Maxx were far away, making ready for the last portion of this desperate scheme.

Despair was a shroud, and through the shroud came a human voice.

"What are you doing?" she asked.

"Healing," the Kajjas said.

The new patient was lying inside the growth chamber. The autodoc had lifted its lid, allowing her flesh to grow while she breathed freely.

Rondie turned onto her side.

With a paternal voice, the autodoc told its patient to do nothing but rest.

"Shut up," she said.

Tailor laughed, but not because of her.

"Where's my brother?" she asked.

"Helping our insane captain," he said. "Jon has decided to harvest our own ship's armor and employ it as fuel."

"No," she said.

"It is a strange tactic, yes," he said.

"I mean, why isn't Maxx with me?"

Looking at any human, looking at the beast deeply and with all of his experience, it often occurred to Tailor that each of these creatures was a species onto herself. "Human" was just a convenience applied to a pack of disagreeable, dissimilar fur-bearers.

"You look strong," he said.

She said, "I'm feeling better."

"Wonderful," he said. "Can you climb out of that device now?"

Rondie was exceptionally powerful. Even unfinished, she sat up easily and the naked legs came out without much trouble. But death had made her cautious, and she moved slowly until an alarm sounded, the autodoc trying to coax her to behave with nothing but loud, brash sounds.

She jumped free and slapped the controls, earning silence.

"Come here," Tailor said.

Five slivers were inside him, and he had no idea what enlightenments they were carrying.

"When will my Maxx come back?" she asked.

Tailor said, "Come here and I will call your brother."

She took slow steps against the thundering of the engine. "So our bastard captain tied you down," she said, looking at the manacles and tethers.

"This is a verdict which I deserved and embraced." Then he reached with one hand and a foot, which was a blunder.

Rondie stopped, keeping out of his reach.

"You look as if you're hurting," she said.

"A few wounds, yes. But the mind is durable and profound, and I will heal soon enough."

"I'm going to get dressed," she said. "I want to find Maxx."

"But first," said Tailor.

She stared at him, waiting.

"G'lene is waiting inside the box, that packing crate lying just past the autodoc." The sixth thread felt light and cool in his palm and between his long fingers. "Would you unpack G'lene for me, please?"

"Let the bastard cure her."

"But I don't want you to feed her to the autodoc," he said. "No, I very much want the girl for myself. And I have a good reason, if that matters."

She shrugged, absolutely unmotivated.

"If you do this," he said, "the Luddite will be exceptionally angry with you. I promise."

"Okay," she allowed.

And as she walked toward the boxes, Tailor called out, "If it is easier, you may cut off the head. I desire nothing else."

13

The mad plan was to burn up their original fuel stocks in order to bring them home on a short vector. All that while, they would carve away a portion of the ship's prow, holding back those shards for later. If they survived the boost phase, the ship would be rolled again at the last possible moment, and then the engine's muscle and endurance would be severely tested. Hyperfiber would be shoved into oblivion and expelled before them—a long spike of plasma and radiation slicing through the blackness. Every local eye would see their arrival, and that was part of Pamir's scheme: If someone tried to kill this ship, it would be a loud public act, a revealing act. If some secret power was at large, it would surely prefer to settle this matter in more private ways.

Pamir had explained his plan, and to one degree or another, the others accepted his rule if not his logic. Besides, everyone knew that they were far off course, and at this velocity and in this place, there was simply no other route home.

Every hand was needed. The original crew was at work, infuriating yet predictable. But now a second crew shared the ship with them. The twins could follow their usual script, sometimes for a full day or two. But then the boy suddenly begged to be left alone, please. Except his sister came out of death lonely, famished for more touches than ever and private words known only to her and maybe even the first stirrings of lust for the only object of value in her brief life.

The Kajjas remained the ancient puzzle. Freed of manacles and his studies, Tailor helped slice apart the least critical portions of the ship's armor. But without warning, he would suddenly turn fearless, risking millions of years of existence by stepping onto the open prow. Grains of dust would explode on all sides while he did nothing but sing, throwing old songs into the vacuum, eyes gazing up at the blue-shifted starlight that fell inside his joyous soul.

Even Pamir was two people. Long habit and the ingrained personality usually held him where he belonged—a blunt strong-willed soul that could sleep minutes every day and push three day's work into two. He ruled a minor realm inside the boundless universe governed by faceless, amoral laws. Those laws were too powerful and too perfect to give a shit about little him, and wasn't that the least awful existence imaginable?

But the other Pamir, the new man, was much less certain about everything.

Invisible, potent sovereigns held sway over the galaxy. Except in Pamir's mind, they weren't Kajjas sovereigns. They wore the faces and attitudes of captains. They were bold opinionated creatures looking splendid in their bright uniforms, each one ambitious, each a rival to all of the others, and somewhere there sat a world-sized Master Captain holding a godly feast every million years, just to prove to her nervous self that she was genuinely in charge.

The imagery had its charms, its humor.

Laughing, he could deny everything. One senile alien from a vanquished race was not much of an authority, and there were explanations waiting to be invoked. Their ship was nothing but a derelict, and its sovereigns were crazy, and nothing here was worth two drops of blood or any reputation. Those bits of glass that Tailor found were just

that. They were glass. The alien had installed them, and what changed about him? The new boldness was nothing but Tailor's anguish for a thoroughly wasted life. The streakship following them was one mild coincidence, and its detonation was another. And that final attack—the wild flash of laser light—was just some local species running experiments in deep space, or a factory ionizing the dust to harvest it, or maybe someone was trying to kill them. But what did that mean? There were endless reasons to destroy another ship, and saving the universe for the sovereigns was far down on the list.

Wild thoughts kept running where they wanted inside the captain's exhausted mind. But he suppressed the worst of them, and he learned to wring the humor out of the paranoia and push on.

But whatever his burdens, G'lene's were immeasurably worse.

Through his nexuses, Pamir had watched Rondie cut the woman's head off of her boiled corpse. Then she handed the head to Tailor, and he watched what Tailor did with that gift. But the prow was far away and the high-gee acceleration had to be maintained. It took only minutes to carve a fresh hole into G'lene's mind, and then the final thread—one last piece of glass—was implanted.

Change the time or change the circumstances, and Pamir would not have brought her back to life. Better autodocs onboard the Great Ship would repair the damaged intellect first. But he needed G'lene's hands, her back. He fit the surviving pieces inside the growth chamber, and they remembered their original self, knitting together and building connections, swelling with water and fat until the girl emerged on schedule, seemingly unharmed.

Pamir didn't tell her about the rough surgery. As far as he could see, nobody else mentioned it either. The inserted glass had done nothing to change the girl's complaining attitude, and she still had bouts of laziness. But there was a quiet that had gotten inside her and wouldn't let her free. She stopped flirting, and more alarming, she stopped masturbating too.

Dreaming, she wept.

Awake, the girl used her nexuses for most peculiar functions. Everybody was near the prow, everybody carving hyperfiber, but her attentions were focused on textbooks and general how-to files. She used to fitfully study. Now she acted focused if not happy. She said that she was the same, by feeling and by thought, except she had a sudden passion for stardrives and the ships that surrounded those engines. Pamir asked why. Everyone asked. Explaining herself, G'lene claimed that she had to think about something while she was dead. Contemplating her life seemed reasonable. And in the darkness, she told herself: "Quit making a mess of your existence and do your damned work."

It was easy to accept the girl's reasoning. Pamir took the role of tutor, if only to keep close tabs on her progress. Each month, G'lene researched a different drive, exhausting its basics before trying to master some subsystem that other drive-mechanics found cumbersome or boring. She wasn't notably smarter than before, and her memory was no sharper. She would still be one of the weakest students in any class. But G'lene was focusing her skills on rockets and power sources, and the months became several years, and then suddenly, without comment, she quit accessing the texts and manuals.

Pamir mentioned the change.

The girl shrugged and finished polishing the latest slip of hyperfiber. Then she stepped away, saying, "I realized. I'll never be good doing your job."

"No?"

With a slow, untroubled voice, she said, "If we survive this, I will quit the program."

Her captain had never seen her make any smart choice, until now.

During those intense years, their ship ate the last of its hydrogen stocks and the final bits of the streakship guts, and then most of the streakship's hyperfiber was tossed into oblivion. No invisible hand tried to murder them. No truly vital system

failed. The ship's huge prow was degraded, pierced with tunnels and little caverns, and several lumps of comet ice managed to punch deep. But the frame remained sound, and the engine was in fair shape when they gave it one fast rest, and as the slow final roll-over began, the captain decided that this was the moment when their ship deserved to finally wear some kind of name.

He let Tailor master the honor.

A moment of consideration led to a Kajjas phrase—an honored term meaning wisdom and deep, profound sanity. Then, with a most respectful voice, the translator said, "Precious Mental."

They wrote that name on various bare surfaces, in a thousand distinct languages.

"I don't know this tongue," G'lene said.

She was reading over Pamir's shoulder. "The language is mine," he said. "It's the dialect we use inside Where-Peace-Rains."

She touched the lettering, and a painful murmur came out of her.

"I've been watching you," he said.

"All of you keep staring at me."

"Do you know why?"

"Because you're worried."

"There's a lot to worry about," he said.

She tried to leave.

"Stay here," he said.

"Is that an order?"

"If it keeps you here, it is." Pamir didn't want to touch her, but a hand to the shoulder seemed important. Then he forgot that he was holding her, saying, "I know what you're studying now."

"You know everything," she said, bristling slightly.

"Mathematics," he said.

"Yes."

"But not just any numbers," Pamir said. "You're dabbling with the big, scary conundrums, the old problems about existence and the shape of the universe."

"Yes," she said.

He kept quiet, waiting.

"What's wrong with that?" she asked.

"Why are you?" he asked.

She shrugged. "I've also developed a taste for poetry."

"Bleak poems about death," he said. "Yeah, I'm eavesdropping. Each of us is worried about you, G'lene."

"Including me."

He waited for a long moment. Then he quietly asked, "What happened? When you were dead in the box, what happened?"

"I thought about you," she said calmly. "I could have killed you on the gangway, and you could have killed me. Again and again, I relived all of that. And then at the end, just before you put me inside the autodoc—just before the darkness broke—this idea came to me. From the middle of my regrets and stupidity, it came."

"What idea?"

She shook her head.

"Tell me," Pamir insisted.

She looked at her captain and then at the archaic words—white lines smoothly drawn across a coal-black housing. "Have you ever noticed, sir? There are so many ways to push a ship across space. Dozens of engines are popular, and thousands have been tried at least once. But most of us wear the same basic brain. And shouldn't thought be more important than action?"

"Is that your epiphany?" he asked.

"No," she said. "That's me wishing that my brain was smarter."

He nodded, weighing his next words.

But then she pushed aside her doubts. "I was alive but only barely, trapped inside a room without light or ends," she said. "I was thinking about you, Jon. You're not the person that you pretend to be. You're no Luddite or drive-mechanic, but you're doing a very fine job of pretending.

"And then all of a sudden, out of nowhere, I thought: 'What if everyone is the same as Jon?

" 'What if everything is that way?

" 'Not just people, but the universe?' I thought. 'What if everything we see and everything we know is one grand lie, an extraordinary mask, and waiting behind the mask is something else entirely?' "

14

The Great Ship was close enough to see and close enough to fear.

Approaching from behind, the Kajjas ship was tracing a rigorous line, a very peculiar line, and if nothing changed their tiny vessel would miss every Port and the emergency landing sites on the hull. If the pulse engine never fired, the five of them would pass in front of their home and continue onward, eventually leaving the galaxy for places that not even Tailor's charts would show.

But if their engine ignited, a collision was possible. That's why they were studied, and that's why various voices called out to them. Captains demanded to know the ship's history and intentions. The Great Ship's best weapons were directed forward, fending off lost moons and the like. But there was ample firepower on the backside, ready to eviscerate their little craft. Pamir assured his crew that crosshairs were locked on them, probably for some time. He also confessed that ignoring the first pleas was his strategy. Those captains needed to feel ignored, which made them worry. There was a tradition to command and rank and the corrosive strategies of those who wore the mirrored uniforms. Worry was what helped the five of them. A captain's responsibilities grew heavier when nobody was listening. And then at the ripe moment, Pamir told their audience a story—a sweet balance of truth and lie, pieces of it practiced for a thousand years.

Early on, Pamir had considered making a full confession.

But what would that help? A nervous captain might believe him too well, and smelling commendations, sprinkle the space between them with arrest warrants and nuclear mines.

No, he was still Jon. He was the drive-mechanic hired to bring home one lost ship. Playing to every bias held by those mirrored uniforms, he admitted that he was an idiot far from his native habitat. Taking no credit for himself, he thanked his AIs for finding this odd route home. Captains would always accept genius in machines before genius in a tool-bearing grunt. Then as the pivotal moment approached, Pamir added a long, faintly sentimental message aimed at his descendants wearing his blood and his name. And for no reason but that it felt true, he told Where-Peace-Rains that he was miserably sorry for his crime of living far too long.

The rest of Pamir's crew was in place, waiting. Each wore the best available lifesuit, and each suit was set on a tall bed of shock absorbers. Those beds would do almost nothing, and the glassy grass heaped around them was mostly for show. Gee-forces of this magnitude would kill most machines. Hyperfiber and bioceramics would survive, if barely. There was only the slenderest of room for error, but then

again, as experience showed, some guesses were pessimistic, and if you took a risk, sometimes the results were golden.

Pamir was inside his suit, securing himself to his bed.

Nearby, Rondie said private words to Maxx.

Her brother responded with silence.

Injured, she said his name twice, and then Maxx spoke out, but not to her. "So Jon," he said with a loud, clear voice. "For the record, what's your real name?"

He said it. For the first time in decades, he said, "Pamir," aloud, and then added, "If you survive and I survive, turn me in. There's going to be an ample reward."

The man laughed. "If I survive, that's the reward."

Mournfully, Rondie said, "Maxx."

"If we live, I mean," he said.

Then the twins were talking again, dancing with words devised in just the last few hours.

Tailor was closer to him, and G'lene was the closest.

"Thank you," said the Kajjas. "Without you, nothing ends properly."

Pamir made polite noise about helping hands and interesting conversations.

G'lene said nothing.

Pamir said her name.

Nothing.

He repeated the word, but with a captain's tone behind it.

She sniffed once, and then very quietly, almost sweetly, she admitted, "I can't get comfortable yet. How much longer will this be?"

Quite a lot occurred, most of it happening slowly.

And seven months later, a famous man returned to his childhood home.

Every citizen wanted to see him, but of course that was impossible. A lottery identified the luckiest few, and certain people of power bought slots or invented places for themselves, and of course there were cameras in position, feeding views to every apartment and tavern and even the hospital beds. The energy demands were enormous. The old stardrive was laboring at 90 percent capacity. But if anything should go wrong, some joked, at least they had an expert on hand who could fix the machine, probably with his eyes closed.

Yet despite fame and warm feelings, Jon sensed the doubts that came with the crowd. They were staring at a creature that had left their ranks long ago. Every face resembled his face, except he was something else. He was a machine. He was a monster and a traitor to the most suspicious ones, and Pamir was ready to admit as much to anyone who wanted to start a brawl.

"I'm not like you," he began. "And anymore, after everything, I don't know who I resemble."

The story they wanted was spectacular, and, like most good stories, it was already known to everyone, here and throughout the Great Ship. So that's where Pamir began: He was a lump of tissue and fear inside a lifesuit, and following preprogrammed instructions, the Kajjas ship let loose with its one old engine. But unlike every other firing, there were no millisecond breaks between each sliver of fuel. Tons and tons of hyperfiber passed through the collars and out the magic wine bottle, and a blaze that rivaled the Great Ship's engines slowed their descent, twisting their motion into a course that could be adjusted only in the tiniest, most fractional ways.

The storyteller remembered nothing after the first damning jerk of the engine.

Encased inside hyperfiber, his body turned to mush and then split apart, dividing according to density. Teeth settled at the bottom of the suit, pulverized bits of bone

laid over them. And floating on top was the water that began inside his body, inside his cells—a dirty brew distinctly unlike the stuff that ran out of pipes and that fell as rain, denser and stranger in a realm where gravity was thousands of times stronger than was right.

In the end, good.wise captains were debating what to do about this unwelcomed piece of museum trash. Do they shoot it apart to be careful, or shoot it apart as a warning to whoever tried to repeat this maneuver? But Pamir had been very careful about his aim, and once his destination was assured, the argument ended. A few moments later, Precious Mental rode down on the last gasps of its engine, entering the centermost nozzle of the Ship's own rockets.

Each nozzle was impervious to these whiffs of heat and raw light.

Three kilometers off target, the old ship touched down and split wide, the debris field larger than the floor of this old cavern.

Jon was pulled from the rubble, his lifesuit cracked but intact.

Four more suits were found, but only two other survivors.

"My friend Tailor died," he told his audience. "And my very good friend G'lene was killed too. Their minds had recently undergone surgery. The nanofractures spread and grew, and everything shattered. Bioceramic is a wonderful substance, right up until it breaks. And nothing brings anyone back from that kind of damage."

His sadness was theirs. His grief and anguish made every face hurt. At that point, Pamir could have ended this chore. His plan was to walk out of this place and invent his death, using a stand-in body and fake damage from the crash landing. But the earnest smart watchful faces didn't want him to leave, and he didn't want solitude just now.

He was standing in the middle of the red granite round.

At the edge of the crowd was one young woman. She was Jon's relative. This many generations after his leaving, everybody was part of his family. And in her hand was a teapot that someone had remembered. Careful hands had taken it off its shelf and cleaned it up, and there was even cold tea inside, ready to be given in some little ceremony devised for this very peculiar occasion.

Pamir smelled the tea, and at that moment, for endless good reasons, he confessed.

No, he didn't name himself. Nor did he mention that his namesake died more than ten centuries ago. What he told them was the story that he had revealed only in pieces to the investigators and the overseeing captains. He told about Tailor's quest for enlightenment, and he described a fleet of exploratory ships racing out to neighboring galaxies. With minimal detail and words, he explained how the Kajjas was afraid of invisible sovereigns, and Jon admitted that he was temporarily sick with that fear, but then at the end, waiting for the engine to fire once more, he decided that there was no ground or heart to any of these wild speculations.

It took weeks for his pulverized body to be made into something living, and then into a man's shape, and finally into his old body.

After months of care, he was finally awake again. He was eating again. His attendant was a harum-scarum. The alien told him that two of his companions were sharing a room nearby, each a little farther in the healing than he was, and when the human asked about the other two, a grave sound emerged from the attendant's eat-

ing mouth. Then she explained that both had died instantly, and they had felt nothing, which was a sorry way to die, oblivious to the moment.

But his two wonderful friends had not died, of course.

In that bed, restrained by lousy health and the watchful eyes of doctors, Pamir could suddenly see everything clearly. G'lene's own words came back to him. Why would the galaxy have a thousand stardrives but only one basic mind? And how could the thousand or ten thousand original civilizations all vanish together in the remote past? Why can't there be forces at work and different minds at work, hidden in myriad ways?

Pamir paused.

Where-Peace-Rains listened to his silence.

He coughed weakly into a shaking fist, and the girl, urged by others, started forward with her offering of cold water infused with ordinary tea.

He stopped her.

"It's like this," he said. "If there are hidden captains, and in one measure or another they are steering our galaxy, then how can I deny the possibility—the distinct probability—that they would be naturally curious about some one hundred million year-old vessel that was getting washed up on our shore? Tailor believed that this mission was his, but that doesn't make it so. Maybe it never was. And in the end, our masters got exactly what they wanted, which was a viable sample of novel technologies, and with G'lene, a creature whom they could talk to and perhaps learn from."

When did the man begin to cry?

Jon wasn't certain, but he was definitely crying now.

Encouragement was offered, and once again, the girl and the tea came forward. She had a nice smile. He had seen that same smile before, more than forty millennia ago. He was crying and then he had stopped crying, wiping his face dry with a sleeve, and he said to the girl, "Give me the pot. I want to hold it, like old times."

She was happy to relinquish the chore.

But as she pulled back, she saw what was in her hands now. She felt the glass threads squirming of their own volition. Laughing nervously, she said, "What are these things?"

He offered his best guess.

Everybody wanted to see, including the cameras.

But he waved the others off, and then just to her, he muttered, "They could be a danger. G'lene had one inside her, and it made her halfway crazy. Tailor found several hundred more before we crashed, but on my own, on the sly, I found a few. I never told anybody, and that's five of them. You keep them. Put them somewhere safe, and give them to your next thousand generations. Please."

The girl nodded solemnly, putting the threads into her best pocket.

"What if?" he said.

"What if what, Jon?" she asked.

He sighed and nodded

"What if this brain of mine is designed to be stupid?" he asked. "What if the obvious and important can't be seen by me, or by anyone else?"

A sorrowful face made her prettier. She wasn't yet twenty, which was nothing. It was barely even born by the man's count. But after struggling for something to say—something kind or at least comforting—she touched the man with her cool little hand. "Maybe you're right," she said. "But when you talk about that poor friend of yours, the girl and her suffering . . . I wonder if perhaps there is no treachery, no conspiracy. Maybe it is a kindness, making all of you a little foolish.

"Letting you forget the awful truth about the universe.

"Isn't that what you do with children, lending them the peace that lets them sleep through their nights. . . . ?" ❍

NEXT ISSUE

JULY ISSUE

The July 2013 issue swings from the crack of the bat to the cracks in the Universe as **Rick Wilber** returns with a new story about his Universe-hopping, ivy-league-educated baseball player, Moe Berg. Once again, physics and this boy of summer are all that stands between us and an unhappy outcome to World War II. Don't miss it!

ALSO IN JULY

Rudy Rucker, in collaboration with our very own book reviewer **Paul Di Filippo,** brings us a riveting tale of gonzo transrealism—will Cammi and her boyfriend Bengt escape the clutches of the "Yubba Vines"? New York *Times* bestselling author **Carrie Vaughn** reveals why the hardest skill for a negotiator to master is "The Art of Homecoming"; in his hard-hitting new novelette, **Gray Rinehart** asks "What Is a Warrior Without His Wounds"; **Ted Kosmatka** takes a haunting look at genetics and the results of a virulent epidemic in "Haplotype 1402"; **Ian Watson's** "Blair's War" speculates about an alternate timeline where a well-known rebellion does not receive the same attention that it did in our corner of the multiverse; and **David J. Schwartz** marks his first appearance in *Asimov's* with a traumatic depiction of life after the alien invasion and suggests that it might not be wise to trust "Today's Friends."

OUR EXCITING FEATURES

Robert Silverberg's Reflections on the Cargo Cult, "John Frum, He Come," contemplates the effect an outside civilization can have on an insular society; **Paul Di Filippo's** On Books fills us in on graphic novels, short story collections, and Ray Bradbury's film script for *Little Nemo in Slumberland;* plus we'll have an array of poetry and other features you're sure to enjoy. Look for our July issue on sale at newsstands on May 7, 2013. Or subscribe to *Asimov's*—in paper format or in downloadable varieties—by visiting us online at *www.asimovs.com.* We're also available individually or by subscription on *Amazon.com's* Kindle and Kindle Fire, *BarnesandNoble.com's* Nook, *ebookstore.sony.com's* eReader, *Zinio.com,* and from *magzter.com/magazines!*

COMING SOON

new stories by **Kristine Kathryn Rusch, Gwendolyn Clare, Igor Teper, Benjamin Crowell, Jack Skillingstead, Gregory Norman Bossert, Leah Thomas, Gregory Frost, Ian Creasey, Jim Sallis, Jay O'Connell, Dominica Phetteplace, Ian R. MacLeod, Sheila Finch, Alan DeNiro, Tom Purdom,** and many others!

ON BOOKS

Peter Heck

THE CONSTANTINE AFFLICTION
By T. Aaron Payton
Night Shade, $26.99
ISBN: 978-1-59780-400-4

Payton combines steampunk and classic mystery in this Victorian London whodunit. Along the way, he pays homage to a number of his predecessors, including Mary Shelley, A. Conan Doyle, and Virginia Woolf.

The novel takes its name from a mysterious plague that has hit England, killing a fair proportion of its victims; those who survive are somehow converted to the opposite sex. It is generally accepted that the affliction is a venereal disease, and its effects on a society like Victorian England, where sex roles and sexual morality are far more rigid than in our day, are considerable. In particular, one of its victims is Prince Albert, who has been imprisoned in disgrace. Another effect has been the emergence of clockwork brothels, where men can partake in sex for pay without risking the affliction.

It has two major protagonists: Lord Pembroke Halliday (better known as Pimm), a moderately dissolute minor noble who, as we learn in the beginning pages, has married Freddy, one of his old school friends who fell victim to the affliction. He has also established a reputation as an amateur sleuth, having assisted the police in solving a number of crimes. In the first chapters, he is visited by a notorious criminal, Abel Value, who wants him to investigate a series of murders—prostitutes working for Value. Pimm is at first reluctant, but Value persuades him to take the case by threatening to reveal Freddy's true nature.

His opposite number is Ellie Slye, a young journalist who specializes in investigating sensational stories. As the novel begins, she has determined to investigate the clockwork brothels, disguised as a man—in spite of her editor's protests that the subject is unsuitable for a woman. Her disguise gets her in the front door, and into a room with one of the automata. After a few minutes, she realizes she needs more material, and goes to see if she can find one of the brochures with pictures of the "women" that the madam had shown her. Instead, she finds a well-known scientist, Sir Bertram Oswald, in the act of repairing one of the automata. He makes an unmistakable threat, she flees, and the adventure is on.

Meanwhile, Pimm has been introduced to "Mr. Adams," who as astute readers will have recognized, is actually Frankenstein's monster, now a scientist in his own right. The monster tells Pimm he can recover the mind of a recently killed corpse, and Pimm decides to take him up on the offer—assuming they can't catch the killer before that becomes necessary. And this is just the setup: Payton brings in complications upon complications, building up a remarkable plot that carries the reader along in open-mouthed amazement.

But Payton isn't just a compelling plotter; Pimm and Ellie are a thoroughly likeable team, and they clearly have the potential for lots of future adventures. There are several minor characters who show potential as continuing extras, as well. Payton also has a nice turn of phrase; several of the chapter titles show a dry wit that fits well with the steampunk atmosphere. And he has a good grasp of the period, not only its history but also its popular fiction and lore—as evidenced by numerous allusions, echoes, and borrowings. There's an awful lot to like here.

So it's somewhat disappointing to

have to say that the ending seems to be straining for effect. The problem isn't that Payton doesn't make it work; it's that the world of the novel, already radically altered by the affliction, is even more altered by the events of the last couple of chapters. It's as if he set out to write one kind of book and let the plot run away from him to the extent it almost changes genre from steampunk to Lovecraftian weird fiction.

Still, I'm going to be waiting with considerable interest for Payton's next book. If he can maintain the level he's reached in this one, it'll be well worth the wait.

THE LOST WORLD
By A. Conan Doyle
Piggy Toes Press $5.95 (hc)
ISBN: 1-40370-985-8

Doyle is of course best known for the Sherlock Holmes mysteries, but he was, like many of his contemporaries, willing to take a shot at anything that promised a payday. *The Lost World*, first published in 1912, is perhaps his best-known "science fiction" novel—the phrase hadn't been invented yet, of course, but it certainly fits this adventure, which in many ways prefigures Michael Crichton's *Jurassic Park*. It also serves as an interesting comparison to Payton's *Constantine Affliction*, which shows Doyle's influence in several details—including a character clearly modeled on Professor Challenger, the iconic figure at the center of this novel and several sequels.

The book begins with the narrator, Edward Malone, a young journalist, deciding to impress his fickle fiancée by taking on an assignment that shows his adventurous spirit and courage. His editor points him at Challenger, a maverick naturalist who has made outrageous claims about his discoveries in South America, claims that the scientific establishment has dismissed as impossible. Malone goes to visit the scientist, and after a contentious interview, ends up believing him.

After some additional brouhaha, an expedition is mounted. Malone and Challenger are joined by two others: Professor Summerlee, an establishment scientist only slightly less eccentric than Challenger himself, and Lord John Roxton, a well-known hunter/adventurer with considerable experience of South America, and a willingness to take chances. Their goal is an isolated plateau where Challenger claims to have found living dinosaurs. Needless to say, after several adventures, they reach the plateau, find proof that Challenger was right, and undergo still more adventures, culminating in a return to London to present their findings to the skeptical world.

The book shows signs of its age, unsurprisingly. Doyle was a man of his time, and the novel's attitudes toward women and non-English peoples are likely to leave a modern era reader shaking her head. The science is sometimes badly dated, if not outright wrong to begin with; the dinosaurs especially are relics of a time before their physiology was better understood. And some readers will be impatient with the pacing, the holes in the plot, and the languorous prose style. Still, this is the real thing: Doyle's strengths as a storyteller are enough to carry us along, and there's a good deal of pleasure to be had for those who let themselves be enticed into the mood.

NOTE: This novel is available in a number of editions; the novel I read happens to be one I found in a chain bookstore. According to a note on the copyright page, it has been "lightly updated and annotated," although not to the extent that any changes jumped out at me; the annotations are almost entirely definitions of words that may be unfamiliar to younger readers.

WHISPERS UNDERGROUND
By Ben Aaronovitch
Del Rey, $7.99 (mm)
ISBN: 978-0-345-52461-4

Here's a third in Aaronovitch's series of police procedurals, featuring occult detective Peter Grant. Aaronovitch, whose previous credits include work as a screenwriter for *Doctor Who*, has effectively

combined humor, magic, and London lore in equal measures—in this case, modern London, although there's plenty of history underlying the events of the story.

Grant's latest case begins when he's called to assist with a murder investigation, a young man found stabbed on the tracks of an underground station—one of the busiest in the system. Worse yet, it's the peak of the Christmas shopping season, and one of the heaviest snows in years has decided to fall on London—resulting in frustration and undue haste for everyone involved. The pressure is on the police to solve the crime quickly, especially after it turns out the victim is an American—worse yet, the son of a U.S. Senator. But the victim was an art student, with a somewhat disorderly lifestyle and an even more disorderly roommate, which involves Grant almost instantly in a wide-ranging investigation that touches on the art world. And the murder weapon—a shard of pottery—is unusual enough to merit investigation in its own right, especially since Grant's magical sense tells him it's the product of some powerful magic-making.

The investigation drags out, with Grant visiting galleries, trailing a black market grocery supplier, and eventually discovering a hidden set of galleries underneath the underground—which has its own population of previously unsuspected Londoners. The key to the murder turns out to lie in the history of the city. This turn of events fits nicely with the author's obvious love of the history and topography of London, which this novel serves up in generous portions.

Perhaps the one complaint I have about this installment in the series is the reduced role of Grant's boss, Detective Inspector Nightingale, an older detective/wizard who has been a large part of the charm of the earlier volumes. On the other hand, Lesley, Grant's girlfriend until a spell gone wrong disfigured her, has begun to take a more active role in the plot again. Aaronovitch is clearly working on a long-range story, and that promises more in this excellent series.

PARADOX: The Nine Greatest Enigmas in Physics
By Jim Al-Khalili
Broadway, $15.00 (tp)
ISBN: 978-0-307-98879-5

A British physicist looks at some of the enigmatic propositions created by his colleagues over the ages.

Al-Khalili, who teaches quantum physics at the University of Surrey, begins with the well-known stumper involving a game show host—usually Monty Hall—who confronts the contestant with three doors, one of which conceals a prize. After the contestant chooses one, the host then opens another door that proves not to be the winner, and asks the contestant if she would like to change her choice. In defiance of common sense, it is advantageous to do so; Al-Khalili summarizes the probabilities behind the puzzle, noting the important provision that the host has to know which door is the actual winner.

He then turns to the logical puzzles invented by the Greek philosopher Zeno, who seemingly proved that motion is impossible. The most famous is "Achilles and the Tortoise," in which the mythical hero gives the reptile a head start that he then finds he can never make up, since in the time he makes up the original head start, the tortoise has moved ahead. The demonstration, while contrary to all practical experience, seemed annoyingly irrefutable until the development of mathematical tools, such as calculus, for describing change over time.

Olbers' paradox, on the other hand, revealed deep truths about the universe by asking why, if there are an infinite number of stars, the sky is dark at night. Various answers were posed over the ages; for example, interstellar dust that blocks light, which however would be heated by the stars until it too glowed. The modern answer depends on the perception that light has a finite speed and the universe a definite age.

Maxwell's demon, an imaginary creature that can control individual molecules to overthrow entropy, raises simi-

larly deep issues of fundamental physics. Granting the premise that such a being could exist, and that it can control the molecules without any expenditure of energy (which would reestablish the primacy of entropy), the creation of a perpetual motion machine becomes possible. How to explain away this problem?

Possibly the most familiar paradox of quantum theory—if only to watchers of "The Big Bang Theory"—is Schrödinger's Cat, whose life or death depends on whether a radioactive atom decays in a given stretch of time. Al-Khalili appropriately notes that nobody really understands quantum theory, other than using its mathematical formulations to arrive at useful predictions about the behavior of matter on the subatomic scale. The cat paradox was an effort by Schrödinger—a leading physicist in his own right—to look at whether events on the atomic scale, which are subject to the laws of quantum physics, can be made to affect the scale of everyday experience. You may or may not agree with Al-Khalili's explanation of the paradox, but it will certainly get you thinking about the science involved.

Fermi's Paradox is another that raises questions about the larger universe: if technologically advanced civilizations are common in the universe, why haven't they visited us? Al-Khalili gives detailed answers to each of these problems, plus several that grow out of Einstein's theory of relativity and the possibility of time travel. The latter, notably the famous paradox of the time traveler to the past who kills his own direct ancestor, has of course been the meat of numerous SF stories.

The book concludes with a list of unsolved problems of science—not all of them paradoxes—and a look at the recent question of whether neutrinos have been found to travel faster than light, a possibility that raises rich issues touching the very foundations of science.

This one's a good read for those who like to stretch their minds around a tough problem; thus I've avoided giving away the answers. It's also an entertaining look into the history of science, to boot. ❍

SF Conventional Calendar

Here's the full Memorial Day lineup. I'll be at BaltiCon then. Also good then: Oasis, BayCon, ConQuest and MisCon. Till then, consider RavenCon (where I'll be), KeyCon, EerieCon and ConStellation. Plan now for social weekends with your favorite SF authors, editors, artists, and fellow fans. For an explanation of con(vention)s, a sample of SF folksongs, and info on fanzines and clubs, send me an SASE (self-addressed, stamped #10 [business] envelope) at 10 Hill #22-L, Newark NJ 07102. The hot line is (973) 242-5999. If a machine answers (with a list of the week's cons), leave a message and I'll call back on my nickel. When writing cons, send an SASE. For free listings, tell me of your con five months out. Look for me at cons behind the Filthy Pierre badge, playing a musical keyboard. —Erwin S. Strauss

APRIL 2013

5-7—**RavenCon.** For info, write: **Box 36420, Richmond VA 23235.** Or phone: **(973) 242-5999** (10 am to 10 pm, not collect). **(Web) ravencon.com. (E-mail) info@ravencon.com.** Con will be held in: Richmond VA (if city omitted, same as in address) at the Holiday Inn Select Koger Center. Guests will include: Authors K. J. Anderson, R. Moesta; fan C. Brindle. Northeast fans: come try a Southern con.

12-14—**Windy City Pulp & Paper Con. windycitypulpandpaper.com.** Lombard IL. "90 Years of SF/fantasy magazines."

19-21—**ConStellation. Box 84324, Lincoln NE 68501. constellationne.net.** Lincoln NE. D. Nigh of Anime Nebraskon. "A New Hope."

19-21—**FILKONtario, 145 Rice Ave. #98, Hamilton ON L9C 6R3. filkontario.ca.** Mississauga (Toronto) ON. SF/fantasy folksinging.

26-28—**EerieCon, c/o Box 412, Buffalo NY 14226. eeriecon.org.** Grand Island (Niagara Falls) NY. Jack McDevitt, Carl Fredrick.

26-28—**Divine Decadence. thetwistedworld.com.** Doubletree, Somerset NJ. "A multi-cultural, multi-genre event." 18+ only, please.

MAY 2013

3-5—**Malice Domestic, Box 8007, Gaithersburg MD 20898. malicedomestic.org.** Hyatt, Bethesda MD (near DC). L. King. Mysteries.

9-12—**ÅCon. acon6.wordpress.com.** Hotel Adlon, Mariehamn, åland I., Finland. Tricia Sullivan. "Pronounced 'Awe-Con:' truly åsome."

9-13—**MistiCon. misti-con.org.** Margate Hotel, Laconia NH. "A Harry Potter Convention Like No Other." Not officially sanctioned.

10-12—**Faerie Festival. marylandfaeriefestival.org. Camp** Ramblewood, Darlington MD. Outdoor event. Pony rides, May Pole, etc.

17-19—**KeyCon, Box 3178, Winnipeg MB R3C 4E6. keycon.org.** Richard Hatch, L. Moyer. Celebrating Dr. Who and H. P. Lovecraft.

17-19—**Spectrum. spectrumfantasticartlive.com.** Bartle Hall, Kansas City MO. M. Whelan, C. Vess, McPherson, Whitlatch, de Sève.

17-20—**CostumeCon, 1218 Florence Ave., Colorado Springs CO 80905. cc31denver.com.** Aurora CO. Masqueraders' annual con.

18—**Book Festival. gaithersburgbookfestival.org.** City Hall, Gaithersburg MD (near DC). "Books, Writers & the Written Word." Free.

24-26—**Oasis, Box 323, Goldenrod FL 32733. oasfis.org.** Orlando FL. Seanan McGuire. Cthulhu Chili Cookoff, NASA stuff.

24-26—**ConQuest, Box 36212, Kansas City MO 64171. conquestkc.org.** Holiday Inn CoCo Key Water Park. Rothfuss, Garcia, Wrede.

24-26—**Anime Boston. animeboston.com.** Hynes Convention Center and Sheraton Hotel, Boston MA. Note new weekend (2013 only).

24-26—**Anime North. animenorth.com.** Congress Centre, Doubletree, Sheraton, Crowne Plaza, all near Toronto airport (YYZ).

24-27—**BaltiCon, Box 686, Baltimore MD 21203. balticon.org.** Marriot, Hunt Valley MD. Joe Haldeman, N. Okorafor, R. Sternbach.

24-27—**BayCon, Box 62108, Sunnyvale CA 94088. baycon.org.** Hyatt, Santa Clara CA. L. M. Bujold, V. Belmont, C. & J. O'Halloran.

24-27—**MisCon, Box 7721, Missoula MT 59807. (406) 544-7083. miscon.org.** Ruby's Inn. Jim and S. K. Butcher. "Family-friendly."

24-27—**WisCon, Box 1624, Madison WI 53701. (608) 233-8850. wiscon.info.** Concourse Hotel. Walton, Slonczewski. Feminism & SF.

31-June 1—**ConSarnit, Box 8036, Minneapolis MN 55408. (612) 721-5959. con-sarnit@comcast.net. St.** Paul MN. Western fiction.

31-June 2—**ConCarolinas, Box 26336, Charlotte NC 28221. concarolinas.org.** Charlotte NC. Tim Zahn, W. Baur, A. Rosenberg.

JUNE 2013

21-23—**ConTerpoint, c/o 5911 Veranda Dr., Springfield VA 22152. conterpoint.org.** Gaithersburg MD. SF/fantasy folksinging.

28-Sep. 30—**SoonerCon, 1848 Hemmingway Dr., Edmond OK 73013. (405) 310-9255. soonercon.com.** Midwest City, OK. Cherryh.

28-Sep. 30—**DucKon, Box 4843, Wheaton IL 60189. duckon.org.** Westin Chicago North Shore, Wheeling IL.

28-Sep. 30—**ConTemporal. contemporal.org.** North Raleigh Hilton, Raleigh NC. Pirate/western/SF mashup, looks like

28-Sep. 30—**BaCon. ba-con.org.** Columbus OH. "Weekend-long Convention Celebrating Geeks, Games, Tech and . . . BACON!!!"

AUGUST 2014

29-Sep. 2—**Lone Star Con 3, Box 27277, Austin TX 78755. lonestarcon3.org.** San Antonio TX. The World SF Convention. $160+.

AUGUST 2013

14-18—**LonCon 3, 379 Myrtle Rd., Sheffield S2 3HQ, UK. loncon3.org. Docklands,** London UK. The WorldCon. ú95/A,C,US$160.