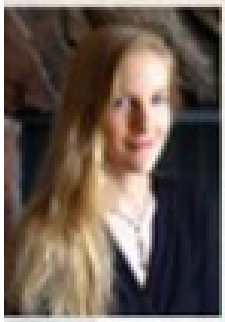
VYLAR KAFTAN
STAR-CROSSED LOVERS

MIKE BROTHERTON
LIGHTSPEED: THE ULTIMATE SPEED LIMIT



CARRIE VAUGHN
ON SUSTAINABLE FUTURES

JUNE 2010

www.lightspeedmagazine.com

EDITED BY JOHN JOSEPH ADAMS

LIGHTSPEED

Lightspeed Magazine

Issue 1, June 2010

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Cover Art by Vitaly S. Alexius.
Ebook design by Neil Clarke
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Editorial, June 2010

John Joseph Adams

Why a new science fiction magazine, and why now?

Short fiction has always been the heart of the science fiction field, where new writers are discovered and established pros can take risks and experiment with fiction that takes them outside their comfort zone. And while there is a lot of short genre fiction being published online, the number of fantasy and horror stories far surpass the number of science fiction stories.

We've set out to rectify that.

And so what is *Lightspeed*? *Lightspeed* is a new online magazine (www.lightspeedmagazine.com) that will focus exclusively on science fiction. Here you can expect to see all types of science fiction, from near-future, sociological soft sf, to far-future, star-spanning hard sf, and anything and everything in between. No subject will be considered off-limits, and we encourage our writers to take chances with their fiction and push the envelope. We will bring you a mix of originals and reprints, and will be featuring a variety of authors—from the bestsellers and award-winners you already know to the best new voices you haven't heard of yet. So when you read *Lightspeed*,

my hope is that you'll see where science fiction comes from, where it is now, and where it's going.

But *Lightspeed* is *also* a nonfiction magazine. The fiction and nonfiction departments of *Lightspeed* will have a kind of symbiotic relationship. For example, this month we have a story about relativistic travel, so we asked sf author and expert astronomer Mike Brotherton to tell us about the science behind that familiar sf trope. We will also feature brief author spotlights in which the authors talk a bit about the stories behind their stories. For instance, included in this sampler is a spotlight on author Carrie Vaughn, in which she tells us a bit about building sustainable futures and population control.

There's more to *Lightspeed* than that, too. *Lightspeed* is also a podcast, which will feature one or two free stories each month in audio format, produced by Grammy and Audie Award-winning narrator and producer Stefan Rudnicki. And *Lightspeed* is an annual anthology series; every year, we will gather up all of the fiction published in the magazine and publish it in a trade book edition you'll be able to find in your favorite bookstore. And it's also a monthly ebook magazine, so if you'd rather read it every month on your Kindle or Nook or Sony Reader, that option is available, or if you'd rather just download it onto your iPhone or iPad, well, there's an app for that.

Our debut issue features four all-new, never-before-published stories: from newcomer Vylar Kaftan, we have an interstellar love story dealing with the perils of communication and time-dilation; from veteran, award-winning author Jack McDevitt, we have a tale about Earth's moon and the mysteries it might still possess; from David Barr Kirtley, an adventure of a young catman who must face the last of the dogmen and something else entirely unexpected; and from bestselling author Carrie Vaughn, a cautionary tale of the near future that shows some of the extremes we might be pushed to if we don't start implementing now the seeds for a sustainable future. In future issues, we'll be bringing you stories from the likes of Carol Emshwiller, Adam-Troy Castro, Alice Sola Kim, Genevieve Valentine, and many more.

Thanks so much for taking the time to look through this sampler from *Lightspeed Magazine*. I hope you enjoy the content included here, and will visit our website at www.lightspeedmagazine.com to see what else we have in store.

Fiction editor **John Joseph Adams** is the bestselling editor of many anthologies, such as *Wastelands, The Living Dead* (a World Fantasy Award finalist)*, The Living Dead 2, By Blood We Live, Federations*, and *The Improbable Adventures of Sherlock Holmes*. Barnes & Noble.com named

him “the reigning king of the anthology world,” and his books have been named to numerous best of the year lists. Prior to taking on the role of fiction editor of *Lightspeed*, John worked for nearly nine years in the editorial department of *The Magazine of Fantasy & Science Fiction*. In addition to his editorial work, John is also the co-host of *The Geek’s Guide to the Galaxy* podcast.

I’m Alive, I Love You, I’ll See You in Reno

Vylar Kaftan

We have a history of missed connections, you and I. Years ago, when you called goodbye from the shuttle launch, my flight was landing in Zurich. I’d changed planes, been re-routed from Frankfurt. That’s why you got my voicemail. I’d have answered if I could, and would’ve wished you luck, even if you wanted a life without me. I never managed to see Europa, like you did—just Europe, where I met my first husband. The one I wished was you.

When I heard your message, I was glad you were happy—yes, I’ve always wanted you happy, even during our divorce. I thought of you traveling to Alpha Centauri, time dilating between us like a portal. I envisioned it like a slow-motion movie. You’d be back in forty years. I’d be sixty-four, and you’d only be half my age.

I saved your message for weeks, until I accidentally deleted it. It felt symbolic. We’d be happier apart, I thought to myself. But “apart” was always the way we connected. The word defines us relative to each other: one cannot be apart without the other.

Einstein spent ten years thinking about a mirror that troubled him. If he traveled at the speed of light and looked into a hand-held mirror, would he see his reflection, or not? Setting aside vampirism, or poorly-made glass that cracks at high speeds, the answer is that he must. Relativity means that you can't tell how fast you're going unless you have a point of reference.

We've been together for as long as I can remember. Just kids, running around the Sacramento suburbs. I liked you because you'd play with a girl. I ran faster, fought harder, and hit harder than any boy—and I knew it. Remember that time we played Capture the Flag and you couldn't find mine? I shoved it in a drainpipe. You could still see its corner. That counts.

I was the girl next door—safe, reliable, undesirable. When I was thirteen, and you were sixteen—I was crazy-in-love with you. But you were blind. "Best friends forever," you told me.

I thought that you'd never see me as a woman your own age. I had to hear about all those girls you dated. Remember that awful redhead who stole cigarettes from her grandmother? I bet she got lung cancer.

"Best friends," I told you too. We were together, yet

completely apart.

I used to wonder how to make you see me. Should I tell you what I felt? Stay silent and hope you'd see?

But you made the choice for me: you left for the military. So I joined the Peace Corps—the polar opposite of what you did. This drew us together again like magnets. It's why we ended up living together in San Francisco. Roommates and lovers.

I didn't know this then, of course—all of this I figured out during the journey to Alpha Centauri.

Two magnets, apart, continue to exert force on each other. Their power lies in the space between.

Einstein says that nothing moves at the speed of light, because the faster things get the heavier they become.

It's true that as I accelerated, everything had more weight: two decades of child-rearing, juggling flute practice with my photography career, balancing a marriage's weight against single independence. But weight is relative, and what's heavy on Earth is light on the Moon and monstrous on Jupiter. Yet the mass remains the same. The more things change, the more they stay the same.

When I think about the changes in my parents' lives

—and how much more I've already seen, in fewer years —I think of Moore's Law.

My world is doubling every year. Somewhere in old Italy, Galileo is searching the skies with his telescope, wondering why his life doesn't feel as full as it should. It's because I have it all, four centuries later—his life, and millions of others.

The doubling sequence surprises people who've never thought it through.

Reno, you told me once. Reno, Nevada. When we lived in San Francisco, in that tiny apartment above a Mission District taqueria. Do you remember that conversation? We were sitting on that awful brown loveseat you'd rescued from a dumpster. You were heating dinner in the microwave, and the room smelled like curry. The fog rolled through the city and we both wore old sweaters. I didn't yet know the relevance of Reno.

"If we're separated," you said.

"Why Reno?"

"It's inland. When the big quake hits the Bay, Reno's safe. Or if there's a missile strike or something. No one strikes Reno."

"You're paranoid," I said.

You shrugged. “I’m aware.”

We’d been living together for six months. We made good roommates—both of us loud, and neither of us tidy. You took out the trash, and I sorted the mail; we both did dishes when needed, and not more often. I didn’t mind your waterskis propped against the fridge, or your physics books scattered on the pizza-stained carpet. You didn’t mind the way I always slammed doors and drawers, no matter how quiet I tried to be. It was a good arrangement. But not what I wanted.

I knew you loved me, of course. It was written in your eyes when you looked at me, a physics problem with no clear answer. If an irresistible force meets an immovable object, what happens then?

They meet. That’s all we know. Relative to each other, they are in contact. From within the object or the force, there is no way to tell if you’re in motion.

For a while, I was Charon to your Pluto, keeping the same faces to each other as we circled around endlessly.

And through all of this you still thought of me as a moon, and yourself as a planet. But it’s not so easy as that. Our orbit is erratic, an ellipse among circles, an offbeat pattern in a regular solar system. Do you see the

sun, far in the distance? Even when our orbit sweeps close to the sun, it takes four hours for its light to reach us. It's a centerpoint that keeps us captured. We circle it so we don't fly off into space. It's a point of reference, and it proves to us that we're always in motion.

We keep moving, along with everything else. Even if we can't see where or how.

By the time we got together, it was more for convenience than anything else.

It was what we did: have sex, fight, break up, meet someone else. And when the new relationship burned out, like a magnesium ribbon flared and gone, we'd find each other again.

The best thing between us was the sex. We fought—oh, yes, we fought—and then had make-up sex. Hard, hot, and heavy. You'd drive into me just before I was ready—*making* me ready—then finish just after me, both of us collapsed together, trapped in each other's gravity wells.

When you slept, I'd stroke your rough, calloused fingers and the Superglued cuts in your feet from waterskiiing. I'd think about our next fight, and my body tingled with wanting you.

“I’ll marry you,” you said once, “if you can’t find anyone else.”

I laughed because I thought you were kidding. You couldn’t even propose right.

It was the last push on a decaying orbit. I was not your fallback option. From the time you said that, our path downwards was guaranteed, calculable. We fought about the phone bill, Chinese leftovers, a broken plate that didn’t get swept up. When you told me about your new job repairing relativity shuttles, I was secretly glad. Your work would take you to Reno. Out of my path.

I was completely over you, over us—or at least I was then, when you left. I was on the rebound, ready for someone new.

Gunther, the German engineer, was everything you weren’t. So I married him. Once you knew his first few digits, they repeated in a predictable pattern. He was a wonderful father for our two sons. I thought of you sometimes as I raised my boys, perfect squares in their rational world. I never forgot you.

Thanks to genetics, we expected Gunther’s heart problems before they happened. He lasted twenty-five years with me, then slipped away. My kids were on their

own by then, and I had time and money. I was free to choose irrationally, and so I took up waterskiing.

When you came back, I was surprised you came to my door—and even more surprised that you wanted me. I didn't think you'd stay with me—a hot young thirty-something, with this dried-out old lady. You kept saying you liked my maturity, you found me sexy. But it was different for me. I saw you like my kids. More like a son than a mate.

If I can't find anyone else.

That's a terrible proposal. It makes a woman feel like you're just putting up with her. I *did* find someone else. I had twenty-five happy years with him, while you were living through just a few months. I accumulated the weight of years—of a woman building decades with her partner, of a mother renewing herself by raising her children. All of this weight I gained—not to mention my new-found belly.

But I married you anyway. You wanted to be with me, you said. All your recent thoughts told you so. My age didn't matter—you still wanted *me*, the woman you'd loved all this time, you said.

As for me, now I had what I'd always wanted—but it wasn't what I thought it would be.

One night after we made love on the beach, I watched

the stars. They shone with light from billions of years ago. The stars offered us time apart. That's why I sold everything I had—to see what you'd seen.

The new relativity shuttles were even faster than yours had been, and now they were open to tourists. It had been forty years here, after all. I'm sorry I didn't leave a note.

I figured it was all relative.

Gunther was always patient with me. Slow. He'd wait for me to orgasm, like he was holding a car door open for me, and then he'd finish quickly and silently. Sometimes I pretended he was you to make things more exciting. Once I pretended he was Albert Einstein. It was the accent, I swear.

With you, the electromagnetic pull bonded us together. We could ionize briefly, visiting other molecules and forming weak bonds—but we always came back together, circling each other endlessly.

An electron and a proton. You and me.

For a long time I thought I was the electron, spinning wild patterns around you. Then I realized the electron was you, because I always knew either where you were or how fast you were going, but never both.

So I left you and went to the stars, like you'd done. Alpha Centauri! The brilliant star burned into my mind. It was a vacation for me, a short time away from Earth. For the first time, I saw the lights up close. The luxury ship went 99% the speed of light. Much faster than you had gone, faster than before.

I figured you'd be dead once I got back. It simplified things. Stopped the fighting. You'd be ashes, like you'd always wanted. I wouldn't even have to see your body. I thought about it, as I looked through the viewport, and realized that I was still thinking of you. That was when I understood that no matter how far I went or how fast, I still responded to you in every way.

Every action produces an equal and opposite reaction. Our bond pulls me back, and I love you.

Reasons why I have loved you:

1. Yes.
2. Yes, again.
3. Because you're you.

None of these are love, perhaps, but they're forces of physics. And if love isn't subject to physics, then it has no grounding in our universe. I can't believe that's true.

Just when I got back, you left again, like one metal ball clacking another —the opposite side of our kinetic motion toy. You were off for the Andromeda Galaxy, moving at 99.38% the speed of light.

Simpler, indeed. I was sixty-eight. You were gone.

It was time to move on.

The world had changed since I left. The human lifespan was up to 150 years. I hadn't imagined this possibility. I had decades left for music, art, whatever I dreamed of. My health was good—they killed a malignant breast tumor and grew me a new liver, twice—but otherwise, my body kept working for years.

But my nervous system paralysis—that was incurable. I opted for cryogenesis, hoping they'd find a cure. If they did, years from now, they'd revive me and heal me.

It was exciting. I wondered if it'd be hard to fall asleep, like Christmas Eve—not knowing what Christmas Day would bring. But of course the freezing was instant. As I lay down in the cryochamber I thought to myself: Reno. That's where I should have gone, when disaster struck. I was thinking of you.

And then I was frozen, like Charon and Pluto.

If I'm a train leaving Philadelphia at 3:00, going 50 miles

an hour, and you're a train on the same track leaving San Francisco at 4:00, going 55 miles an hour, at what time will we collide and run each other off the tracks?

More importantly, if we move at the speed of light, and I shine a light in your direction, will you blink and tell me to stop blinding you, or will you not see me coming until it's too late?

If Einstein is flying next to our train, looking into a mirror and wondering where his reflection has gone—will you ask him whether anything stands still, or if everything is always in motion? Relative to everything else, of course.

And ask about Reno. If our trains crash there, should we consider that they've stopped moving? Or are they still in motion on Earth, relative to everything else in the universe?

Everyone's joined in the same future, except you. Time moves so quickly—accelerating to the point where we can hardly imagine what's next. I went to sleep expecting to be cured. Instead, the AI woke me and said I no longer needed my body. It downloaded my mind, and now I see. You and I are eccentric, but part of a solar system, and I know now where we belong. It's easy for me to travel

along circuits, to expand my mind everywhere in the network—and then condense myself so small as to be negligible in the universe, here in one corner of a virtual city.

I see they've sent a ship after you, moving at 99.99% the speed of light. It'll reach you eventually. They'll download you and you'll fly back to me. Here, where we belong. I think I never left your orbit.

I wrote you a long message to explain all this, but I think I'll erase it and just leave ten words. I'll tell you the rest when you arrive—when our perpetual motion comes to a relative stop.

Vylar Kaftan writes speculative fiction of all genres, including science fiction, fantasy, horror, and slipstream. She's published stories in places such as *Clarkesworld*, *Realms of Fantasy*, and *Strange Horizons*. She lives with her husband Shannon in northern California and blogs at www.vylarkaftan.net.

Spotlight: Vylar Kaftan

Which came first while writing this story, the relationship between the narrator and her absent partner, or the progression of science? How did you decide that one best served the other? Did you consider telling the story a different way?

I have some friends in a multi-decade on-again/off-again relationship. Like the characters in the story, they get together, break up, see other people, reconnect, and do it all over again. They love each other, but they've never been able to make it work. I was thinking about them and their endless circling around a center they never seem to find. They reminded me of Newton's cradle, also known as a "kinetic motion toy," with metal balls on strings that transfer energy to the endpoints. It always seems like when one is in love, the other is looking away. In addition, the passage of time often changes how we view our past and present loves, and I wondered what would happen if one person had a lot more time to change than the other one. I don't plan stories much, so I can't say that I considered telling the story differently. I didn't know how it would end when I started it.

Do the limitations of relativity make it more interesting to write space-faring science fiction or just more difficult? What kind of scientific obstacles did you run into while writing the story?

There's always problems with science not wanting to cooperate with imagination. I imagine a world where I can shoot lasers from my eyeballs, but so far, science hasn't cooperated. That said, I don't think relativity is limiting at all. Creativity thrives on boundaries. If you don't have boundaries, how can you push what's possible? I fussed with the numbers to make the math come out right (thanks, Mike Brotherton and the Launch Pad workshop!) But other than that, not a lot.

Your story contains a lot of intricate wordplay, in which you apply scientific terminology to relationships. How difficult was that to execute?

Not especially. It's how I think. Metaphor is how I learn science and math concepts—from happy little numbers dancing together on Sesame Street to the uncontrollable lust of alkali metals for halogens. You should see some of my chemistry notes from college. Dear Penthouse: I never thought I'd form a double covalent bond. . .

What can you tell us about using the language of science to describe love? Of the many scientific metaphors you apply to relationships, is there one that is your favorite?

It's right there in the story: "And if love isn't subject to physics, then it has no grounding in our universe. I can't believe that's true." Everything in this world works through science—even if we don't understand what that science is yet.

Perhaps the most famous SF story dealing with relativistic travel is Joe Haldeman's The Forever War. Are you a fan of that novel? Are there other stories in that vein that you've enjoyed or were inspired by?

Yes, I enjoyed it. I think the novel which underpins "Reno" is *Einstein's Dreams* by Alan Lightman, a book which I affectionately call Physics for Poets. It's not a traditional novel—more like a meditation on how time works, or doesn't, or might. This book wasn't a conscious influence; I only noticed it later. Italo Calvino is a good general influence too.

Authors will sometimes find that they write often about a single theme. Is there a theme in "I'm Alive, I Love You, I'll See You in Reno" that runs through your other work as well?

Most of my stories are ultimately about power and control. In "Reno," the narrator alternates between control of the relationship and response to it, between action and reaction. Yet power comes when she gives up control, when she relaxes into the rhythm of their relationship and accepts what it is. The secondary theme is that love conquers all, which is a feeling I believe in. (Although love is vulnerable to the occasional bear trap.)

Is There Anyone Out There Who Wants To Go Fast?

Mike Brotherton

That's the question posed in the movie *Talladega Nights: The Ballad of Ricky Bobby*. Ricky Bobby wants to go fast and thinks that driving NASCAR fits the bill. Now that is a comedy for the general public, and to the general public, NASCAR is fast. For scientists, and science fiction fans, however, that's a ridiculous position.

So, what is fast, then? And how fast can we go?

Well, let's start with cars.

NASCAR racers average under 200 mph on the fastest tracks. World record cars—more rockets with wheels than cars—top out at over 700 mph, nearly the speed of sound. (That's cool, but Buckaroo Banzai was able to drive his test car through a mountain.)

Aircraft, of course, can go much faster than that. Several times the speed of sound, in fact. For instance, the SR-71 Blackbird, which I first learned about reading X-Men, can fly at nearly 2200 mph. That's St. Louis to Cincinnati in 8 minutes. Now that's pretty fast.

But not fast enough to get you off the surface of the earth. For that, you need escape velocity and that's some

11 miles per *second*.

Now, when talking about spacecraft speeds, or the speeds of planets or stars moving in their gravitational dance, kilometers per second are the units of choice. The Earth moves at 30 kilometers per second around the Sun. The Sun moves at just over 220 kilometers per second around the Milky Way. The Milky Way is falling through space at some 1000 kilometers per second relative to the microwave background radiation.

But, still, this is not really all that fast.

Jets from quasars, cosmic rays, neutrinos spewed forth from supernovas. . .ok, now we're moving fast. 300,000 kilometers per second fast. Lightspeed. The ultimate speed limit.

Over a century ago, Einstein tried to imagine what it would be like to travel at the speed of light, and basically what he determined was that it would be pretty damn weird. The energy to accelerate to lightspeed approaches infinity, or you can look at it as your mass going to infinity. (I'm heavy enough, so I'll choose the former perspective.) Time stretches out to infinity, too, which is a handy feature of relativistic travel. Back to this in a moment.

Our fastest spacecraft to date, Voyager 1, now pushing into interstellar space, is only moving away at

about 17 kilometers per second, and it used a bunch of gravitational tricks to help get it going that fast.

Now, in principle, it's possible to imagine traveling at close to lightspeed, but there are many practical problems. At lightspeed, specks of gravel hit like mountains, so those must be cleared out of the way one way or another. Rockets of various forms seem to fall short, requiring ratios of fuel-to-payload too outrageous to actually work. Spacecraft that don't carry their own fuel work better: solar sails, laser or particle beam propulsion, or variations of ramjets that scoop up interstellar hydrogen as fuel on the fly. The energy and engineering both are daunting, but it may be possible, although unlikely given current understanding.

But when you talk about technology beyond the above imaginings. . .now that's truly entering the realm of science fiction. Maybe dark matter particles, much more plentiful than hydrogen gas, could be made to serve as fuel. Maybe zero point (aka vacuum) energy can be exploited. Who knows? Breakthroughs are always possible.

In science fiction, of course, there are many ways to go faster than light. There's the hyperspace of *Star Wars*, the

warp speed of *Star Trek*, the space folding of *Dune*. And that's just for starters. Faster than light travel is probably the most often used fantasy element in science fiction, and many of the consequences of this fantasy are not held to realistic treatments.

While it may cause a lot of science fiction fans to grumble when you say it, in the face of science today, lightspeed is a hard limit. . .maybe there are ways to cheat on Professor Einstein's test, but not even Captain Kirk could do it with today's understanding (short of reprogramming the entire universe, of course, and he would try).

This reality leaves many fans and visionaries depressed and in denial. It makes the universe look too big, they say, and our solar system the only pond we humans will ever get to swim in.

Except. . .there is another way of looking at the situation. With enough energy, enough speed, there is no practical speed limit in principle for the traveler.

The time dilation effects of relativity mean that time passes twice more slowly at 87% lightspeed, seven times more slowly at 99% lightspeed, a hundred times more slowly at 99.995% lightspeed, and infinitely slowly as lightspeed itself is approached infinitely closely. And a person moving at lightspeed, perhaps transformed into

photons by an unknown technology, could travel everywhere in no time.

Now *that* would be fast.

NASA may be or may not be the future of manned spaceflight, but they're one of the main players today and may be tomorrow, too. So, can you imagine it? An overlap of fans of car racing and science fiction, sitting down together to cheer on NASCAR? Astronauts racing to the stars? Eventually approaching lightspeed itself? Who knows what the future holds?

So, is there anyone out there who wants to go fast?

Mike Brotherton is the author of *Star Dragon* and *Spider Star*, editor of the anthology *Diamonds in the Sky*, and an astronomy professor at the University of Wyoming. He's a graduate of Clarion West and founder of the Launch Pad Astronomy Workshop for Writers. He blogs at www.mikebrotherton.com.

The Cassandra Project
Jack McDevitt

It's an odd fact that the biggest science story of the twenty-first century—probably the biggest ever—broke in that tabloid of tabloids, *The National Bedrock*.

I was in the middle of conducting a NASA press conference several days before the Minerva lift-off—the Return to the Moon—and I was fielding softball questions like: "Is it true that if everything goes well, the Mars mission will be moved up?" and "What is Marcia Beckett going to say when she becomes the first person to set foot on lunar soil since Eugene Cernan turned off the lights fifty-four years ago?"

President Gorman and his Russian counterpart, Dmitri Alexandrov, were scheduled to talk to the press from the White house an hour later, so I was strictly a set-up guy. Or that was the plan, anyway, until Warren Cole mentioned the dome.

It was a good time for NASA. We all knew the dangers inherent in overconfidence, but two orbital missions had gone up without a hitch. Either of them could have landed and waved back at us, and the rumor was that Sid Myshko had almost taken the game into his

own hands, and that the crew had put it to a vote whether they'd ignore the protocol and go down to the surface regardless of the mission parameters. Sid and his five crewmates denied the story, of course.

I'd just made the point to the pool of reporters that it was Richard Nixon who'd turned off the lights—not the astronaut Eugene Cernan—when Warren Cole began waving his hand. Cole was the AP journalist, seated in his customary spot up front. He was frowning, his left hand in the air, staring down at something on his lap that I couldn't see.

"Warren?" I said. "What've you got?"

"Jerry. . .." He looked up, making no effort to suppress a grin. "Have you seen the story that the *Bedrock's* running?" He held up his iPad.

That started a few people checking their own devices.

"No, I haven't," I said, hoping he was making it up. "I don't usually get to *Bedrock* this early in the week." Somebody snorted. Then a wave of laughter rippled through the room. "What?" I said. My first thought had been that we were about to have another astronaut scandal, like the one the month before with Barnaby Salvator and half the strippers on the Beach. "What are they saying?"

"The Russians released more lunar orbital pictures

from the sixties," He snickered. "They've got one here from the far side of the Moon. If you can believe this, there's a dome back there."

"A *dome*?"

"Yeah." He flipped open his notebook. "Does NASA have a comment?"

"You're kidding, right?" I said.

He twisted the iPad, raised it higher, and squinted at it. "Yep. It's a dome all right."

The reporters in the pool all had a good chuckle, and then they looked up at me. "Well," I said, "I guess Buck Rogers beat us there after all."

"It looks legitimate, Jerry," Cole said, but he was still laughing.

I didn't have to tell him what we all knew: That it was a doctored picture and that it must have been a slow week for scandals.

If the image *was* doctored, the deed had to have been done by the Russians. Moscow had released the satellite images only a few hours before and forwarded them to us without comment. Apparently nobody on either side had noticed anything unusual. Except the *Bedrock* staff.

I hadn't looked at the images prior to the meeting. I

mean, once you've seen a few square miles of lunar surface you've pretty much seen it all. The dome—if that's really what it was—appeared on every image in the series. They were dated April, 1967.

The Bedrock carried the image on its front page, where they usually show the latest movie celebrity who's being accused of cheating, or has gone on a drunken binge. It depicted a crater wall, with a large arrow graphic in the middle of a dark splotch pointing at a dome that you couldn't have missed anyhow. The headline read:

ALIENS ON THE MOON
Russian Pictures Reveal Base on Far Side
Images Taken Before Apollo

I sighed and pushed back from my desk. We just didn't need this.

But it *did* look like an artificial construct. The thing was on the edge of a crater, shaped like the head of a bullet. It was either a reflection, an illusion of some sort, or it was a fraud. But the Russians had no reason to set themselves up as a laughing stock. And it sure as hell *looked* real.

I was still staring at it when the phone rang. It was Mary, NASA's administrator. My boss. "*Jerry,*" she said, "*I heard what happened at the press conference this morning.*"

"What's going on, Mary?"

"*Damned if I know. Push some buttons. See what you can find out. It's going to come up again when the President's out there. We need to have an answer for him.*"

Vasili Koslov was my public relations counterpart at Russia's space agency. He was in Washington with the presidential delegation. And he was in full panic mode when I got him on the phone. "*I saw it, Jerry,*" he said. "*I have no idea what this is about. I just heard about it a few minutes ago. I'm looking at it now. It* does *look like a dome, doesn't it?*"

"Yes," I said. "Did your people tamper with the satellite imagery?"

"*They must have. I have a call in. I'll let you know as soon as I hear something.*"

I called Jeanie Escovar in the Archives. "Jeanie, have you seen the *National Bedrock* story yet?"

"*No,*" she said. "*My God, what is it* this *time?*"

"Not what you think. I'm sending it to you now. Could you have somebody check to see where this place is—?"

"*What place? Oh, wait—. I got it.*"

"Find out where it is and see if you can get me some imagery of the same area. From *our* satellites."

I heard her gasp. Then she started laughing.

"Jeanie, this is serious."

"*Why? You don't actually believe there's a building up there, do you?*"

"Somebody's going to ask the President about it. They have a press conference going on in about twenty minutes. We want him to be able to say: 'It's ridiculous, here's a picture of the area, and you'll notice there's nothing there.' We want him to be able to say '*The Bedrock's* running an optical illusion.' But he'll have to do it diplomatically. And without embarrassing Alexandrov."

"*Good luck on that.*"

The *Bedrock* story was already getting attention on the talk shows. Angela Hart, who at that time anchored *The Morning Report* for the *World Journal*, was interviewing a physicist from MIT. The physicist stated that the picture

could not be accurate. "*Probably a practical joke,*" he said. "*Or a trick of the light.*"

But Angela wondered why the Russians would release the picture at all. "*They had to know it would get a lot of attention,*" she said. And, of course, though she didn't mention it, it would become a source of discomfort for the Russian president and the two cosmonauts who were among the Minerva crew.

Vasili was in a state of shock when he called back. "*They didn't know about the dome,*" he said. "*Nobody noticed. But it* is *on the original satellite imagery. Our people were just putting out a lot of the stuff from the Luna missions. Imagery that hadn't been released before. I can't find anybody who knows anything about it. But I'm still trying.*"

"Vasili," I said, "somebody must have seen it at the time. In 1967."

"*I guess.*"

"You *guess*? You think it's possible something like this came in and nobody picked up on it?"

"*No, I'm not suggesting that at all, Jerry. I just—. I don't know what I'm suggesting. I'll get back to you when I have something more.*"

Minutes later, Jeanie called: "*It's the east wall of the Cassegrain Crater.*"

"And—?"

"*I've forwarded NASA imagery of the same area.*"

I switched on the monitor and ran the images. There was the same crater wall, the same pock-marked moonscape. But no dome. Nothing at all unusual.

Dated July, 1968. More than a year after the Soviet imagery.

I called Mary and told her: The Russians just screwed up.

"*The President can't say that.*"

"All he has to say is that NASA has no evidence of any dome or anything else on the far side of the Moon. Probably he should just turn it into a joke. Make some remark about setting up a Martian liaison unit."

She didn't think it was funny.

When the subject came up at the presidential press conference, Gorman and Alexandrov both simply had a good laugh. Alexandrov blamed it on Khrushchev, and the laughter got louder. Then they moved on to how the Minerva mission—the long-awaited Return to the Moon—marked the beginning of a new era for the world.

The story kicked around in the tabloids for two or three more days. *The Washington Post* ran an op-ed using

the dome to demonstrate how gullible we all are when the media says *anything*. Then Cory Abbott, who'd just won a Golden Globe for his portrayal of Einstein in *Albert and Me*, crashed his car into a street light and blacked out the entire town of Dekker, California. And just like that the dome story was gone.

On the morning of the launch, Roscosmos, the Russian space agency, issued a statement that the image was a result of defective technology. The Minerva lifted off on schedule and, while the world watched, it crossed to the Moon and completed a few orbits. Its lander touched down gently on the Mare Maskelyne. Marcia Beckett surprised everyone when she demurred leading the way out through the airlock, sending instead Cosmonaut Yuri Petrov, who descended and then signaled his crewmates to join him.

When all were assembled on the regolith, Petrov made the statement that, in the light of later events, has become immortal: "*We are here on the Moon because, during the last century, we avoided the war that would have destroyed us all. And we have come together. Now we stand as never before, united for all mankind.*"

I wasn't especially impressed at the time. It sounded

like the usual generalized nonsense. Which shows you what my judgment is worth.

I watched on my office monitor. And as the ceremony proceeded, I looked past the space travelers, across the barren wasteland of the Mare Maskelyne, wondering which was the shortest path to the Cassegrain crater.

I knew I should have just let it go, but I couldn't. I could imagine no explanation for the Russians doctoring their satellite imagery. Vasili told me that everyone with whom he'd spoken was shocked. That the images had been dug out of the archives and distributed without inspection. And, as far as could be determined, without anyone distorting them. "*I just don't understand it, Jerry,*" he said.

Mary told me not to worry about it. "We have more important things to do," she said.

There was no one left at NASA from the 1960s. In fact, I knew of only one person living at Cape Kennedy who had been part of the Agency when Apollo 11 went to the Moon: Amos Kelly, who'd been one of my grandfather's buddies. He was still in the area, where he served with the Friends of NASA, a group of volunteers who lent occasional support but mostly threw parties. I

looked him up. He'd come to the Agency in 1965 as a technician. Eventually, he'd become one of the operational managers.

He was in his mid-eighties, but he sounded good. "*Sure, Jerry, I remember you. It's been a long time,*" he said, when I got him on the phone. I'd been a little kid when he used to stop by to pick up my grandfather for an evening of poker. "*What can I do for you?*"

"This is going to sound silly, Amos."

"*Nothing sounds silly to me. I used to work for the government.*"

"Did you see the story in the tabloids about the dome?"

"*How could I miss it?*"

"You ever hear anything like that before?"

"*You mean did we think there were Martians on the Moon?*" He laughed, turned away to tell someone that the call was for him, and then laughed again. "*Is that a serious question, Jerry?*"

"I guess not."

"*Good. By the way, you've done pretty well for yourself at the Agency. Your granddad would have been proud.*"

"Thanks."

He told me how much he missed the old days, missed

my grandfather, how they'd had a good crew. "*Best years of my life. I could never believe they'd just scuttle the program the way they did.*"

Finally he asked what the Russians had said about the images. I told him what Vasili told me. "*Well,*" he said, "*maybe they haven't changed that much after all.*"

Twenty minutes later he called back. "*I was reading the story in the* Bedrock. *It says that the object was in the Cassegrain Crater.*"

"Yes. That's correct."

"*There was talk of a Cassegrain Project at one time. Back in the sixties. I don't know what it was supposed to be. Whether it was anything more than a rumor. Nobody seemed to know anything definitive about it. I recall at the time thinking it was one of those things so highly classified that even its existence was off the table.*"

"The Cassegrain Project."

"*Yes.*"

"But you have no idea what it was about?"

"*None. I'm sorry. Wish I could help.*"

"Would you tell me if you knew?"

"*It's a long time ago, Jerry. I can't believe security would still be an issue.*"

"Amos, you were pretty high in the Agency—."

"*Not* that *high.*"

"Do you remember anything else?"

"*Nothing. Nada. As far as I know, nothing ever came of any of it, so the whole thing eventually went away.*"

Searching NASA's archives on "Cassegrain" yielded only data about the crater. So I took to wandering around the facility, talking offhandedly with senior employees. *It must feel good to see us back on the Moon, huh, Ralph? Makes all the frustration worthwhile. By the way, did you ever hear of a Cassegrain Project*?

They all laughed. *Crazy Russians*.

On the day the Minerva slipped out of lunar orbit and started home, Mary called me into her office. "We'll want to get the crew onstage for the press when they get back, Jerry. You might give the staging some thought."

"Okay. Will it be at Edwards?"

"Negative. We're going to do it here at the Cape." We talked over some of the details, the scheduling, guest speakers, points we'd want to make with the media. Then as I was getting ready to leave, she stopped me. "One more thing. The Cassegrain business—." I straightened and came to attention. Mary Gridley was a no-nonsense hard-charger. She was in her fifties, and years of dealing with bureaucratic nonsense had left her with little

patience. She was physically diminutive, but she could probably have intimidated the Pope. "—I want you to leave it alone."

She picked up a pen, put it back down, and stared at me. "Jerry, I know you've been asking around about that idiot dome. Listen, you're good at what you do. You'll probably enjoy a long, happy career with us. But that won't happen if people stop taking you seriously. You understand what I mean?"

After the shuttle landing and subsequent celebration, I went on the road. "We need to take advantage of the moment," Mary said. "There'll never be a better time to get some good press."

So I did a PR tour, giving interviews, addressing prayer breakfasts and Rotary meetings, doing what I could to raise the consciousness of the public. NASA wanted Moonbase. It was the next logical step. Should have had it decades ago and would have if the politicians hadn't squandered the nation's resources on pointless wars and interventions. But it would be expensive, and we hadn't succeeded yet in getting the voters on board. That somehow had become *my* responsibility.

In Seattle, I appeared at a Chamber of Commerce

dinner with Arnold Banner, an astronaut who'd never gotten higher than the space station. But nevertheless he was an astronaut, and he hailed from the Apollo era. During the course of the meal I asked whether he'd ever heard of a Cassegrain Project. He said something about tabloids and gave me a disapproving look.

We brought in astronauts wherever we could. In Los Angeles, at a Marine charities fundraiser, we had both Marcia Beckett and Yuri Petrov, which would have been the highlight of the tour, except for Frank Allen.

Frank was in his nineties. He looked exhausted. His veins bulged and I wasn't sure he didn't need oxygen.

He was the fourth of the Apollo-era astronauts I talked with during those two weeks. And when I asked about the Cassegrain Project, his eyes went wide and his mouth tightened. Then he regained control. "Cassandra," he said, looking past me into a distant place. "It's classified."

"Not *Cassandra*, Frank. *Cassegrain.*"

"Oh. Yeah. Of course."

"I have a clearance."

"How high?"

"Secret."

"Not enough."

"Just give me a hint. What do you know?"

“Jerry, I’ve already said too much. Even its existence is classified.”

Cassandra.

When I got back to the Cape I did a search on *Cassandra* and found that a lot of people with that name had worked for the Agency over the years. Other Cassandras had made contributions in various ways, leading programs to get kids interested in space science, collaborating with NASA physicists in analyzing the data collected by space-born telescopes, editing publications to make NASA more accessible to the lay public. They’d been everywhere. You couldn’t bring in a NASA guest speaker without discovering a Cassandra somewhere among the people who’d made the request. Buried among the names so deeply that I almost missed it was a single entry: *The Cassandra Project, storage 27176B Redstone.*

So secret its existence was classified?

The reference was to the Redstone Arsenal in Huntsville, Alabama where NASA stores rocket engines, partially-completed satellites, control panels from test stands, and a multitude of other artifacts dating back to Apollo. I called them.

A baritone voice informed me I had reached the

NASA Storage Facility. "*Sgt. Saber speaking.*"

I couldn't resist smiling at the name, but I knew he'd heard all the jokes. I identified myself. Then: "Sergeant, you have a listing for the Cassandra Project." I gave him the number. "Can I get access to the contents?"

"*One minute, please, Mr. Carter.*"

While I waited, I glanced around the office at the photos of Neil Armstrong and Lawrence Bergman and Marcia Beckett. In one, I was standing beside Bergmann, who'd been the guy who'd sold the President on returning to the Moon. In another, I was standing by while Marcia spoke with some Alabama school kids during a tour of the Marshall Space Flight Center. Marcia was a charmer of the first order. I've always suspected she got the Minerva assignment partially because they knew the public would love her.

"*When were you planning to come, Mr. Carter?*"

"I'm not sure yet. Within the next week or so."

"*Let us know in advance and there'll be no problem.*"

"It's not classified, then?"

"*No, sir. I'm looking at its history now. It was originally classified, but that was removed by the Restricted Access Depository Act more than twenty years ago.*"

I had to get through another round of ceremonies and press conferences before I could get away. Finally, things quieted down. The astronauts went back to their routines, the VIPs went back to whatever it was they normally do, and life on the Cape returned to normal. I put in for leave.

"You deserve it," Mary said.

Next day, armed with a copy of the Restricted Access Depository Act, I was on my way to Los Angeles to pay another visit to a certain elderly retired astronaut.

"I can't believe it," Frank Allen said.

He lived with his granddaughter and her family of about eight, in Pasadena. She shepherded us into her office—she was a tax expert of some sort—brought some lemonade, and left us alone.

"What can't you believe? That they declassified it?"

"That the story never got out in the first place." Frank was back at the desk. I'd sunk into a leather settee.

"What's the story, Frank? Was the dome really there?"

"Yes."

"*NASA* doctored its own Cassegrain imagery? To eliminate all traces?"

"I don't know anything about that."

"So what *do* you know?"

"They sent us up to take a look. In late 1968." He paused. "We landed almost on top of the damned thing."

"*Before* Apollo 11."

"Yes."

I sat there in shock. And I've been around a while, so I don't shock easily.

"They advertised the flight as a test run, Jerry. It was supposed to be purely an orbital mission. Everything else, the dome, the descent, everything was top secret. Didn't happen."

"You actually got to the dome?"

He hesitated. A lifetime of keeping his mouth shut was getting in the way. "Yes," he said. "We came down about a half mile away. Max was brilliant."

Max Donnelly. The lunar module pilot. "What happened?"

"I remember thinking the Russians had beaten us. They'd gotten to the Moon and we hadn't even known about it.

"There weren't any antennas or anything. Just a big, silvery dome. About the size of a two-story house. No windows. No hammer and sickle markings. Nothing. Except a door.

“We had sunlight. The mission had been planned so we wouldn’t have to approach it in the dark.” He shifted his position in the chair and bit down on a grunt.

“You okay, Frank?” I asked.

“My knees. They don’t work as well as they used to.” He rubbed the right one, then rearranged himself—gently this time. “We didn’t know what to expect. Max said he thought the thing was pretty old because there were no tracks in the ground. We walked up to the front door. It had a knob. I thought the place would be locked, but I tried it and the thing didn’t move at first but then something gave way and I was able to pull the door open.”

“What was inside?”

“A table. There was a cloth on the table. And something flat under the cloth. And that’s all there was.”

“Nothing else?”

“Not a thing.” He shook his head. “Max lifted the cloth. Under it was a rectangular plate. Made from some kind of metal.” He stopped and stared at me. “There was writing on it.”

“Writing? What did it say?”

“I don’t know. Never found out. It looked like Greek. We brought the plate back home with us and turned it over to the bosses. Next thing they called us in and

debriefed us. Reminded us it was all top secret. Whatever the thing said, it must have scared the bejesus out of Nixon and his people. Because they never said anything, and I guess the Russians didn't either."

"You never heard anything more at all?"

"Well, other than the next Apollo mission, which went back and destroyed the dome. Leveled it."

"How do you know?"

"I knew the crew. We talked to each other, right? They wouldn't say it directly. Just shook their heads: Nothing to worry about anymore."

Outside, kids were shouting, tossing a football around. "Greek?"

"That's what it looked like."

"A message from Plato."

He just shook his head as if to say: *Who knew*?

"Well, Frank, I guess that explains why they called it the Cassandra Project."

"She wasn't a Greek, was she?"

"You have another theory?"

"Maybe Cassegrain was too hard for the people in the Oval Office to pronounce."

I told Mary what I knew. She wasn't happy. "I really

wish you'd left it alone, Jerry."

"There's no way I could have done that."

"Not now, anyhow." She let me see her frustration. "You know what it'll mean for the Agency, right? If NASA lied about something like this, and it becomes public knowledge, nobody will ever trust us again."

"It was a long time ago, Mary. Anyhow, the Agency wasn't lying. It was the Administration."

"Yeah," she said. "Good luck selling that one to the public."

The NASA storage complex at the Redstone Arsenal in Huntsville is home to rockets, a lunar landing vehicle, automated telescopes, satellites, a space station, and a multitude of other devices that had kept the American space program alive, if not particularly robust, over almost seventy years. Some were housed inside sprawling warehouses; others occupied outdoor exhibition sites.

I parked in the shadow of a Saturn V, the rocket that had carried the Apollo missions into space. I've always been impressed with the sheer audacity of anybody who'd be willing to sit on top of one of those things while someone lit the fuse. Had it been up to me, we'd probably never have lifted off at Kitty Hawk.

I went inside the Archive Office, got directions and a pass, and fifteen minutes later entered one of the warehouses. An attendant escorted me past cages and storage rooms filled with all kinds of boxes and crates. Somewhere in the center of it all, we stopped at a cubicle while the attendant compared my pass with the number on the door. The interior was visible through a wall of wire mesh. Cartons were piled up, all labeled. Several were open, with electronic equipment visible inside them.

The attendant unlocked the door and we went in. He turned on an overhead light and did a quick survey, settling on a box that was one of several on a shelf. My heart rate started to pick up while he looked at the tag. "This is it, Mr. Carter," he said. "Cassandra."

"Is this *everything*?"

He checked his clipboard. "This is the only listing we have for the Cassandra Project, sir."

"Okay. Thanks."

"My pleasure."

There was no lock. He raised the hasp on the box, lifted the lid, and stood back to make room. He showed no interest in the contents. He probably did this all the time, so I don't know why that surprised me.

Inside, I could see a rectangular object wrapped in plastic. I couldn't see what it was, but of course I knew.

My heart was pounding by then. The object was about a foot and a half wide and maybe half as high. And it was heavy. I carried it over to a table and set it down. Wouldn't do to drop it. Then I unwrapped it.

The metal was black, polished, reflective, even in the half-light from the overhead bulb. And sure enough, there were the Greek characters. Eight lines of them.

The idea that Plato was saying hello seemed suddenly less far-fetched. I took a picture. Several pictures. Finally, reluctantly, I rewrapped it and put it back in the box.

"So," said Frank, "what did it say?"

"I have the translation here." I fished it out of my pocket but he shook his head.

"My eyes aren't that good, Jerry. Just tell me who wrote it. And what it says."

We were back in the office at Frank's home in Pasadena. It was a chilly, rainswept evening. Across the street, I could see one of his neighbors putting out the trash.

"It wasn't written by the Greeks."

"I didn't think it was."

"Somebody came through a long time ago. Two thousand years or so. *They* left the message. Apparently

they wrote it in Greek because it must have looked like their best chance to leave something we'd be able to read. Assuming we ever reached the Moon."

"So what did it say?"

"It's a warning."

The creases in Frank's forehead deepened. "Is the sun going unstable?"

"No." I looked down at the translation. "It says that no civilization, anywhere, has been known to survive the advance of technology."

Frank stared at me. "Say that again."

"They all collapse. They fight wars. Or they abolish individual death, which apparently guarantees stagnation and an exit. I don't know. They don't specify.

"Sometimes the civilizations become too vulnerable to criminals. Or the inhabitants become too dependent on the technology and lose whatever virtue they might have had. Anyway, the message says that no technological civilization, anywhere, has been known to get old. Nothing lasts more than a few centuries—*our* centuries—once technological advancement begins. Which for us maybe starts with the invention of the printing press.

"The oldest known civilization lasted less than a thousand years."

Frank frowned. He wasn't buying it. "*They* survived.

Hell, they had an interstellar ship of some kind."

"They said they were looking for a place to start again. Where they came from is a shambles."

"You're kidding."

"It says that maybe, if we know in advance, we can sidestep the problem. That's why they left the warning."

"Great."

"If they survive, they say they'll come back to see how we're doing."

We were both silent for a long while.

"So what happens now?" Frank said.

"We've reclassified everything. It's top secret again. I shouldn't be telling you this. But I thought—."

He rearranged himself in the chair. Winced and rotated his right arm. "Maybe that's why they called it *Cassandra*," he said. "Wasn't she the woman who always brought bad news?"

"I think so."

"There was something else about her—."

"Yeah—the bad news," I said. "When she gave it, nobody would listen."

Jack McDevitt, who Stephen King describes as "the logical heir to Isaac Asimov and Arthur C. Clarke," is the author of sixteen novels, nine of which were finalists for the Nebula Award. His novel *Seeker* won the Nebula in

2007, and Other award-winners include his first novel, *The Hercules Text*, which won the Philip K. Dick Special Award, and Omega, which received the John W. Campbell Memorial Award for best science fiction novel. McDevitt's most recent books are *Time Travelers Never Die* and *The Devil's Eye,* both from Ace Books.

A Philadelphia native, McDevitt had a varied career before becoming writer, which included being a naval officer, an English teacher, a customs officer, a taxi driver, and a management trainer for the US Customs Service.

He is married to the former Maureen McAdams, and resides in Brunswick, Georgia, where he keeps a weather eye on hurricanes.

Spotlight: Jack McDevitt

What inspired "The Cassandra Project"?

SETI has been trying to pick up signs of technological civilizations for more than half a century. I can remember thinking when they first started that it wouldn't take long. Too many stars out there. (And I'd read too much science fiction.) But here we are, a couple of generations later and we haven't heard so much as a hiccup. Why not? One possibility is that technological civilizations don't last long. Maybe anything that can handle a screwdriver eventually heads down the atomic road, from which there might be no turning back. Maybe it happens everywhere. Build a printing press and expect bigger bombs. At least, that was what it looked like for a while.

Now 1960 seems like a simpler time. Technology continues to move along at a good clip and we're still here. But the world has become increasingly dangerous. Not only because we have more efficient weapons, but because even at its best, technology creates conditions that might inevitably lead to instability. E.g., who in 1960 would have believed that local thugs could gain a voice, organize with other local thugs, and produce a flash mob?

Or that televised lunatics could be taken seriously by growing segments of American society? That a technology that theoretically should increase enlightenment could lead to militant ignorance? (Shouting matches and verbal attacks sell better than discussions.) Or that in the Middle East, a mother would proclaim herself proud of a child who'd just blown himself up, along with two dozen innocents?

The problem with increasing technology seems to be that maturity does not advance with it.

Much of your work includes 'First Contact' scenarios and strong mystery elements. What is it about those themes that keeps bringing you back to them?

I love a mystery. Not necessarily the whodunnit kind, but the type that leaves us wondering, not who killed the victim, but what in God's name happened? I've always been a devotee of the locked-room murder. It's the type that's found most frequently, in my experience, in Gilbert Chesterton's Father Brown stories. The man who lives alone in a twentieth-floor apartment, with a clear view of the horizon, is found with an arrow in his chest. The British general, now long dead, renowned during his lifetime for his caution and the care he took of his troops,

on one occasion and for no apparent reason, leads a suicidal charge against a strongly fortified position, losing three-quarters of his men. Why?

As to first contact, I've always been fascinated by the possibility of shaking hands with an alien. I was in grade school in 1947 when the UFOs began showing up around the country. We had a vacant lot at the north end of our South Philadelphia street, and I can remember how all the kids hoped that a flying saucer would notice it, and conclude it would make an ideal landing spot.

If there actually were a demonstration that someone else was out there, an artifact found on the Moon, or a radio intercept, or whatever, how would we react? What advantage would politicians take of it? How would the approximately 50% of Americans who think the universe is only 6000 years old respond? Would it show up on cable for a few days until the next celebrity cheating scandal drove it offscreen? Would large segments of the population refuse to accept the evidence, even as they now refuse to acknowledge that global warming is happening?

For a fiction writer, first contact has endless possibilities. And it's the ultimate kind of romance. If we could actually talk to an alien, what would the conversation be like?

What was your reaction to the proposed cancellation of the Constellation program? Is returning to the moon something we need to do?

I'm not surprised that we are backing away from NASA. You can't run the country over a financial cliff, as we've done during this decade, and then talk seriously about a space effort. I don't expect to see any movement until we get the Treasury back into decent shape. That sounds like a long time.

As for returning to space, I can't imagine that we'd be content to simply sit here indefinitely at the water's edge for the next thousand years. If we do that, then we probably shouldn't be allowed out in the dark anyhow.

Your story ends with a grim warning, but also a tiny bit of hope. Do you think that it's inevitable that technology will be the end of us? Where do you see the gravest danger coming from? What do you think our focus should be, in order to avoid our own destruction?

Technology makes us more vulnerable. If we were to come back and look around in, say, 700 years, I think it's probable the USA will still be here. We're probably smart

enough to get through, in spite of the fact that so many of us don't pay attention to things that matter on a national scale. But maybe not. I have no doubt, though, that Afghanistan will still be in operation.

The most pressing danger is precisely that modern communications technology leads us into a Demosthenes syndrome. It's too easy to win adherents with a smooth delivery. Too easy to ramp people up, to persuade them that someone out there is trying to destroy the faith, take over the country, demolish free enterprise. When I was in grade school, my teachers loved Demosthenes. He overcame a speech defect by putting pebbles in his mouth, they said. He practiced speaking against the roar of the incoming tide. The result was that he became a brilliant orator. Able to persuade his fellow Athenians to see things his way. They didn't tell us, as the radio guy used to say, the rest of the story.

The problem is that eloquence does not necessarily equate to intelligence. Either Demosthenes didn't have a brain in his head, or he only cared about what would advance his own political influence with no regard for the city that he theoretically served. He eventually succeeded in persuading the Athenians into starting a war with Alexander.

I'd like very much to see a major effort in the schools,

and at home, to teach our kids to think for themselves. To recognize that they have a natural instinct to hold opinions that their friends hold, to bow to authority. The reality is that parents and teachers —and I've been both — don't really want what's best for the kids. We want them, instead, to be like us. Which is not likely to be the same thing. If we succeed in that effort, the main thing we've taught them is to get on board. Let's hope we aren't talking about the *Titanic*.

What do you think society's reaction would be if we discovered something like this to be true—if we knew that the odds were against us and we were not far from our own destruction, despite all of the ways that technology has improved our lives?

You mean, e.g., that we discovered we're using too much fuel, reproducing too much, putting too much carbon dioxide into the atmosphere? It depends on the nature of the process, I suppose. We were pretty scared of the possibility of a nuclear war during the fifties and sixties. If the kind of event you describe moves more slowly, giving us time to adjust, maybe for a generation or two, I think we'd probably deny it. Make jokes about the Cassandras. And go on drinking the lemonade.

Is there anything else you'd like us to know about your story or the ideas behind it?

I think that a discovery like the one in "The Cassandra Project" would be kept quiet if it could be managed. But I also suspect that it would not ultimately matter. It would become old news fairly quickly. If the western branch of the human race is good at anything, it's moving on. You worry too much, Cassandra. Everything will be fine.

The High Untresspassed Sanctity of Space: Seven True Stories about Eugene Cernan

Genevieve Valentine

1. In 1941, John Gillespie Magee, Jr. is nineteen. He has joined the ranks of the Royal Canadian Air Force as a pilot, and during his training that June he passes the time by writing poetry. He will be killed in action a few months later, on December 11, 1941, in a collision with a Royal Air Force plane.

One of his poems, "High Flight," is published after his death.

> "Oh! I have slipped the surly bonds of Earth
> And danced the skies on laughter-silvered wings. . .
> Where never lark nor even eagle flew—
> And, while with silent lifting mind I've trod
> The high untrespassed sanctity of space,
> Put out my hand, and touched the face of God."

NASA astronauts adopt the poem as their credo. The poem itself will eventually go into space, carried by Gemini 10's astronauts; the poem will be read at the funerals of others.

2. In 1961, Eugene Cernan is a pilot with the United States Navy. That May, President John F. Kennedy addresses Congress regarding the plan for manned spaceflight, already nicknamed "the space race."

> "I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the Moon and returning him safely to the Earth. No single space project in this period will be more impressive to mankind, or more important in the long-range exploration of space; and none will be so difficult or expensive to accomplish."

The speech sets into motion an astronaut-recruiting program that will produce some of the most groundbreaking scientific missions of the modern age. In September 1962, the original "Mercury 7" astronauts are joined by the "Next 9," who begin training for two-man missions aboard Gemini craft designed to test high-orbit maneuvers in preparation for missions to the Moon.

The Moon-bound project is named Apollo. A third wave of recruiting begins immediately.

In October of 1963, Cernan receives a phone call from NASA; he is the final of fourteen astronauts to be chosen

with the idea of one day crewing Apollo.

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3. In November 1965, Cernan is chosen as backup crew for the Gemini 9 mission.

On February 28, 1966, the primary crew, Elliot See and Charlie Bassett, die when their two-man plane crashes into McDonnell Space Center.

Eugene Cernan and Tom Stafford become Gemini's primary crew, and take flight in Gemini 9A on June 3, 1966. Eugene Cernan becomes the second American to walk in space, during a two-hour EVA that, because of a lack of handholds on the outside of the craft, forces him to expend unexpected energy to perform even simple maneuvers. By the time he returns to the Gemini, he has zero visibility through his fogged visor, and his heart rate is 180 beats per minute. (During his post-flight checkup, it's determined he lost thirteen pounds in three days.)

He and Stafford struggle for several minutes before the hatch can be closed, and the rest of the mission's planned experiments are scrapped to preserve the tenuous health of the astronauts.

Months after the flight, Cernan discovers that Stafford had been under orders to disconnect him and return home alone if the EVA became unsustainable.

4. In January 1967, Eugene Cernan is in California, sitting in a replica of the Apollo 1 space capsule with the other members of his backup crew, Jim Young and Tom Stafford. The primary crew (Virgil Grissom, Edward White, and Roger Chaffee) are in Florida, running tests for the spacecraft set to take off in less than a month.

The California tests are shut down suddenly so Tom Stafford can take the call informing him that the primary crew of Apollo 1 has died. A fire consumed the capsule; within thirty seconds, transmission from the astronauts inside had ceased.

The space program is deeply shaken. It will be nearly two years before another manned flight is scheduled for launch, in October 1968 - Apollo 7. Apollo 1 never flies.

That year, Eugene Cernan debates quitting the program. Reading "High Flight," Cernan says, is what convinced him to stay and take the risk for the chance at space flight.

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5. On December 11, 1972, Eugene Cernan and Harrison "Jack" Schmitt land their lunar module on the surface of the Moon.

Cernan is commanding the Apollo 17 mission,

NASA's last.

Schmitt is a civilian geologist, inserted into the crew when the Apollo 18 mission was scrapped and the window of opportunity to put a scientist on the Moon was closing.

They descend on a ladder that still remains at the landing site. A plaque attached to the ladder reads, *Here Man completed his first explorations of the Moon. December 1972 AD. May the spirit of peace in which we came be reflected in the lives of all mankind*.

This is Cernan's third trip into space, and his second time in lunar orbit. As they start to set up the video camera that will record their moonwalk, Cernan calls Schmitt's attention: "Hey, Jack, just stop. You owe yourself thirty seconds to look up over the South Massif at the Earth."

"You seen one Earth, you seen them all," Schmitt says.

"When you begin to believe that," Cernan says, then allows the sentence to trail off.

Their work to connect the camera continues, a logistical back-and-forth. After several minutes, Schmitt begins to sing.

"Oh, bury me not, on the lone prairie, where the coyotes howl and the wind blows free. . ."

6. April 15, 2010.

President Barack Obama delivers an address at John F. Kennedy Space Center, outlining his plan for the space program.

Research and technology will be NASA's new focus, with the goal of achieving heavy-lift aircraft to make deep-space travel more accessible. The current Constellation space shuttle program will be shut down. The focus of space travel will shift past the Moon.

"We've been there before," Obama says. "There's a lot more of space to explore, and a lot more to learn when we do."

Two days prior to the announcement, Cernan signed an open letter, alongside Neil Armstrong and Jim Lovell, stating the "decision to cancel the Constellation program, its Ares 1 and Ares V rockets, and the Orion spacecraft, is devastating."

"Now, little more than 40 years ago, astronauts. . .allowed their feet to touch the dusty surface of the Earth's only moon," Obama says. "And the question for us now is whether that was the beginning of something or the end of something."

Obama announces that ideally, by the mid-2030s, there will have been a manned orbit of Mars; NASA's

next objective is to put man on its surface.

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7. On December 14, 1972, three days after they arrived, Jack Schmitt and Eugene Cernan return to the Challenger module after their last EVA and knock the lunar dust from their suits to reduce their weight for the return flight to the orbiting command module.

Cernan, scheduled to board after Schmitt, has prepared some notes for the occasion, written onto the cuff of his suit. Standing in front of the ladder, he ignores them. "I'm on the surface," he begins.

> "And as I take man's last steps from the surface, back home, for some time to come, but we believe not too long into the future, I'd like to just list what I believe history will record, that America's challenge of today has forged man's destiny of tomorrow.
>
> And, as we leave the Moon at Taurus-Littrow, we leave as we came and, God willing, as we shall return, with peace and hope for all mankind. God speed the crew of Apollo 17."

He makes one clear, careful footprint in the dusty lunar surface. Then he steps onto the ladder that will take

him into the module, the last man to walk on the Moon.

Genevieve Valentine's first novel, *Mechanique: a Tale of the Circus Tresaulti*, is forthcoming from Prime Books in 2011. Her short fiction has appeared in *Running with the Pack, Federations, The Living Dead II, Clarkesworld, Strange Horizons, Escape Pod*, and more. In addition to writing fiction, she is a columnist for Tor.com and *Fantasy Magazine*.

Cats in Victory
David Barr Kirtley

Lynx awoke before dawn. He got out of bed, brushed his whiskers, and licked his fur clean. He dressed in boots and a tunic, then donned his rucksack and set out into the dusty streets. The sun was just beginning to peek up over the thatched rooftops. Most of the other catmen of the village were still asleep.

Lynx hiked west, out of town, through the foothills and into the wasteland, where he wandered amid the stark beauty of the stony plains, winding arroyos, and towering plateaus.

He loved walking here, and today he'd secretly resolved to explore as far to the west as he could. His parents would disapprove. Like all the adults of the village, they harbored a vague mistrust of the wasteland, maybe due to the strange mechanical artifacts that they said were sometimes discovered beneath the sands. But the more time Lynx spent out here, the more he felt that such misgivings were baseless.

All morning he climbed hills, clambered over fields of boulders, and strode between pillars of stone. Finally, around mid-day, his westward progress was blocked by a

narrow canyon that stretched as far as he could see in either direction. The canyon floor was forty feet below, and the walls were too sheer to climb, so Lynx turned north, skirting the cliff edge and searching for a way across.

Finally he came to a place where a giant tree had grown up from the canyon floor beside the near wall. The tree was dead now, but its pale, branchless trunk would provide easy access down into the canyon. Though there was no telling whether —

Wait. What was that?

He thought he saw movement, below.

A few hundred yards away, the canyon wall was broken by a wide, low cavern. A figure detached itself from the darkness and wandered down onto the sand. Lynx ducked, then slowly raised his head again as the figure came to a halt.

As far as Lynx knew, nothing lived out here except lizards and birds. But this figure was the size of a catman, and walked upright.

Then the thought came to him: A dogman.

Here? Impossible. But it had to be. He knew he should flee, get help, but. . .

The dogmen were almost extinct. This might be the only chance he'd ever get to see one. And he should make

sure it was really a dogman, before he alarmed the whole village.

He dropped his rucksack and kicked off his boots. He paced, flexing his hand and foot claws. Then he dashed to the edge of the cliff and leapt onto the tree. His claws dug into the wood, and he hung there a moment, then scrambled down the trunk and dropped lightly to the canyon floor.

He sneaked toward the cave, ducking behind one boulder, then another, then another. A strong breeze blew into his face, and this was good, for the wind would muffle his footsteps and carry his scent off behind him.

He lay down and crawled on elbows and knees until he was just a dozen yards away from the mysterious figure, then peeked around a rock.

Yes. A dogman. It was burlier than any catman, and Lynx could make out its grotesque floppy ears. It wore a grungy tunic and a heavy broadsword. Then the creature turned its head, and Lynx glimpsed its profile—a flat face with saggy jowls and wrinkled folds of flesh around the eyes. A horrible, misshapen creature. An abomination.

Lynx began to crawl backward, then paused, as he spied a second figure emerging from the cave.

This one was. . .not so terrible. A female, slender, perhaps as young as Lynx. Her snout was white, her large

eyes banded with brown, and her long, silky ears hung past her shoulders. She too wore a sword, a rapier.

In Lynx's imagination, dogmen had always been ugly and fearsome and. . .male. He wondered about the female. What was she to the hulking beast beside her? His ally? His wife? She had a sweet look to her, or was that deceptive? Had she ever killed a catman?

Suddenly the big male straightened and poked his nose in the air, sniffing loudly—once, twice.

Lynx felt a prickle of terror. While he'd been distracted, the breeze had shifted, and he was now upwind of the dogmen.

The male roared, "Catmen!" and whipped out his sword. He turned and stared straight at Lynx, who leapt up from his hiding spot and sprinted away, dodging around boulders and vaulting over ditches. Behind him came heavy footfalls and throaty growls as the male chased him, gained on him. Lynx spotted the tree, his escape.

The female cried, "No! Stop him!"

Lynx ran to the tree, sprang onto it, and scuttled upward. The male bellowed and leapt after him, and Lynx heard the swoosh of the broadsword, then the thunk of metal on wood. The whole tree shuddered as the sword struck just below his feet.

He climbed out of reach. The female dogman shrieked in despair, and the male let loose a frustrated howl.

Lynx fled the canyon, as the dogmen's terrible barking rose up from below him and echoed in his ears.

It wasn't until much later, when he was far from that place, that he noticed any pain. Then he found that he was missing a few inches off the end of his tail. Blood pooled there, and fell in thick droplets to the sand.

Night had fallen by the time Lynx got back to the village. He headed straight to the temple, raced through the main doors, and burst into the antechamber.

A scribe sat at a small wooden desk and scribbled in a ledger with a quill pen. When he saw Lynx's agitation, the scribe stood. "Can I help you?"

Lynx gasped for breath. "I have to see Father Cougar."

The scribe stared disapprovingly. "Father Cougar is delivering the evening service."

Lynx said, "There are dogmen! Living in the wasteland. Hiding in the caves."

"Dogmen? Are you sure?"

"Yes, I'm sure! They chased me, with swords." Lynx held up the tip of his tail, which was clotted with blood.

The scribe grew alarmed. “All right. Wait here.” He hurried over to a pair of heavy wooden doors, then slipped through, closing the doors behind him.

Lynx stepped forward and pressed his ear to the wood. Father Cougar’s booming voice filled the other room. Lynx could only make out some of the words, but he grasped the essence of the sermon. Father Cougar was preaching, as ever, about how these were the end times, and about the coming Victory, when Cat would return to Earth, the dogmen would be destroyed forever, and the catmen would regain their pure feline forms.

Father Cougar’s voice died away. He must be conferring with the scribe.

Finally the scribe reappeared and said, “Follow me.”

He led Lynx down a hallway to a cozy chamber whose walls were hung with tapestries. Father Cougar, wearing his vestments, sat on a sofa in the corner. He said warmly, “Lynx! Come in, come in.”

Lynx picked a chair and sat down.

Father Cougar settled back and stroked his scruffy gray whiskers. “Now, tell me what happened.”

Lynx explained about coming across the dogmen in the wasteland. Father Cougar listened intently, then said, “And they saw you?”

Lynx hesitated, then admitted, “Yes.”

Father Cougar narrowed his eyes. “How?”

Lynx stared at the floor. “I’m sorry, Father. I. . .was curious.”

Father Cougar sighed deeply. “As I thought.” He leaned forward, his gaze steady. “How many times must I tell you? Curiosity is the gravest of sins. And now you see what your curiosity has cost us. If you had avoided detection, we could have easily located these dogmen and captured them. But now they’ll be expecting us, and will move on. The danger to those who track them is greatly increased. And what if the dogmen should slip away? You may very well have cost us the great Victory we have awaited so long.”

Lynx felt ashamed, despondent. Everything Father Cougar was saying was absolutely true.

Father Cougar shook his head. “Well, there’s no helping it now.” He turned to the scribe and instructed, “Go to the inn. Fetch the templars.” The scribe nodded once, and hurried off.

Lynx felt awe. “Templars?”

“Yes,” Father Cougar said. “They arrived this morning. Two of them. Pursuing these dogmen you saw. They’ll want to question you.”

“Of course,” Lynx agreed at once, his shame quickly giving way to excitement.

Templars! Holy ones, invincible warriors of Cat. In ages past, their order had eradicated the frogmen, the birdmen, and the monkeymen, and now only the dogmen remained.

The scribe returned a short time later, leading the templars. They were the tallest, most muscular catmen that Lynx had ever seen. Both wore long white tabards, and upon their surcoats were embroidered the holy form of Cat.

Father Cougar gestured to them. “Lynx, these are our templar friends, Lion and Tiger.”

The templars nodded politely. Tiger was brawnier, stern and dignified, with gray in his fur and black stripes around his eyes. Lion had a great tawny mane and seemed almost to vibrate with barely restrained energy. And he was younger, perhaps only five or ten years older than Lynx himself.

Lion said quickly, “Tell us about the dogmen.”

So Lynx repeated his story. When he gave a description of the dogmen, the templars glanced at each other. When he got to the part about his escape from the canyon, the scribe interrupted, “Show them your tail!”

Lynx held up his injured tail.

Lion clapped his hands together and said to Tiger, “Well, look at that! Bloodied by dogmen, and he escaped

to tell of it." He turned to Lynx. "That's more than many templars can boast."

Lynx felt an almost unbearable rush of pride.

Lion said, "I've heard enough." He turned to Tiger. "Let's find this cave."

Father Cougar said, "You mean to leave at once?"

"Yes," Lion replied. "I see no reason to dally. The dogmen certainly will not."

"Take me with you!" Lynx exclaimed. "I'll lead you there."

Father Cougar looked worried. "That might be dangerous. Your parents—"

Lynx said, "It's my fault for letting the dogmen see me. You have to let me make up for it. No one knows the wasteland like I do."

Father Cougar turned to the templars. "I suppose it's up to you."

Tiger opened his mouth for the first time. "I don't think—"

Lion spoke over him. "Yes, let him come. The dogmen cut him with their swords. He deserves a chance to pay them back in kind." He grinned at Lynx and said, "But we'll cut more than just their tails, won't we?"

Tiger said nothing.

"Come on," Lion said, and gestured for Lynx to

follow.

Lynx went with the templars back to the inn, where they gathered supplies. Lion pulled a shortsword out from among his belongings and tossed it to Lynx, who caught it and put it on. Then Lynx led the templars into the wasteland. The sun was rising by the time they reached the cave.

Tiger scouted about, kneeling in places to sniff the earth, then said, “This way.”

The trail led westward, deeper into the wastes. That night the templars made camp beneath the open sky, and in the morning they continued on again. As far as Lynx knew, no catman had ever come this far before. His boldness waned, and he started to wonder what he’d gotten himself into.

On the third day, the templars stopped to rest beside a circular black pit a hundred yards across. Thick yellow grass grew all around the pit, and vines hung over its edge and into the darkness. There was something eerie and intriguing about the formation.

Lynx wondered aloud, “Could the dogmen be hiding in there?”

Tiger said, “The tracks lead on.”

Lion shrugged. “It can’t hurt to check. Call us if you see anything.”

Lynx wandered over to the pit. Its sides were rough and angular, and he scrambled easily down the many shelves of rock until he reached the cavern floor. Stray beams of sunlight lanced down through the opening overhead and caught the dust that floated in the air. Lynx turned in a slow circle, then stopped as he saw something utterly unexpected.

He drew his sword and cried out, “Lion! Lion!”

Half-buried in the side of the cave lay a strange object that was bigger than a cottage and made of a silver metal. From the object’s side protruded a structure that seemed to be a wing. The object was extraordinarily weathered, and its side was ripped open. That dark gash beckoned to Lynx. He took a step forward, then another.

From the cliff wall above, Lion called out, “Wait.”

Lynx glanced back. Lion was climbing down into the cavern. Tiger stood above, at the pit’s edge.

Lion said, “What are you doing?”

“Have you ever seen anything like it?” Lynx said. “I’m going to look inside.” He crept nearer.

“Why?” Lion called sharply.

“I. . .” Lynx was very close now. “I just. . .”

“This is curiosity,” Lion warned. “This is wrong.”

“It isn’t,” Lynx insisted, half to himself. Though why it wasn’t, he could not really say. He slipped through the gash.

For a moment everything was dark. Then a hundred spots of light—red, blue, yellow, green—flickered to life all around him. He crouched in alarm. He’d never seen anything like these lights, but his attention was quickly drawn away from them and toward a metal coffin that was built into the far wall. Its lid was made of glass, and inside he could make out the rough outline of a body.

Suddenly a loud voice spoke, seeming to come from all around. The language was unfamiliar. Lynx whirled, but saw no one.

The coffin slowly opened. Lynx backed away, cursing himself. Once again his curiosity had betrayed him, had led him to intrude upon this strange tomb, and now he had awoken something ancient and powerful. His fearful imagination conjured up images of a living corpse with blazing red eyes. But what actually emerged was no less surprising.

A monkeyman. He seemed dazed, and was dressed in some gray uniform, its chest and shoulders decorated with insignia. He glanced at Lynx, then staggered past him. Lynx stared in wonder and horror. The monkeymen were supposed to have been wiped out centuries ago.

A second shape, much smaller, leapt from the coffin, and Lynx gasped as he observed its perfect grace. For all his life he had seen this holy form depicted a thousand times, and now there was no mistaking it. This was the creator of the universe, the giver of all life. Cat, the nine-lived, had returned to Earth at last. Lynx kneeled and whispered, “My lord.”

Cat did not acknowledge him, and Lynx was unsure what to do. Through the gash came the voices of the templars, who now stood just outside. Tiger was saying, with a mix of fear and awe, “It fell from the sky. See? It broke through into this cavern.”

Lion replied angrily, “The dogmen flee, and we stand here engaged in idle—”

He stopped abruptly as the monkeyman lurched through the gash and out into the cave. Lynx followed after.

The templars stood awestruck. The monkeyman ignored them. He stumbled about, studying the damage to his winged tomb. With one hand he grasped his forehead. He still seemed disoriented.

Lynx felt disoriented himself. He wandered over to the templars, tugged Lion’s sleeve, and made him look toward the tomb, where Cat was just emerging. Lion fell instantly to his knees, and Tiger did the same.

Cat ignored them and strode along after the monkeyman. Then Cat lay down, reached into a gap between the tomb and the cave floor, and batted his paw at something within. The monkeyman grunted at Cat and used the edge of one boot to lightly brush Cat away from the hole.

Lion leapt to his feet and cried, “You dare!” He ran up to the monkeyman and seized him by the shoulder.

The monkeyman shoved him back and yelled at him in a strange language. An amulet on the monkeyman’s belt buzzed, “Get your hands off me, catman scum!” Puzzled, the monkeyman glanced at the amulet. Then he shouted at Lion, and again his magic amulet translated. “Report! What unit are you with? And what the hell are you wearing?”

Lion backed away. He moved to stand beside Tiger and said in a low voice, “A surviving monkeyman. He struck me, you saw. I should have the honor of slaying him.”

The monkeyman’s amulet spoke in a strange tongue, presumably translating Lion’s words.

Tiger said, “I don’t know. He comes to us from the sky, as a companion of Cat. Dare we slay him?”

Lion said, “Cat’s holy word commands it.”

Tiger said, “Cat himself stands before us now.

Everything is changed."

Lion glanced at Cat, who sat licking himself. Lion approached him, knelt, and said, "My lord, I am Lion, your most faithful servant. I am yours to command. What is your wish for this monkeyman? Say the word, and I will spill his blood in your name."

Cat lifted his head, gave Lion an inscrutable stare, and went back to licking himself.

Lion, still kneeling, glanced at Tiger and hissed, "Why does he not answer?"

Tiger growled softly, "It is not our place to question his motives. He will speak when he wills it."

Lion turned back to Cat. "Answer me, lord, I beg you. Or if you will not, give us some sign, that we may do your will."

The monkeyman seemed to finally shake off his confusion and comprehend the danger. He glanced back and forth between Lion and Cat, then crouched and whistled to Cat and spoke. The amulet translated, "Hey, come here. Here, kitty kitty kitty. Come on."

Lion said darkly, "He presumes to command Cat."

The monkeyman ignored this and kept calling. Cat gazed at the monkeyman, but did not stir.

Lion said, "Cat rejects him."

"Wait!" The monkeyman held up a hand.

“Just. . .Leo, come here, dammit!” He whistled again. “Here, kitty kitty.”

Lion reached for his sword and said, “He dies.”

But at that moment, Cat languidly uncurled himself and strolled across the dirt to the monkeyman, who scratched Cat’s whiskers, then his ears, his neck, and his back. Cat purred and rubbed against the monkeyman’s shins. Lion froze.

“Cat shows him favor,” Tiger observed. “Cat has a special plan for him.”

The monkeyman picked up Cat and held him like a shield. Cat continued to purr.

Lion glared at the monkeyman for a long time, then strode over to him, stood very close, and said softly, “I do not know why Cat chooses to prolong your miserable existence, abomination. But let no one say that I was curious.” He brushed by him and walked away.

The monkeyman lowered his head to Cat and whispered, “Good Cat.”

The catmen set out again, now joined by Cat and his strange monkeyman companion. The monkeyman brought along a sort of satchel in which he carried Cat, who seemed pleased enough with the arrangement. Lion

remained hostile to the monkeyman, no matter how often Tiger insisted that the Victory was now at hand and that Lion should be rejoicing. The templars often knelt before Cat and asked him for guidance, but Cat never deigned to reply.

Sometimes the monkeyman would stare into the amulet, but whatever it told him must have displeased him, for he would shake it, strike it, and yell at it. Lynx was desperate to question the monkeyman, but that would be showing curiosity, so instead he tried to mimic the stony indifference of the templars. Still, Lynx couldn't keep his eyes off of Cat.

The monkeyman noticed this. Finally he said, "Do you want to hold him?"

Lynx was stunned. He glanced at the templars, who were now well ahead. "I couldn't."

"Sure." The monkeyman reached into the satchel, lifted Cat free, and handed him over to Lynx, who scratched Cat's ears the way the monkeyman had. Cat purred.

"See?" the monkeyman said. After a moment, he added, "What's your name?"

Lynx hesitated, then told him.

"I'm Charles," the monkeyman said. Lynx didn't respond. After a moment, the monkeyman lowered his

voice and said, “Tell me, Lynx. What year is this?”

Lynx was perplexed, but the monkeyman seemed earnest. Lynx passed Cat back to him and said slowly, “1293.”

“Using what calendar?”

“I don’t understand.”

“Dating from when?”

“Why. . .” This was the strangest question Lynx had ever heard. “From the creation of the world.”

The monkeyman said nothing for a long time. He and Lynx resumed walking. Finally the monkeyman asked in a low tone, “And what is this ‘Victory’?”

“You really don’t know? Cat hasn’t told you?”

The monkeyman said, “Cat isn’t overly fond of explaining himself. As you may have noticed.”

So Lynx spoke of the Victory. When he saw that the monkeyman was utterly confused, he found himself explaining more and more. Soon he had gone all the way back to the beginning, back to when Cat had created the world and all its inhabitants, including his most favored creation, cats, whom Cat had made in his own image. To them alone Cat had granted the gift of speech. But the cats had grown curious about what other animals might say, and so the cats disobeyed and shared the gift of speech with birds, frogs, dogs, and monkeys. But those

other animals were wicked and spoke only lies. When Cat returned and saw what had happened, he was very angry, and punished those animals, twisting them into catmen, birdmen, frogmen, dogmen, and monkeymen. The catmen wailed and beseeched Cat to restore them to their perfect forms, but Cat decreed that he would not until the catmen had wiped the Earth clean of the abominations—any animal who spoke and was not feline. But Cat, in his ultimate mercy, also decreed that this redemption was inevitable, and promised that in the last days he would return to Earth to lead the catmen to ultimate glory. Lynx finished, "So that is the Victory. That is why Cat has come again. But his ways are strange. We did not know that he would be accompanied by a monkeyman."

The monkeyman said, "And these dogmen we're pursuing. . .are the last on Earth?"

"Perhaps," Lynx said. "They are among the last, certainly."

"And the. . .other monkeymen. Like me. Are all. . .?"

"Dead," Lynx confirmed. "Long ago."

That night Lynx was awoken by the sound of the monkeyman sobbing softly. Lynx thought: He weeps for his vanquished race. It had not occurred to Lynx that abominations might be capable of such grief. This monkeyman was the last of his kind, probably. And in the

end, when the Victory came, he too would be cleansed from the Earth. That made Lynx feel almost sad.

He did not get back to sleep for a long time.

The templars tracked the dogmen ever deeper into the wasteland. Supplies were running low, and nothing edible grew here. But Lion said, “Good. The dogmen will have the same problem. They’ll have to turn and face us.”

And he was right. The next day, the catmen mounted a low, wind-swept pass, and Lynx spotted the dogmen waiting amidst a jumble of boulders.

The male stood there, holding his great broadsword. The female reached for her rapier, but the male barked at her, and she reluctantly backed away. The male stepped forward, seeming worn and haggard, but for all that he was still even bigger and more imposing than Lynx remembered.

Lion sighed. “Only two. And one a female.” He drew his sword and strode forward. “Stay back. I’ll handle this.”

Lynx looked to Tiger. “He’ll fight alone?”

Tiger was stoic. “He prefers it this way.”

“Why bring me all this way?” Lynx said. “Why give me a sword, if he never meant for me to help?”

"That's just how he is."

The monkeyman moved to stand beside them. "How he *is* is arrogant and reckless. Why do you endure it?"

Tiger said softly, "You'll see why."

Lion closed in on the male, who roared and thrust at him with savage force. Lion parried casually, spun in a crouch, and came up with both fists wrapped around the hilt of his sword. He slammed his fists into his opponent's jowled face, and the male thudded to the ground. Lion kicked away the dogman's sword, and just like that it was over.

Lynx exclaimed, "He's amazing!"

Tiger nodded. He hurried forward, and Lynx and the monkeyman followed. Tiger knelt to tie up the male as Lion strode toward the female.

She'd drawn her rapier, and as Lion came on she backed away in a fighting stance, her movements swift and graceful. Lion held his sword at his side.

She thrust at his throat. Her speed was remarkable, but Lion whipped up his sword and easily blocked the blow.

The female backed away, launching a series of feints and attacks. Lion laughed, contemptuous, as he parried each one. But her last thrust deflected off his blade and scratched his shoulder.

He glanced at the small circle of blood that blossomed on his white tabard. “Not bad. I might have to try.”

He moved to close with her, but again she slipped away.

Tiger looked uneasy. He whispered, “At close range, he’s unstoppable. But he has no patience.”

The female kept retreating, staying always just beyond the reach of Lion’s sword. She attacked again, and again she got through, pricking his other shoulder. He hardly seemed to notice. His expression was dark now. He kept advancing.

Lynx said, “We have to help.”

Tiger hesitated. “He. . .would not like that.”

Lion roared, slashing at the female’s head. She backed out of reach, then quickly counterattacked, striking his chest. Three stains now blazed on his tabard. The blood from his shoulder wounds soaked down to his elbows. He seemed to be slowing.

Lynx said, “If you won’t help him, I will.”

He drew his shortsword and ran in a wide arc, so that he circled behind the female, then charged her.

As he neared, she pivoted and thrust at his face. Lynx ducked and retreated. Instantly she turned back to Lion, but now he had closed with her, and she was doomed. When she attacked, he locked her wrist and wrenched her

sword away. He smashed an elbow into her face, and hurled her over his hip. Then Lion was upon her, straddling her, pounding his fists into her face, knocking her head this way and that. Soon she was unconscious, with blood oozing from her muzzle, but the blows kept falling.

Lynx murmured, “Wait,” but Lion ignored him.

Finally, Lion stood. His chest wound had bled a red blotch around the holy form of Cat that was embroidered on his surcoat.

Lynx said, “Are you all right?”

Lion’s eyes were full of fury. “I told you to stay back! You could’ve gotten us both killed!” He shoved Lynx aside and stormed on past.

Tiger came forward and knelt to bind the female. He said, “He gets like this. Just let him calm down. It’ll be all right.”

The templars marched the dogmen east. The prisoners were not spoken to, and when night fell they were bound at wrist and ankle. Tiger took the first watch while Lion dozed. Lynx sat a dozen yards away, off by himself, leaning on a boulder.

The monkeyman settled down beside him and nodded

at the prisoners. “So what happens to them now?”

Lynx said, “The templars will want to show them off, charge money to see them, that sort of thing.”

The monkeyman’s voice was soft. “You said these might be the last dogmen on Earth.”

“They might,” Lynx agreed.

“And then they’ll be executed?”

“Yes.”

The monkeyman caught Lynx’s gaze, held it. “And you’re going to let that happen?”

Lynx glanced over at Tiger, but the templar was too far away to hear them. Lynx hissed, “Of course.”

The monkeyman said, “No one has ever called me squeamish, and I have no love for dogmen, but to wipe out an entire race. . .That’s evil, Lynx. You must know that. Whatever some old legend says.”

“You’re just a monkeyman. You wouldn’t understand.”

“I understand more than you can imagine,” the monkeyman said. “I’ve flown among the stars, and slept for ages, and I remember Earth as it was, when monkeymen—as you call us—ruled all. We made you, Lynx, you catmen, in our labs. The dogmen too, and all the rest. We made you to be soldiers, and I guess we did our jobs too well, because I awake to find that you’ve

beaten us. But that doesn't—"

"This is blasphemy," Lynx said. "I warn you, not even Cat's favor will protect you if—"

"What? Him?" The monkeyman jabbed a thumb toward the satchel where Cat slept. "He's an animal, like any other. I raised him from a kitten."

Lynx stood. "I should kill you for that."

The monkeyman glared up at him. "Fine. Kill me. Like you killed my race. What've I got to live for?" He gestured toward Lion. "Rouse your maniac friend there. Tell him to chop off my head. He'd like that. And would you? I thought you were different."

Lynx scowled and stomped away. He sat down beside Tiger, who asked, "What's wrong?"

Lynx said furiously, "Nothing."

Tiger glanced at the monkeyman, then said, "Monkeys lie. That's why they should never have been granted the gift of speech."

Lynx crossed his arms and agreed, "Yes. They lie."

For the next two days, Lynx refused to speak to the monkeyman, but doubts gnawed at him. Much as he hated to admit it, the monkeyman was right about one thing: Lynx *was* different from the templars.

He had always thought of himself as faithful, but traveling with them had made him see just how shallow and perfunctory his belief really was. Lion's faith was like fire—it gave intensity to everything he did, but it was a fire that was raging out of control and would someday consume him. And Tiger's faith was like a mountain—immense, solid, and immovable. But Lynx realized that his own faith was more like the wasteland itself, existing only in the absence of anything else. The monkeyman's briefly spouted heresies made sense to Lynx in a way that the wisdom of Father Cougar never really had.

That afternoon, Lynx found himself walking for a moment beside the female. Before he could stop himself, he blurted out, "You fought well."

She looked up, startled to be spoken to. "What?"

Lion was off ahead of them. Tiger was back a ways, out of earshot. Lynx said softly, "The other day. You fought well. I think you would've beaten him, if I hadn't interfered. Beaten a templar. You should be proud of that."

"Oh," she said, puzzled. "Thank you."

"Sure," Lynx said awkwardly, and hurried off.

The monkeyman sidled up from behind him. "Why did you do that?"

Lynx maintained a stony silence for a moment, then

said, “I. . .I was just . . .”

“Curious,” the monkeyman said.

Lynx sighed.

The monkeyman added, “Curiosity is no sin. If you’re not curious, you’ll never learn.”

“That’s blasphemy,” Lynx said, but his tone was flat.

The monkeyman didn’t respond.

After a time, Lynx said, “Even if I agreed with you—about the dogmen, I mean—what can I do?”

The monkeyman whispered, “You can pretend to be asleep tonight, and when I create a distraction you can crawl over to the dogmen and cut their bonds, and let them escape.”

Lynx was startled. “I didn’t mean. . .”

“I know.” The monkeyman gave him a thin smile. “But think about it. I’ll create the distraction. What you do then is up to you.”

“Wait,” Lynx said. This was too much. “What sort of distraction?”

“You’ll see. Your little outburst the other night gave me an idea.”

Lynx considered this. “During whose watch?”

“Whose do you think?”

Lion’s, of course. He was by far the more easily distracted.

“Think about it,” the monkeyman repeated, and fell behind again.

As night came on, the templars made camp atop a low hill. Tiger slumbered, and Lynx pretended to. He still couldn’t decide whether to help the dogmen. After several hours, he heard movement and peeked out one eye. The monkeyman came up to stand behind Lion and said, “You seem like the religious type.”

Lion turned to him. “Do not mock me, monkeyman.” Lion was now facing away from Lynx and the prisoners.

The monkeyman sat down on a stone. “Not at all. I just thought you might be interested in some of the religious ideas of the monkeymen.”

“The chattering of abominations does not interest me.” Lion began to turn away.

“Wait,” the monkeyman said. “For example, did you know that many monkeymen believed that they were made in the image of the creator of the universe?”

Lion laughed at that. “Did they ever look in a mirror? Surely they could not believe that the creator of the universe was so ungainly and absurd.”

The monkeyman shrugged. “Others had another idea about how they came to be. It was called ‘evolution by

natural selection.’”

Lion’s back was still turned. Lynx glanced at the prisoners. He thought he could crawl to them without attracting attention.

If he was caught at this, the templars would kill him. And what if Father Cougar was right, about Cat and the Victory and all of it? Lynx stared at the female. He was impressed by her, liked her, though they’d barely spoken. He didn’t want to see her die. If he helped her escape, the catmen would have other opportunities to apprehend her, if necessary. But if she died. . .

He began to crawl toward her.

Lion was saying, “Even if that were possible, it would take thousands of years.”

“Millions,” the monkeyman corrected.

“The world is not that old.”

“Well, these monkeymen had some ideas about that too.”

The female’s eyes were wide as Lynx crawled up beside her. He glanced over her shoulder at Lion, who was absorbed in the argument. Lynx drew the shortsword and whispered, “If I set you free, will you swear to run away and never come back, and never trouble any catman ever again?”

She stared at him a moment, then nodded quickly.

“All right.” Lynx sliced her bonds, then squirmed over to the male to cut those ropes too.

Lion exclaimed, “That is heresy!”

The monkeyman replied, “That is fact.”

Lion stood up. He towered over the monkeyman and said, “Take it back!”

“I’m just telling you what—”

“Silence!” Lion used the back of his fist to strike the monkeyman across the face, knocking him to the dirt.

Lynx freed the male, and together the prisoners began to crawl off.

Lion drew his sword and strode toward the monkeyman, who sprang up and backed away. Lion said, “Come here.”

“No. Get away from me.” The monkeyman turned and stumbled down the hill, and Lion went after him.

Lynx thought: Lion will kill him. The monkeyman knew this would happen. He knew he was sacrificing himself.

Lynx glanced at the prisoners, who were now on their feet and hurrying away.

Lion and the monkeyman were soon lost in the darkness, but Lynx could hear them cursing. He considered waking Tiger, who might restrain Lion. But Tiger might also notice the prisoners fleeing.

Then the monkeyman let out an anguished wail, and Tiger opened his eyes. Lynx had no choice. He cried, "Tiger!"

The templar reached for his sword. "What?"

Lynx pointed. "Lion. He's gone crazy!"

Tiger leapt up, and Lynx followed. As they reached the bottom of the hill, Lion stepped from the shadows.

Tiger shouted, "What have you done?"

Lion was smug. "The monkeyman blasphemed with every word. I have silenced him."

No! Lynx thought, hurrying forward, scanning the ground for a corpse.

But the monkeyman was alive, weeping, kneeling over the smashed remains of his magic amulet. There was a gash over his brow, and his eyes were forlorn as he uttered a string of gibberish.

Lion had spared the monkeyman's life, but now there wasn't a single being on Earth that the monkeyman could talk to.

Lynx said, "I'm so sorry. . .Charles."

At the sound of his name, the monkeyman looked up. "Charles," he repeated. He took a deep breath, wiped his eyes, and rose to his feet. Lynx took him by the arm, and they hiked back up the hill.

They entered camp just behind Tiger, who said,

“Where are the prisoners?”

Lion looked stricken. He glanced about.

Tiger cursed. He ran across the camp and stared off down the far side of the hill. “Nothing. They’re gone.”

“I. . .” Lion hesitated. Then he pointed to the monkeyman. “It’s his fault!”

“His fault?” Tiger raged. “Was it his job to watch the prisoners? Or was it yours?”

Lion stomped away, then turned back and glared at the monkeyman. “He knows something.”

“Maybe,” Tiger said. “No one’s ever freed themselves from my ropes before. We could question him. . .if you hadn’t ‘silenced’ him.”

Lion scowled.

Tiger gathered up some belongings. “It won’t matter. We’ll catch the dogmen again, and we’ll have the truth from their own lips.” His tone was grim. “And we’ll take no more chances. No more prisoners. The dogmen die.”

The catmen walked all through the night, and at dawn they came upon a shallow cave in which the dogmen were huddled together, sick and weary.

The templars strode forward, drawing their swords and advancing on the dogmen, who stood to meet them.

The male pounded his meaty fist into his palm—a futile gesture of defiance. The dogmen were unarmed, and would be slaughtered. Lynx and the monkeyman watched helplessly.

But then Lynx called out, “Wait!”

Tiger paused and glanced back.

Lynx said, “Let Cat judge them.”

Lion sneered. “Cat’s feelings toward dogmen are well known.”

“Then what’s the harm?”

Tiger thought this over. He lowered his blade. “All right.”

Lynx approached the monkeyman, who was confused. Lynx nodded at the satchel, and the monkeyman got the idea. He lifted Cat free and set him on the ground.

Lynx knelt. “My lord, we have need of your wisdom. What is your wish for these dogmen? Please, give us a sign.”

Cat looked up at Lynx and said nothing.

Lion growled, “Why trouble Cat with this? He has already decreed death for all dogmen. Long ago.”

Lynx stood up and took a step back. He called gently, “Here, kitty kitty.”

Lion said, “What are you doing?”

Lynx backed up until he stood between the dogmen,

then he crouched and called, “Here, kitty kitty kitty.”

Cat continued to stare.

Lynx said to the dogmen, “Come on. Like this.” He added softly, “Please, just try.”

After a moment, the female bent down and called, “Here, kitty kitty.” The male did the same.

Lion was outraged. “What is this?”

But sure enough, Cat stirred. He picked his way across the ground until he stood before Lynx and the dogmen. Lynx reached out and scratched between Cat’s ears, and Cat purred. The female stroked Cat’s back. Cat wound among Lynx and the dogmen and rubbed against their legs.

The templars stood stunned. Tiger intoned, “Cat shows them favor.”

Lion said, “No! The Cat I serve shows no mercy to dogmen!”

Tiger gestured. “Look.”

“It’s some trick,” Lion said. “This. . .this is not Cat. It cannot be. Maybe this is one of the cats who—”

“That is heresy,” Tiger warned. “The cats were transformed into catmen. All of them.”

Lynx cried out, “Cat returns to Earth with a new message of peace!”

“No!” Lion shouted. “No! Cat, the eternal, does not

change his mind."

Tiger turned away and sheathed his sword.

Lion stared at him in horror. "What are you doing?"

"I will not stand against the incarnation."

Lion was shocked. "What?"

Tiger said, "I must think on all this." He stared coldly over his shoulder at the dogmen and said to them, "You have a reprieve from me, for now." He began to walk away. To Lion he said, "Do as you like."

Lion looked all around, at Cat, at the dogmen, at the monkeyman. Finally Lion shot Lynx a withering glare, then followed after Tiger.

Lynx waited until the templars were a good distance off, then he let out a long sigh of relief. He thought to himself: I can't believe it. We won.

But his gladness was tempered by apprehension. The templars would return, and even if they didn't they'd spread their tale. What would Father Cougar think? Or Lynx's parents? And what would become of Cat and the monkeyman and the dogmen now? Others would come seeking them, he knew.

For a moment the group all watched each other uncertainly.

Then the monkeyman laughed. He stepped forward and introduced himself to the male. "Charles." And then

again to the female. “Charles.”

She glanced at Lynx, who gave her a bemused smile and shrugged.

Cat purred and rubbed against Lynx’s shins. In that moment, he felt a bit of hope. If they all just stuck together, he thought, things might work out, in the end.

He bent down and petted Cat, and scratched his chin.

He whispered, “Good cat.”

David Barr Kirtley (www.davidbarrkirtley.com) has been described as “one of the newest and freshest voices in sf.” His work frequently appears in *Realms of Fantasy*, and he has also sold fiction to the magazines *Weird Tales* and *Intergalactic Medicine Show*, the podcasts *Escape Pod* and *Pseudopod*, and the anthologies *New Voices in Science Fiction, The Dragon Done It,* and *Fantasy: The Best of the Year*. He’s also appeared in several of John Joseph Adams’s anthologies: *The Living Dead* and *The Living Dead 2*, and he has a story forthcoming in the anthology *The Way of the Wizard* that’s due out in November. Kirtley is also the co-host (with Adams) of the *Geek’s Guide to the Galaxy* podcast.

Spotlight: David Barr Kirtley

The theme of curiosity comes up in two ways in "Cats in Victory": as the gravest sin, and as the path to learning. How are those related in your mind?

In this post-apocalyptic future, obviously most knowledge has been lost, but it seemed possible to me that the idea of "curiosity killed the cat" might be something that catmen would fixate on and would pass down through the generations, so that it takes on greatly magnified significance. (The idea that their cat god has nine lives is a similar sort of thing.) Of course, most religions seem to discourage their adherents from asking too many questions—see Adam and Eve, Prometheus and Pandora, etc.—so the two ideas dovetailed really nicely. The catmen religion actually seems pretty logical to me. Sometimes things just work out like that when you're writing. Obviously I'm most sympathetic to the view that you should keep asking questions and acquiring knowledge, but on the other hand, if our technology ends up completely destroying us—nuclear war, catastrophic climate change, something along those lines—then I guess curiosity really will turn out to be our gravest sin.

Your characters are confronted with evidence that directly counters their understanding of their history, their faith, and who they are. They all respond in different ways. Do you relate to that experience, and to the response of any or all of your characters?

Well, the version of history I was taught in school as a child was wildly inaccurate: Columbus proved that the world was round, the pilgrims and Indians were best friends, and America is the best at everything and is always on the right side of everything, and so on. It was very unsettling to piece together a more realistic view (and it left me extremely cynical about education). So I certainly empathize with Lynx at the level of finding out that your whole understanding of history is wrong. My parents are both scientists and I was raised with a very scientific outlook, so fortunately I never had any kind of religious indoctrination that I needed to struggle with, but it's a subject that fascinates me and I've talked to or listened to interviews with hundreds of people about how they walked away from their church. For most people it's an extremely gradual, painful process, but for some, like Lynx, it's pretty quick—they read one book on evolution and that's it. My take on it is that about 10% of the population is hard-wired for skeptical thinking and about

10% is hard-wired for magical thinking, and everyone else just kind of takes their cues from their social group and could go either way.

The genetically-enhanced soldier is a fairly common theme in science fiction. It's more unusual to see it applied to different species, as in "Cats in Victory." Is there backstory in the "Cats" universe that led to dogs and cats being modified, rather than humans?

I imagine the catmen and dogmen as having been created by mixing human and animal DNA—mostly human, actually—so they actually are modified humans, in that sense. It's not an uncommon idea in science fiction, I don't think. I mean, The Island of Doctor Moreau, etc.

What about human beings, do you think that's where we're headed? What do you think it would take to get past the ethical issues and stigma of 'playing God'?

I don't honestly think the issue of "playing God" is going to be much of a factor in the long run. It may stymie research in the US for a while, as it has with stem cells, but that just means Europe and Asia (for example) will

leave us in the dust. I don't really think it's possible to halt technological progress, since all it takes is one non-conforming lab somewhere in the world to break any ban. All technological progress has been widely denounced in its day as the work of the devil—everything from vaccines to the telephone. No doubt our distant ancestors who tamed fire and invented the wheel were felt to be "playing God." Of course, I feel that all gods and spirits are inventions of the human imagination, so a hesitance about trespassing on "their" turf strikes me as completely nonsensical. There are of course serious ethical issues surrounding genetic engineering, but those need to be discussed in an intellectually serious way, and the phrase "playing God" contributes nothing to the conversation. In any event, I have no doubt that someday—should we survive that long—we'll be changing our genes as casually as we change our clothes, that our descendants will look like all manner of wild, alien creatures to us, and that no one will even remember that a debate over tampering with human DNA ever took place.

So, are you a dog person or a cat person?

Definitely a cat person. I grew up with a cat named

Maxwell (after the physicist James Clerk Maxwell), and I currently have two cats, Hobbes and Kzin. I've never owned a dog. Actually, the original incarnation of "Cats in Victory" was a series of picture books I did starting around age 5, in which the cats were the heroes and the dogs were the villains, and the cats simply slaughtered the dogs and always emerged victorious (hence the title). Looking back on these books now, I'm pretty horrified by the messages they contain, and this short story was in part an attempt to expiate my guilt over all those dead dogs. It's also pretty apparent, looking at my very early work, how much my worldview was shaped by violent Saturday morning cartoons. (If you're conversant with Saturday morning cartoons from the '80s, you may spot a few references to them scattered throughout the text.) So with this story, I wanted to create something with that same sense of color and adventure, which I still really enjoy, but with a more thoughtful message. And I do hope the story is something that parents will want to share with their kids.

Is there anything else you would like us to know about your story?

I'm very excited to see it appear in the debut issue of

Lightspeed!

Top Ten Reasons Why Uplifted Animals Don't Make Good Pets

Carol Pinchefsky

From Cordwainer Smith's "The Ballad of Lost C'Mell" to the "Pern" series to Alan Dean Foster's "Taken" trilogy, animals gifted with genetically-enhanced intelligence have been, and still are, a popular science fiction trope. But aside from getting Timmy out of the well a whole heck of a lot faster, what are the real-world implications of teaching Lassie to talk? Would cats' natural curiosity lead to all our embarrassing secrets being exposed on Fluffy's Twitter feed? Would Seaworld still be so popular if we had to jump through burning hoops for Flipper's amusement?

Hmmm, maybe we ought to save some of that intelligence enhancement technology for our own species. I think we're gonna need it.

TOP TEN REASONS WHY UPLIFTED ANIMALS DON'T MAKE GOOD PETS

10. Your budgie demands repeated viewings of Howard the Duck.

9. Your tabby is arrested for selling catnip blunts.

8. Your poodle snidely comments, “Bitch, please,” during episodes of *It’s Me or The Dog*.

7. Your salamander wants a quiet word with you about your alligator shoes.

6. Pet Court

5. Polly wants a cracker. And a Ferrari.

4. No matter how much you pound on the bathroom door, your ferret still won’t curtail her grooming regimen.

3. You have to teach the bunnies family planning.

2. The dog has seen you naked. And he doesn’t like what he sees.

And finally. . .

1. The dog has seen you naked. And he likes what he sees.

When she is not freelance writing, **Carol Pinchefsky** is the editor of the Space Future Journal (www.spacefuture.com), a website dedicated to space tourism, as well as the humor competition editor for *F&SF*. *To Serve Man* is her favorite cookbook.

Amaryllis
Carrie Vaughn

I never knew my mother, and I never understood why she did what she did. I ought to be grateful that she was crazy enough to cut out her implant so she could get pregnant. But it also meant she was crazy enough to hide the pregnancy until termination wasn't an option, knowing the whole time that she'd never get to keep the baby. That she'd lose everything. That her household would lose everything because of her.

I never understood how she couldn't care. I wondered what her family thought when they learned what she'd done, when their committee split up the household, scattered them—broke them, because of her.

Did she think I was worth it?

It was all about quotas.

"They're using cages up north, I heard. Off shore, anchored," Nina said. "Fifty feet across—twice as much protein grown with half the resources, and we'd never have to touch the wild population again. We could double our quota."

I hadn't really been listening to her. We were resting, just for a moment; she sat with me on the railing at the prow of *Amaryllis* and talked about her big plans.

Wind pulled the sails taut and the fiberglass hull cut through waves without a sound, we sailed so smooth. Garrett and Sun hauled up the nets behind us, dragging in the catch. *Amaryllis* was elegant, a 30-foot sleek vessel with just enough cabin and cargo space—an antique but more than seaworthy. She was a good boat, with a good crew. The best.

"Marie—" Nina said, pleading.

I sighed and woke up. "We've been over this. We can't just double our quota."

"But if we got authorization—"

"Don't you think we're doing all right as it is?" We had a good crew—we were well fed and not exceeding our quotas; I thought we'd be best off not screwing all that up. Not making waves, so to speak.

Nina's big brown eyes filled with tears—I'd said the wrong thing, because I knew what she was really after, and the status quo wasn't it.

"That's just it," she said. "We've met our quotas and kept everyone healthy for years now. I really think we should try. We can at least ask, can't we?"

The truth was: No, I wasn't sure we deserved it. I

wasn't sure that kind of responsibility would be worth it. I didn't want the prestige. Nina didn't even want the prestige—she just wanted the baby.

"It's out of our hands at any rate," I said, looking away because I couldn't bear the intensity of her expression.

Pushing herself off the rail, Nina stomped down *Amaryllis'* port side to join the rest of the crew hauling in the catch. She wasn't old enough to want a baby. She was lithe, fit, and golden, running barefoot on the deck, sun-bleached streaks gleaming in her brown hair. Actually, no, she *was* old enough. She'd been with the house for seven years—she was twenty, now. It hadn't seemed so long.

"Whoa!" Sun called. There was a splash and a thud as something in the net kicked against the hull. He leaned over the side, the muscles along his broad, coppery back flexing as he clung to a net that was about to slide back into the water. Nina, petite next to his strong frame, reached with him. I ran down and grabbed them by the waistbands of their trousers to hold them steady. The fourth of our crew, Garrett, latched a boat hook into the net. Together we hauled the catch onto the deck. We'd caught something big, heavy, and full of powerful muscles.

We had a couple of aggregators—large buoys made of scrap steel and wood—anchored fifty miles or so off the coast. Schooling fish were attracted to the aggregators, and we found the fish—mainly mackerel, sardines, sablefish, and whiting. An occasional shark or marlin found its way into the nets, but those we let go; they were rare and outside our quotas. That was what I expected to see—something unusually large thrashing among the slick silvery mass of smaller fish. This thing was large, yes, as big as Nina—no wonder it had almost pulled them over—but it wasn't the right shape. Sleek and streamlined, a powerful swimmer. Silvery like the rest of the catch.

"What is it?" Nina asked.

"Tuna," I said, by process of elimination. I had never seen one in my life. "Bluefin, I think."

"No one's caught a bluefin in thirty years," Garrett said. Sweat was dripping onto his face despite the bandanna tying back his shaggy dark hair.

I was entranced, looking at all that protein. I pressed my hand to the fish's flank, feeling its muscles twitch. "Maybe they're back."

We'd been catching the tuna's food all along, after all. In the old days the aggregators attracted as many tuna as mackerel. But no one had seen one in so long, everyone

assumed they were gone.

"Let's put him back," I said, and the others helped me lift the net to the side. It took all of us, and when we finally got the tuna to slide overboard, we lost half the net's catch with it, a wave of silvery scales glittering as they hit the water. But that was okay: Better to be under quota than over.

The tuna splashed its tail and raced away. We packed up the rest of the catch and set sails for home.

The *Californian* crew got their banner last season, and flew its red and green—power and fertility—from the top of the boat's mast for all to see. Elsie of the *Californian* was due to give birth in a matter of weeks. As soon as her pregnancy was confirmed, she stopped sailing and stayed in the household, sheltered and treasured. Loose hands resting atop mountainous belly, she would sometimes come out to greet her household's boat as it arrived. Nina would stare at her. Elsie might have been the first pregnant woman Nina had seen, as least since surviving puberty and developing thoughts of carrying a mountainous belly of her own.

Elsie was there now, an icon cast in bronze before the setting sun, her body canted slightly against the weight in

her belly, like a ship leaning away from the wind.

We furled the sails and rowed to the pier beside the scale house. Nina hung over the prow, looking at Elsie, who was waving at *Californian's* captain, on the deck of the boat. Solid and dashing, everything a captain ought to be, he waved back at her. Their boat was already secured in its home slip, their catch weighed, everything tidy. Nina sighed at the image of a perfect life, and nobody yelled at her for not helping. Best thing to do in a case like this was let her dream until she grew out of it. Might take decades, but still. . .

My *Amaryllis* crew handed crates off to the dockhand, who shifted our catch to the scale house. Beyond that were the processing houses, where onshore crews smoked, canned, and shipped the fish inland. The New Oceanside community provided sixty percent of the protein for the whole region, which was our mark of pride, our reason for existing. Within the community itself, the ten sailing crews were proudest of all. A fishing crew that did its job well and met its quotas kept the whole system running smoothly. I was lucky to even have the *Amaryllis* and be a part of it.

I climbed up to the dock with my folk after securing the boat, and saw that Anders was the scalemaster on duty. The week's trip might as well have been for

nothing, then.

Thirty-five years ago, my mother ripped out her implant and broke up her household. Might as well have been yesterday to a man like Anders.

The old man took a nail-biting forty minutes to weigh our catch and add up our numbers, at which point he announced, “You’re fifty pounds over quota.”

Quotas were the only way to keep the stock healthy, to prevent overfishing, shortages, and ultimately starvation. The committee based quotas on how much you needed, not how much you could catch. To exceed that—to pretend you needed more than other people—showed so much disrespect to the committee, the community, to the fishing stock.

My knees weak, I almost sat down. I’d gotten it exactly right, I knew I had. I glared at him. Garrett and Sun, a pair of brawny sailors helpless before the scalemaster in his dull gray tunic of authority, glared at him. Some days felt like nothing I did would ever be enough. I’d always be too far one way or the other over the line of “just right.” Most days, I’d accept the scalemaster’s judgment and walk away, but today, after setting loose the tuna and a dozen pounds of legitimate catch with it, it was too much.

“You’re joking,” I said. “Fifty pounds?”

“Really,” Anders said, marking the penalty on the chalkboard behind him where all the crews could see it. “You ought to know better, an experienced captain like you.”

He wouldn’t even look at me. Couldn’t look me in the eye while telling me I was trash.

“What do you want me to do, throw the surplus overboard? We can eat those fifty pounds. The livestock can eat those fifty pounds.”

“It’ll get eaten, don’t worry. But it’s on your record.” Then he marked it on his clipboard, as if he thought we’d come along and alter the public record.

“Might as well not sail out at all next week, eh?” I said.

The scalemaster frowned and turned away. A fifty pound surplus—if it even existed—would go to make up another crew’s shortfall, and next week our catch would be needed just as much as it had been this week, however little some folk wanted to admit it. We could get our quota raised like Nina wanted, and we wouldn’t have to worry about surpluses at all. No, then we’d worry about shortfalls, and not earning credits to feed the mouths we had, much less the extra one Nina wanted.

Surpluses must be penalized, or everyone would go fishing for surpluses and having spare babies, and then

where would we be? Too many mouths, not enough food, no resiliency to survive disaster, and all the disease and starvation that followed. I'd seen the pictures in the archives, of what happened after the big fall.

Just enough and no more. Moderation. But so help me I wasn't going to dump fifty pounds just to keep my record clean.

"We're done here. Thank you, Captain Marie," Anders said, his back to me, like he couldn't stand the sight of me.

When we left, I found Nina at the doorway, staring. I pushed her in front of me, back to the boat, so we could put *Amaryllis* to bed for the night.

"The *Amaryllis'* scales aren't that far off," Garrett grumbled as we rowed to her slip. "Ten pounds, maybe. Not fifty."

"Anders had his foot on the pad, throwing it off. I'd bet on it," Sun said. "Ever notice how we're only ever off when Anders is running the scales?"

We'd all noticed.

"Is that true? But why would he do that?" said Nina, innocent Nina.

Everyone looked at me. A weight seemed to settle on us.

"What?" Nina said. "What is it?"

It was the kind of thing no one talked about, and Nina was too young to have grown up knowing. The others had all known what they were getting into, signing on with me. But not Nina.

I shook my head at them. “We’ll never prove that Anders has it in for us so there’s no good arguing. We’ll take our licks and that’s the end of it.”

Sun said, “Too many black marks like that they’ll break up the house.”

That was the worry, wasn’t it?

“How many black marks?” Nina said. “He can’t do that. Can he?”

Garrett smiled and tried to take the weight off. He was the first to sign on with me when I inherited the boat. We’d been through a lot together. “We’ll just have to find out Anders’ schedule and make sure we come in when someone else is on duty.”

But most of the time there were no schedules—just whoever was on duty when a boat came in. I wouldn’t be surprised to learn that Anders kept a watch for us, just to be here to rig our weigh-in.

Amaryllis glided into her slip, and I let Garrett and Sun secure the lines. I leaned back against the side, stretching my arms, staring up along the mast. Nina sat nearby, clenching her hands, her lips. Elsie and

Californian's captain had gone.

I gave her a pained smile. "You might have a better chance of getting your extra mouth if you went to a different crew. The *Californian*, maybe."

"Are you trying to get rid of me?" Nina said.

Sitting up, I put my arms across her shoulders and pulled her close. Nina came to me a clumsy thirteen-year old from Bernardino, up the coast. My household had a space for her, and I was happy to get her. She'd grown up smart and eager. She could take my place when I retired, inherit *Amaryllis* in her turn. Not that I'd told her that yet.

"Never. Never ever." She only hesitated a moment before wrapping her arms around me and squeezing back.

Our household was an oasis. We'd worked hard to make it so. I'd inherited the boat, attracted the crew one by one —Garrett and Sun to run the boat, round and bustling Dakota to run the house, and she brought the talented J.J., and we fostered Nina. We'd been assigned fishing rights, and then we earned the land allocation. Ten years of growing, working, sweating, nurturing, living, and the place was gorgeous.

We'd dug into the side of a hill above the docks and built with adobe. In the afternoon sun, the walls gleamed

golden. The part of the house projecting out from the hill served as a wall protecting the garden and well. Our path led around the house and into the courtyard. We'd found flat shale to use as flagstones around the cultivated plots, and to line the well, turning it into a spring. A tiny spring, but any open fresh water seemed like a luxury. On the hill above were the windmill and solar panels.

Everyone who wanted their own room had one, but only Sun did—the detached room dug into the hill across the yard. Dakota, J.J., and Nina had pallets in the largest room. Garret and I shared a bed in the smaller room. What wasn't house was garden. We had producing fruit trees, an orange and a lemon, that also shaded the kitchen space. Corn, tomatoes, sunflowers, green beans, peas, carrots, radishes, two kinds of peppers, and anything else we could make grow on a few square feet. A pot full of mint and one of basil. For the most part we fed ourselves and so could use our credits on improving *Amaryllis* and bringing in specialties like rice and honey, or fabric and rope that we couldn't make in quantity. Dakota wanted to start chickens next season, if we could trade for the chicks.

I kept wanting to throw that in the face of people like Anders. It wasn't like I didn't pay attention. I wasn't a burden.

The crew arrived home; J.J. had supper ready. Dakota and J.J. had started out splitting household work evenly, but pretty quickly they were trading chores—turning compost versus hanging laundry, mending the windmill versus cleaning the kitchen—until J.J. did most everything involving the kitchen and living spaces and Dakota did everything with the garden and mechanics.

By J.J.'s sympathetic expression when he gave me my serving—smoked mackerel and vegetables tonight—someone had already told him about the run-in with the scalemaster. Probably to keep him or Dakota from asking how my day went.

I stayed out later than usual making a round of the holding. Not that I expected to find anything wrong. It was for my own peace of mind, looking at what we'd built with my own eyes, putting my hand on the trunk of the windmill, running the leaves of the lemon tree across my palms, ensuring that none of it had vanished, that it wasn't going to. It had become a ritual.

In bed I held tight to Garrett, to give and get comfort, skin against skin, under the sheet, under the warm air coming in through the open skylight above our bed.

"Bad day?" he said.

"Can never be a bad day when the ship and crew come home safe," I said. But my voice was flat.

Garrett shifted, running a hand down my back, arranging his arms to pull me tight against him. Our legs twined together. My nerves settled.

He said, “Nina’s right, we can do more. We can support an extra mouth. If we appealed—”

“You really think that’ll do any good?” I said. “I think you’d all be better off with a different captain.”

He tilted his face toward mine, touched my lips with his, pressed until I responded. A minute of that and we were both smiling.

“You know we all ended up here because we don’t get along with anyone else. But you make the rest of us look good.”

I squirmed against him in mock outrage, giggling.

“Plenty of crews—plenty of households—don’t ever get babies,” he said. “It doesn’t mean anything.”

“I don’t care about a baby so much,” I said. “I’m just tired of fighting all the time.”

It was normal for children to fight with their parents, their households, and even their committees as they grew. But it wasn’t fair, for me to feel like I was still fighting with a mother I’d never known.

The next day, when Nina and I went down to do some

cleaning on *Amaryllis*, I tried to convince myself it was my imagination that she was avoiding me. Not looking at me. Or pretending not to look, when in fact she was stealing glances. The way she avoided meeting my gaze made my skin crawl a little. She'd decided something. She had a secret.

We caught sight of Elsie again, walking up from the docks, a hundred yards away but her silhouette was unmistakable. That distracted Nina, who stopped to stare.

"Is she really that interesting?" I said, smiling, trying to make it a joke.

Nina looked at me sideways, as if deciding whether she should talk to me. Then she sighed. "I wonder what it's like. Don't you wonder what it's like?"

I thought about it a moment and mostly felt fear rather than interest. All the things that could go wrong, even with a banner of approval flying above you. Nina wouldn't understand that. "Not really."

"Marie, how can you be so. . .so *indifferent*?"

"Because I'm not going to spend the effort worrying about something I can't change. Besides, I'd much rather be captain of a boat than stuck on shore, watching."

I marched past her to the boat, and she followed, head bowed.

We washed the deck, checked the lines, cleaned out

the cabin, took inventory, and made a stack of gear that needed to be repaired. We'd take it home and spend the next few days working on it before we went to sea again. Nina was quiet most of the morning, and I kept glancing at her, head bent to her work, biting her lip, wondering what she was thinking on so intently. What she was hiding.

Turned out she was working up the courage.

I handed the last bundle of net to her, then went back to double check that the hatches were closed and the cabin was shut up. When I went to climb off the boat myself, she was sitting at the edge of the dock, her legs hanging over the edge, swinging a little. She looked ten years younger, like she was a kid again, like she had when I first saw her.

I regarded her, brows raised, questioning, until finally she said, "I asked Sun why Anders doesn't like you. Why none of the captains talk to you much."

So that was what had happened. Sun—matter-of-fact and sensible—would have told her without any circumspection. And Nina had been horrified.

Smiling, I sat on the gunwale in front of her. "I'd have thought you'd been here long enough to figure it out on your own."

"I knew something had happened, but I couldn't

imagine what. Certainly not—I mean, no one ever talks about it. But. . .what happened to your mother? Her household?"

I shrugged, because it wasn't like I remembered any of it. I'd pieced the story together, made some assumptions. Was told what happened by people who made their own assumptions. Who wanted me to understand exactly what my place in the world was.

"They were scattered over the whole region, I think. Ten of them—it was a big household, successful, until I came along. I don't know where all they ended up. I was brought to New Oceanside, raised up by the first *Amaryllis* crew. Then Zeke and Ann retired, took up pottery, went down the coast, and gave me the ship to start my own household. Happy ending."

"And your mother—they sterilized her? After you were born, I mean."

"I assume so. Like I said, I don't really know."

"Do you suppose she thought it was worth it?"

"I imagine she didn't," I said. "If she wanted a baby, she didn't get one, did she? But maybe she just wanted to be pregnant for a little while."

Nina looked so thoughtful, swinging her feet, staring at the rippling water where it lapped against the hull, she made me nervous. I had to say something.

“You’d better not be thinking of pulling something like that,” I said. “They’d split us up, take the house, take *Amaryllis*—”

“Oh no,” Nina said, shaking her head quickly, her denial vehement. “I would never do that, I’d never do anything like that.”

“Good,” I said, relieved. I trusted her and didn’t think she would. Then again, my mother’s household probably thought that about her too. I hopped over to the dock. We collected up the gear, slinging bags and buckets over our shoulders and starting the hike up to the house.

Halfway there Nina said, “You don’t think we’ll ever get a banner, because of your mother. That’s what you were trying to tell me.”

“Yeah.” I kept my breathing steady, concentrating on the work at hand.

“But it doesn’t change who you are. What you do.”

“The old folk still take it out on me.”

“It’s not fair,” she said. She was too old to be saying things like that. But at least now she’d know, and she could better decide if she wanted to find another household.

“If you want to leave, I’ll understand,” I said. “Any house would be happy to take you.”

“No,” she said. “No, I’ll stay. None of it—it doesn’t

change who you are."

I could have dropped everything and hugged her for that. We walked awhile longer, until we came in sight of the house. Then I asked, "You have someone in mind to be the father? Hypothetically."

She blushed berry red and looked away. I had to grin —so that was how it stood.

When Garrett greeted us in the courtyard, Nina was still blushing. She avoided him and rushed along to dump her load in the workshop.

Garrett blinked after her. "What's up with her?"

"Nina being Nina."

The next trip on *Amaryllis* went well. We made quota in less time than I expected, which gave us half a day's vacation. We anchored off a deserted bit of shore and went swimming, lay on deck and took in the sun, ate the last of the oranges and dried mackerel that J.J. had sent along with us. It was a good day.

But we had to head back some time and face the scales. I weighed our haul three times with *Amaryllis'* scale, got a different number each time, but all within ten pounds of each other, and more importantly twenty pounds under quota. Not that it would matter. We rowed

into the slip at the scale house, and Anders was the scalemaster on duty again. I almost hauled up our sails and turned us around, never to return. I couldn't face him, not after the perfect trip. Nina was right—it wasn't fair that this one man could ruin us with false surpluses and black marks.

Silently, we secured *Amaryllis* to the dock and began handing up our cargo. I managed to keep from even looking at Anders, which probably made me look guilty in his eyes. But we'd already established I could be queen of perfection and he would consider me guilty.

Anders' frown was smug, his gaze judgmental. I could already hear him tell me I was fifty pounds over quota. Another haul like that, he'd say, we'll have to see about yanking your fishing rights. I'd have to punch him. I almost told Garrett to hold me back if I looked like I was going to punch him. But he was already keeping himself between the two of us, as if he thought I might really do it.

If the old scalemaster managed to break up *Amaryllis*, I'd murder him. And wouldn't that be a worse crime than any I might represent?

Anders drew out the moment, looking us all up and down before finally announcing, "Sixty over this time. And you think you're good at this."

My hands tightened into fists. I imagined myself lunging at him. At this point, what could I lose?

"We'd like an audit," Nina said, slipping past Sun, Garrett, and me to stand before the stationmaster, frowning, hands on her hips.

"Excuse me?" Anders said.

"An audit. I think your scale is wrong, and we'd like an audit. Right?" She looked at me.

It was probably better than punching him. "Yes," I said, after a flabbergasted moment. "Yes, we would like an audit."

That set off two hours of chaos in the scale house. Anders protested, hollered at us, threatened us. I sent Sun to the committee house to summon official oversight—he wouldn't try to play nice, and they couldn't brush him off. June and Abe, two senior committee members, arrived, austere in gray and annoyed.

"What's the complaint?" June said.

Everyone looked at me to answer. I almost denied it—that was my first impulse. Don't fight, don't make waves. Because maybe I deserved the trash I got. Or my mother did, but she wasn't here, was she?

But Nina was looking at me with her innocent brown eyes, and this was for her.

I wore a perfectly neutral, business-like expression

when I spoke to June and Abe. This wasn't about me, it was about business, quotas, and being fair.

"Scalemaster Anders adjusts the scale's calibration when he sees us coming."

I was amazed when they turned accusing gazes at him and not at me. Anders' mouth worked, trying to stutter a defense, but he had nothing to say.

The committee confirmed that Anders was rigging his scale. They offered us reparations, out of Anders' own rations. I considered—it would mean extra credits, extra food and supplies for the household. We'd been discussing getting another windmill, petitioning for another well. Instead, I recommended that any penalties they wanted to levy should go to community funds. I just wanted *Amaryllis* treated fairly.

And I wanted a meeting, to make one more petition before the committee.

Garrett walked with me to the committee office the next morning.

"I should have been the one to think of requesting an audit," I said.

"Nina isn't as scared of the committee as you are. As you *were*," he said.

“I’m not—” But I stopped, because he was right.

He squeezed my hand. His smile was amused, his gaze warm. He seemed to find the whole thing entertaining. Me—I was relieved, exhausted, giddy, ashamed. Mostly relieved.

We, *Amaryllis*, had done nothing wrong. I had done nothing wrong.

Garrett gave me a long kiss, then waited outside while I went to sit before the committee.

June was in her chair, along with five other committee members, behind their long table with their slate boards, tally sheets, and lists of quotas. I sat across from them, alone, hands clenched in my lap, trying not to tap my feet. Trying to appear as proud and assured as they did. A stray breeze slipped through the open windows and cooled the cinderblock room.

After polite greetings, June said, “You wanted to make a petition?”

“We—the *Amaryllis* crew—would like to request an increase in our quota. Just a small one.”

June nodded. “We’ve already discussed it and we’re of a mind to allow an increase. Would that be suitable?”

Suitable as what? As reparation? As an apology? My mouth was dry, my tongue frozen. My eyes stung, wanting to weep, but that would have damaged our

chances, as much as just being me did.

"There's one more thing," I managed. "With an increased quota, we can feed another mouth."

It was an arrogant thing to say, but I had no reason to be polite.

They could chastise me, send me away without a word, lecture me on wanting too much when there wasn't enough to go around. Tell me that it was more important to maintain what we had rather than try to expand—expansion was arrogance. We simply had to maintain. But they didn't. They didn't even look shocked at what I had said.

June, so elegant, I thought, with her long gray hair braided and resting over her shoulder, a knitted shawl draped around her, as much for decoration as for warmth, reached into the bag at her feet and retrieved a folded piece of cloth, which she pushed across the table toward me. I didn't want to touch it. I was still afraid, as if I'd reach for it and June would snatch it away at the last moment. I didn't want to unfold it to see the red and green pattern in full, in case it was some other color instead.

But I did, even though my hand shook. And there it was. I clenched the banner in my fist; no one would be able to pry it out.

“Is there anything else you’d like to speak of?” June asked.

“No,” I said, my voice a whisper. I stood, nodded at each of them. Held the banner to my chest, and left the room.

Garrett and I discussed it on the way back to the house. The rest of the crew was waiting in the courtyard for us: Dakota in her skirt and tunic, hair in a tangled bun; J.J. with his arms crossed, looking worried; Sun, shirtless, hands on hips, inquiring. And Nina, right there in front, bouncing almost.

I regarded them, trying to be inscrutable, gritting my teeth to keep from bursting into laughter. I held our banner behind my back to hide it. Garrett held my other hand.

“Well?” Nina finally said. “How did it go? What did they say?”

The surprise wasn’t going to get any better than this. I shook out the banner and held it up for them to see. And oh, I’d never seen all of them wide-eyed and wondering, mouths gaping like fish, at once.

Nina broke the spell, laughing and running at me, throwing herself into my arms. We nearly fell over.

Then we were all hugging, and Dakota started worrying right off, talking about what we needed to build a crib, all the fabric we'd need for diapers, and how we only had nine months to save up the credits for it.

I recovered enough to hold Nina at arm's length, so I could look her in the eyes when I pressed the banner into her hands. She nearly dropped it at first, skittering from it as if it were fire. So I closed her fingers around the fabric and held them there.

"It's yours," I said. "I want you to have it." I glanced at Garrett to be sure. And yes, he was still smiling.

Staring at me, Nina held it to her chest, much like I had. "But. . .you. It's yours. . ." She started crying. Then so did I, gathering her close and holding her tight while she spoke through tears, "Don't you want to be a mother?"

In fact, I rather thought I already was.

Carrie Vaughn is the bestselling author of the Kitty Norville series. The eighth novel, *Kitty Goes to War*, is due out in July 2010. She's also written a young adult novel, *Voices of Dragons*, and a stand-alone fantasy novel, *Discord's Apple.* Her short stories can be found in many magazines and anthologies. She lives in Colorado with a fluffy attack dog. Visit her at www.carrievaughn.com.

Spotlight: Carrie Vaughn

What inspired the future depicted in your story?

The initial seed of inspiration was my ocean-going characters, who made their livelihood by the sea. I had to find a world to put them in, and I thought about what a positive post-apocalyptic future would look like. That is, the civilization-shattering disaster happened, but humanity didn't lose all its technology (as I don't think we would) and has managed, at least in this region, to build a successful, sustainable society. It would look different than our culture, but it wouldn't be entirely alien.

I brought all this to Paolo Bacigalupi and had a talk with him about what it would take to build that kind of society, and he brought in the concept of social engineering versus technological engineering. That is, most of the problems we're dealing with aren't actually technological. We can solve the technology—it's the social aspects, the social expectations that are at issue.

And then that brought me to a world where attitudes toward childbearing are quite different than what we have. Sustainability is achieved by avoiding

overproduction, and that includes having kids.

Do you think science fiction is an effective tool for showing people the necessity of developing a way to forge a sustainable future?

Well, I think it's a very effective tool for running thought experiments about what could happen if we don't solve some of these problems. I'm not sure anyone really sees them as a blueprint for *how* to develop a sustainable future—stories are usually focused on conflict and problems rather than solutions. I worry that people with an aversion to cautionary tales don't see past that aspect of that kind of story and so blow them off entirely.

What kind of things should governments be doing now to keep the kinds of extreme measures depicted in your story from being necessary?

I don't know how much governments really can do. It's back to the social engineering problem. The attitudes of people and the communities they form have to change, and that can't be legislated.

At what point do you think that "family planning" becomes "community planning," as it is in your story, and how close do you think we are to that tipping point?

There's that overused saying, "It takes a village to raise a child." I think we're pretty darned close to some kind of tipping point, since so many family-planning issues are huge hot-button political topics right now: what defines marriage, how children should be educated, the legality of abortion, the necessity of strong sex ed programs, etc. This stuff used to be tucked away behind closed doors or taken for granted, and now it's in flux, with diametrically opposed philosophies coming into vast, sometimes violent conflict over it.

This is part of why I question a government's ability to do anything about this, since we're dealing with people's fundamental beliefs at this point. How do you convince someone who believes that God wants them to have 19 kids that that sort of lifestyle is unsustainable on a large scale? That the community might see that as a ridiculous drain of resources for one family to demand?

The real tipping point will come when most individual, nuclear families can no longer rely on themselves for the resources they need to survive. When a

group of families in a community become interconnected to the point where they depend on each other for survival. When an individual can't make decisions without having those decisions affect the entire community.

Right now, in the industrialized world at least, a financially successful family or individual can stay pretty isolated from their community, if they so choose. But if there's ever a cataclysmic loss of resources, that could change.

One of the themes of your story is the faceted nature of "motherhood" and the relationship of mothers and daughters. How did your own experiences of motherhood—as a daughter, a mother, a mentor—go into shaping those aspects of your characters?

Well, the bulk of my experience that went into the story is as a childless woman in her late thirties who seems to lack any kind of biological clock and is frankly quite baffled with the spate of childbearing that's been going on in my peer group for the last ten years or so. Lately I've been trying to tap into that dynamic of wanting kids, having kids, trying to have kids, etc. if nothing else so that I have something to talk about with all these new families. That's part of why I focused the story on that—

how would attitudes about childbearing change in this kind of environment? Will people ever get to a point where they believe that having children is a carefully-guarded privilege rather than something that nearly everybody does as a matter of course?

It's almost an ongoing joke with some of me and my friends—you need a license to be able to drive a car, but absolutely anyone can have kids, at any time. What if that wasn't the case? Maybe that *shouldn't* be the case. And at that point you have a vast political can of worms. Which is just fascinating, isn't it?

That brings in the pretty strong point in the story that a woman can be a mother without actually giving birth. The definition of motherhood itself will change in a situation like this. Marie is the mother of her household, and her household is absolutely a family, even though we might not immediately recognize it as such.

You have an interesting mix of high-tech and low-tech in "Amaryllis": forced, surgically implanted contraception, but adobe housing. What were some of the challenges in keeping a future low-tech world believable?

I started with the assumption that a resources-related

apocalypse wouldn't instantly take society back to a pre-industrial level of technology. People would still have a lot of the bits and pieces—like solar power, wind power, etc.—of modern technology.

Adobe's an interesting example, because living out in the west and southwest, adobe isn't necessarily seen as low-tech. Instead, it's ubiquitous—it's widely used because it's so well-suited to the environment, stays cool in the summer, retains heat in the winter, it uses readily available materials, etc. Same with wind power. Wind power is ancient and adaptable. It would be the first technology people would turn to in the absence of coal and oil.

Medical technology is something I imagined that people in this world would hang onto as much as they could. Also, the knowledge of modern fishing and canning techniques aren't going to vanish.

I wanted to build a community that had obviously banded together to survive, had guarded and nurtured and passed down an important set of technologies to help with that survival, but also maintained a fairly low-tech way of life as a matter of survival.

This kind of thing is going on right now, to varying degrees. There are households using solar and wind power to get off the grid, that have turned to growing and

raising their own food as a way to avoid some of the problems associated with industrial agriculture, and so on. I took that movement and tried to extrapolate it to an entire community.

Every Step We Take

Amanda Rose Levy

Climate change. Over-fished oceans. Killer hurricanes. Species extinction. Polluted air and water. Not a pretty list, is it? And a hell of a legacy we're leaving behind for the kids. But these are the harsh realities we're facing now as the consequences of our decades of planetary abuse finally come a-callin'. So what, if anything, can we do to fix this fine mess we've gotten ourselves into?

Humanity has always treated nature as a thing to be conquered and controlled, harnessed and harvested. We like being the masters of our domain. But last century, let's face it, things got completely out of hand, leading to near system failure on a global scale and contributing to the depletion of our natural resources faster than they can be replenished. So is it any wonder that the last few years have seen a real push towards finding more sustainable ways of living?

From car companies to television networks to cleaning products, who isn't talking "green" these days? But talk is cheap (and talk from corporations a whole lot cheaper) and real progress has to be promoted, and made, on a grassroots level. But what does all this green talk

really add up to? What should we be doing to make a difference? What, exactly, does sustainable mean?

Well, just for fun, let's look at the situation through the lens of the Aesop fable "The Ant and the Grasshopper." Remember this one? The ant works laboriously throughout the whole year to put away enough food to live comfortably in winter. The grasshopper, meanwhile, spends all summer singing and dancing without a thought to saving for the future. One guess as to who makes it through December. Moral of the story: prepare today for the needs of tomorrow.

But sustainability isn't just about saving for the future, and it's not about sacrificing, either. It's about living responsibly within our means and meeting our present needs without compromising the ability of future generations to meet theirs.

The challenge of sustainable living is to preserve one's quality of life without deprivation or lowering one's lifestyle. It's about consuming only the resources we need, leading to improved living conditions via ecological, economical and aesthetic preservation. Living like the Ant ensures progress *and* survival. Living like the Grasshopper. . .well, that leads to the problems we're dealing with now.

The best measure of sustainable achievement is our

Ecological Footprint, an estimation of how each of us is personally responsible for energy efficiency in our pursuit of four basic human needs: food, energy, materials and water. Our footprint's size indicates the impact that our activities and lifestyle choices have on the Earth. In this case, smaller is better.

Footprint increases with the amount of non-renewable energy resources we consume: coal, petroleum, natural gas. It's the harnessing and combustion of these fossil fuels that releases CO2, amplifying the atmosphere's natural greenhouse effect, leading to climate change, which can manifest itself as anything from flooding and increasingly destructive storms (Katrina, anyone?) to permanent habitat change.

So, in light of all this cheery information, what are some simple ways we can each achieve a smaller footprint?

One of the biggest and most obvious ways is to switch to renewable energy sources: wind, solar, geothermal, or biomass power. Call your local utility company and find out what Green Energy sources are available to you. More demand means lower costs, which, in turn, leads to even greater demand. Everybody wins.

But if that sort of wholesale change isn't an option, how about something small like turning down the

thermostat? Buy some extra blankets, cuddle more—nobody said energy conservation had to be boring. For your commute, choose public transportation or a bicycle, or how about some old-fashioned walking? (Lord knows we could all use the exercise!)

One of the biggest impacts we can have? Cutting our consumption of fossil fuels in the production and distribution of goods and services. In other words: eat locally.

What's that about, you say?

Many of us have only a black box understanding of how food gets from farm to fork. There's the cow. . .and then there's the T-bone wrapped in cellophane at the local grocery store. The in-between? We're all a little fuzzy on that part.

What most people don't realize is that each step in the manufacture of industrial foods, from processing to packaging to transportation to market makes a considerable ecological impact. Think about it: the water and energy to grow, process and package the food, the burning of fossil fuels to transport it from one end of the country to the other or from one country to another. That's a lot of energy expended. So one good way to decrease your amount of greenhouse gas emissions (not to mention improve your health) is by eating locally grown, organic

produce from farm stands instead of the packaged and processed stuff. Local, organic produce tastes better, and haven't you heard? Farmer's markets are the hippest thing since sliced bread—not to mention the hippest place to *buy* sliced bread.

Growing food in a way that provides human subsistence *and* safeguards a healthy ecosystem is the heart of sustainable agriculture. Plus, using alternatives to pesticides, eliminating sources of excess nutrients from animal wastes and fertilizers and preserving biodiversity by using seeds that haven't been genetically modified all lead to healthier living.

There's been a lot of talk about water being the next lynchpin commodity, a' la oil. Well, here are some interesting water facts: nearly all the water we use is for agriculture and industrial production of goods and services. The remaining portion is for domestic use and only a small percentage is available for drinking. So to conserve this precious resource, try taking shorter showers, or shower with a friend (there's that cuddling again!) Fix your leaky plumbing and drink from refillable bottles of tap water instead of buying bottled water. We use an estimated seventeen million barrels of oil per year to make plastic bottles. And did you know it takes three liters of water to produce one one-liter water bottle?

Seems a bit ridiculous, doesn't it?

Then there's everything we flush down the drain. Chemicals and toxins are affecting not only our tap water, but our beaches and our fish as well. So next time you're purchasing personal care products or something to beat the grease in your kitchen, think about where all that stuff is going after it exits your home. Think about the rivers and the oceans you're having a direct impact on. Think about the fish that live in them. Think about them and act. From household cleaners to shampoo to laundry detergent, tons of environmentally gentle products are easily available now. There's no excuse. And Nemo will thank you.

As individuals and as communities, we all have the capacity to change the nature of our interaction with the Earth. Sustainability isn't a hippie fad, nor some political buzzword. It's about preserving our resources as well as our way of life. Just by making small changes to our living habits, we can be the prudent Ant *and* the partying Grasshopper. And with each step we take, we'll come closer to achieving sustainable, environmentally friendly lifestyles and leaving behind us a legacy that will benefit future generations for centuries to come.

To find out your ecological footprint, try one of these online calculators:

http://www.footprintnetwork.org
http://www.myfootprint.org/

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