EIGHTH DAY GENESIS

A worldbuilding codex for writers and creatives

Edited by Sabrina Klein

EIGHTH DAY GENESIS

A Worldbuilding Codex
for Writers and Creatives

Edited by
Sabrina Klein

Table of Contents

Editor's Foreword

Sabrina Klein

There's a moment when you can close your eyes and see a world of your own making.

It might start from a grain of sand, the way light filters through the trees, the feel of satin robes, the smell of cooking soup, or simply a wish for somewhere, some*when* else. It happens for different reasons for different people. Something, *anything* can pull your mind from the boundaries of our mundane world and set it to creating somewhere *else*.

I remember when it happened to me. I was staring at the blackboard one cold afternoon during second grade. I had seen *The Dark Crystal* (1982), *Dragonslayer* (1981), and *Legend* (1985), jumpstarting my love of fantasy. Creatures and landscapes far more interesting than anything my teacher was talking about filled my head. And then a world sprung into being inside my head.

Or at least, the rough sketch of a world.

I added to it at least daily. A detail here, a feature there. The landscape, the weather, the people all filled in. I didn't just use my imagination, though. For years, I spent my spare time reading non-fiction, just so that I could make my world accurate and *believable*.

I still research, and that's part of how this book started. I grew frustrated by the resources available. Worldbuilding books were filled with facts that had no references, or had no guidance on how to *write* from the worldbuilding resources, or they were just filled with someone else's ideas. None of them had references *and* technique of how to build a fantasy or science fiction world.

At the 2011 GenCon Writers Symposium I approached Steven with the idea of *Eighth Day Genesis*. A resource where we could make the manual I always wanted.

Eighth Day Genesis is meant to help writers with their worlds. The depth of your world is important…even essential. Worlds should be able to be touched, smelled, seen, and heard. Each of these things is vital to creating reality. The smallest details can illuminate volumes. It is surprising what details with bring forth entire feelings, associations, and images. Stereotypes can be broken, archetypes deviated from, and wonder spilled forth like gossip from an old friend.

Steven and I hope this book will point you in the right direction and help you fill in those details, and we both look forward to enjoying the worlds *you* create.

Building Worlds in a Hostile Universe

Patrick S. Tomlinson

So you want to build a world? Excellent. The current record is six days, see if you can beat it. I have faith in you. But wait! Where are you going to put your world once it's finished? Just like the suburbs, not all galactic neighborhoods are created equal. Some are pretty rough places to crash. Some are so vanilla and boring that nobody would choose to live there. Let me be your real-estate agent to the stars… literally.

Choosing a Galactic Neighborhood

Just like with the decision to build a house, the first thing you should consider when building your world is location, location, location. If your story is taking place entirely "dirtside," then your planet's place in the galaxy may never come up, but there

are some interesting things you may want to consider that can help drive the story regardless.

Most of us have heard of the concept of a solar system's "Goldilocks Zone," commonly defined as the orbital area around a star that is at just the right temperature that liquid water can exist without freezing or boiling away. We'll talk more about this zone later, but what many people do not realize is that galaxies have their own Goldilocks Zones where conditions are more favorable for life.

Just like inside a solar system, your world can be too close or too far from the galactic center to give life much of a chance. Not surprisingly, our own Sol system sits smack dab between these zones. This is not to say that life would be impossible outside this neighborhood, but it would definitely face new challenges. Let's start with the galactic boondocks.

The sticks of any galaxy possess several unique characteristics that could impact your world and how your story develops. But they all revolve around one element; scarcity. The further from the galactic core one travels, the thinner the density of stars becomes. By the simple law of averages, there will be fewer planets, and thereby fewer chances for life to evolve in the outskirts. While this is obvious, what may not be so obvious is that fewer stars, especially very large ones, also mean fewer heavy elements.

As you likely know, all of the elements, save hydrogen, helium, and small amounts of lithium, are formed inside the core of stars. What you may not know, however, is that a small to

medium sized star can't manufacture elements past iron on the periodic table.

This is because iron is a star killer. At the heart of a star, elements fuse together, releasing energy and fueling the furnace. In young stars, this fuel is hydrogen almost exclusively, but as they age, other elements are introduced to the fire. Each new element can be fused into the next, releasing progressively less energy, until the largest stars reach iron. The problem is, when you fuse iron, the process actually absorbs energy, rather than releasing it. Instead of gasoline, iron acts like a bucket of cold water thrown onto a camp fire, snuffing it out in a matter of seconds.

If your star is about twice the size of ours or smaller, the story ends with iron. It is only when you get to stars large enough to collapse into supernova can all of the other elements be created in any quantity. In the outer rim of the galaxy, gasses are less abundant, which means the stars that do form trend on the small side. The interstellar medium this far out, therefore, will not be nearly as rich in heavier elements as it is closer to the core.

Fewer heavy elements mean less material available for rocky planet formation, and therefore even fewer Earthlike planets. Among the terrestrial worlds that do manage to form this far out, the CHNOPS elements may be abundant, (the six elements critical to life as we know it: Carbon, Hydrogen, Nitrogen, Oxygen, Phosphorus, and Sulfur) but the elements of civilization and industry might be scant indeed. Your characters may live on a world where metals like nickel, copper, zinc, and lead are as rare as silver and gold here on Earth. Plutonium and Uranium

would be almost unheard of, making nuclear fission impossible. In the near absence of such materials, building a technologically advanced society would be very difficult. Of course, so would building nuclear weapons, so there's that.

On the other side of the habitable zone is the galaxy's inner core. Here, overabundance is the issue.Stellar density increases the closer one gets to the core. More stars have the potential to bring more than just beautiful nighttime viewing.

The core would bring much higher levels of high-energy radiation. Somewhat counter-intuitively, somewhat higher radiation levels might not be all bad for life on some worlds. The bedrock mechanism of evolution is mutation. On Earth, most mutations start when a stray high-energy particle crashes headlong into a DNA strand, altering a bit of code. Most of the time, the result isn't good for the organism. Every now and then, however, the change is actually beneficial. With *slightly* elevated radiation levels, evolution on your world could be supercharged. But outside that narrow window, things would become difficult for complex life, with higher rates of cancer and genetic damage overcoming the increased rate of evolution.

In addition to the obvious dangers posed by radiation, the density at the core brings other issues life would have to contend with. Our solar system is surrounded by a shell of trillions of comets and debris known as the Kuiper Belt and theOort cloud. This region starts just past the orbit of Pluto, extending perhaps as far as an entire light year into deep space. It is expected that most solar systems have a similar feature. Normally, objects in the Oort cloud are of little risk to life on Earth. However, every

now and then, either through collisions or gravitational disturbances, a comet is knocked loose from its stable orbit and plunges towards the inner system.

In the core, the tight proximity of other stars means that gravitational interactions between different solar systems will be far stronger than they are in our neck of the woods. This could lead to dramatically higher orbital instability in the Oort clouds of core systems, meaning higher levels of comet and asteroid bombardment of any planets. Ask a dinosaur how that worked out for them.

Picking Good Neighbors

So you've settled on the right stellar cull-du-sac for your planet. Good, but before you pack the moving starship, maybe you should meet the neighbors. Just fifteen short years ago, exoplanetswere and unproven theory, and believed by many astronomers to be a rare breed.

Today, we know better. As of this writing, over seven hundredexoplanets have been detected, with another thousand potentials waiting to be confirmed. However, while planets are plentiful outside of our solar system, most of them truly deserve the name 'alien'.

Our solar system isn't unique, which is great for sci-fi lovers, but its arrangement may be fairly unusual, presenting even more complications for life. A large portion of the planets we've found are Jupiter-range gas giants, simply because their large size

makes the easier to detect. What surprised astronomers was the diverse range of orbits these giant occupied.

Many of them are what are known as 'Hot Jupiters', gas giants that orbit unbelievably close to their parent star, sometimes close enough that they complete an orbit in only a few days. Under our current understanding of planet formation, gas giants condense far from their star. Therefore, these HotJupiters are believed to have migrated on a decaying orbit towards their star until finally stabilizing closer in. On their downward spiral, these monsters would have either destroyed and absorbed any rocky planets they came across, or ejected them from the system, dooming them to float untethered through deep space. It is nearly impossible that any system with a hot Jupiter could also be home to a terrestrial world in a habitable orbit.

However, while some gas giants are world-devouring monsters, others act as guardian angels. Such is the case with our own Jupiter and Saturn. Their stable orbits far from Earth, coupled with their huge masses mean that any asteroids or comets with ill intentions first have to run the gamut of the outer system. Jupiter's immense gravity has absorbed countless impactors, most famously illustrated when the comet Shoemaker-Levy 9 crashed into Jupiter's atmosphere in July, 1994[i]. The resulting impact scars were larger than Earth herself.

It is impossible to know how many bullets Jupiter has jumped in front of for us, but the number is probably very high. A solar system without stable gas giants would be like living on the fifty yard marker of a shooting range. A world without such a shield would have a rich history of asteroid cataclysms.

Speaking of asteroids, let's clear up one thing real quick. Asteroid belts are not like in the movies, okay? So sparsely populated is the asteroid belt, that when NASA sent Pioneer 10 and 11, Voyager 1 and 2, Galileo, Cassini, and New Horizons into the deep solar system, they didn't have to make a single course correction to avoid a collision.

While there are millions of objects in the belt, they are very dispersed. The total mass of all objects in the belt is less than one percent that of Earth. They are the remnants of a failed planet whose formation was interrupted by orbital resonance with Jupiter, (acting the bully this time). Much denser, and the belt would have had enough material to overcome the gravitational disruptions from Jupiter and form another rocky planet.

So while we can all agree that the asteroid scene in Empire Strikes Back[ii] was really awesome, it was also really impossible, because of the ridiculous density of the asteroids in the belt. The ring scene in Episode II[iii] was somewhat better, as planetary rings can be very densely packed.

Another potential danger is the discovery that many exoplanets circle their parent stars along highly elliptical orbits[iv], which bring them scorchingly close, then sling them far from the heat of the star. Any terrestrial planets on such a path would bake in sterilizing heat and radiation, before freezing solid, with only brief periods spent inside the system's habitable zone. Any gas giants on such a path would make it impossible for any other worlds to maintain stable orbits, as their massive gravity would jar them loose.

But those are neighbors on the next block. What about the one right next door? Moons can have huge influence over their host worlds, for good or bad, which we will discuss in more detail later. Of the eight planets in our solar system, (sorry Pluto, take it up with Neil DegrasseTyson) only two are moonless; Mercury, and Venus. Yet even among all the dozens and dozens of moons swarming around the rest of the planets, ours is unique, which was very lucky.

Earth's moon is strange in several ways, but most prominently is its size relative to Earth[v]. Mar's twin moons are just large rocks, probably asteroids captured by the red planet's gravity well after being knocked loose from the asteroid belt[vi]. Jupiter has four large moons, yet these bodies are all miniscule in comparison to Jupiter's bulk. The same is true of Saturn, Uranus, and Neptune.

Our moon is a massive body by contrast. It is also very dense, second only to Io[vii]. The Moon's large size gives us more than just the tides, its gentle tug helps to stabilize the Earth's rotation, preventing our axis from wobbling more than a few degrees, keeping our seasons and weather patterns stable and predictable, (larger 'Super Earths' may have enough mass to maintain a stable rotation on their axis, but they have other issues we'll talk about shortly). And as the Moon's cratered surface can attest, it has taken more than a few hits in our defense.

But the relationship wasn't always so rosy. The Moon has been moving slowly away from Earth since its formation four and a half billion years ago, at the rate of about an inch and a half per year[viii]. As it goes, the Earth's rotation slows ever so

slightly[ix]. In the distant past, however, the Moon was much closer, the Earth's day was much quicker, (only six hours!) and the tidal effects of the moon's gravity were absolutely devastating.

In the early days of Earth's oceans, the moon was so close and its gravity so powerful that the tides swelled not the handful of feet we see today, but hundreds of feet. These immense walls of water swept inland dozens of miles, every day. Beachfront property would be a hard sell on such a world.Civilization would have to be based far inland, away from the plethora or resources found in the oceans. So, while our moon today is Earth's greatest partner, things could have been very different.

Moons aren't limited to just a supporting role in sci-fi, however. Star Wars, Firefly, and Avatar all prominently featured moons filled with complex life, even whole civilizations, (yes, the Ewoks were a civilization, stop whining). But not so fast, life on a moon has hidden dangers to consider.

Of all the dozens of moons we know about from our own solar system, none of them are even a significant fraction of Earth's size. The largest in both diameter and mass is Jupiter's Ganymede, with twice the mass of our moon[x]. It also has the distinction of being the only known moon with a dipolar magnetosphere powered by a liquid metallic core. Yet even mighty Ganymede is only two and a half percent as massive as Earth, with only fifteen percent the surface gravity. This is not to say that much larger moons are impossible elsewhere in the universe, but it appearssuch bruisers would be rare.

So, your moon-men will probably be living in very low gravity. Low gravity typically means a very thin atmosphere. The exception, (there's always an exception) is Titan, Saturn's famous moon. Its atmosphere is actually denser than our own[xi]. However, this has more to do with how far from the sun Titan is, which protects its atmosphere from being stripped away by the weakened solar wind. However, bring your long-johns, because this far out, it's about three-hundred degrees below zero.

Low mass also typically means a metallic core that has already cooled and solidified, which means no magnetosphere, or a very weak one, which leaves whatever atmosphere there is vulnerable to the fate of Mars. However this is less of a problem than it might first appear.

Thus far, all of the major moons featured in the movies, such as Yavin IV[xii], Endor[xiii], and Pandora[xiv], have orbited gas giants. These giants can themselves have very powerful magnetospheres, extending many millions of miles into space and shielding their satellites. Unfortunately, gas giants can also sport massively powerful radiation belts, enough to cook the surface of any moons that orbit too closely. In the case of Jupiter, it actually emits more energy in radiation than it receives in light from the sun. So, lead long-johns for everybody.

Home Sweet Home

Congratulations, you've finally found a good neighborhood, populated with neighbors who aren't completely crazy and or violent. Now it's time to pick a plot and draw up some blueprints.

Let's pause to consider how big of a yard you want. As mentioned previously, solar systems all have a Goldilocks zone around their parent stars, the area in which a planet could potentially have liquid surface water. Our system actually has three rocky planets inside this zone, Venus at the extreme inside edge, Earth snuggly in the middle, and Mars at the extreme outer edge.

"Wait!" you'll say. "Venus is way too hot, and Mars is way too cold." True, but this has as much to do with their size and the composition of their atmospheres as their distance from the sun. As best as we can determine, Mars once had a thick atmosphere and water lakes, rivers, and even shallow seas[xv]. But, as previously discussed, its small mass meant that its molten iron core cooled and solidified billions of years ago, switching off the magnetic field protecting its atmosphere. Venus had the opposite problem, way too much atmosphere with way too much CO_2, leading to a runaway greenhouse effect. If Mars had formed with the mass of Venus, John Carter wouldn't be nearly so far-fetched.

What kind of star you're swinging around directly controls where and how big the habitable zone is going to be. Also, each star type is going to bring unique conditions for life to contend with.

Small, red-dwarf type stars are far and away the most numerous in the universe[xvi]. An advantage of their small size is that they can continue to burn for many tens, even hundreds of billions of years, giving life on any planets a long, long time to

get up and running. However, their habitable zones sit in a very tight orbit, which presents two challenges.

First, a terrestrial planet orbiting so close to its star would probably be tidally locked to said star, which is just a fancy way of saying there would be no day/night cycle because the same side will always face inward. It was once believed that this would bake one side of the planet, while freezing the other side solid, leaving only a small strip of habitable land around the terminator. Today, we may know better. The study of several "Hot Jupiter" planets has shown that strong convection currents in the atmosphere can cool the bright side, while warming the dark side of a tidally locked world. So things may not be so bad in that respect. Instead you'll just have constant hurricane force winds to deal with.

Secondly, close proximity to the star also brings your world into a zone of strong radiation, solar wind, and even occasional lashings from solar flares. Any life that develops here will need to be pretty hardy, and carry a lot of sunblock. Incidentally, while not impossible, it's unlikely that such a planet would have moons, as the proximity of the parent star would make maintaining a stable orbit problematic. It probably isn't a coincidence that the only planets in our system without moons are also the closest in. By the way, no moons and no rotation also means no tides and no seasons.

By contrast, very large stars would feature habitable zones far from dangerous radiation and flare activity, and wide enough to fit multiple worlds. The only real downside is the cops are going to get called to break up the block party early.

The larger the star, the shorter its lifespan. While life on Earth started very early in the planet's history, perhaps as short as half a billion years[xvii], it took several billion years more before anything more advanced than pond scum came about. The very largest stars burn fornot billions, but mere millions of years, scantly enough time for planets to form, to say nothing of cooling enough for life to have a shot.

We're nearing the end. Finally, you can submit your blueprints to the city and start lining up contractors to build your dream home. But what should it look like: an efficient starter house, or a full blown McMansion?

We've already talked at some length about the perils of small planets, (weak gravity, thin atmosphere, no magnetic shield) but there could be some upsides, too. If life does get up and running on a lightweight planet, the low gravity would allow plants and animals to grow to stupendous proportions. This has been touched on in sci-fi several times, with the nine foot tall Tharks of Barsoom[xviii], and the similarly framed Na'vi of Pandora and their massive Home Tree[xix].

What sci-fi has largely overlooked, (up to this point, because you're writing sci-fi, right?) is the effect low gravity would have on the landscape. Less gravity means tectonic forces could push mountains higher. Volcanoes would grow closer to the sky. Erosion wouldn't be able to pull either down nearly as quickly. Counterintuitive as it may seem, everything would be bigger on a small world.

Now, what about the heavyweights? They have some alluring qualities. More surface area, for starters. More gravity can better

hold an atmosphere. A stable axial rotation without need of a large moon is a nice feature. And while higher gravity will mean shorter mountains and a dearth of svelte blue cat-women, erosion would cut deeper valleys, canyons, and rivers.

So, everything's cool, right?Plop down the extra cash for the upgrade. Slow down a step. Recently, computer simulations have shown that the higher pressure at the center of super earths may keep the core solid[xx]. No liquid core means no magnetosphere, just like on smaller worlds.More sunblock for everybody.

Alternative Living

After reading the above, you're probably feeling a little hemmed in, like the universe is out to get us, and that Earth is the one, tiny speck of dirt where life has a chance to thrive. That's probably a mistake.

My intention in writing this was not to scratch every other type of planet and solar system off your list of potentials. Instead, I wanted to convey just how improbable our planet, and therefore our type of life, may be.

If you need inspiration, look around our planet's forgotten corners. We find organisms living in complete darkness, under crushing pressures, scalding temperatures, in pools of acid, without oxygen, eating rock and metal, photosynthesizing radiation, and generally carrying on in a fashion that drives biologists into alcohol dependency.

Judging by life's tenacity and ingenuity here on Earth, I believe we will find organisms clinging to every planet, moon, asteroid,

and nebula that hasn't gone out of its way to completely sterilize every cubic inch of real-estate. It wouldn't surprise me in the least if we discover some critters swimming around Europa's that would go nice with butter and lemon juice.

Instead, the lesson you should take away from the rarity and good fortune of our planet is that, as a writer, you'll need to be creative. The habitable zone for water-based creatures would mean instant death for creatures based on liquid ammonia or methane. Radiation zones and thin atmospheres are meaningless to fish swimming in an ocean buried under ten miles of ice.

Worlds aren't built for creatures. Creatures are built for worlds. So take what you've learned from this article, the good and the bad, and run your aliens through the same evolutionary gauntlet that your ancestors actually went through. Make them face adversity and overcome challenges on their way to civilization. They will be all the stronger, more alien, and yet more believable for your efforts.

See what comes out the other end. The more surprised you are, the more impressed your readers will be.

About the Author

Patrick S. Tomlinson is the offspring of an ex-hippie psychologist and an ex-cowboy electrician. A lifelong sci-fi fan, he decided that not being famous was taking up too much time, and started writing in hopes of changing this unfortunate state of affairs.

His work has been accepted by Andromeda Spaceways Inflight Magazine, Everyday Fiction, and The SFWA Bulletin. He recently completed his first novel manuscript and has begun work on a second. Patrick also hones his craft by sifting through the slush pile for Apex Magazine.

Patrick lives in Wisconsin, where the winters offer him a wonderful opportunity to disappear into his writing cave for four months at a stretch. Time not writing is split between a paying job, triathlon training, and maintaining a stable of Ford Mustangs. Visit Patrick online at patrickstomlinson.com.

Works Cited

[i]]"Comet Shoemaker–Levy 9 Collision with Jupiter".National Space Science Data Center. February 2005. http://nssdc.gsfc.nasa.gov/planetary/comet.html.

[ii] Star Wars: The Empire Strikes Back, Kershner, 1980

[iii] Star Wars: Episode II Attack of the Clones, Lucas 2002

[iv]Schneider, Jean (10 September 2011). "Interactive Extra-solar Planets Catalog".*The Extrasolar Planets Encyclopedia*.http://exoplanet.eu/catalog.php.

[v]Spudis, P.D. (2004). "Moon". World Book Online Reference Center, NASA. http://www.nasa.gov/worldbook/moon_worldbook.html.

[vi]Landis, G. A. "Origin of Martian Moons from Binary Asteroid Dissociation," American Association for the Advancement of Science Annual Meeting; Boston, MA, 2001

[vii]Schubert, J. *et al.* (2004). "Interior composition, structure, and dynamics of the Galilean satellites.". In F. Bagenal*et al..Jupiter: The Planet, Satellites, and Magnetosphere*. Cambridge University Press. pp. 281–306. ISBN978-0-521-81808-7

[viii]Chapront, J.; Chapront-Touzé, M.; Francou, G. (2002)."A new determination of lunar orbital parameters, precession constant and tidal acceleration from LLR measurements".*Astronomy and Astrophysics***387** (2): 700–709. Bibcode 2002A&A…387..700C. doi:10.1051/0004-6361:20020420

[ix]Lambeck, K. (1977). "Tidal Dissipation in the Oceans: Astronomical, Geophysical and Oceanographic Consequences". *Philosophical Transactions for the Royal Society of London. Series A, Mathematical and Physical Sciences***287** (1347): 545–594. Bibcode1977RSPTA.287..545L. doi:10.1098/rsta.1977.0159

[x]"Ganymede".nineplanets.org. October 31, 1997. http://www.nineplanets.org/ganymede.html

[xi]Coustenis, p. 22

[xii] Star Wars: A New Hope, Lucas 1977

[xiii] Star Wars: Return of the Jedi, Marquand 1983

[xiv] Avatar, Cameron 2009

[xv]Forget, F., et al. 2006. Planet Mars Story of Another World. Praxis Publishing, Chichester, UK.ISBN 978-0-387-48925-4

[xvi]"Most Milky Way Stars Are Single" (Press release). Harvard-Smithsonian Center for Astrophysics.2006-01-30. http://www.cfa.harvard.edu/news/2006/pr200611.html.

[xvii]Schopf, JW; Kudryavtsev, AB; Agresti, DG; Wdowiak, TJ; AD (March 2002). "Laser—Raman imagery of Earth's earliest fossils".*Nature* 416 (6876): 73–6. doi:10.1038/416073a. PMID11882894

[xviii] A Princess of Mars, Burroughs 1912

[xix] Avatar, Cameron 2009

[xx]Morard, High Energy Dens.Phys.7:141-144,2011

The Descartian Dilemma, or Hey, Where'd Everybody Go?

Aaron Rosenberg

In his famous work *Meditations on First Philosophy*, first published in 1641, René Descartes demonstrated by mathematical as well as philosophical proof that the individual exists (summed up by his famous line, "Cogito, ergo sum"—"I think, therefore I am"). He then proceeds to prove that God exists, and that the world and other beings in it exist external to and independent of either of them—that is, although God created them all, once those beings and worlds have been created they continue to exist on their own. The same is true of any good world, where the writer is its god and has created it—if he has done a good job (if he has been a kind, wise, and powerful god) his world exists and moves forward on its own without his direct intervention.

- Now, how does this make any sense, when the creator is also the author and the chronicler, the narrator of that world and its stories?

- How can the world be said to exist independent of him, when it only lives through his words?

- And how can the author endeavor to make sure this level of independent existence occurs?

The simple answer to the question of how this makes sense is that, although the author chooses to focus on a particular story and character at any one given moment, the world continues to move forward elsewhere without his attention. Thus when he does look upon another character, another area, another story, it has progressed from where he saw it last. Think about when you were a child, playing with your toys. You decided that your teddy bear and your knight were friends, and were charging about having adventures together. Then the deadly dragon injured the teddy bear. The knight finished off the dragon, and rode off to get help. When he returned with the ambulance, the teddy bear was still in the exact same place. He hadn't moved at all. Why? Because you were only a child, and when your attention left the teddy bear he simply stopped being active in your mind and in your imaginary world. You put him in stasis until your attention was upon him again.

That worked perfectly well when you were a child, playing with toys. However, when you're an adult writing a story or crafting a game or developing a movie and you're building a world that you intend to be rich, vibrant, and satisfyingly complete and real, you need to pay more attention. You cannot simply leave characters and stories on hold while you focus on other ones.

How many times, in movies and comic books and novels, has the hero crashed through the window interrupting the villain just as he was about to push the button or trigger the bomb or combine the chemicals or whatever it would take to satisfy his diabolical plan? How many of those times did you think to yourself, "come on, that's ridiculous! What has he been doing all this time, just sitting there waiting until the hero was about to show up?" In Alan Moore's classic graphic novel *Watchmen*, one of the heroes—Dan Drieberg, the Midnight Owl—confronts the villain and says,

> "I'm still glad we got here before you got deeper into this mess… I mean, when was this hopeless black fantasy supposed to happen? When were you planning to do it?" (Moore 26)

And the villain replies,

> "Do it? Dan, I'm not a Republic Serial villain. Do you seriously think I'd explain my master-stroke if there remained the slightest chance of you affecting its outcome? I did it thirty-five minutes ago." (Moore 27)

Even though we're horrified, we're also impressed because that makes complete sense. Why would the villain sit around waiting if there was any chance they could foil his plans? Why wouldn't he just proceed with it as soon as he could?

The answer to that is—he would. Assuming he were a rational being in his own right, proceeding with his own plans under his own power, instead of waiting upon the author's attention to provide him with motive force.

It is difficult, of course, to juggle so many characters in your head. Especially when you have to think of them less as something you juggle—where they only move because you are tossing them into the air and catching them again as they fall—and more as wind-up toys, Why wind-up toys? Because you can set your characters into motion but they then proceed even after you've set them down, and can bump into obstacles and fall and tilt and change direction in ways you never intended. How often, as a creator, do you discover your protagonist is doing something different from what you'd originally planned, because your plan did not account for some factor, whether that is the protagonist's own interests, some element of the setting, or something else like the desires of another character? When that happens, you adjust your thinking and let your protagonist proceed his own way, don't you? After all, you created him to be true to himself, and now you need to trust that you built well and that his actions will remain consistent with his past and personality. Why, then, would you not extend the same courtesy to your antagonist? And your incidental characters? Shouldn't all of them be allowed to act in their own customary manner, whether you are observing them or not? Not only would this allow them to develop, it would also give your world the feel of a true setting, a developed setting, an active and vibrant setting.

Consider this setup: the main character works in an office. He suffers a case of mistaken identity and gets caught up in a life-or-death situation, as has happened in any number of stories. He finds himself being attacked by crazed killers, romanced by seductive women, threatened by mysterious men, etc. At some point, he staggers back into his office, battered and bleeding, his

clothing torn. His co-workers look up in shocked dismay and ask what happened.

There is more to this scene than just their reaction to the protagonist's condition. Perhaps one of his two co-workers has a running battle with the office copier. For some reason, it seems to malfunction more with him than with anyone else, or at least he reacts more strongly to its errors than anyone else. This has just happened again, and he is busy fuming and ranting about how evil the copier is and how it hates him. The second co-worker discovered that very morning that he had made a major error on an account, potentially costing the company millions—and most likely costing him his job. He has been in a panic about it all morning, and has been desperately trying to salvage the situation before anyone found out what he had done. He has just succeeded, and is now weak with relief, knowing his job is safe. Thus when the protagonist staggers in, his two friends look up and are astonished, but they have not been idle themselves, nor are they bland background characters. They have their own stories, their own personalities, and they have been busy while the protagonist was gone. Perhaps he even received text messages from them throughout his own escapades, asking for help or just venting. Suddenly this scene has more depth because even though the protagonist is the center of our attention, he does not exist in a vacuum and the world around him feels real and grounded, which gives him more reality and depth in return.

An excellent example of this is the 2004 movie *The Incredibles*. The two main characters, Bob and Helen, have three children together. When something happens that forces Helen and their two older children, Dash and Violet, to go to Bob's

rescue, she has to leave the baby, Jack Jack, with a sitter. The only problem is, Bob and Helen are both superheroes, and passed on superpowers to their kids. All three of them. Throughout the latter half of the movie Helen gets cryptic phone calls from the sitter, Kari. In the short "Jack Jack Attack" (2005) we see why— Jack Jack has started manifesting his own superpowers, leaving his sitter utterly overwhelmed. In *The Incredibles* (2004) we don't know all of that, but we know something is going on with him back home. This gives the movie a sense of reality. The heroes and their adversary do not exist in a bubble. Life is continuing around them, and not only can they affect the rest of the world but it can affect them as well.

Read the *Lord of the Rings* trilogy again (I'm using the 2005 50th Anniversary collected edition from Houghton Mifflin Harcourt), and pay close attention to the Orcs. Whenever the members of the Fellowship are near them, the Orcs are powerful, aggressive and dangerous. What are they doing when the heroes are not nearby? We hear about how Sauron and Saruman are massing their armies, but we don't see much affect from that except when it crosses the Fellowship's path. What have all these Orcs been doing the rest of the time? For that matter, what are they eating? Mordor is a horrible land, dark, dank, cold, and unpleasant. Certainly Frodo and Sam and even Gollum can barely find anything to eat as they make their way across to Mount Doom. What are the thousands upon thousands of Orcs eating, then? How is Sauron feeding his army when nothing seems to grow in his lands? Did the Southrons who have flocked to his banner bring with them enough supplies to feed not only themselves but their new Orc comrades? We don't really notice

that much because Tolkien does such an excellent job with so many other aspects of the world. As a linguist, he took particular delight in the languages, and developed each race's language and culture complete with myths and stories and songs. That part of his setting feels wonderfully alive, and when we see the elves march past, singing, we really believe they are an ancient race with their own rich history. However, what do they do when no one from the Fellowship is there to see them?

David Edding's *The Belgariad* has a similar problem, though at least he addresses it directly. In that fantasy epic, several ancient and powerful sorcerers oppose the main characters. One of those sorcerers, Zedar, has stolen something valuable, and the protagonists pursue him across much of the world. But the other sorcerers seem content to each sit in one place and think deep thoughts until the protagonists can catch up to them and confront them. Eddings does partially explain this by saying that the sorcerers are immortal and tend to take a very long view toward things, often staying in one place for centuries at a time. Even so, it winds up feeling very convenient that these characters stay so still and only act when the protagonists are there to bring them to life.

In opposition to that, read Raymond Fiest's novel *Magician*, which is the first book in his Riftwar Saga. It is the story of a medieval European-style fantasy world invaded by a medieval Asian-style fantasy world through a mystical rift. The entire saga is told from the European side's point of view, in the land of Midkemia, and we meet and follow several characters who prove influential in the war. Most of the glimpses we have of the invaders—the Tsurani—at first show them to be almost demonic

in their endurance and their bloodlust, but as the story progresses we grow to see them as people, especially after one is captured and chooses to work with the Midkemians instead of trying to escape or take his own life. At one point in the story, the Tsurani have just battered down all of the Midkemians' defenses and are literally a stone's throw away from winning the war—when suddenly they withdraw. None of the Midkemians can fathom why, but the Tsurani, now named Charles, explains that it was most likely a political move. Back on his world, he says, there are clans and factions and political parties, and the family at the forefront of the battle just withdrew—he guesses they did so to prove their importance, and to weaken and shame those who had been their allies, in order to gain a political advantage. Other sections of the book take place on the Tsurani homeworld of Kelewan, and there we see the war from the other side, including that sudden withdrawal and the politics that caused it. This gives us insight into the Tsurani, their culture and their motivations. Even without those scenes, however, we would have felt that the Tsurani were real people with their own goals and their agendas, because even when we didn't understand their actions it felt like there were solid reasons behind those actions. That made the world and the story that much more believable and that much more exciting for us.

How, then, does a creator make sure his world is built well enough to sustain itself? How does he make sure all of his characters can act independently, and will do so, even when he is not actively watching them or narrating them?

Perhaps the easiest way to do this is to think of each character as operating along its own frequency, or having its own television

channel. Most of the time you are watching the channel of the protagonist, following him as he moves about, and you only see other people when he interacts with them. What if each of those people had their own channel? You could then flip to a different channel and watch the person the protagonist just bumped into. That would, in turn, allow you to answer the following questions:

- Where does she go after he walks away?

- What is she doing?

- Why?

- What was she doing before they ran into each other, that caused her to be there at that time?

Have some idea of what each character is doing and why right from the start of the story, or even before the story begins. Not everyone's story is very exciting, of course. For example, one of the two co-workers mentioned in the scene up above may live alone and not like to go out much, so he basically heads home each night, picks up some food on the way, eats alone, and then watches TV or a movie before going online for a bit and then going to bed. But at least now we know who he is and what he does. We know why he gets so upset at the copier, because he likes everything to be neat and predictable and organized and efficient and the copier violates that. It is also the only real excitement in his life, which explains why he overreacts when it malfunctions. If the protagonist needs help later and calls the co-worker after work hours, we know where the co-worker will be and what he's doing. He has gone from a convenient prop to an actual person with his own life and his own activities and his

own pattern of response. Will he jump to help his friend, since being asked is unusual and exciting for him? Or will he try to beg off, since he does not like going out and prefers his world quiet and safe and predictable? He sounds more like the latter type, but if you've developed him and he turns out to be the former, so be it. That is the personality he has demonstrated, and obviously it will affect not only his actions but those of the protagonist and everyone else he deals with.

Often it helps to plot out timelines, at least for the major characters like the protagonist and the antagonist. That way, you can see where each of them is going and what they are doing, assuming there is no interference. If you know what type of person they are, and how they will react to situations, you can determine how they respond to interference and how they alter their plans. Perhaps the protagonist locates the villain and steals the power source he needed for his death-ray or to power his airship or to summon his army of undead soldiers. Now the villain has to retrieve that power source before he can continue.

- Does he send his minions after it, or go himself?

- Does he have someone he can leave behind to continue preparing everything else, so that once he has the power source back he can proceed with barely any delays.

- Or does everything grind to a halt because he doesn't trust anyone else to handle any of the important elements?

- If that is the case, what do his henchmen do while they wait for him to return with the power source?

- Do they play cards?

- Do they come up with their own ideas?

- Do they try to take over from him?

- Do they go home and spend time with their families until they're called back to duty?

In his *A Song of Fire and Ice* series, George R.R. Martin finds a way to avoid worrying about having any characters or stories stagnate when his attention is elsewhere. He simply has so many main characters, in so many locations, that he is almost guaranteed to have one at every major event that occurs in every aspect of the story. Then he switches back and forth between them often enough that none of the stories can ever falter or freeze on him. In other words, he is a perpetual channel-flipper, constantly cycling through the characters so that we only catch a brief glimpse of each one in turn, but ultimately those flickers add up to full tales. It is an impressive display, and it certainly keeps the world vibrant and alive and in constant motion, but it is also a massive amount of detail and character to keep track of, with so many storylines running all at once. Few writers would be up to such a task, which is why the series has won such acclaim. Interestingly, the television series developed from the books consolidates those views a bit, jumping less frequently and lingering longer with each character, which allows us more time to experience each story in turn. That might not have been possible if the books did not already exist and provide such detailed blueprints for each character and their actions.

Regardless of how one accomplishes the task, it is necessary to keep Descartes' principles in mind while creating a world. The settings, characters, and events must exist independent of the

viewer, the creator, and the central characters. They must have a life and a direction of their own if they are to seem at all real, rather than mere props that are trotted out to provide a backdrop for the main characters' actions. That is not to say that we must see the full development of each and every minor character, but we must believe that depth exists in them. We must believe they have their own activities, and that they continue those activities even when the protagonist is not present, even when we do not see them, so that they have not been standing frozen while the protagonist was elsewhere. That sense of independent activity gives their world depth and realism, and anchors the story to give it more depth as well. The world becomes more believable, more natural, as does the story. And such control over the craft of worldbuilding allows us, as Descartes would say, to "make ourselves . . . the lords and masters of nature."

About the Author

Originally from New Jersey and New York, Aaron Rosenberg returned to New York City in 1996 after stints in New Orleans and Kansas. He has taught college-level English and worked in corporate graphics and book publishing.

He has written novels for *Star Trek, StarCraft, Warcraft, Exalted, Stargate Atlantis*, and *Warhammer*. He also writes educational books, young adult novels, children's books, and tabletop role-playing games. He wrote the first-ever tie-in novel for the television series *Eureka*, entitled *Substitution Method*, under the house name Cris Ramsay. His second *Eureka* novel, *Roads Less Traveled*, was released in early 2011. His first original novel, the space-opera *Birth of the Dread Remora*, was published by Crossroad Press in early 2011.

He is also part of Crazy 8 Press, a cooperative publishing venture he started in 2011 with fellow authors Peter David, Michael Jan Friedman, Robert Greenberger, Glenn Hauman, and Howard Weinstein. His humorous science fiction novel *No Small Bills* was released as an e-book from Crazy 8 in September 2011 and immediately hit the NOOK Bestseller list.

Works Cited

Descartes, René. *Meditations and Other Metaphysical Writings*. Translated by Desmond M. Clarke. New York: Penguin, 1999.

———. *Discourse on Method and Related Writings*.
Translated by Desmond M. Clarke. New York: Peguin,
2000.

Moore, Alan (w), Dave Gibbons (p and i). "Look On My
Works, Ye Mighty…" " *Watchmen* #11" (August 1987)
New York: DC Comics, 1987.

Martin, George R.R. *A Song of Fire and Ice, Books 1-4*. New
York: Bantam, 2011.

Feist, Raymond. *Magician*. New York: Barnes & Noble, 2003.

Eddings, David. *The Belgariad Set, Books 1-5*. New York:
Ballantine, 1986.

Tolkien, J.R.R. *The Lord of the Rings: 50th Anniversary, One
Vol. Edition*. New York: Houghton Mifflin Harcourt, 2005.

Bird, Brad. *The Incredibles*. Hollywood: Disney, 2004.

Cause Ways

Donald J. Bingle

"What if?" is the essence of genre fiction. What if monsters were real? What if mankind had faster-than-light travel? What if there was a world where magic held sway? What if the South had won the Civil War? From these idle musings spring forth scenes of wonder and delight, tales of horror and warning, and stories of mystery and revelation. In each case, however, the author must either alter our real world or create an entirely new world in which to play out his or her speculative fiction.

In some cases, like the hard sci-fi classics, *Mission of Gravity*, by Hal Clement, and *Dragon's Egg*, by Robert L. Forward, the scientific details of the world-building are a critical part of what is imparted to, and avidly soaked up by, the reader. In each case, the oppressive gravity and rotational aspects of the world dictates the shape and composition of the sentient beings and drives the plot. On such a world, for example, fear of heights is both logical and almost impossible to overcome.

In other cases, the science is not as hard—indeed in time travel tales it can be downright fanciful—but the pervasiveness of the "change" from the real world impacts the overarching tone of the world in which characters live and interact in ways that define the genre, whether it be alternate history, steampunk, space opera, high fantasy, or post-apocalyptic horror.

For a genre reader, discovering the nuances of the world—its rules, history, and structure—and how those nuances affect the characters, tone, and plot of the story, is as much of a driving force as the conflicts and character development so essential to any story. Thus, a genre author can build tension and entice readers by revealing and (subtly) explaining his or her world, as well as by revealing and (subtly) explaining his or her characters by how they react to conflict and overcome adversity. This additional element is of great benefit to genre authors, but because of its prominence and importance in speculative fiction, world-building can be a fatal failing point if not done right.

Though there are many mechanics in world-building, the essence of world-building, and of speculative fiction generally, is cause and effect. If I place a mountain range here and the prevailing winds are from the west and blow over a large body of water before reaching the mountains, climatological science dictates the western slopes will be rainy and the area eastward will be relatively dry. That's simple cause and effect.

Similarly, if I create a magic system that is extremely powerful, costless to use, but only available to a few, logic and human nature suggest to me that mages will either have the power and sway of gods or a jealous and/or fearful populace will have

hunted them all down and killed them in their sleep. This is one important reason why, in many well-written fictional worlds, magic systems often involve spell components, lengthy study and preparation, or some significant cost in energy or life force.

Lapses in logic or credibility are fundamental reasons why readers can become unsatisfied with speculative fiction. While they are willing to suspend disbelief enough to accept the premise of the world (e.g., magic is real), they are not willing to accept a world which is illogical or silly or otherwise defies the laws of physics. For example, In *Superman: The Movie,* (1978), I can suspend my disbelief and accept that Superman can fly, but I scoff at the notion that by flying around the Earth, he can (1) reverse its rotation (and without massive tidal and other effects) and, thus, (2) reverse time. Similarly, I find it unsatisfying that not only can the most powerful wizards in the "Harry Potter" series (2001-2011) be disarmed with a simple, low-grade *Expelliarmus* spell, but that no-one has ever thought to put a wrist-leash on their wand.

I believe there are four basic ways the causal logic of speculative fiction can go astray:

- inconsistent application/sophistication of the speculative fiction element that differentiates the world;

- failure to account for the complexities of causality;

- failure to account for unintended consequences as well as intended consequences; and,

- failure to set up the causality of the basic premise.

Inconsistent Application/Sophistication

It's great to come up with a novel or clever "what if" attractive to your target audience, but the more sophisticated and clever your premise element, the more sophisticated and clever your follow-through has to be. Richard Lee Byers wrote an interesting blog post on this issue as it relates to alien invasion storylines, pointing out, for example, that it makes little sense for aliens to travel light years and use sophisticated tech to come to Earth to gather resources they could readily get elsewhere. Sillier yet for such sophisticated beings to be defeated by factors which could have been avoided with a little research before they landed (Byers, "Astrojive: Stupid Aliens").

Similarly, in fantasy or horror, an ultra-powerful lich lord needs to act powerfully and with intelligence (and not like an over-confident macho dick) or credibility is lost. (Web postings like "If I Were an Evil Overlord" are replete with examples of non-credible architecture/strategies/behavior by supposedly powerful bad guys (Anspach, "Peter's Evil Overlord List").) When the Star Trek away team is stranded on the surface of a freezing planet by a transporter malfunction in "The Enemy Within" (1966), it's great to explain the heaters you transported down don't work properly because of the glitch, but you lose your audience when you don't explain why the shuttle craft isn't used to rescue them or why basics like blankets, firewood, and panels for shelter aren't sent down. So, if, like in *Total Recall* (1990), you have a population living in a domed city on a largely airless planet, don't have a security force which uses weapons

that shoot bullets capable of shattering the glass dome and killing everyone (Verhoeven,1990). Duh.

Fundamental attributes of a world, like sophisticated tech or cheap energy or altered gravity, have wide, pervasive impacts on society and what happens in it, not narrow effects which are applicable to your character and/or plot and nothing else.

Failure to Account for the Complexities of Causality

Despite what our nightly news and most politicians try to tell us, causality is rarely simple. Take global warming (please!). Though not intuitive, many scientists agree global warming could cause cooling in Europe. Why? Because Europe, although at the same latitude as Canada, is warmed by the North-Atlantic Current, a warm water current that comes north, then cools and sinks taking cold water back south. However, as polar ice and Greenland's glaciers melt, the salinity of the North Atlantic decreases and water sinks less readily, possibly slowing or shutting down the entire rotational current system, at least temporarily. Thus, Europe cools rapidly. Does this bring increased glaciation in Scandinavia, thereby ameliorating some of the warming impact and eventually re-starting the current? Opinions differ, but this is just one example of how non-obvious things may occur because of complexity of the underlying system. Too complicated/contoversial of an example? Consider instead that one of the reasons a dam can only create a lake behind it of a certain size, no matter how long it may block the flow of a river, is because at some point the surface area of the

lake is large enough that the increased evaporation of water offsets the water added by the inflowing river. Non-obvious, but logical.

If you have ever seen the television show *Connections* (1978), you know many inventions and practices we have today are outgrowths of odd historical confluences and non-linear causality. For example, a high school student might say the assassination of Archduke Ferdinand was the cause of World War I. A thoughtful high school student might say the assassination precipitated the war, but it was caused by national rivalries and colonial ambitions. A military strategist might point out the nature of the Russian rail system was a contributing factor, since it precluded the prospect of a partial mobilization of the Russian Army, provoking yet further escalation of tensions. On the other hand, a serious argument exists that cultivation of potatoes by Native Americans and the importation of potato farming by Northern European countries was a more remote cause of World War I. The greater caloric output per acre of potato farming (as compared to cold-tolerant grains) allowed such countries to increase their population density sufficiently to enable them to have large standing armies (Bingle, *Darkest …* 1991, citing Weatherford, 1988).

There are myriad contributing factors to many adversities and most decisions, so a world built of changes from the world we know needs to build in these complexities or it will appear overly-simple and artificial. Contrast, instead, the rich fantasy world of Elizabeth Vaughan's *Warlands* series, where the customs and beliefs of the Plains dwellers are drawn from the geography and nomadic necessities of their life, or the detailed world of

Robert J. Sawyer's *Neanderthal Parallax* trilogy, where an entire alternate Earth society is built from a premise of Neanderthals being the dominant hominid historically.

Failure to Account for Unintended Consequences As Well as Intended Consequences

Hand-in-hand with considering the complexity of consequences flowing from a cause is considering the unintended consequences flowing from a cause. There is, for example, an entire subset of science fiction and horror all about scaring the reader with the unintended consequences of technology (whether it be Godzilla spawned from the radioactive residue of nuclear bombs, escaped nano particles, contagions resulting from genetic modifications or mutant viruses, or cloned dinosaurs). Time travel tales also traditionally trade on the fall-out from minor modifications of the time stream or problems born of paradoxes. However, in other areas of genre fiction it can be easy to focus too readily on the particular aspect of how the alternate world differs from our reality simply in order to create the premise which the author desires to explore, while ignoring the other implications such a difference would have on such world. Remember, the question isn't the morality or even advisability of the intention—the road to hell is paved with those—but the ultimate destination to which the change takes you.

For example, preventing forest fires seems well-intentioned enough, but decades of quenching fires can lead to an overabundance of undergrowth. This not only alters the viability of certain lodge-pole pines (whose seeds are released only upon

exposure to high temperatures), but provides excessive fuel for the fires which eventually do occur, making them more destructive. It's bad policy-making when our politicians fail to recognize or deal with logical, unintended consequences of laws, expenditures, and tax policies. It's bad writing when an author fails to deal with unintended consequences of the changes he or she makes in distinguishing their world from the world we know.

Since the consequences we're talking about here are, by definition, unintended, how does one identify them, so they can be dealt with in the world-building and/or storyline? One way is to consider the change being made from a variety of points-of-view:

- Who benefits from this change?

- Who is hurt by this change?

- Who could generate money/power/fame from this change?

- What would an evil person do with the power/technology/circumstances created by this change?

- What is the silliest thing that could be done with this change? (Gene modification technology has led to glow-in-the-dark pets …)

- What are the moral, political, and religious implications of this change?

- Who will be offended by this change and how could they resist or undermine it?

My first novel, *Forced Conversion*, deals with a near future Earth in which downloading people into a virtual world—any virtual world of their choosing—becomes possible as a logical extension of medical scanning technology and expansive computer power. While there are lots of reasons to convert to virtual reality instead of living in a world of pain and dwindling resources, the conflict of the novel is driven by the simple fact that there are various groups of people who would resist such change. These groups include religious adherents who find downloading blasphemous, gangbangers who revel in dominating a largely de-populated Earth, simple folk who don't understand virtual reality, and hermits too remote from society to know the technology exists. Because the only threat to the virtual lives of the billions who live in computers is the advertent or inadvertent destruction of those computers by anyone left behind alive in the real world, the logical consequence (but not the intention of the technology) is that there must be a military force which hunts down the remaining few and forces them to convert or die (Bingle, *Forced Conversion*, pp. 90-127*)*.

Even the best of intentions can lead to bad consequences. How many religious wars have been fought? Is the Alliance of *Firefly* (2002) and *Serenity* (2005) any less well-intentioned or any less benevolent than the Federation of Planets from *Star Trek* (1966)? Or are we just getting the story from a different perspective? Sometimes odd consequences can result from accidental causes, without any intention at all. For example, some believe the sinking of the Titanic delayed the Women's Suffrage Movement in America because of the impact of the "women and children first" chivalry popularly reported had on a scheduled suffrage

rally (Wade, pp. 314-317(1979)). One of the reasons that Star Trek's "The City on the Edge of Forever" (1967) is highly regarded as a classic episode isn't the acting. Rather, it's because the plot forces the sacrifice of a good person who believed in pacifism to prevent Hitler from winning World War II—not an obvious cause and effect relationship, but one which the episode explained well while extracting a powerful emotional impact (Pevney, 1967). This is the power of unintended, or at least unexpected, consequences.

Failure to Set Up the Causality of Basic Premise

The many-worlds theory of quantum mechanics (which postulates an alternate universe for every possibility) makes it easy for a writer to say there is a parallel world just like this one, except:

- Hitler was assassinated;

- Lincoln or Kennedy or Martin Luther King wasn't assassinated;

- steam-powered technology brought the future earlier;

- slavery never existed in America;

- Texas remained an independent nation;

- Marco Polo never went to China;

- man never went to the moon; or

- any event of your choosing happened or didn't.

I would contend parallel worlds with such singular differences simply don't and can't exist, because whatever difference is postulated for such a world had to, itself, have a cause to make it occur in that world. That cause means there are more differences between the worlds than just one. Or, to put it more simply, whatever is different about the world you want to write about, whether it is an alternate Earth, an alien planet a long time ago in a galaxy far, far away, the realm of the fae, or some other forgotten realm, that starting point premise was the outcome— was the effect—of prior causes.

Granted, the tinier the change, the less causal explanation it needs. Battles which pivot on small, serendipitous events, like a flanking charge or a killing blow to an able leader, are some of the easiest to explain as having significant consequences flowing from infinitesimal changes. Larger changes (the lack of slavery, alterations in societal behavioral norms, the introduction and acceptance of new technologies, etc.), however, require some explanation as to how they may have occurred—otherwise the premise is undercut from the very beginning of the work.

If the premise lacks credibility, the consequences flowing from it will be plagued with an (unconscious, perhaps) underlying suspicion. Sadly, however, too many novels and stories exclude any explanation of the origin of the base premise. (Only slightly better, some force-feed the explanation by tedious exposition at the very beginning of the tale.) Post-apocalyptic tales are among the most frequent offenders, often skipping over the messy chaos of the end-of-the-world event by jumping time from the moment before the cataclysm to several months afterwards, because the protagonist was in a cave, mine-shaft, remote outpost, or fall-out

shelter. Often, there is no mention of how or what happened. Sometimes the author includes only a literary shrug as to how unimportant the details of what happened are, when compared to the burdens or horrors of the present reality. That may work for some audiences, but a genre reader wonders:

- what happened to the bodies;

- why there isn't residual contamination;

- what measures were taken to combat annihilation (with what success and collateral consequences); and

- why there wasn't an abundance of supplies left behind when the population died literally overnight.

Not only does this glaring lack of information undercut the credibility of the storyline, it ignores tremendously interesting stuff in terms of conflict and the richness of the world-building involved:

- Did governments collapse?

- Did citizens turn on one another?

- What horrible things were done to survive?

- What are the sights, smells, and sounds of those days that now haunt the survivors' dreams?

If the author can't be bothered to account for a world which makes sense, why should I bother reading about his or her world and the characters in it? If your alternate/future Earth starts someplace radically different from our reality, you need to understand (and eventually impart) how it got to be different. If your high fantasy races have different social norms or political or

religious institutions, provide details that justify the developed attributes and customs. These details create a foundation for the desired 'suspension of disbelief'. Failure to do this causes logical gaps or disconnections in atmosphere that leave fans of even the most popular works dissatisfied.

Believe me, you can tell the difference when an author incorporates a rich background of world-building into the society's practices and mores (e.g., how the need to watch the skies for predators shapes the travel and defenses in Paul Genesse's *The Golden Cord*) when compared to fantasy tales in which the magic or the societies or the monsters are simply dropped into a generic fantasy setting. Think of your own experience in fantasy role-playing games. Did you run into monsters in places where no food supply existed to explain them ecologically? Did you encounter traps which would have needed constant re-setting or high level magic, with no sensible source for such? Without naming names, some fantasy rpg tie-ins and high fantasy novels have the same issues, resulting in the same lack of credibility. It's like dropping a 555-prefixed phone number into a high budget movie. Why spend hundreds of millions on sets, costumes, and special effects, just to undercut it all with something that shouts out that none of it is credible or real?

In near future sci-fi settings, explaining how the premise could come to occur not only makes the setting richer and more credible, it can heighten the tension in two ways. Not only do the perils the protagonist faces feel more real, but the possibility, nay plausibility, of the terrors of the possible future the novel warns against actually occurring fuels interest in the story when the

reader can see and understand how such a future could come about.

Unbelievable characters battling unbelievable antagonists in an unbelievable setting holds no interest to me, a reason why the CGI battles of *Transformers: Dark Side of the Moon* (DVD, 2011), for example, leave me cold. However, credible conflicted characters battling one another and their own fears and doubts in a world that is sufficiently sensible and detailed that I believe it does or could exist, draws and holds my attention as a reader.

As a writer, it is my job to think about cause and effect—on characters, on plot, and on world-building. As someone who has written time travel scenarios, near future science fiction, and tales set in societies other than our own, I must not only contemplate what could happen, but how it could come about. See my tales, "BunRabs" and "For Every Time, A Season," for example, for two radically different approaches on how perspective alters perception of real world events.

Every effect has a cause. Each and every cause provides a way to establish credibility, trust, and heightened interest with the reader. Use these cause ways to bridge the gaps between your concept of the world in which your tale occurs and the reader's understanding of that world.

About the Author

Donald J. Bingle is an oft-published author in the science fiction, fantasy, horror, thriller, steampunk, romance, and comedy genres, with three novels (*Forced Conversion*; *GREENSWORD*; *Net Impact*) and more than thirty stories, mostly in widely-released anthologies. Many of his published stories have been collected by genre and re-released in his Writer on Demand™ Series, including *Tales of Gamers and Gaming*, *Tales of Humorous Horror*, *Tales Out of Time*, *Grim, Fair e-Tales*, and *Tales of an Altered Past Powered by Romance, Horror, and Steam*. He is a member of the Science Fiction and Fantasy Writers of America, International Thriller Writers, International Association of Media Tie-In Writers, GenCon Writers Symposium, Origins Game Fair Library, and St. Charles Writers Group.

Works Cited

Anspach, Peter. "Peter's Evil Overlord List." *Evil Overlord, Inc.* N.p., n.d. Web. 4 Feb. 2012, http://www.eviloverlord.com/lists/overlord.html.

Bingle, Donald J.. "BunRabs," in Greenberg, Martin Harry, and Kerrie Hughes. *Zombie raccoons & killer bunnies*. New York: DAW Books, 2009.

Bingle, Donald J.. *Darkest before the dawn*. Naperville, Ill.: 54°40' Orphyte, Inc., 1991.

Bingle, Donald J.. *Forced conversion*. Waterville, Me.: Five Star, 2004.

Bingle, Donald J.. "For Every Time, a Season," in Rabe, Jean. *Time-Traveled Tales*. Origins Game Fair 2012.

Byers, Richard Lee. "Astrojive: Stupid Aliens." Airlock Alpha. 19 Jan. 2012, airlockalpha.com/node/8909/astrojive-stupid-aliens.htm, Accessed Web. 4 Feb. 2012.

Clement, Hal. *Mission of gravity*. [1st ed.] Garden City, N.Y.: Doubleday, 1954.

Connections, British Broadcasting Company. 1978. Television.

Forward, Robert L.. *Dragon's egg*. New York: Ballantine Books, 1980.

Genesse, Paul. *The Golden Cord*. Waterville, Me.: Five Star, 2008.

*Harry Potter. Dir.*Alfonso Cuarón, Chris Columbus, David Yates, Mike Newell. 2001-2011. Film.

Sawyer, Robert J.. *Hominids*. New York: Tor, 2002.

Superman: The Movie. Dir. Richard Donner. Perf. Christopher Reeve, Margot Kidder, and Gene Hackman. Warner Bros., 1978. Film.

"The City on the Edge of Forever," Dir. Joseph Pevney. *Star Trek*. 1967. Television.

"The Enemy Within," *Star Trek*. 1966. Television.

Total Recall. Dir. Paul Verhoeven. Perf: Arnold Schwarzenegger, Sharon Stone and Michael Ironside. 1990. Film.

Transformers: Dark Side of the Moon, Dir. Michael Bay. DVD.

Vaughan, Elizabeth. *Warprize*. New York: Tom Doherty Associates, 2005.

Wade, Wyn Craig. *Titanic: End of a Dream*. New York: Penguin Books, 1979.

Weatherford, Jack. *Indian Givers: How the Indians of the Americas Transformed the World*. Fawcett Columbine, 1988.

The World as a Character

Paul Genesse

The most important character in many fantasy novels is the world itself. Readers and writers have to imagine themselves in that fantastical place or none of it seems real. You can create the most interesting hero and heroine and send them on some amazing quest, but if the world doesn't capture your imagination . . . the book or story, or movie is far less than it could have been, and rather than journeying to an amazing world, we're stuck in the same old standard place we were wanting to escape from.

Think of some of the most iconic fantasy or science fiction settings: Frank Herbert's Arrakis, J.R.R. Tolkien's Middle-earth, Stephen R. Donaldson's The Land, James Cameron's Pandora. You can imagine each of those worlds as a character with distinct personalities.

The planet Arrakis, commonly known as Dune, is a harsh, unforgiving, desolate place, yet it contains the most valuable

treasure in the universe, which is guarded by fierce monsters, the sand worms—very similar to dragons guarding a treasure hoard. Dune is inhabited by the secretive and ass-kicking Fremen, and is so important that it became the name of the first book and the name of the novel series, which is still going strong even after the death of Frank Herbert. From the very first chapter of the book we get the refrain, repeated over and over as Paul Atreides is thinking of the future, "Arrakis—Dune—Desert planet," which sets the tone and shows us how important the location is to become.

One of the first descriptions of the setting in *Dune* is brilliant, with Herbert's word choice as we meet this new character, which fills us with mysterious awe, and some fear.

> "Paul looked out his window. Beneath them the broken ground began to drop away in tumbled creases toward a barren rock plain and a knife-edged shelf, fingernail crescents of dunes marched toward the horizon with here or there in the distance a dull smudge, a darker blotch to tell of something not sand. Rock outcroppings perhaps. In the heat-addled air, Paul couldn't be sure." (Herbert 113)

Arrakis becomes the guardian, and hidden ally of Paul "Maud'Dib," and the most important teacher in his life, more so than any man or women around him. A quote from the beginning of a chapter over halfway through the book is very telling:

"Mau'dib tells us in "A Time of Reflection" that his first collisions with the Arrakeen necessities were the true beginnings

of his education. He learned then how to pole the sand for its weather, learned the language of the wind's needles stinging his skin, learned how the nose can buzz with sand-itch and how to gather his body's precious moisture around him, to guard it and preserve it." (Herbert, 339)

Maud'Dib takes on the characteristics of the planet as it changes him into something more, perhaps the chosen one. I will not spoil that here—you'll have to read the books, but whether or not he is the *Kwisatz Haderach*, the Universe's Super-being, is beside the point. Like Arrakis, we see that Paul is calm with a vastness within him few can fathom, but he can become like the most violent and powerful sandstorms when the time for battle is upon him, echoing the various moods of the planet. The first *Dune* book is filled with countless small references to the setting, and some major ones, and they all add up and impact the story and the human characters in tremendous ways, making them change and react, becoming part of the planet. Their eyes become blue within blue, their bodies become somewhat dehydrated, they become more fierce than they were before, and realize they that the planet is the most powerful force in the universe. Paul Atreides becomes Dune, and his demeanor and actions reflect that change. This evolution goes even further in *Children of Dune* and *God Emperor of Dune*.

Middle-earth is one of my favorites and it has many different aspects, but it has a very specific feeling of age, history, and believability. Every place the protagonists travel has specific characteristics, but the world is tied together with the breadth and scope of an enormous history. The Shire, inhabited by Hobbits, is peaceful, verdant, and almost perfect. Hobbits echo the

peacefulness and naïveté of their homeland, which is kind and comforting to them. Some argue that J.R.R. Tolkien spent too much time in *Fellowship of the Ring* in the Shire and I agree. I could have gone without a few descriptions of the weather, but the picture painted of the Shire made enough of an impression that the readers wanted the Shire saved at all costs.

The Misty Mountains are another story, and when the Fellowship tries to cross the pass at the mountain called Caradhras, Gimli says: "It was no ordinary storm. It is the ill will of Caradhras. He does not love Elves and Dwarves, and that drift was laid to cut off our escape." (Tolkien 382) Later in the chapter,

> "Hardly had Frodo touched the ground when with a deep rumble there rolled down a fall of stones and slithering snow. The spray of it half blinded the Company as they crouched against the cliff, and when the air cleared again they saw that the path was blocked behind them. "Enough, enough!" cried Gimli, "we are departing as quickly as we may!" And indeed with that last stroke the malice of the mountain seemed to be expended, as if Caradhras was satisfied that the invaders had been beaten off and would not dare to return." (Tolkien 383)

The mountain is referred to as "Cruel Caradhras" at one point and the locations of Middle-earth each have their own feel and personality, as if they are indeed living characters and not a static

backdrop. In *The Two Towers* as Aragorn, Gimli and Legolas are tracking Merry and Pippen at the edge of Fanghorn Forest:

> "Then we must go in, too," said Gimli. "But I do not like the look of this Fanghorn, *and* we were warned against it. I wish the chase had led anywhere else!"
>
> "I do not think the wood feels evil, whatever tales may say," said Legolas. He stood under the eaves of the forest, stooping forward, as if he were listening, and peering with wide eyes into the shadows. "No, it is not evil, or what evil is in it is far away. I catch only the faintest echoes of dark places where the hearts of the trees are black. There is no malice near us, but there is watchfulness, and anger."
>
> "That is just as well," said Legolas. "But nonetheless it has suffered harm. There is something happening inside or going to happen. Do you not feel the tenseness? It takes my breath."
>
> "I feel the air is stuffy," said the Dwarf. "This wood is lighter than Mirkwood, but it is musty and shabby."
>
> "It is old, very old," said the Elf. "So old that almost I feel young again, as I have not felt since I journeyed with you children. It is old and full of memory. I could have been happy here, if I had come in days of peace." (Tolkien 119)

This is a fantastic passage and not only shows the character of Fanghorn Forest, but shows the character of Gimli and Legolas. We see Gimli's hesitation, his fear, and we see the age of Legolas and much more. Strive for this type of exposition, if you are going to use exposition at all.

All major locations in *The Lord of the Rings* have a unique feel to them; the brooding doom of Moria where the bones of the world are laid bare, Lothlorien, a place of beauty and grace, Minas Tirith an ancient fortress whose strength is waning, the decay and terror of the Tower of Cirith Ungol, and a place of evil malice incarnate, Mordor. Middle-earth is the iconic fantasy world because it is so well realized. It has been often copied since the books were published by numerous fantasy writers, but it still stands alone, and please do not try to copy it. Rather, learn from Professor Tolkien and utilize some of the techniques he used to bring your world to life.

Another book series where the setting is a vital and impactful character is Stephen R. Donaldson's *The Chronicles of Thomas Covenant*. The Land, as Donaldson names it, is such a major part of the story that much of the nine book long series is about the specifics of the Land and how it is dying. The main character's quest is to heal the Land and save it. Ironically, The Land is healing Covenant and he feels a strong urge to help, despite that fact that he is an anti-hero with serious psychological issues and leprosy, which has—in part—destroyed his life and taken everything away from him. When he is transported away from our world his spirit is in tatters, but in The Land he is not an outcast, and is recognized as the possible savior of the people. The Land is his salvation and is a major character in the book

series causing all sorts of changes and challenges for Covenant. When he arrives in book one, *Lord Foul's Bane*, he sees a beautiful valley from a high promontory, Lord Kevin's Watch, and a young woman, Lena, tells him about where he is. Covenant's reaction begins here, and you get a sense to where this story might be going.

> "Under the spell of her voice, and the pressure of his vertigo, he had a momentary vision of what the Land must have looked like after Kevin had unleashed the Ritual of Desecration. Behind the luminous morning, he saw hills ripped barren, soil blasted, rank water trickling through vile fens in the riverbed and over it all a thick gloom of silence—no birds, no insects, no animals, no people, nothing living to raise one leaf or hum or growl or finger against the damage. Then sweat ran into his eyes, blurred them like tears. He pulled away from the view and seated himself again with his back to the wall." (Donaldson 46)

How characters react to the setting can be a very interesting and a great way to show their character as they interact with the world around them. Keep that idea in your writer's toolbox. Reactions are much more interesting than a boring description about a place. They show the character of the setting, and also the main character's thoughts, which accomplishes the two major goals of character development at once.

More recently we have James Cameron's Pandora from the movie *Avatar,* which is one of my favorite worlds ever, partially

because it has some similarities to the world I created in my *Iron Dragon Series*, Ae'leron—which I made up long before Avatar came out. I don't have blue people or levitating mountains, but I have awesome cliffs in a plateau-world surrounded by a mist filled Void, whose bottom is miles down in the Underworld where the flying demons come from. I've also got six-legged animals, a dangerous forest, and the threat from above—wyverns, griffins, and dragons—which are all very reminiscent of what Cameron did in Avatar. The tone of Ae'leron is similar to Pandora, and the tone of the world is a major part of turning it into a memorable character.

No matter what you think about the movie, Pandora–or Eywa, as the Na'vi call it—is a great character. The characterization is vital, since the planet (spoiler alert) turns out to be some kind of sentient creature in the end.

If that was a spoiler, hopefully you were in Papua New Guinea researching your novel and if you were, please understand that Eywa is Mother Nature and more. She is made up mostly of a lush interconnected jungle with incredible trees, waterfalls, and dangerous plants and vicious animals. You have to watch the sky or the last shadow you see—from a dragonlike creature—will kill you. The description that Colonel Quaritch gives to the new arrivals sets the tone, "Every living thing that crawls, flies, or squats in the mud wants to kill you and eat your eyes for juju bees." (Cameron 2010)

I love that line, and I love Pandora, a dangerous and yet stunningly beautiful place that will kill you unless you know and respect her ways.

Never forget that the world is an integral character. You are creating a setting to stage your story, and some settings are more appropriate for certain stories than others. One trick I've developed over the years is writing a short biography told from the point of view of the setting to flesh out its personality. Obviously, this might just be about a certain geographic area, an island, a desert, a forest, a city, but it can be highly effective in getting you to understand more about where the characters are, and how they are going to be treated by the setting. For example in my novel in progress, *Medusa's Daughter*, a fantasy set in ancient Greece, the majority of the story takes place on an island called Kastaros where Medusa has been exiled. Here's the short bio I wrote:

> "I am Kastaros, the island of the cursed. Once I was the home of a great people, but they have gone now, killed or scared away when the fire and vapors within me boiled forth. Only those cursed by the gods live upon me now, and I show them little comfort.
>
> "The sea tries to cool my shoulders, but it will never tame me. Storms and rain may come and slowly erode my slopes, but I will rise again if need be. Perhaps someday I will tire of this place in the windswept sea and explode until there is nothing left of me. I will spread out across the world, hide the sun and choke the land with my ash." (Genesse, "paulgenesse.com")

It was a fun exercise for me as a writer and it captures the essence of the horrible, abandoned, volcanic island where

Medusa, her two sisters, and her daughter, Nerissa live. The island is angry, sharp, painful, and poisonous. The sea cannot tame it and neither can the poor characters banished to live there.

Writing a general biography about an entire world would not be easy, but picking the important locations where most of the story takes place, a city, a village, a forest, a mountain range, and jotting down a few lines about it can be very powerful and will remind you of the tone of the place.

World-building should be thought of as character building, and don't separate the two very far. Mother Nature is a character. We refer to her all the time and know how she is, which is to say, merciless, and often bountiful. In your fiction your world is some part of Mother Nature. She is different in each setting, and has many faces. Your job as a writer is to show us which face she takes wherever the characters go.

I think of some of the worlds I used to explore in role-playing games, mostly Dungeons and Dragons, were each different faces of the game. Some games were better suited to certain worlds. *Ravenloft* was horror, *Forgotten Realms* was high fantasy, *Lankhmar* was dark and gritty and filled with thieves, *Al-Qadim* was the *Arabian Nights* come to life, *Dark Sun* was ruthless and every character had psionics, and the first D&D world I explored was *Mystara*, a hodge-podge of cultures that didn't make a lot of sense, but was so much fun to explore as a teenager. Home grown campaign worlds were the almost always the best, as the world suited the story I wanted to tell, but those fully fleshed-out settings had a lot of charm.

Consider very carefully what kind of story, or stories, you want to explore before you craft your world. You don't want your story to clash with the world and make what you are trying to do seem unbelievable or inconsistent. Think about the common descriptions of plot before your proceed with the world-building.

I've often heard at writing seminars that there are only a few basic types of literary plots: Person against Nature, Person against Person, Person against Himself, Person against Society (Jordan "Eight Basic Literary Devices"). Of course, plots of novels are not always so easily categorized, and neither are worlds. If you want to have some elements, for example, of Man against Nature in your plot your world better be up to the task. Have some fresh twists on what we've all seen before. A variation of Person against Person, Man vs. Machine seems much more natural in a Victorian Steampunk England, or in a sci-fi setting, rather than in dark Africa. A great writer can do anything and use any combo, but the character of the world should fit in with the overall story, or at least provide some interesting interaction with it.

Let me stress one thing: don't let the world-building—the descriptions of the world, or the character of it—overshadow the story too much. Do not info dump about the world and expect the readers to keep reading. Give out the information as it's needed, and let the main characters shine. This is common advice, but very difficult to implement. I struggled mightily with world building in my Iron Dragon series seeking to find the right balance, and I think that almost all fantasy and science fiction writers struggle as well. We come up with a hundred cool details, and only use ten—after editing out ninety that didn't need to be there.

I do have a quick list of questions that should be kept in mind with your world-building. This will be a good starting point as you begin to craft your setting. Does the world have:

- Stable agriculture?

- Navigable rivers?

- Mountains, deserts, or bodies of water that close it off from other areas?

- Plants that are easily domesticated?

- Animals that are easily domesticated?

- A mild or harsh climate?

- Deadly diseases that are endemic to the area?

- A human population that has been there a long or short period of time?

- Natural resources that benefit the local population?

These questions are huge and if you want to understand the significance of them read anthropologist Jared Diamond's incredible book, *Guns, Germs and Steel*, and also *Collapse*. The answers to those basic questions above will determine a lot about the people who live in the world, and your bio about certain parts of the setting will answer the rest.

Exploring new and interesting worlds is one of the main reasons for reading fantasy and science fiction, and a fully imagined setting, which is a true character in your story, will be the difference between a good story and a great one that people will never forget, and won't want to leave.

About the Author

Paul Genesse spends endless hours in his basement writing fantasy novels, adding to his list of published short stories available from DAW Books and various other publishers, and editing the demon themed *Crimson Pact* anthology series. His first novel, *The Golden Cord*, book one of his Iron Dragon Series became the bestselling fantasy his publisher has ever had. Book two, *The Dragon Hunters*, and book three, *The Secret Empire*, all set in the treacherous plateau world of Ae'leron, are out now and available as trade paperbacks and eBooks. Learn secrets of the world, download the first ten chapters of *The Golden Cord* for free, and view maps by visiting www.paulgenesse.com.

Works Cited

Avatar. Dir. James Cameron. Perf. Sam Worthington, Zoe Saldana, Sigourney Weaver, Michelle Rodriguez, Stephen Lang. 20th Century Fox, 2010. Blu-Ray.

Donaldson, Stephen R. *Lord Foul's Bane*. New York: Ballantine Books, 1984. Print.

Genesse, Paul. "paulgenesse.com" *paulgenesse.com*. n.p., n.d. Web. Accessed 26 May 2012.

Herbert, Frank. *Dune*. Special 25th anniversary ed. New York: Ace Books, 1990. Print.

Jordan, Dr. Mark W. "Eight Basic Literary Devices." *Odessa College, Odessa College,* n.d. Web, Accessed 26 May 2012. http://www.odessa.edu/dept/english/

Tolkien, J. R. R., and Darrell Sweet. *The Two Towers: being the second part of The Lord of the Rings. With a new foreword by the author*. New York: Ballantine Books, 1981. Print.

Tolkien, John Ronald Reuel. *The Lord of the Rings: the Fellowship of the Ring*. United States: Ballantine Books, 1984. Print.

Geography and the Evolution of Your World: Logical Flora et. al.

Chanté McCoy

Geography, whether in this world or that of the imagination, provides the grounding from which all else springs: plants, animals, economy, language, religion, health, politics, etc. If you start with geography, not only will you have a topographical map, but a plan for designing the rest of your creation.

All stories are set in a particular place and time. Geography matters in creating that place, even if you're going to superimpose buildings and roads. It's not simply the backdrop; geography interacts with the story, almost a character unto itself.

The goal of world building is ultimately to create a coherent, believable world with beings and cultures that are logical extensions. You're inviting the reader as tourist to come along,

and you want the world to be substantial, with plausible details (however bizarre or mundane) that make it come alive.

"Geography" comes from the Greek "geographia," which translates into "earth describe-write." How appropriate then, to discuss geography as part of literature. It is not strictly about earth sciences, but also about the man-land relationship (Christopherson 3). Think of any native group on this planet, and you can't divorce their culture from the land on which they evolved.

Avoiding the Whomping Willow of Implausibility

Plausible plants—"flora," "vegetation," the "green stuff"—are the primary focus of this essay. But, since they can't be divorced from their environment, including the animals around them, we'll start with the "big picture."

Start by asking some questions:

- *Terrain*: What is the landscape like? Flat, mountainous, water bodies, irrigable, subterranean, volcanic, in the clouds? Draw a map to think it out.

- *Climate*: What is the weather like? Hot, cold, dry, wet, harsh, comfortable?

- *Flora*: Given this environment, what are the native plants like? Edible, leafy, tall, short, spiny, water-retaining, tasty, dangerous, mobile, intelligent, medicinal? Are they mimicking, trying to blend in, or screaming out how very dangerous they are?

- Plants co-evolve with animals, being tasty if their reproduction is dependent on birds and bees for spreading seed, or being protected from consumption by traits such as poison and spines. So, while this essay is primarily about flora, let's continue to the animals that will subsist on the plants (herbivores) and on each other (carnivores).

- *Fauna*: Given this environment, what are the animals like? What are their features, characteristics, abilities, intelligence, life cycles? What are the predator vs. prey relationships, interactions, niches in the water/land/air ecosystems? (For more information, please see Creatures essay.)

Ultimately, you'll think through the implications of the environment on your sentient races too. How do the people/sentient beings survive? What do they eat? What do they extract from their environment to build their homes, clothes, and tools/technology?

Like filling in a character sheet, come up with as many details as you like. You don't have to belabor all the possibilities, and certainly you don't need to spell them all out in the story. They just need to fit in the logic of the construct and give you a tangible sense of place.

You don't want to fall in love with some fantastical creation simply because "it's cool," least you create something that strikes the reader as odd and gives them pause. If they start pausing, they might put down the book.

A great example of this was recently put forward in a conference session, "Ecology and Evolution in Science Fiction," presented by Dr. Steven Peck, an evolutionary ecologist at BYU. He showed an excerpt from the 2009 *Star Trek* film featuring Chris Pine as Captain Kirk. The scene shown: where Kirk is being chased by a saber-toothed yeti creature (a "polarilla") on an ice planet, only to have an oversized crustacean-looking beast become the threat of the moment. (You can see the clip at www.trekmovie.com.) While the polarilla doesn't raise too many brows (except for a chuckle at its name), the other critter does. It seems an unlikely native resident of a polar environment: no hair for warmth, likely cold blooded (thus dependent on environmental heat sources to be out and about), and too large, likely crushing under its own weight (considering that the gravity seems to be the same as Earth's). Dr. Peck's list of illogical design points was longer, but this suffices to illustrate the point.

So, when you're letting your imagination run wild, keep yourself in check by asking if your creations are a logical, evolutionary extension of their environment. Why would brightly colored, large-leafed plants grow on an ice planet? Why is there a race evolved with eight legs instead of two? Why do the Illaoreans have two hearts, finned digits, scales, and hawk-eye vision in the dark?

You can't just say, "Here they are, ta da!" Creations are not islands unto themselves. Their features and characteristics should be appropriate to the environment, with evolutionary advantages. If silly or implausible, then the rest of story will be suspect, held to higher scrutiny. Of course, if you're going for a humorous read, such as Terry Pratchett's *Discworld* series, where satire is

the primary concern—not believability—go to town with sapient pearwood and the like. Also, some stories based on magic ignore these premises too, hence the Whomping Willow and gilly weed in J.K. Rowling's *Harry Potter* series. But, otherwise, no one is going to believe that Audrey II of *Little Shop of Horrors* and Monty Python's Puking Tree of Mozambique are *real*.

Be bold about borrowing from our home planet. If your world is covered in snow, research the poles and the high elevations of the Himalayas. Writing the next *Dune*? Read up on arid lands and desert cultures. Make a list of the native trees, shrubs, and herbs, as well as crops that are commonly grown. Include descriptions for later reference. Pull up photos too and write up your own descriptions, hopefully something more poetic than "…radial, pedicellate flowers and rhipidia enclosed by large, spathelike bracts…" (the description of the Iridoideae subfamily of Iris in *Plant Systematics*).

Even if your setting is off-planet, the general rules apply, and this is a good starting point. After all, Earth is the reference point for your readers; let it be one for yourself, too.

You Can't Divorce Mother Nature

Don't think you can avoid all of this because your culture is technologically advanced and seemingly divorced from the surrounding landscape. First, it still evolved from *something*. Secondly, your characters continue to be affected by their environment. They needn't be eking out a living by scavenging for edible plants, hunting in the woods, or farming, to be the only

ones concerned with local geography. Even if they live relatively insulated lives in glass skyscrapers and bubble planes, they are still subject to the forces of Mother Nature.

I'll use my city and myself to illustrate:

I live on a high semiarid desert surrounded by mountains. The culture is dominated by a religious group, who originally settled the area precisely because it was desert and no one else (excluding Native Americans, of course) laid claim or would likely fight them for it. The local lake, covering about 1,700 square miles, has no run-off; it is highly saline. Therefore, we rely on snow melt filling mountain reservoirs for our water supply. That snow also provides for ample entertainment (skiing, sledding, snow mobiling, and snow angels) as well as supports a thriving ski industry revolving around tourists. Because mountain water is vital to our livelihood, watersheds are protected, meaning I can't take my dogs into those mountain canyons, lest they defecate. That same water turns the valley green, and we grow lawns that a Virginian would envy. In winter, the valley traps car and industrial emissions in an inversion, creating a thick brown haze, contributing to a high incidence of respiratory problems. Some of our mountains are mined for their high mineral content, with one site inverted into the deepest open-pit mine in the world, and now there are issues with neighborhoods built on the toxic tailings.

That's just a sampling of how my local environment impacts me and my neighbors. All that despite the fact that most of us live in boxes: homes, cars, offices, schools, churches, and stores. We can't divorce Mother Nature. So, despite suburbia being, as

Bill Vaughan points out, "where the developer bulldozes out the trees, then names the streets after them," we are still maintaining a relationship, however antagonistic, with "her."

Floragraphia: The World as We Know It

Planets usually aren't comprised of one ecology. A range of climates are found from the equator to the poles. Even on Frank Herbert's Arrakis, there are some variations, with life more comfortable at the poles, and flora is still found: "saguaro, burro bush, date palm, sand verbena, evening primrose, barrel cactus, incense bush, smoke tree, creosote bush …"

Biomes are globally similar ecological regions that share similar plant structures, plant spacing, animals, climate, and weather. The vegetation is classified by plant structures (e.g., trees, grasses, shrubs), leaf types (e.g., broad and needle leaf), and plant spacing (e.g., forest, woodland, savanna).

Contrary to hope, there is no consensus on classifications of biomes. To simplify, I'm going with University of California Museum of Paleontology's six *major* biomes:

- Forest: tropical, temperate, and boreal

- Grassland: tropical (or savannas) and temperate

- Desert: hot and dry, semiarid, coastal, and cold

- Tundra: arctic and alpine

- Freshwater: ponds and lakes, rivers and streams, and wetlands

- Marine: oceans, coral reefs, and estuaries
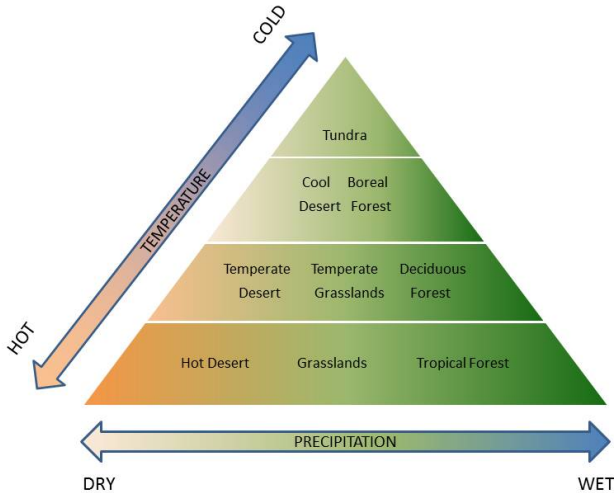
Within a biome, plant evolution is dependent on climate, soil type (land), zone (aquatic), and sun exposure/shade.

Leaves are very telling about the plants and the environment in which they evolved. They developed primarily to capture sunlight for photosynthesis, but the amount of sunlight varies by latitude as well as placement within the vertical niches of a forest, e.g., more light at the canopy versus the forest floor.

Broadleaf refers to leaves being "relatively" broad and flat, versus needle-like. The broader the leaf, the more efficient a solar panel it is, soaking up the sun's rays. Broadleaf plants tend to be deciduous, shedding their leaves in climates with cold winters or those with seasonal drought.

Needle leaves have a thicker outer coating, a thicker layer of protective wax, and less surface area because of their shape. These features minimize water evaporation, especially important in arid climates or areas with cold winters.

Succulents, such as aloe and cacti, are water-retaining plants adapted to dry climates. Their leaves, if they have any, are water plumped, cylindrical-to-spherical shaped, with most photosynthesis occurring in the stems.

In sum, plants with broad, thin leaves like a good dose of sun for photosynthesis. However, if too much sun or inadequate water, the plants will tend to have small, succulent leaves. Shade plants have large, broad, flat leaves to capture as much sun as possible.

To keep this simple, I'll limit this discussion to one

Basic Plant Types

- Trees: perennials with large, woody main trunks, which usually exceed 10 feet in height
- Lianas: woody climbers and vines
- Shrubs: smaller woody plants, with stems branching from ground
- Herbs: small plants without woody stems, includes grasses and other nonwoody vascular plants
- Bryophytes: non-flowering, spore-producing plants, such as mosses and liverworts
- Epiphytes: plants growing on other plants, using them for support, including orchids, bromeliads, and ferns
- Thallophytes: "lower plants" that lack true leaves, stems or roots, including fungi, algae, lichens, and seaweed

---

or two examples from each major biome for a quick sampling. These should illustrate what is expected in a given environment,

including the types of plants. I'll include examples from sci-fi and fantasy literature and movies, as well. For further inspiration, the final section will be on strange and unusual plants that we fiction writers would be hard pressed to exceed.

You can then build a world based on one biome, or go for an epic, spanning multiple ones, like J.R.R. Tolkien does in *Lord of the Rings* or George R.R. Martin in *A Song of Ice and Fire*. (Also, consider changing your middle initials to R.R. before tackling your opus.)

Tropical Rain Forests: Welcome to the Jungle

You want a lush climate? You can't go wrong with a tropical rain forest. It is the model for Pandora in *Avatar*, the island setting in Michael Crichton's *Jurassic Park*, and the South Continent in Anne McCaffery's *Pern* series.

Tropical rain forests are found along the equator, up to latitudes 28 degrees north or south. Year-round, these forests

> **Tropical Rain Forest**
> Climate: warm, wet
> Temperature average: 77 ˚F
> Light: brighter at canopy;
>   shaded at floor
> Vegetation: broadleaf
>   evergreen trees, lianas,
>   epiphytes, palms, some
>   bamboo, hardwood trees
> (Christopherson 656-658;
>   Encyclopaedia Britannica;
>   Bystriakova)

enjoy a consistent amount of daylight, temperatures averaging 77°F, and high precipitation (Christopherson 656). Plant and animal life is diverse and abundant.

With such a concentration of life, ecological niches are distributed vertically rather than horizontally because of the competition for light: forest floor, understory layer, canopy layer, and emergent layer. The forest floor—where only about 1% of sunlight makes it through—is perpetually moist, with rotting fruit and mold, and a web of roots and vines from above. There is no wind on the forest floor, so pollination mostly occurs by insects, other animals, and self-pollination. The soil quality is poor, but rich in litter decay on the surface (Christopherson 658).

A thick and continuous leaf canopy of broadleaf evergreen trees, such as mahogany, ebony, and rosewood, tops the forest. Palms and bamboo may grow too. Tree trunks tend to be smooth and slender with thin bark and buttressed by woody flanks that grow from the root system to stabilize the tall trees. Usually no branches grow on the lower two-thirds of the trees.

Lianas climb the trees, and orchids, bromeliads, and ferns attach to them too, deriving their nutrients from the air and rain.

As with all the biomes, there are variations on theme. With tropical forests, subclassifications include lowland evergreen, semi-evergreen seasonal, montane, and flooded forests.

Boreal (and Montane) Forests: Winter is Coming

Staying with the forest theme, let's go further north (or into higher altitudes). George R.R. Martin did in his *Song of Ice and Fire* series. North of the Wall is a boreal forest with pine-covered hills and snow-capped mountains.

(Other well-known forests featured in sci fi and fantasy—J.R.R. Tolkien's Fangorn Forest and Lothlórien, J.K. Rowling's Forbidden Forest, and the forest moon of Endor in *Star Wars Episode VI: Return of the Jedi*—are *temperate* forests. Elves, in particular, seem to prefer these types of forests.)

In comparison to other biomes, boreal forests have relatively low biodiversity.

Boreal ("northern") forests comprise the largest biome in the world. They are largely made up of needleleaf trees, as are the montane forests at higher elevations. A more open form of forest is the taiga that transitions to arctic and subarctic regions. Sometimes, "taiga" is used to refer to this biome in general. Examples include the Canadian and Alaskan forests, Rockies, Sierra Nevada, Alps, and Himalayas (at lower elevations).

> **Boreal Forest**
>
> Climate: subarctic, humid, short cool summer, long cold winter
>
> Temperature averages: -58 to 82 °F, depending on the season
>
> Light: nearly 20-hour long summer days and only 6-hour winter days, the sun does not rise far above the horizon
>
> Vegetation: coniferous evergreens, deciduous needleleaf, small leaf deciduous trees, moss, lichen, berry-producing shrubs, wildflowers in clearings
>
> (Christopherson 666; Rajan; Encyclopædia Britannica)

Areas inside the Arctic Circle have "midnight sun" in mid-summer and "polar night" in mid-winter. Snow may remain on the ground for as long as nine months in the northernmost areas. Some regions experience permafrost which is soil at or below the freezing point for two or more years.

Larch, a deciduous needleleaf, and cone-producing evergreens dominate boreal forests. Some small-leaf deciduous trees may be in the mix, as well as berry-producing shrubs and ground cover.

Boreal trees tend to be shallow rooted due to the thin soil. Some alter their biochemistry to harden their roots during the winter, making them less susceptible to freezing. The narrow conical shape of evergreens helps them shed snow. Thin needles (less surface area) minimize water loss, and the darker green color increases absorption of the sunlight.

The montane forests of the Sierra Nevada are notable for the majestic giant sequoias that grow in 70 isolated groves; they are the Earth's largest living things in terms of biomass, growing 28 feet in diameter and 270 feet tall. They're also among the longest living; the largest is estimated to be 3,500 years old (Christopherson 666).

Grasslands, Where Everything Happens Under the Open Sky

The expanse of grasslands—North American prairies, African savannas, South American pampas, the European steppes—captures the imagination, particularly in terms of freedom and wildness. Think of buffalo-hunting Native Americans, hearty pioneers, Genghis Khan, and the exotic herds of gazelles and zebras.

In fantasy, the sprawling, flat Dothraki Sea of Martin's *Song of Ice and Fire* comes to mind. And Rohan, a.k.a. the Riddermark, a

grassland north of Gondor, in Tolkien's *Lord of the Rings*. Both of these temperate grasslands are home to independent horsemen.

> ### Grasslands
> Climate: semi-arid to semi-humid
> Temperature: -4 (temperate) to 86 °F (savanna)
> Tropical vegetation: trees with flattened crowns, clumped grasses, bush thickets, fire association for propagation, acacia, baobab, eucalyptus
> (Christopherson 664, 669; NASA; Encyclopædia Britannica)

Grasslands largely fall into two broad categories: tropical (savannas) and temperate. In both, grasses dominate, interrupted by trees and shrubs. The complex root systems hold the soil in place. The soil is rich in humus, and so farmlands tend to crop up in grassland biomes.

Larger plants are subdued by fires and large, wild and domesticated herbivores (which in turn are fed upon by large carnivores). In the savannas, fires occur annually and, if early in the dry season, are beneficial to plant propagation. Mature trees can survive the fires, but their seedlings may be killed.

Man has played a major role in creating and extending grasslands with deforestation, initiated fires, agriculture, and introduction of exotic plants and domesticated grazers.

In terms of plants, grasses reign with some deciduous trees and brush. Since the native nature of most grasslands have been altered, the plants I'll mention here are from the African savannas: the flat topped acacia, the solitary baobab, clumped grasses, and bush thickets. Elephant grass grows quickly in the

rainy season up to 16 feet (Christopherson 664). Plant leaves tend to be small and thick, waxy, or hairy. Both the baobab and acacia lose leaves in the dry season to conserve moisture.

The baobab—the largest "succulent" in the world—can grow up to 98 feet high with a trunk diameter of 47 feet, and some are reputed to be thousands of years old. Their fruits ("monkey bread") and leaves are edible. Baobabs store water inside their trunks, which are covered with a fibrous bark (Shales). My first fictional encounter with these hearty trees was in Antoine de Saint-Exupéry's *The Little Prince*, where the prince weeds out baobabs that grow on his asteroid.

Warm Deserts á la Mode

The harshness of deserts lends this biome to many metaphors: emptiness, isolation, death.

Desert residents have to be tough, resilient, and resourceful, which might explain the attraction of deserts to writers, hence the deserts of *A Canticle for Leibowitz* (Walter M. Miller Jr.), Arrakis in *Dune* (Frank Herbert), Tatooine in *Star Wars*, Dorne in *Ice and Fire*, and Calormen in C.S. Lewis's *Chronicles of Narnia*.

Deserts aren't just sand. And they aren't dead stretches of land. Aridity defines them. They range from bare ground graduating into xerophytic plants, including succulents, cacti, and dry shrubs. Deserts have a high amount of plant diversity adapted to their conditions, being drought- or salt-tolerant, having deep root systems, or storing water in the leaves, roots, and stems.

Another adaptation is spiny leaves developed to lessen loss of water.

Deserts aren't necessarily hot either. Cold deserts, such as Antarctica, can be covered in snow or ice where the frozen water is unavailable to plant life (Crystal).

What defines a desert is the extremely low amount of precipitation, which may be exacerbated by evaporation. Deserts take up about a third of the Earth's land surface

> **Deserts**
> Climate: arid
> Temperature: -10 to 136 °F, with daily extremes, depending on latitude, elevation, degree of aridity, and season
> Vegetation: xerophytic plants, succulents, cacti, dry shrubs
> (Christopherson 670; Oliver 327-328; "Desert Plant Survival")

(Christopherson 670), but sand only covers about 20 percent of those (David). The largest hot desert is the Sahara in northern Africa, covering almost 3.5 million square miles and 13 countries (Geology.com). With an average daily temperature around 100.4 °F (NASA), deserts are subject to the highest temperatures on Earth, with the record at 136.4 °F in the Sahara (World Meterological Organization). The daily temperatures range wildly because, on account of little humidity to block the sun's rays, twice the solar radiation of humid regions is soaked up during the day, and almost twice as much heat is lost at night.

The saguaro cactus of the Sonoran Desert most famously symbolizes the desert biome. The "trees" of the desert, these upright, multi-armed sentinels grow slowly but may live up to 200 years. At ten years, they are less than 10 inches high.

Saguaros first bloom around 75 years. When fully grown, they are 50 feet tall and weigh as much as 10 tons (Encyclopædia Britannica).

Many of the smaller, specialized plants are equally interesting. For example, lithrops are desert succulents that look like unappetizing rocks.

The Great White Tundra…At Least Until Summer

Having done the hottest biome, let's balance with the coldest: the tundra. It's the biome graduating from the boreal forests, losing trees in the process. Tundra comes from the Lappish (Kildin Sami) term *tūndâr* meaning "treeless mountain tract" (Glossary.com). In winter, it is the white expanse featured in the far north of Phillip Pullman's *The Golden Compass*, Narnia during the Age of Winter, and the Hoth of *Star Wars* and many other fictional ice planets.

On planet Earth, the tundra falls into two broad categories: arctic and alpine. The arctic (including Antarctic) is known for its cold, desert-like conditions. Annual precipitation, including melting snow, is 6 to 10 inches (NASA). Beneath a thin layer of soil, permafrost prevents tree growth.

> **Tundra**
> Climate: windy, very cold
> Temperature: -25 to 54 ˚F
> Vegetation: Shrubs, sedges, moss, lichen, liverwort, grasses
> (Christopherson 671-672; Encyclopædia Britannica)

Bogs and ponds may form during the warmer months, when water saturates the upper surface, providing water for the 1,700 kinds of plants in the arctic and subarctic (University of California Museum of Paleontology). The short plants—low shrubs, sedges, reindeer mosses, liverworts, and grasses—are adapted to the sweeping winds. Most reproduce by division rather than by flowering.

Alpine tundra is found further south, in high mountainous elevations. Examples are found in the Alps, Pyrenees, Rockies, Sierra Nevada, Sierra Madre, Andes, Rift Mountains of Africa, and Tibetan Plateau. Again, the plants are short, but they include some of the most beautiful wild flowers to be found.

Freshwater Worlds Where Weesa Going to Get Wet

Aquatic biomes open up the possibilities for exotic worlds, alien to our experience. In the freshwater realm, I could only come up with one off the top of my head: the hydrostatic bubble city of Otoh Gunga on Naboo and its amphibious gungans in *Star Wars: Phantom Menace.*

Water worlds are divided into vertical zones, warmer and better lit at the top, colder and darker toward the bottom. More plant life is situated at the top and along the edges, taking advantage of those solar rays.

In ponds and lakes, the zones include the littoral, limnetic, and profundal. The littoral is the top layer, nearer the shore, and vegetation includes several species of algae and rooted and

floating aquatic plants, such as water lilies. The near-surface open water, in the limnetic zone, is dominated by plankton. In the profundal zone, the deep water is colder, denser, and poorly lit. During summer, the water temperature varies from 72 ˚F at the top to 39 ˚F at the bottom; in winter, the iced top is 32 ˚F, and the bottom is warmer at 39 ˚F (University of California Museum of Paleontology).

In rivers and streams—with their fast moving waters—the environments are more radical between the headwaters and the mouth. The headwaters are colder, clearer with higher oxygen counts; the mouth is murkier with sediment, more sluggish, and warmer as it drains to a lake or the sea. In the middle, diversity increases at the widest points, with more green plants and algae.

> **Freshwater**
>
> Climate: freshwater to brackish
>
> Lake Temperature: 32 ˚F to 72 ˚F
>
> Vegetation: algae, water lilies, duckweed, water cabbage, hydrilla, water cress, wild rice, cattails, rushes, bladderworts, cypress
>
> (University of California Museum of Paleontology; UCLA)

Marshes, swamps, and bogs are wetlands: standing water that supports aquatic plants, including water lilies, cattails, sedges, and cypress. Wetlands have the most biological diversity of any ecosystem. Some of this flora is impressive: the Victoria water lily (*Victoria amazonica)* can grow up to 10 feet in diameter, from an underwater stem 26 feet in length (Guinness World Records). Its 12-inch flower is white and "female" (receptive to pollen) the first night it blooms, becoming pink and "male"

(producing pollen) the second night (The Living Rainforest). Meesa thinks thisa is neato.

Marine: Into the Deep

As a fan of snorkeling, I think the most intriguing world possibilities are found in the oceans. Most existing sci-fi and fantasy stories delving into the deep seem to be about exploration, but some tackle underwater civilizations: underwater domed cities in Isaac Asimov's *Lucky Starr and the Oceans of Venus*, the oceanic moon of Shora in Joan Slonczewski's *Door Into Ocean,* and, of course, the mythical and fictional Atlantis inspirations. And don't forget about the mermaids.

Oceans cover nearly 71 percent of the earth's surface (Encyclopædia Britannica). Again, like in the lakes and rivers, the ocean is divided up into zones: intertidal, pelagic, abyssal, and benthic, going deeper and darker, respectively.

> **Marine**
>
> Climate: saline
> Temperature: surface varies with latitude, with avg. 62 °F; deep 32-37.5 °F
> Vegetation: phytoplankton, seagrass, seaweed such as kelp
> (University of California Museum of Paleontology; MarineBio Conservation Society)

The primary ocean flora are plankton and seaweed, with the remarkable kelp forests being the largest. Plankton and seaweed are comprised of colonial algae, which may be the most important plant on earth. Why? Because it produces 70-80 percent of the planet's oxygen (Hall).

Coral reefs are found in warmer, shallower waters, along continents, islands, and atolls. Reefs are formed from algae and the exoskeletons of coral polyps which are animals.

Life is Stranger than Fiction, Or Inspiration for Yours

While the biome discussion provides a broad swath of plants to expect, some unexpected species have evolved that might prove a starting point for designing your exotics. For your consideration, may I present the carnivorous, moving, resurrecting, warm-blooded, super-sized, and long-living plants of Earth…

Carnivorous

On Earth, there are over 670 different carnivorous plants (The International Carnivorous Plant Society), using pitfalls, snap traps, flypaper, and vacuums to trap insects for their nutrients. Pitcher plants are colorful tubes that attract insects and then trap them in the fluid at their base, drowning, and then absorbing them. Sundews trap insects in a sweet, sticky secretion, and some ensure entrapment with their tentacles. The Venus flytrap of the Carolinas employs a rapid-action bear trap approach, snapping shut on unsuspecting prey. "Feed me, Seymour!"

Moving

A couple dozen plants visibly move. Like the Venus flytrap. Some move to spread their seed or pollen, such as the exploding cucumber, trigger plants that slap pollen on flying insects, and *Catesetum* orchids ("Rapid Plant Movement"). Still others

move in self-defense, such as the *Mimosa pudica* and *Codariocalyx motorius.* (Check these out on YouTube.) The plants on Pandora seem to take some cues here. There's also a walking tree with stilt roots, but its ability to actually move to a sunnier spot may be a myth. Still, an interesting idea (and it shall be named Treebeard).

Resurrecting

Yes, there is a plant that appears brittle, brown, and dead but will come back to life again after 100 years. The resurrection fern plays 'possum when without water. When it finally gets the elixir of life, it springs back to a lively shade of green within 24 hours ("*Pleopeltis Polypodioides*"). I'm thinking a zombie plant is waaay overdue on the literary scene.

Warm-blooded

Well, in this case, it's called thermogenesis, and no blood is involved. A thermogenic ability allows plants to increase their temperature to that greater than the surrounding air. Carrion-smelling plants, like arums and the appropriately named carrion flower (*Rafflesia),* tend to have this ability, which allows them to further project their lovely scent to pollinators (like flies). The warmer plants may also be attractive to insects when temperatures drop. This also allows some plants in colder climes to push up through patches of snow in spring, like the skunk cabbage ("Thermogenic Plants").

Super-sized

The largest known *organism* in the world is a 106-acre grove of male Aspen (*Populus tremuloides*) in Utah connected by

a single root system. Nicknamed "Pando," each stem above the ground is genetically identical (DeWoody). The largest tree by volume is the Giant Sequoia, with the record-setting "General Sherman" tree at 630,096 board feet (Guinness World Records). The tallest is a Coastal Redwood at 379 feet (Guinness World Records). The largest flowers are the stinky *Rafflesia arnoldii* at three feet across and weighing 24 pounds (Encyclopædia Britannica), and Titan Arum, reaching over 10 feet in height (Guinness World Records). Do you want fries with that?

If your planet has less gravitational pull, you can go larger. Think *Avatar*.

Long-living

Plants can hang out for a long time. The oldest known tree, Methuselah, is a Great Basin bristlecone pine that has logged a Biblical 4,774 years on this planet (Miller). Pando (see "Super-sized" above), which is considered a clonal colony, could be as old as one million years (Organisation for Economic Co-operation and Development). *Welwitschia mirabilis* is an interesting species to check out just to see this alien-looking relic of the Jurassic period, with some individuals suspected to be 2,000 years old (Conifers.org). Think of all they've seen.

Conclusion

In a nutshell, with a grasp of biology and evolutionary concepts, you can design and populate your fictional world so it feels true. Your story rests on the underpinnings of your world. After all, there are only so many plot lines, revolving around

love, hate, loss, revenge. But the details will transport the reader, make them see and believe your characters and their reality.

About the Author

At any given time, Chanté McCoy is reading a handful of novels, taking a continuing education class to dabble in her latest interest (NOTE: she has no future in belly dancing), or hiking the mountains of Utah with Elvis, her 110-lb Doberman pinscher. While generally indulging in her love of fantasy, she writes in other genres too. She has recently been published in *The Crimson Pact* (volumes 1 and 2), *Dog Fancy*, *Spec the Halls*, and *Short Sips*. Look for more of her work in the upcoming *The Dead Walk Again* and *Big Pulp*. Visit chantemccoy.com to follow her blog.

Works Cited

Asimov, Isaac. *Lucky Starr and the Oceans of Venus*. Garden City: Doubleday & Company, 1954. Print.

Avatar. Dir. James Cameron. Perf. Sam Worthington, Zoe Saldana and Sigourney Weaver. Twentieth Century Fox. 2009. Film.

"Bill Vaughan." n.d. *BrainyQuote.com*. Xplore Inc. Web. 26 March 2012. <http://www.brainyquote.com/quotes/authors/b/bill_vaughan.html>.

Bystriakova, N., et al. "Distribution and Conservation Status of Forest Bamboo Biodiversity in the Asia-Pacific Region." *Biodiversity and Conservation* 12.9 (2003): 1833-1841. Print.

Christopherson, Robert W. *Geosystems: An Introduction to Physical Geography. Seventh Edition*. Upper Saddle River, New Jersey: Pearson/Prentice Hall, 2009. Print.

Conifers.org. "Welwitschia mirabilis." 25 April 2012. *The Gymnosperm Database*. Ed. Christopher J. Earle. Web. 9 May 2012.
	<http://www.conifers.org/we/Welwitschiaceae.php>.

Crichton, Michael. *Jurassic Park*. New York: Alfred A. Knopf, 1990. Print.

Crystal, Ellie. "Deserts." n.d. *Crytallinks.* Web. 8 May 2012.
	<http://www.crystalinks.com/deserts.html>.

David, P.P. "Desert." n.d. *The Canadian Encyclopedia.* Web. 9 May 2012.
	<http://www.thecanadianencyclopedia.com/articles/desert>.

"Desert Plant Survival." n.d. *DesertUSA.com.* Web. 8 May 2012. <http://www.desertusa.com/du_plantsurv.html>.

DeWoody, Jennifer, et al. ""Pando" Lives: Molecular Genetic Evidence of a Giant Aspen Clone in Central Utah." *Western North American Naturalist* 68.4 (2008): 493-497. Print. .

Encyclopædia Britannica. "Boreal Forest." 8 May 2012. *Encyclopædia Britannica Online.* Web. 8 May 2012.
	<http://www.britannica.com/EBchecked/topic/74016/boreal-forest>.

—. "Grassland." n.d. *Encyclopædia Britannica Online.* Web. 8 May 2012.

<http://www.britannica.com/EBchecked/topic/242201/gras sland>.

—. "Ocean." n.d. *Encyclopædia Britannica Online.* Web. 9 May 2012.
<http://www.britannica.com/EBchecked/topic/424285/ocea n>.

—. "Rafflesiaceae." n.d. *Encyclopædia Britannica Online.* Web. 9 May 2012.
<http://www.britannica.com/EBchecked/topic/489461/Ra fflesiaceae#ref268663>.

—. "Saguaro." n.d. *Encyclopædia Britannica Online.* Web. 9 May 2012.
<http://www.britannica.com/EBchecked/topic/516319/sagu aro>.

—. "Savanna." n.d. *Encyclopædia Britannica Online.* Web. 8 May 2012.
<http://www.britannica.com/EBchecked/topic/525656/sava nna>.

—. "Tropical Rainforest." 08 May 2012. *Encyclopaedia Britannica Online.* Web. 09 May 2012.
<http://www.britannica.com/EBchecked/topic/606576/tropi cal-rainforest>.

—. "Tundra." n.d. *Encyclopædia Britannica Online.* Web. 9 May 2012.
<http://www.britannica.com/EBchecked/topic/608909/tund ra>.

Geology.com. "Sahara Desert Map." n.d. *Geology.com.* Web. 9 May 2012. <http://geology.com/records/sahara-desert-map.shtml>.

Glossary.com. "Arctic Tundra." n.d. *Glossary.com.* Web. 9 May 2012. <http://www.glossary.com/encyclopedia.php?q=Arctic_tundra>.

Guinness World Records. "Largest Living Tree." n.d. *Guinness World Records.* Web. 9 May 2012. <http://www.guinnessworldrecords.com/world-records/10000/largest-living-tree->.

—. "Largest Water Lily." n.d. *Guinness World Records.com.* Web. 9 May 2012. <http://www.guinnessworldrecords.com/world-records/12000/largest-water-lily>.

—. "Tallest Bloom." n.d. *Guinness World Records.* Web. 9 May 2012. <http://www.guinnessworldrecords.com/world-records/3000/tallest-bloom>.

—. "Tallest Living Tree." n.d. *Guinness World Records.* Web. 9 May 2012. <http://www.guinnessworldrecords.com/world-records/10000/tallest-tree-living>.

Hall, Dr. Jack. "The Most Important Organism?" 12 September 2011. *Ecology.* Web. 9 May 2012. <http://www.ecology.com/2011/09/12/important-organism/>.

Herbert, Frank. *Dune.* Philadelphia and New York: Chilton Books, 1965. Print.

Little Shop of Horrors. Dir. Frank Oz. Perf. Rick Moranis, Ellen Greene and Steve Martin. Warner Bros, 1986. Film.

MarineBio Conservation Society. "Forests of the Sea: Phytoplankton and Marine plants." n.d. *MarineBio.* Web. 9 May 2012. <http://marinebio.org/oceans/forests/>.

Miller Jr., Walter M. *Canticle for Leibowitz.* Philadelphia &
    New York: J.B. Lippincott $ Co., 1960. Print.

Miller, Leonard. "The Ancient Bristlecone Pine." 2 January
    2005. *Sonic.net.* Web. 9 May 2012.
    <http://www.sonic.net/bristlecone/>.

NASA. "Desert." n.d. *Earth Observatory.* Web. 9 May 2012.
    <http://earthobservatory.nasa.gov/Experiments/Biome/biod
    esert.php>.

—. "Grassland." n.d. *Earth Observatory.* Web. 8 May 2012.
    <http://earthobservatory.nasa.gov/Experiments/Biome/biog
    rassland.php>.

—. "Tundra." n.d. *Earth Obvservatory.* Web. 9 May 2012.
    <http://earthobservatory.nasa.gov/Experiments/Biome/biot
    undra.php>.

Newman, Arnold. *The Tropical Rainforest : A World Survey
    of Our Most Valuable Endangered Habitat : With a
    Blueprint for Its Survival.* New York: Checkmark, 2002.
    Print.

Oliver, John. E. *Encyclopedia of World Climatology.* New
    York: Springer, 2004. Print.

Organisation for Economic Co-operation and Development.
    *Consensus Document on the Biology of Populus L.
    (Poplars).* Paris, 2001. Print.
    <http://www.oecd.org/dataoecd/16/57/46815678.pdf>.

Peck, Steven. "Ecology and Evolution in Science Fiction."
    *Life, The Universe, and Everything 30; The Marion K.
    "Doc" Smith Symposium on Science Fiction and Fantasy.*
    Utah Valley University. Orem, 10 February 2012.
    Presentation.

"Pleopeltis Polypodioides." n.d. *RTBot - Real Time Information.* Web. 9 May 2012. <http://www.rtbot.net/pleopeltis_polypodioides>.

Pullman, Philip. *The Golden Compass.* New York: Alfred A. Knopf, 1995.

Rajan, D. "Useful Notes on Boreal or Sub-arctice Climate (E) or Taiga Climage." n.d. *Preserve Articles.* Web. 8 May 21012. <http://www.preservearticles.com/2011111717359/useful-notes-on-boreal-or-sub-arctic-climate-e-or-taiga-climate.html>.

"Rapid Plant Movement." n.d. *RTBot - Real Time Information.* Web. 9 May 2012. <http://www.rtbot.net/Rapid_plant_movement>.

Saint-Exupéry, Antoine de. *The Little Prince (Le Petit Prince).* New York: Reynal & Hitchcock, 1943. Print.

Shales, Melissa. "The Baobab – Africa's Giant Upsidedown Tree." n.d. *About.com.* Web. 8 May 2012. <http://goafrica.about.com/od/krugernationalpark/a/baobab.htm>.

Simpson, Michael G. *Plant Systematics.* 2nd ed. Burlington, MA and San Diego: Academic Press, 2010. Print.

Slonczewski, Joan. *A Door Into Ocean.* New York: Arbor House, 1986. Print.

Star Trek. Dir. J.J. Abrams. Perf. Chris Pine, et al. 2009. Film.

Star Wars Episode I: The Phantom Menace. Dir. George Lucas. Perf. Liam Neeson, Ewan McGregor and Natalie Portman. 20th Century Fox, 1999. Film.

Star Wars Episode IV: A New Hope. Dir. George Lucas. Perf. Mark Hamill, Harrison Ford and Carrie Fisher. 20th Century Fox, 1977. Film.

Star Wars Episode VI: Return of the Jedi. Dir. Richard Marquand. Perf. Mark Hamill, Harrison Ford and Carrie Fisher. 20th Century Fox, 1983. Film.

Strand, Holly. "Pando-The World's Largest Organism." n.d. *Wild About Utah.* Web. 9 May 201. ＜http://www.bridgerlandaudubon.org/wildaboututah/100902largestorganism.htm＞.

The International Carnivorous Plant Society. "The Carnivorous Plant FAQ." December 2007. Web. 9 May 2012. ＜http://www.sarracenia.com/faq/faq1120.html＞.

The Living Rainforest. "Record breaking: Giant Amazon water lily." n.d. *The Living Rainforest.* Web. 9 May 2012 . ＜http://www.livingrainforest.org/about-rainforests/record-breaking-giant-amazon-water-lily/＞.

"The Walking Tree of Dahomey (Party Political Broadcast, Episode 45)." *Monty Python's Flying Circus.* London: BBC, 5 December 1974. Television.

"Thermogenic Plants." n.d. *RTBot - Real Time Information.* WEb. 9 May 2012. ＜http://www.rtbot.net/Thermogenic_plants＞.

UCLA. "Aquatic Plants." n.d. *Mildred E. Mathias Botanical Garden* . Web. 9 May 2012. ＜http://www.botgard.ucla.edu/html/botanytextbooks/lifeforms/aquaticplants/fulltextonly.html＞.

University of California Museum of Paleontology. "The Freshwater Biome." n.d. *The World's Biomes.* Web. 9 May

2012.
<http://www.ucmp.berkeley.edu/exhibits/biomes/freshwate
r.php>.

—. "The Marine Biome." n.d. *The World's Biomes.* 9 May
2012.
<http://www.ucmp.berkeley.edu/exhibits/biomes/marine.ph
p>.

—. "The Tundra Biome." March 2007. *The World's Biomes.*
Web. 15 March 2012.
<http://www.ucmp.berkeley.edu/exhibits/biomes/tundra.ph
p>.

World Meterological Organization. "World: Highest Recorded
Temperature." n.d. *Weather Archive.* Web. 9 May 2012.
<http://wmo.asu.edu/about-weather-archive>.

Creatures

Ramsey Lundock

Most stories focus on humans (or humanoids). Other creatures are a vital part of fictitious worlds which are often mishandled or overlooked entirely. Handled properly, creatures make your world more believable, memorable and unique.

What is a creature?

This sounds like a simple question, but in fantasy and science fiction, it is not as simple as it might seem. Carl Sagan outlined five different ways to define life: Physical, Biochemical, Metabolic, Genetic & Thermodynamic (Sagan 2010). He admitted that none of them were completely satisfactory (Sagan 2010). Fanciful elements like magic cloud the question further.

The definition we'll adopt here is that a creature is something macroscopic and animate (moving) which plays a role in

the *ecosystem* of a world but doesn't play a direct role in the *society* of the world.

This definition excludes bacteria which are better treated as diseases. This also excludes angels and demons, since their role in society far outweighs their influence on the ecosystem. In science fiction, there is the possibility of artificial life forms, but as man-made creatures, we can presume that they serve a role in society specified by their creators.

This definition includes 'natural' animals and fanciful creatures such as dragons and unicorns. This also includes undead creatures because the undead would play a definite role in ecology.

Ecology

Ecology is how the various creatures in a world interact. Ecology is also one of the most frequently neglected aspects of a fictional world. A creature is inseparable from its ecological role. A creature's place in the ecology determines its traits. Or, when working backwards to place a creature in your world, every trait must relate to the creature's ecology. Wings are to fly, claws are for ripping things apart, camouflage is to hide, bright colors are to scare away enemies, and so on.

For example: why would the chimera need a lioness's head, a goat's head, a snake's head and flaming breath? Here is a possible ecology for the chimera: Since lionesses eat meat and goats eat plants, we can assume the chimera is an omnivore which needs to be able to eat anything it can find. This implies

that it lives in bleak surroundings with little food. With that as a basis, the snake's head on the end of the tail would poison and kill small creatures which would otherwise be too fast for the lioness's head to catch.

The flame breath is harder to explain. In all of nature, only humans use 'the Red Flower' (Kipling 1984). Logic can carry us beyond the natural into the supernatural. Flame is hot, so it would be useful against cold. Barren and cold is an excellent description for tundra. Logically, chimeras are the top of the tundra food chain. Rather than hibernate through the winter, they remain active, and eat literally anything they can find. When food is particularly scarce they use their fire to melt away the snow to get at the tundra grasses underneath.

If your story requires chimeras at more temperate latitudes, there are other possible explanations for the flaming breath. Perhaps fire belches are actually just a byproduct of the chimera's eat-anything digestion. In this case, chimeras would live in stark deserts. Every author will construct a different ecology for chimeras, but if a chimera appears in a dense forest, there needs to be a good reason why it hasn't eaten and burned everything already.

Predator and Prey

It takes only a brief look through movies, books and (the worst offenders) games, to find examples where creatures only show up to attack the characters. Predators, are an important part of an

ecosystem, and make for exciting encounters. Every predator requires a base of prey to support it.

Due to space limitations we will focus on large creatures, but everything here holds true for fish, foxes, rats, spiders, and insects.

The often quoted figure is that adult humans need 2000 calories per day. This works out to about 2.5 pounds of meat, if that is the only type of food eaten (Calorie King). A lion eats about 10-15 pounds of meat in a day (Honolulu Zoo). A typical longhorn steer has a slaughter weight of 1100 pounds, of which only about 550 pounds is edible, the rest being bones, hide, gut fill, and such (The Meat Man). This means that a steer could provide about 220 calorie days for humans or 37-55 days for lions. A typical slaughter weight for sheep is 70 lbs. (so we can approximate about 35 lbs of edible meat.) This is only 14 calories days for humans or 2 to 3 calorie days for lions. Since cattle and sheep reproduce annually, we can rephrase these in terms of years: A human like predator consisting solely on cattle would need *at least* 2 full grown steers, or 26 full grown sheep, to survive a single year. A singe lion would need, at least 7 steers or 105 sheep.

These calculations assume healthy full grown animals, but the truth is that in nature most prey animals do not live to adulthood and that predators often prey upon the weakest members of a herd. Thus each kill provides a smaller meal to predators. We've also neglected factors such as spoilage and scavengers, and have assumed that humans and lions would be willing to stoop to eating every last, least appetizing pieces rather than hunting new

food. Accounting for all of these will increase the numbers of needed prey animals given above.

The important thing is not the exact numbers. What is important is that every dangerous predator in a world requires several – or more likely dozens or hundreds – of prey animals to support it.

Thus, characters in the wilderness should see prey animals long before the predators. The prey foreshadows the predators. Far too many authors don't mention these nonthreatening animals, either out of oversight, or on the assumption that if something isn't dangerous, it isn't interesting. This leaves the reader wondering, "What do dragons eat when they run out of knights?" Authors need to answer to this question.

Giant creatures require correspondingly more food. If a world has tyrannosaurs chasing the characters, the world needs a population of sauropods or ceratops to support the tyrannosaurs. Frank Herbert used an ingenious trick to get around this problem for his sandworms in *Dune* (Herbert 1965). He made them filter feeders like the humpback whales. The enormous food supply needed to sustain the creatures was hidden, spread throughout the sands of Dune.

Giant dragons can also fit neatly into an ecological niche. In Indian folk lore, dragons and elephants are mortal enemies. Adding herds of elephants to a world as a caloric base sets the stage for dragons. Remember, all the prey animals will need to eat too. The larger the number of herbivores, the more flora required to support them. And everything needs to drink, so consider the water source as well.

If elephants, sauropods or other large herbivores don't fit into your setting, it is still possible to include dragons, if you can explain how they get enough to eat. The explanation I use is dragon lethargy. When a dragon wakes up, it eats literally everything in the surrounding area: deer, bears, rabbits, etc. The dragon uses its flames to start wild fires to flush out every possible morsel of meat. The wings allow the dragon to range far in search of food. Then once the dragon has destroyed everything within flying range of its lair, it sleeps for a decade or more. This allows the land a chance to recover, so the dragon can gorge again.

Reign of Fire (Bowman 2002) included dragons similar to these. Those dragons slept for not decades, but *millions* of years and ate the ash of not just meat but plants as well. Incidentally, eating the ash implies that fire is the first stage in the dragon's digestive process, thus justifying the flaming breath.

The Flight of Dragons (Dickenson 1979) and the animated film of the same name (Bass & Rankin Jr. 1982), use yet another explanation. Rather than fly, dragons 'float' by inflating with hydrogen gas like a zeppelin. Since these dragons are inflated and mostly hollow, the living flesh is less substantial (requiring less food). And since the dragons float leisurely like blue whales, they don't need to spend the exorbitant number of calories to fly. Since the dragons are full of highly flammable hydrogen gas, all it takes is a small ignition to start a dragons flaming breath.

Elephant eating dragons, lethargic dragons, ash eating dragons, and hydrogen inflated dragons are all viable explanations. Each

one is distinct. Applying a plausible ecology to standard fantasy creatures makes them unique and memorable.

Dangerous Herbivores

Another contributing factor to unbalanced fictional ecologies is the assumption that creatures won't pose a risk to humans unless they want to eat the humans. Nature has equipped herbivorous animals with a number of deadly weapons to defend them selves. Horns or antlers are probably the most common, from elk to rhinoceros to triceratops to unicorns. With the full strength of a scared animal behind it, their sharp horns are deadly weapons.

True, herbivores prefer to flee rather than attack. They will attack when they feel it is their best chance for survival. Mothers protecting their young are more likely to attack. In herd animals like cattle, the large males may decide to attack to protect their herd. Water buffalo are infamous for their propensity to choose attacking over fleeing. Even cultures which domesticate water buffalos haven't been able to breed this unpredictable and dangerous trait out of them.

The hippopotamus is the most dangerous animal in Africa. Every year hippopotamuses kill more people than either crocodiles or lions. Hippopotamus are large, powerful, and extremely territorial. Since they spend their days almost entirely submerged, boats will approach too close without ever seeing the hippopotamus. Once the hippopotamus capsizes the boat, it uses its powerful jaws to crush anything it still deems a threat. Of course the hippopotamus can't digest meat, so it spits its victims

back out and nearby crocodiles are more than happy to clean up the mess (Honolulu Zoo).

Undead

Call them what you will: Undead, the walking dead, restless dead, reanimated, risen from the grave. The term undead refers to dead creatures which don't stay inanimate. Instead, they are still moving around. At first glance, undead don't seem to fit the definition of creature given in this article. But they *do* interact with the ecology of the world. For this discussion we'll group the undead into three groups: Skeletons, zombies and vampires. We won't deal with incorporable creatures since they exist apart from the natural world.

Skeletons are the easiest, since they don't eat and there is no meat left on the bones to be eaten. Intact or articulated skeletons are virtually unheard of in the natural world. Scavengers such as rats, vultures, wolves, and anything else large enough to tear off a hunk of meat will take that morsel to a safe distance to continue its meal. (There are human burial practices that involve cutting the flesh off the bone and then burial of the bones- so the skeleton is complete, but not articulated. The bones bear scars that look like butchering marks. Even if you assume that the bones will magically join up together from a pile, there will still be missing and broken pieces. Predators will often carry the best parts of their kill away to eat in safety. Canines in particular will carry bones back to their lair and gnaw on them until they break them open to eat the nutritious marrow inside.

Ants will eat the flesh away leaving clean white bones, but in order for ants to have time to strip a carcasses clean, something must have kept the larger scavengers away. Given time, ants will go for the marrow as well.

Inside crypts and coffins where bodies are protected, all the bones will still be there, articulated, and the flesh mostly intact depending upon the condition of the coffin. So, the bodies should be treated as zombies, not skeletons.

In short, the only way characters will encounter a complete skeleton is if it has been prepared. Your characters will be justified in breaking out the prayers and holy water at the first sign of a complete skeleton.

Zombies have flesh on their bones, but what they don't have is a personality. These are possibly the hardest undead to deal with. There are many ways to explain zombies, and each explanation will give them a distinct "feel".

First decide if the zombies' motions are driven by their muscles or by magic. If it is from muscles, the better condition the body is in, the stronger the zombie will be. If it is from magic, the more degraded the body is, the less flesh there is to interfere with the movements and the more agile they will be (eventually becoming skeletons). While you're thinking about motions, also consider a zombie's senses. How do they track their prey? If zombies don't breathe, can they smell? Do they see with empty eye sockets? If so, how?

Second, you need to decide if the zombies are rotting. Rotting is the process of microbes eating the body. These microbes

excrete waste gas which gives rotting things their stench. If the microbes keep eating, in a manner or weeks to months, all the flesh will be gone. If the microbes stop eating, the smell also fades. In enclosed areas like coffins, the smell can linger longer, but given enough time the smell will change from rotten to just stale.

A body where the flesh has stopped rotting is referred to as mummified. Mummies can be either ritually prepared or the chance result of natural circumstances. But mummies are delicate. When removed from the conditions which preserved them, they will quickly rot away, bones and all.

Since we're on the topic of decomposition, don't forget insects: the worms and maggots which eat dead bodies from the inside out. These reduce the amount of time needed for a body to disappear entirely. Canines also will stoop to eating rancid meat. A dog or wolf would bite into a zombie, mistaking it for an easy meal. If zombies roam the night, why haven't the wolves ripped them all apart by now?

Finally, the most difficult question about zombies: Do zombies eat? If they eat the stereotypical brains, how do they get the brains out of the skulls? (Remember zombies are basically humans, and humans require tools to break bones.) How fresh does the brain have to be? What happens to a zombie that doesn't eat? Does it starve?

Vampires, the last group, are dead but retain their cognition, and possibly memories of their former lives. Vampires are on the very boundary of our definition of creatures, since they are close to being part of society. A vampire with a lavish home, servants,

and peers is unquestionably part of society. Here we will concern ourselves with the solitary hunters.

Real vampire bats typically weigh about 40 grams and can consume up to 20 grams in a single meal. They need to feed about once every two days (Encyclopædia Britannica Bat). This huge appetite is due in part to the fact that blood is mostly water. Translating this behavior to undead vampires, this would mean they need about 100 pounds of blood every two days. Since an adult human holds about 14-18 pints, and a pint is approximately one pound, the math works out to 3 people a day. Said another way, it's over one thousand victims a year per vampire.

The easiest way around this staggering figure is the often used idea that the blood is only symbolic of consuming the soul. Once souls come into the problem, you are in the realm of the spiritual and supernatural, and beyond the scope of this article.

We will deal with the problem from the standpoint of the physical creature. Vampires spend most of their time 'hibernating' in their coffins. Presumably during this time the vampires are effectively 'dead,' with negligible metabolic activity. This halves the number of calories they need. Second, vampire bats can travel only by flight, which is a very energy intensive form of locomotion. Since vampires can also walk (and transform into small bats to fly), they are more energy efficient than bats, and a one-human-a-night diet is feasible. Of course since we've already invoked hibernation, there is no reason vampires have to be active every night. They might wake up and feed only once a week or once a month.

The caloric reality sets rules for vampires. If a vampire wakes up, it must feed. Denying a vampire even one meal will be seriously detrimental to its heath. Causing it to miss two or three meals will probably 'kill' it, or at least make it too weak act. Conversely, since the vampire must consume such large quantities of calorie poor blood, it cannot overeat to stock up for leaner times. Since it must already gorge on over 14 pints every meal, there is no room left for desert. Likewise, the vampire has no incentive to spread its appetite among multiple victims over the course of the night. The energy required to move from one victim to the next isn't worth the risk of not being able to find the next victim. So the vampire will drain each victim until there is not a drop of blood left in the body.

By this logic, the classic vampire is the most feasible. If a world has a more lively variety of vampires, the calorie problem needs to be addressed in a way which makes the vampires fit into the world.

Use Real Creatures and Real Ecologies

Ecologies are delicate balances. The Triassic extinction shows what can happen when an ecology isn't perfectly suited for the environment. In more modern times, extinctions and out of control populations (like rabbits in Australia and imported pythons increasing in the Florida Everglades) provide concrete examples of the drastic consequences of small changes to an ecosystem.

Authors don't have to make their ecologies perfect, but the ecologies need to be plausible. The best way to make a creature and its ecology believable is to model it on a similar real creature.

In fantasy, it is acceptable to draw directly from the real world. No one questions that knights ride horses, or that New Guinea birds of paradise show up in the same elven forests as Californian Golden Eagles (with pterodactyls in the goblin swamp next door). Science fiction is more difficult. Aliens need to be explained logically and plausibly. To this end, research and basing the aliens on real creatures is more important. Contradictorily, aliens need to be, well alien (ie. foreign, unearthly). You should draw inspiration from nature, but use your imagination to mix together a variety of elements. For instance, a small deep sea creature *Phronima sedentaria*, may have been, the inspiration for H. R. Geger's Alien (Fothergill 2006). The creature *Phronima sedentaria* looks like a shrimp with claws. The photographer Solvin Zankl's website (http://solvinzankl.com/blog/) has a wonderful image of *Phronima sedentaria* head on, and it does have a striking resemblance to Giger's alien. Next time you're watching your favorite sci-fi look carefully for the critters, and see if you can figure out what animal they were possibly inspired from.

Sometimes a plot calls for a creature so alien that they seem to defy logic. The creature is incompressible to the characters. However, even if the characters and readers aren't meant to understand the creature, the author must understand it. At least understand it better than the characters. If the author doesn't understand his own creation, it will be random and unbelievable.

A Few Words go a Long Way

Your audience wants an entertaining story, not an essay about the creatures and ecology of your world (unless you're writing source books for role playing games). Rather than explaining your natural world in depth, use hints which allow the readers to figure things out on their own.

As the heroes approach the bone strewn lair of the monster, mention the deer antler and bear skull on the pile. Rather than just mentioning the howl of the wolf at night, mention and the buzz of the summer insects and the choir of frogs. When describing the valley where a dragon lives, mention that there are no old trees, as if the forest was still recovering from a forest fire.

About the Author

Ramsey "Tome Wyrm" Lundock was first published in Polyhedron Magazine by the gone but not forgotten TSR. He served as the RPGA's Living Verge Campaign Coordinator.

After graduating from college, Ramsey spent 3 years working on the family thoroughbred horse farm. During that time their horse Supervisor ran in the 2003 Belmont Stakes.

He returned to graduate school, studying astronomy at Tohoku University in Japan. He was in Sendai when the earthquake and tsunami struck, but escaped unhurt. Currently he is working at the Subaru Telescope in Hawaii.

Ramsey "Tome Wyrm" Lundock has had 4 books published, and numerous RPGs, articles and short stories. His work has appeared in 3 languages, and the English Version of the Asahi Newspaper in Japan.

Works Cited

BBC Earth. Dir. Alastair Fothergill. Perf. David Attenbourough. 2006. BBC, 2007. DVD.

Calorie King www.calorieking.com accessed March 2012

Dickenson, Peter *The Flight of Dragons* (Book) Pierrot Pub 1979

Encyclopædia Britannica, online ed., "Bat, Vampire" accessed May 2012

Herbert, Frank *Dune* Chilton Books 1965

Honolulu Zoo http://www.honoluluzoo.org/

Kipling, Rudyard *The Jungle Book* Macmillan Publishers 1894

Meat Man, The www.askthemeatman.com accessed March 2012

Reign of Fire. Dir. Rob Bowman. Perf. Christian Bale, Matthew McConaughey, & Izabella Scorupco. Touchstone/ Disney, 2002. DVD.

Sagan, Carl "Definitions of Life." article in *The Nature of Life: Classical and Contemporary Perspectives from Philosophy and Science* Editors: Mark A. Bedau, Carol E. Cleland Cambridge University Press 2010

The Flight of Dragons. Dir. Jules Bass & Arthur Rankin Jr.. Perf. Victor Buono, James Gregory, James Earl Jones, John Ritter. 1982. Warner Bros., 2009. DVD.

Zankl, Solvin. http://solvinzankl.com/blog/. Accessed 5/12/2012. http://solvinzankl.photoshelter.com/gallery-image/Deep-Sea-plankton/G0000Sxr161Ocark/I00008afyoKT35b0

Domesticated Animals

Ramsey Lundock

As mankind emerged from the mists of prehistory, their hunting dogs trotted along behind them. In Egypt domesticated cats were important enough to be deified (Britannica s.v. Cat). The domestication of the horse was important enough to the ancient Greeks that they believed the horse was a gift from Poseidon (Weigel 1973). Even in today's mechanized world, pets are still an important part of society. It would be difficult to find a civilization that didn't domesticate some form of animal. Including domesticated animals in your world will add depth and make it more realistic.

Beyond the obvious matters, domesticated animals have far reaching effects on society, especially preindustrial societies. In this modern, mechanized world it is easy to forget the origin of the meat in the supermarket, or the leather in our shoes, or the feathers in our pillows. As an author, if you introduced our world to an unfamiliar audience, they would notice the number of

animal products in our lives and the distinct lack of animals. To make your readers believe in your world, you need to be aware of and describe or at least hint at the direct and indirect influences of domesticated animals on society.

Animal Roles

Every domesticated animal serves a role in society, even if it is simple companionship. In most cases, that role is based on abilities the animals have which surpass human abilities. The roles animals typically serve in a society are: hunting, transportation, guarding, pest elimination, food, clothing, companionship and warfare.

The importance of the horse to warfare can not be stressed enough. In Japan, Bushido, the Way of the Warrior, was said to be the Way of Horse and Bow (McCullough 1990). The English cavalier was DEFINED by his horse.

A mounted warrior has multiple advantages against infantry: he is faster, has a better vantage point and automatic 'high ground.' Horses do not tire as quickly as humans, even bearing the weight of the rider and his armor. Not to mention, when a horse decides to lash out at a threat, it has the strength to cause grievous bodily injury or death with a single strike. Finally, if the tide of battle turns against the rider, his mount gives him the speed to flee to fight another day.

Most domesticated animals serve multiple roles. For example, cattle provide muscle power, meat, milk and leather. Chickens provide eggs, meat, feathers and pest control (they eat insects).

The Mongols rode horses all day, ate horse meat and drank fermented mare's milk to get drunk (Mongolian Food 2000).

Animal Products

Leather comes from cattle. Wool comes from sheep. While obvious points, as you dress your characters, consider where their clothes – and other cloths – came from. If your heroes can find leather armor for sale in a village, there had better be cattle fields near by.

In addition to the hides, the bones of domesticated animals were used as tools and their horns were used for drinking cups and powder horns (Royal Scots Regimental Museum, Argyll & Sutherland Highlanders Regimental Museum, Tohoku History Museum).

The menu of a restaurant will reflect the local animals. Lamb and mutton are common in Australia (Mike Storey, Native Austrian, private communication) but are rare menu items in the United States of America. Even something as simple as cheese implies the existence of nearby domesticated animals. Is it cow-milk cheese? Goat cheese? Sheep cheese? In addition to chickens, people also eat eggs from domesticated ducks, geese, and pigeons. In modern times, refrigeration and high speed shipping keep the animals out of sight, but in less advanced cultures (or sci-fi towns on the frontier), the animals will be noticeable – perhaps impossible to miss – as you describe your villages and towns.

Consider the current location of the story, and the characters' childhood homes as well. The 'home cooking' the characters grew up eating will influence their tastes throughout their entire lives. As the characters travel, the foods available to them will change. When you listen to people complain about traveling, one of the first things they will always say is, "You won't believe what they eat over there!"

Animals and Technology

As technology has advanced on Earth, machines have replaced the animals in our lives. In science fiction, it is possible to imagine a society without animals, though I wouldn't want to live there. In settings where magic exists, it might displace animals the way machines have on Earth. If flying brooms are readily available, would knights ride horses? Why? If a vermin barrier spell can keep rats and other pests out of a city, would cats have been domesticated? Why?

Technology (or magic) doesn't always work against the animals. For most of history they have worked together. The chariot allowed humans to move with the speed of horses on the battle field. This brought the horse into warfare. Chariots of Egypt and other ancient cultures had only crude steering and required two people: a driver and a spearman (Healy 1993). Later, the saddle gave the warrior a stable platform on top of the horse, eliminating the need for the chariot and the second person. Improvements to the saddle, most notably the stirrup, made the rider more secure and paved the way for the heavy armor and lances of the Middle Ages. (Grant 2009)

The stirrup in turn made boots an essential part of riding gear. With a bare foot or a flat soled shoe, the foot might slip all the way through the stirrup, and then get caught around the ankle (Micklem 2003). More than just annoying, getting dragged by a stirrup in this manner was potentially fatal as the rider collided with the horse's hooves. In Japan, where everyone including warriors wore sandals, a different shape of "stirrup" evolved. It is difficult to explain without a picture, but the shape of the stirrup is roughly "C_" like a child's snow sled. A cord at the top end of the "C" attaches to the saddle. The rider places his toes in the mouth of the "C" and the heel of his foot on the "_". (Akamon Art Museum) This open shape eliminates the possibility of getting hung up and dragged.

Mounted combat also required special weapons. Large bows, such as the English long bow or the traditional Japanese bow couldn't be lifted over the head of their horses, thus restricting the archer to targets on his left. Mounted combat required a more compact bow. The Mongols, Huns and other peoples of the Eurasian Steps used compact but powerful composite bows reinforced with thin slices of horn and sinew (Britannica s.v. Bow).

Nor is there simply one type of saddle. The small, lightweight English riding saddle is designed for hunting in the British countryside. The most famous example is fox hunting. Regardless of the quarry, the hunt was a high-speed chase over and around obstacles, and returning home at the end of the day.

In contrast, the (American) Western saddle was developed for months on the open range. It is designed to be comfortable, even

when riding all day every day. It is large, with room for a bedroll and saddle bags of supplies. The most distinguishing feature, the saddle horn, gives the cowboy an anchor to tie off his signature lasso.

The differences in English and Western riding also influence the rider's garb. English saddles keep the stirrups short, so the rider can keep his knees bent to absorb the shock of the jumps and landings. Cowboys in contrast had their legs wrapped around the horse for hours every day. This is why cowboys wear chaps, to keep the constant rubbing from wearing through their pants. Chaps are unnecessary in English riding where the rider's legs are mostly above the line of the horse's back. In this higher stance, it is harder for the rider to spur the horse with his heels, which is why English riders also use riding crops. All the jumps increase the chance of a fall, which is why English riders adopted a hard helmet, unlike the cowboy hat.

There is a complex relationship between the mount, its tack, the riding style and the riding garb. When designing a new culture for your world, you should research and use the trapping of a culture similar. When using nonhistorical mounts (such as griffins or dolphins) take a moment to consider a "typical day" and think of the comfort and needs of both mount and rider.

Varieties

Mentioning domesticated animals in your societies is important. The next step to make your world more vivid and memorable is to describe what variety of animals there are.

Simply calling a horse a 'warhorse' is not sufficient. During the middle ages, warhorses were large boned, muscular creatures bred to lumber into battle, bearing the weight of a knight in full platemail armor (Grant 2009). Lipizzans are also warhorses, but they emphasize mobility over muscle power (lipizzaner). In the Japanese feudal era warhorses were small, and in any other country would likely have been considered ponies. (The size of Japanese warhorses was the result of their seed stock, not a deliberate breeding program to make them small. Quite the oppose, the Japanese samurai liked 'large' mounts.) (McCullough 1990)

Dogs provide more examples. Even though Doberman Pinchers and Great Pyrenees are both "guard dogs", what they protect, how they protect it and their entire attitudes are different. Doberman Pinchers protect people from other people. Thus they are loyal to friends and aggressive towards people they don't know (AKC). Great Pyrenees on the other hand protect far ranging sheep from coyotes, wolves and dogs (AKC). Great Pyrenees don't feel a need to stay near human 'friends.' Quite the opposite, it is virtually impossible to keep great pyrenees fenced in because they feel it is their duty to protect a wide area. (They will climb over fences they can't dig under.) Since Great Pyrenees aren't bred to protect against humans, they normally ignore humans.

Basset hounds, retrievers and poodles are all 'hunting dogs.' (AKC) Bassets, like all hounds, track the quarry by scent. Their short legs put them closer to the ground where the scent trails are located. Retrievers fetch downed game birds where ever they happen to fall. Their athletic ability lets them jump over

obstacles and swim out into lakes to retrieve the birds. Before they became fashion icons, poodles earned their way as retrievers. The iconic 'poodle cut' arose because humans decided to cut away the long hair which became waterlogged; leaving hair only on the joint to protect them from the cold. (AKC)

Attitude Towards Animals

Different cultures view animals differently. These relate to the roles of animals in the societies.

Cats were deified in Ancient Egypt. Not coincidentally, the reverence for cats coincided with the development of large granaries and the beginning of serious rat problems (Britannica s.v. Cats). Cows are considered sacred in Hindi India because of their high value providing muscle power and milk. (Lal & Von Loon 2005) Orthodox Jews consider pigs and goats unfit for human consumption (Leviticus 11:7). Before the American presence in Iraq, the Iraqis didn't considered dogs as pets. Dogs had only been used as vicious guard animals. There are accounts of Iraqis staring dumbfounded at American soldiers who befriended and petted those same dogs.

When you create the various cultures in your world, think about what domesticated animals they use, and how they regard those animals.

Fanciful Domesticated Animals

Many authors include exotic domesticated animals in their settings. To do this believably, you need to consider the traits of the animals. Every domesticated animal fills a role; a reason why it was domesticated. Most domesticated animals surpass human abilities in that area. On Earth, virtually all domesticated animals are mammalian or avian. Domestication means to accustom an animal to live under the care and near habitations of man (Oxford English Dictionary s.v. Domestication). This requires a minimum level of intelligence on the part of the animal to associate rewards and punishments with the desired or undesired behaviors. Alien and fanciful domesticated animals must have a minimum intelligence, consummate to the level of training they require.

Placing domesticated animals in your setting means more than just 'taming' the creatures you've dreamed up for your world. As part of domestication, humans change the composition of the bred to serve their needs. Before genetics and scientific breeding were well understood, people still made large impacts simply by choosing the individuals they liked best. Miniature toy poodles and wolves might not look like cousins, but they are the product of millennia of selective breeding. Look at the creatures in your world and consider what varieties people might produce for their needs.

Animal Characters

In this section we focus on integrating domesticated animals in to your societies. It is also possible for animals to be heroic characters in their own right (like Lassie or Hidalgo.) Use caution when writing animal characters. Animals have a different mentality than humans. No matter how much you research, you can't really understand the way animals think unless you've had to deal with them. It is important to include animals in your settings. To take that extra step to make them believable major characters, there is no substitute for personal experience. Besides, playing and working with animals is fun. It might be the best part of researching for your world.

About the Author

Ramsey "Tome Wyrm" Lundock was first published in Polyhedron Magazine by the gone but not forgotten TSR. He served as the RPGA's Living Verge Campaign Coordinator.

After graduating from college, Ramsey spent 3 years working on the family thoroughbred horse farm. During that time their horse Supervisor ran in the 2003 Belmont Stakes.

He returned to graduate school, studying astronomy at Tohoku University in Japan. He was in Sendai when the earthquake and tsunami struck, but escaped unhurt. Currently he is working at the Subaru Telescope in Hawaii.

Ramsey "Tome Wyrm" Lundock has had 4 books published, and numerous RPGs, articles and short stories. His work has appeared in 3 languages, and the English Version of the Asahi Newspaper in Japan.

Works Cited

Akamon Art Museum, Sendai City Aoba Ward, Aramaki Aza Aoba 33-1 Japan Telephone (81) 022-224-1877 Fax (81) 022-223-5129

AKC, The American Kennel Club akc.org

Argyll & Sutherland Highlanders Regimental Museum, The. www.stirlingcastle.gov.uk/home/experience/story/argylland highlandersmusuem.htm Stirling Castle, Castle Esplanade, Stirling, FK8 1EJ, UK

Encyclopædia Britannica, online ed., s.v. "Bow" accessed
    May 2012

Encyclopædia Britannica, online ed., s.v. "Cat" accessed May
    2012

Grant, R.G. *Battle* Dorling Kindersley Limited 2009

Healy, Mark *Qadesh 1300 BC Clash of the Warrior Kings*
    Osprey 1993

Lal, Vinay & Van Loon, *Boris Introducing Hinduism: A
    Graphic Guide* Icon Books 2006

Lipizzaner Lipizzaner.com

McCullough, Helen (Translator) *The Tale of the Heike*
    Stanford University Press, 1990

Micklem, William *Complete Horse Riding Manual* Dorling
    Kindersley Limited 2003

Mongolian Food www.rahul.net/dold/mongfood.htm 2000

Oxford English Dictionary, online ed., s.v. "Domestication"
    accessed May 2012

Royal Scots Regimental Museum, the
    www.edinburghcastle.gov.uk/index/tour/highlights/highlight
    s-royal-scots-regimental-museum.htm Edinburgh Castle,
    Castlehill, Edinburgh, EH1 2NG, UK

Tohoku History Museumwww.thm.pref.miyagi.jp 1-22-1
    Takasaki, Tagajo, Miyagi 985-0862, Japan

Weigel, James Jr. *Mythology* Cliff Notes 1973

Crafting Urban Landscapes

Janine K. Spendlove

Think of the iconic cities you know. What springs to mind? New York? Paris? London? What are some of the most memorable features of these cities? What are their personalities like? What are they known for? The devil is in the details they say, and when it comes to crafting any sort landscape for your fiction, this is quite true. Particularly when creating an urban landscape.

What exactly *is* urban? Looking in the dictionary we see it defined as "of, pertaining to, or designating a city or town" (dictionary.com).

Whether you're writing sci-fi or fantasy, or your story takes place under the sea or an airless vacuum the cities you write about need to feel *real*. How do we do this? Let's look at some of the basic elements of most earth bound cities from across time:

Size and density of the population is more than you would find in a rural sprawl/village/hamlet. A good example of this comparison can be found in Superman (the comics, TV shows, or films). Clark grows up in tiny, rural Smallville, but goes off to massive Metropolis – the big urban city – to fight for the little guy. And be a reporter, of course. (DC Comics)

Differentiation of the population (trade and industry). Not all residents grow their own food, leading to specialists (the butcher, the baker, the candlestick maker). The Wheel of Time series shows this in great detail in each city/state/different cultural group. It's one way Robert Jordan creates differences between regional urban areas (such as Andor, Tear, and Cairhien in the novels). (Jordan)

Monumental and/or public buildings. The Lord of the Rings films are chock full of monumental and public buildings in the large urban centers like Gondor (libraries), Rivendale (libraries/museums of sorts), and Edoras (meeting hall), whereas the tiny shire is a hamlet made up of small farms and hobbit holes. (Jackson)

Systems of recording/writing and/or practical science. Reading and writing are essential as they are the primary source of communication in *His Majesty's Dragons: Temeraire* (a retelling of the Napoleonic wars as if there had been an airforce… of dragons). Added to that, you have science and scholarly pursuits. This world would have been hollow without it. (Novik)

Art. The Pern novels – Art, as in music, is shown beautifully in these novels. In the wealthier population centers of the books you find academy for music. Traditionally, smaller, rural areas

do not have much of an artistic culture as most of the residents are engaged in surviving from day to day. (McCaffrey)

Some sort of trash/sewage system (even it it's just tossing it out your window into the street). One of the most thoroughly and vividly built fantasy worlds I've ever encountered is in the Riftwar saga by Raymond Feist. One most memorable scenes that stays with me even to this day is of our heroes sneaking in through the city's warren of sewers. The sewers show up again in an epic chase scene, and I remember thinking how real Midkemia felt to me at that point. (Feist)

A form of government and/or religion (taxes/tithes). *The Golden Compass* by Phillip Pullman is completely built around this concept – in parallel universe to ours, the populous is controlled by the Magisterium, a body of the Church in that world which guards against heresy. The driving plot of the story is whether human souls (which exist externally in the form of a "dæmon," an animal which constantly accompanies her master) are evil and the root of all that is bad in the world, and if so, what should be done about them. (Pullman)

Buildings/Residences/Roads/Marketplaces. R.T. Kaelin's *Progeny: The Children of the White Lions* uses this effectively throughout the novel. Need to purchase supplies? Need to go to the big city for that. Need to deliver your harvest or move a large army? Take one of the many roads that all lead to the large population centers – the cities. (Kaelin)

Your city may not have all these aspects, but it will definitely have most of them. If not, it will not be believable, and quite

frankly, will seem drab and odd (unless this is what you're going for).

One trick to making your cities seem more authentic is to ground them in reality. In my last novel, *War of the Seasons: The Human*, I had an elven city that was a cluster of small islands where the roads were canals, etc. While each clan island had a distinct personality unique to the family that inhabits it, I vigorously studied Venice, Italy for inspiration on how a city like this would operate and look.

Basing elements of your urban landscape on actual current or historical examples will make your readers feel familiar with the world you are creating, and therefore more accepting of it. This doesn't mean to blatantly set up your urban landscape as a carbon copy of a real Earth city (unless it actually is part of your plot to do so), but borrowing elements from real cities and using them in your own will give them an authentic flavor.

Ultimately, if you believe in your city, and it feels real to you, then you probably did it right. If it feels bland, off, or lacking (unless this is an intentional plot point), you probably need to go back to drawing board. Remember, real cities have real problems. They have an ugly side and pretty side, and they all have a unique personality. In many ways cities are like characters, and if you treat them as such when you write about them, you won't go wrong.

About the Author

Janine K. Spendlove is a KC-130 pilot in the United States Marine Corps. Her bestselling first novel, War of the Seasons, Book One: The Human, was published in June 2011, and she's also had several short stories published in various anthologies. A graduate from Brigham Young University in 1999 with a BA in History Teaching, she is an avid runner, enjoys knitting, playing Beatles tunes on her guitar, and spending time with her family. She currently resides with her husband and daughter in Washington, DC. She is currently at work on her next novel. Find out more at WarOfTheSeasons.com

Works Cited

Feist, Raymond E. *Magician: Apprentice*. New York: Spectra, 1993.

Jordan, Robert. *The Wheel of Time: The Eye of the World*. New York: Tor, 1990.

Kaelin, RT. *Progeny: The Children of the White Lions*. Terrene Press, 2010.

Novik, Naomi. *His Majesty's Dragon*. New York: Del Rey, 2006.

Pullman, Philip. *The Golden Compass*. New York: Laurel Leaf, 2003.

"Superman : DC Comics." DC Comics.www.dccomics.com/superman.

The Lord of the Rings: The Fellowship of the Ring. Dir. Peter
Jackson. DVD. New Line Cinema, 2001.

"Urban." Dictionary.Com.
dictionary.reference.com/browse/urban.

The Religious Order

Maurice Broaddus

In the beginning…

Writing is the closest we get to playing God. Starting with an idea, we create a world and breathe life into characters to populate it. We allow them to take a measure (or the illusion) of free will even as we create scenarios to challenge and mold them. To that end, writers have to develop an imaginary setting that is logical, one that the reader can buy into with the proper suspension of disbelief, and has a sense of a history, geography, and culture. In other words, every part of the world has to have a vision and purpose and this includes something important to the fabric of many people's lives: religion.

Religion happens for a reason

Everyone believes in something, we all possess a worldview which helps us navigate life, even if it looks a lot like stumbling around trying to find meaning in a seemingly meaningless existence. All developing worldviews, what we choose to put our belief in, as we interpret the universe around us, begin with a leap of faith. For some, that central belief is in ourselves (the individual or humanity). For some, it is science (the determination of our senses and what we can prove). For some, it is the spiritual (with the conceit that there is more to this life than presented, both in terms of the unseen world as well as the possibility of a life after this one; possibly entering into a treatise with the supernatural).

Religion can be defined as a set of rituals rationalized by myth which mobilizes supernatural powers for the purpose of preventing/achieving transformations of state in people and nature (Haviland, 363). There are several reasons why religion comes about: 1. Reduces anxiety (i.e.: Prayer in any religion brings comfort); 2. Provides comfort (i.e.: Promise of the afterlife); 3. Defines behavior (i.e.: Rule of 3 x3); 4.Defines the sacred vs. the profane; 5. Sanctions societal behavior (i.e.: Ten Commandments); 6. Punishes detrimental; behavior (i.e.: Belief in Karma); 7. Satisfies the psychological need for power (i.e.: "For the glory of God").

Despite what some people may say or believe, religious people aren't stupid nor does pursuit of a spiritual faith imply ignorance.

Part of what makes us human is our self-awareness and that same higher consciousness not only causes us to ask questions about our life and who we are, but forces us to deal with the concept of our eventual death. Religion and speculations about an afterlife may naturally spring from that. Philosophers, artists, scientists, and theologians, all those in pursuit of *truth*, begin at the same existential point: Why? "Why am I?" "Why do (bad) things happen?" Between life and death we live in the throes of endless "why"s, profound mysteries, and plenty that remains unknown. Life can be magical and terrifying, filled with both fantasy and horror. We can see faith lived out in love and relationships; or be horrified by the things done in a god's name.

Any world has a sense of history, various languages spoken by their peoples, and geography, a sense of place, all of which impacts and defines a people and culture. Religion is formed by that, defined as much by that dynamic as much as it defines that people and culture through ritual and tradition as well as infer threats to the people. In giving structure to a culture, religion evolves as cooperation and cohesion increases within a group. Life becomes a matter of the community's best interest and membership with it increases an individual's chances for survival and reproduction. Specific rituals signal and test a person's commitment to the greater good, the group. This can, but not always, require relieving them of something precious, or testing the believer in some way.

As people grapple to relate to the universe and their place in it—how we were created and why we are here—we spin causal narratives for natural events. There are questions without answers that are still worth asking and exploring as people seek

to order their lives with meaning. In that pursuit, we recognize not only our own beliefs but those of others. It also allows us to imagine purposeful agents behind the mysteries and complexities of life, especially if we don't have explanations for the things we observe.

The importance of story

Religions and myths come down to stories. From the meta-narrative of a god going so far as to incarnate in order to experience and model life in order to draw/woo humanity back to him (the story of Christianity) to the tales of gods arguing and jumping from relationship to relationship (such as the ancient Greeks), stories create a reason for being and attempt to answer the "why". Stories are what give the dogma life and meaning. Stories are how the religion is passed along and transmitted throughout the culture. The truth is in the stories, not in the over structured details of laws. There can be and are inconsistencies, revisions, and schisms because religion can be a messy business. Like with any good story-telling, crafting a religion, as well as the beings that populate its stories, require good characterization to make it real and multi-dimensional.

Things to consider

Start with your own beliefs. A good jumping off place in crafting a religion specific to your world is to expound on your own religious and moral beliefs. There is a two-fold caution to dealing with religion. The first is to be respectful and do so with

skill and sensitivity. Remember, religion is a personal issue, one built on an individual's convictions and often speaks to who they are. So you want to be deferential and tolerant as you build this part of your world and weave your story. Think of the worlds created by J.R.R. Tolkien, C.S. Lewis, or Philip Pullman, men who did not necessarily share the same belief systems but religion played a vital role the stories they chose to tell and in their worlds. Tolkien was an ardent Catholic who drew on the imagery of his faith (the death and resurrection of Gandalf; Melkur, the fallen angel; lembas is the Eucharistic "life-bread" that the elf Galadriel gives to the Fellowship for their journey). Lewis was much more intentional about his allegorical tale, the *Chronicles of Narnia*. Aslan, the lion, was a symbol for Christ with the bulk of the religion revolving around him. Not only did he sacrifice his life for the sins of others, but he was resurrected for a final battle against evil. Pullman's *His Dark Materials* series was a direct rebuttal to the *Chronicles of Narnia*. Still utilizing talking animals, his sinister organization known as the Magisterium was a critique of the Catholic church. So where Tolkien used his beliefs to inform his stories, Lewis and Pullman had agendas which sometimes got in the way of the story-telling.

The second caution is to not become preachy to a captive audience (for or against religion). Heavy-handed story telling quickly can become, or be interpreted as, proselytizing, which makes for a tedious experience and an uncomfortable atmosphere. No one wants to be trapped in a sales pitch session no matter what the product maybe.

Study a religion. Another place to start is to take the time to learn about a particular religion. An existing religion can be a

springboard, but you want to tailor it for the world you've created. Judeo-Christianity is the easy example, one which many people are at least nominally acquainted with. It features a singular God and has a long, storied history. Along with the history of the religion itself, it has a structure to it as it has evolved over time. In its infancy, it was defined by prophets, laws, rituals, sacrifices, priests, and temples. Later, ecclesiastical structures featured popes, cardinals, bishops, monasteries. Along the way there were schisms, from denominations splitting off to cults focusing on lost, new, or hidden truths. Each of these models—prophets, ecclesiastical, denominations/cults—could be used as a foundation for a religion.

Develop the pantheon. You have to figure out the central players in your religion and what's at stake. Start with the deity or deities in question. Your world may have no gods, worship a single god, or be intruded upon by a pantheon of gods. As a story teller, you have to define the players and what's at stake. The gods and/or goddesses each have their own story as well as how their story interacts with the other stories of the other members of the pantheon. Where stories connect, there is tension. The deities have a defined relationship, a relationship with expectations regarding the natural & supernatural world, to humanity and interact with the world and people's lives for a reason. Try to…

- Define what it is to be immortal, aging, abilities, sustenance needs (residence, food/water.)

- Describe, or at least know, the pantheon and how they come about (Creation Myth). John Campbell is a great source for studying this.

- Define why they are interested in mortals.

- Are they all interested in mortals?

- Do they incarnate to interact with humanity?

- If so, how? To the benefit of mortals or the benefits of the immortals.

- How do people communicate with the gods (through a priest/ess or temple or prayer or visions)? Those same deities will likely have one relationship with their followers and have, or demand, a different relationship with non-believers.

- Are heretics to be killed or converted?

- Is this group of gods real only to the people whom have faith in them, or are the real to others as well?

Develop its back story. Give your religion some sense of history and be specific in that history. The religion didn't spring up overnight (and if it did, all the greater the mystery of it). It has a founder and notable practitioners. How faith and spirituality is practiced is usually defined in detail, and can be a source of conflict between factions. It has significant historical milestones, and has been responsible for some sort of action in the community giving people a reason to love or hate it (or fear it). Keep in mind, the religion doesn't have to have a spotless history. Study the history of the popes, for example. Some were

good, some were very, very bad. Not to mention, most modern religions have their share of heretics, colonization, and/or wars done under the banner of evangelism.

Define their beliefs. There is a central story that a religion is about; those overarching principles which their followers sign up for and are guided by. As a part of their history, religions change and evolve both from internal and external influences. Doctrinal challenges are raised and overcome; it may add ideas and lose others so that what's critical one day is minutia the next. Doctrines can change over time as a culture changes, influenced by internal or external forces. Keep in mind that people always bring their biases to their interpretation of their spirituality. Never forget the "why" to things. Doctrines are often extrapolated from the stories believers create to explain those natural events unexplainable due to lack of understanding of their environment. Sects often spring up around lost ideas, newly discovered ones, or a charismatic leader.

Determine the head. It's easy to say that the deity in question is the head of the religion, but the reality is that people lead the day-to-day operations. After all, gods have little interest in paperwork. The religion's leaders may vary. Priests, clerics, academics, scientists, philosopher, magicians, laity, all these positions may look different in the religion depending on the society that has developed. And remember, people still are people no matter the system. There will always be the faithful, the blind adherents, trying to pursue the spiritual heart of their faith, but there will also be those in it for themselves, (mis-)using religion for their own ends. No system is perfect, however, errors are one thing, corrupt leaders or followers are quite another as

they pursue politics and power over religious truths, control of people, wealth, or simply their own agenda, anything from hatred of another group to biases against the opposite sex.

Think through customs and rituals. This is the real fun of inventing a religion, developing those outer trappings that mark their people as distinct. Religion often is tied up in traditions which might surround; rites of passage (including but not exclusive of: birth, marriage, coming of age, and death) or holidays. However, many events can be listed as a rite of passage. These are often celebrated in some way via a feast, sacrifice, and religious or traditional ritual. Rituals are not always religious, they can be traditions that are followed with strict adherence such as; graduations, secular holidays, and/ or events that happen to every person that their culture doesn't consider religious (such as getting a driver's license, age to vote, or to drink in our own culture) (Britannica Rites of Passage). The tendrils of religion can reach into teach corner of a people's life, even if not all of them are adherents. And the religion may play a role in government, influencing laws or politicians, directly advising the monarchy, or your religion may have risen to the level of becoming a state church.

There are no bad religions. Be careful about labeling a religion "bad", "wrong", "dark," or "evil." Few people wake up in the morning and think to themselves "I'm gonna be all kinds of evil today." Instead, from rival priesthoods to competing faiths, everyone is the hero in their own story, even those who worship the "wrong" gods. Defining a "wrong" religion by evil priests, false prophets, torture, rape, sacrifice, or any of a host of other clichés should be used sparingly. That being said, one religion

may be at war with another and in that context one is good and one is bad dependent on the point of view of the person making that call. Any religion is set against a larger story, that is, they are for something, pursuing an end, and as such are de facto against someone or something else. Sometimes these conflicts are basic and vague: chaos vs. order, light vs. dark, good vs. evil. It doesn't matter the theology or guiding philosophy because even dogma as simply as "love everyone" or "maintain the balance" can drift into "hate certain groups" or "extinguish chaos". If religion is a "character," and thus the hero in its own story, it has obstacles it has to overcome (even if they are just internal).

Remember the magic. Magic may play an important role in your world (Also see the Magick article). Thinking through all the rules of magic is its own headache, but you also have to think through the relationship between practitioners of religion and those of magic. Religion and magic are sometimes in sync and sometimes in opposition, after all, there is a fine line between a miracle and magic. For that matter, sometimes magic may be its own religion, thought through in the same way as any other one. Either way, that relationship needs to be defined, be it one of mutual acceptance or one of conflict.

Build from other religions. Though they are the usual suspects, feel free to expand beyond the Greco-Roman, Egyptian, Judeo-Christian, and Wiccan/Pagan worlds. There are Chinese, South American, Islamic, Hindu, Indian, African religions and pantheons to explore. Plus, mash-ups can be interesting. Imagine a Cthuhlu cult with denominations, schisms or a high church leadership structure, from popes to cardinals, with all of the inherent politics involved.

…and the end

The bottom line role of world-building is to create a backdrop on which to hang the story of your adventure. If you've done your job in world-building, your world has inherent conflict and drama into which you drop your characters. Religion is a story or a collection of stories people believe in and are shaped by. Religion infiltrates all corners of people's lives and culture, influencing everything from dress to language to art to thought to social mores. The earliest evidence of religion is at Shanidar in Iraq dating to the 10th or 9th millennia BCE (Britannica History of Mesopotamia).

Where the world building of religion is concerned, not every person believes with the same fervor or adheres to every tenet. Characters may struggle with faith. Even if their belief is well-defined, they may have real questions about it if they see hypocrisy among their leaders or are asked to do questionable things. The politics of the church, the possibility of offending a people by comment or deed, the chance of sacrilege by some aspect of dress, with this potential for tension, it will keep your adventurers on their toes.

About the Author

Maurice Broaddus has written dozens of short stories, essays, novellas, and articles. His dark fiction has been published in numerous magazines, anthologies, and web sites, most recently including Cemetery Dance, Apex Magazine, Black Static, and Weird Tales Magazine. He is the co-editor of the Dark Faith anthology series (Apex Books) and the author of the Knights of Breton Court trilogy (Angry Robot Books). In his spare time, he sits on the board of Second Story, a non-profit organization whose mission it is to encourage creative writing among elementary school students.

Visit his site at www.MauriceBroaddus.com.

Works Cited

Haviland, Wm. Cultural Anthropology. 8th. New York: Harcour Brace, 1996.

"History of Mesopotamia." Encyclopædia Britannica. Encyclopædia Britannica Online Academic Edition. Encyclopædia Britannica Inc., 2012. Web. 14 May. 2012

"Rite of Passage." Encyclopædia Britannica. Encyclopædia Britannica Online Academic Edition. Encyclopædia Britannica Inc., 2012. Web. 14 May. 2012.

World Building: Magic Systems

Kerrie L. Hughes

In our mundane world, magic is a stage act, one that uses illusion and misdirection to fool the viewer. In the worlds that writers and gamers make, magic becomes Magick. It is the stuff that changes the plot of a book from boring to exciting, and the spark that drives epic plays on the gaming table.

But how do you create magic that is believable? A good place to start is by reading the history of alchemy, looking at modern Wicca, or studying religious rituals from all cultures. This is often dangerous territory for writers and gamers to tread. There will always be someone, somewhere, who takes offense at something you've created, and is vocal about it, sometimes to your face. They accuse you of sacrilege, plagiarism, and having the dreaded secret knowledge. Ignore these people; the world is full of critics and they have their own agendas.

Or you can skip the research and the drama by using a simple system of lists I've created that categorize magick into energy

sources, conduits, methods of delivery, and consequences. When using these lists, try looking at magick as choosing a methodology to pull energy from one place, and redirect it to another by using a conduit. The end result generally has a cost and/or consequence, whether good, bad, or neutral.

Energy Sources:

Animate/alive: This includes flora, fauna, and humans.

Inanimate/Never was alive so cannot be dead: This includes the elemental categories of air, water, earth, and fire. It also includes ley lines, math, language, machinery, and computers.

Reanimated/Dead: Something from animate but somehow holding power after the life force is gone. Good examples include ghosts, ancestors, bones, and corpses.

Conduits:
(A battery to hold, direct, or transfer power.)

Conduits are essentially batteries to hold energy so you can control the release safely. The standard is to use an animal or human familiar, but you can generally choose something from the energy source list that can contain energy without destroying itself. You could also use an unwilling source but more difficult if the choice has a mind or will of it's own.

Method:
(Ritual or Process)

Your method of directing energy could be a classic process used in history. Don't be afraid to do some research. The following are good processes that most people can relate to without too much trouble.

- Marks and writing, (i.e., runes or cantrips.)

- Speaking and singing, (i.e., summoning, or cursing.)

- Petitioning or compelling, (i.e., prayer, or worship.)

- Assembly of ingredients, (i.e; potions or spells.)

- Sacrifice and some forms of invocation. (i.e., animals, blood, valuables.)

The main thing to remember in spellwork is that tools are used, direction is given, and protecting yourself is vital, especially when temperamental entities are involved.

Cost and Consequence:

Good plots don't create all knowing all powerful heroes or villainesses. When Magick is made, someone pays the cost somehow, and consequences always happen.

To the caster, the familiar, and/or target: exhaustion, illness, madness, and/or death.

To the environment around the caster, familiar and/or target: pollution, curse, backlash, obliteration, and the like.

I've also created a chart that helps inspire new ways to look at magick. I mapped out all the possibilities and placed systems that exist where they seemed to fit best. This chart is not meant to be all encompassing it is just a nice way to visualize possibilities.

Dead/Reanimate

Psionic/Empathic
Telepathic

Math/Astrology

Necromantic

soul

ANCESTOR

CREATED

Personal

body   **Personal
Realm**   mind

COLLECTIVE

Genetics/Herbology
Beastial

Elements/Astrology

**World/Physical
Realm**

Animate/Living

Inanimate/never living
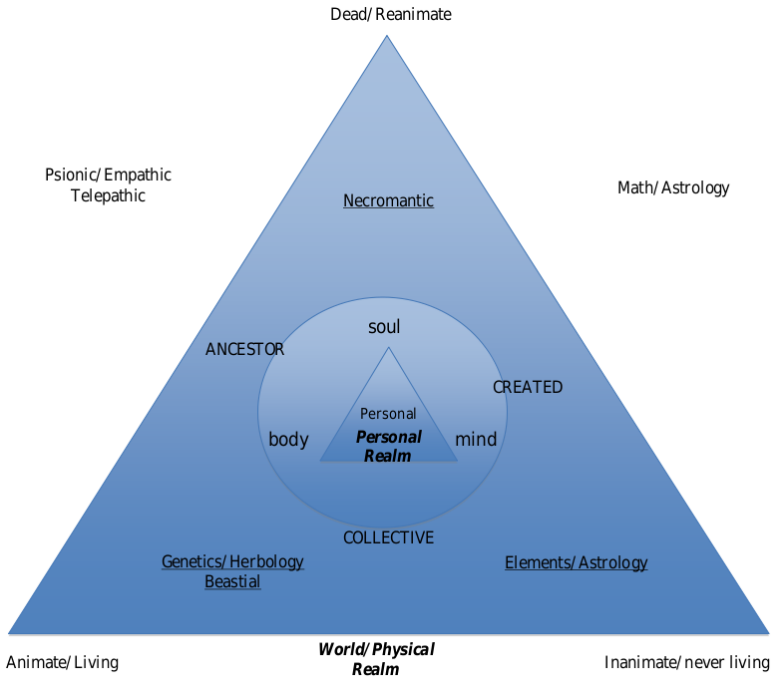
Here are a few examples to help you see how I use the chart and lists.

Example 1: You need a fireball to decimate an enemy. Admittedly this is a classic move for a spellcaster to use but how did your magician do it? Most people would have their genetically born magician train to use fire magic, pull the energy

from within themselves and become exhausted for awhile after casting. I would have my modern day witch learn to pull fire from a flame using music to enchant the fire and direct it with her psionic voice box. The cost is that she's ruining her singing voice. She doesn't know how she got this ability but it's probably genetic.

Example 2: In a YA Urban Paranormal book I'm writing I needed an undetectable spell that would keep an antagonist magick user from using magick and provide my character, also a magick user, from being captured. The spell had to be used in front of a crowd of people in modern times. I decided to use a pre-prepared contact spell that was placed on a piece of paper handed to the target and once activated, caused the recipient to have uncontrollable sneezing until they washed their hands and face. The cost to the caster was nonexistent because it was

a botanical method combined with a written cantrip. The result appeared to be a case of bad hay fever so the crowd around them was non the wiser. The risk is having the spell be a dud or backfiring. Energy in this case could be argued as the physical effort needed to prepare the spell. It really doesn't matter in this case.

Example 3: Let's say the setting is in the Wild West and the dead walk among us. I could create a hero that is wrongly and badly hanged for a crime he didn't commit. He's not quite dead when the native ancestor ghosts of the land use him to save their people by giving him necro skills so he can command the living dead to release their souls and cross over to death. The cost is that he is exhausted and can't sleep. He gets all his energy from

the ancestors and the deal will be that he gets his life back when all the zombies are gone.

As you can see it is a fairly easy system to use because it's a loose set of suggested guidelines and not a hard set of rules. Feel free to use it but please don't duplicate the chart without crediting me. It took years for me to distill all that I have researched into something that everyone can use with ease.

Now go create some Magick!

Putting Words in Your Character's Mouth

Rosemary Laurey

Words are the stuff stories are made of. So, when building your fictional world, language is important alongside, climate, culture or geography.

While it would be incredibly time consuming to create an entirely new language (as Tolkien did), the invention of a few pertinent words and phrases and small changes in grammar will add a distinct sense of time and place to your particular world.

Bear in mind that your goal is to draw readers into the story and keep them turning pages, not have them staring in confusion at indecipherable words or stumbling over hard to comprehend dialogue.

Innovations in vocabulary - renaming familiar objects, creating titles or inventing everyday items - are the easiest and least complicated way to shift your readers into your fictional word.

Be original and creative, by all means, but for your readers' sakes and for clarity, do stay within the conventions of standard, English orthography.

First, I should define two terms: grapheme and phoneme. (If you have a background in phonics or linguistics skip this bit.)

A grapheme is the smallest written unit in a word that has a distinctive sound. (e.g. 'b' as in book, 'sh' in brush, ship, or pushiness and -dge at the end of a word such as hedge, rage or purge.)

Graphemes can be single letters: eg. t, o, s, m. Two letters (digraphs) such as ch, th, oe, ai, -ck, -nk or even three (trigraph) such as shr, thr, -tch, -dge.

Just as a grapheme is the smallest identifiable written unit with a word, a phoneme is the smallest distinguishable sound. In some languages such as modern Turkish or Serbo-Croat, phonemes and graphemes match precisely, learn the alphabet and you can read or spell any word.

English isn't like that. At all. We have an alphabet of 26 letters and, depending on cultural and geographic variations, between 48 and 60 distinct phonemes. As a further complication, some graphemes have more than one phoneme. 'Ea' may be read as long /e/ in meat, long /a/ in steak or a short /e/ in head), one grapheme, three possible phonemes. It works the other way too, a distinct phoneme - say the hard sound /k/ - is written 'c' in cat, -ck in truck, 'k' in kite, 'ch' in chorus, and -que in antique. To further complicate things, the grapheme 'c' has two possible phonemes, the aforementioned /k/ as in cat but also /s/ as in

mice. Another example is the phoneme /f/ usually written 'f' as in fish, or occasionally 'ph' as in photo but it also lurks as 'gh' at the end of words such a cough or rough.

Such multiple variations result in more than a hundred possible phoneme/grapheme pairs. Am I losing you? Please hang on, it's not really as complicated as it sounds. In fact, as an English speaker and writer, (and I use 'English' loosely to cover all possible regional and geographic variations) you have internalized all this… but since you write or read whole words as units of meaning, you don't usually dissect them into distinct phonemes and graphemes. Apart from the examples above, most consonants and consonant combinations have only one sound. Other possible variants are: 's' - /s/ as in six or /z/ in nose, 'g' - /g/ goat or /j/ giant, th - /th/ this or /th/ that.

Vowels present more varied options. Single vowels have both short and long sounds (e.g. cat/apron or dog/token). Short vowels show consistent phoneme/grapheme pairs (with the exception of 'ea' in head) but long vowel phonemes have several possible graphemes: long /a/ can be variously written as a, ai, ay and less usually as ei,(vein) or eigh (sleigh). Long /i/ can be written, 'i', 'ie' (pie) or 'igh' (light). To take it from the other direction the grapheme 'oo' has one phoneme in book and and another in moon, 'ou' sounds differently in out and soup and, just to muddy the waters, the 'ou' in soup and and 'oo' in moon are different graphemes with the same phoneme.

You will need to bear phoneme/grapheme pairings in mind if you plan on creating your own vocabulary. As you name a person, place or thing, you need to be able to spell it and, more

importantly, your reader must be able to read it. To this end, it's best if your invented vocabulary follows conventional (or at least recognizable) orthography, using familiar graphemes. For example: naming a new weapon a zsphegrhmw would catch the eye but would, most likely, leave readers pausing in an effort to decode the unfamiliar syllables and thus pull them out of the narrative. Too many such distractions could result in the reader tossing the book aside.

A fine example of effective alternative orthography is Bujold's creation of the prefix 'Vor' in her Vorkosigan saga. 'Vor' attached to a surname, signifies a member of the elite, military, politically powerful and aristocratic class. It is also used alone as an adjective, with the same connotations. Aside from being easy to read, (consonant 'v' and vowel team 'or' as in pork) it is also linked, in both visual recognition and meaning to the old German 'von'. Resulting in three little letters that pack a punch of clear meaning.

In Elizabeth Vaughan's Chronicles of the Warlands, she created kavage: a warming, energizing drink. Here we have familiar clusters of letters and sounds: /k/, short 'a' and the ending -age (village, luggage). There's a visual and semantic association with Hawaiian Kona and the Polynesian Kava, plus the mechanics of roasting and grinding beans prior to brewing, could hardly fail to have the reader associating kavage with coffee.

It's not always necessary to create totally new syllables. J.D Robb's "In Death' futuristic mystery series (set in 2058) has several high tech gadgets, notably the Autochef: a device that

prepares drinks and food on demand. By coining a new word from a familiar prefix and a known word, the meaning is clear, even though this appliance has not yet been invented.

And then there's the vibroblades, -axes and -whips from Star Wars. The final syllable leaves us in no doubt we are dealing with a weapon and the vibro- implies extra fizz, so to speak. Again, a created name, easy to read and understand.

When creating your own vocabulary, rely on the known associations of semantics and orthography. Stick to single letters or familiar graphemes, preferably ones that don't offer multiple choices of phonemes. For example wh, cr, -ck, shr, gl, pl, pr, tch, have only one possible pronunciation in standard English. In contrast, ch- has three (as in chair, choir, chef) and th- two (as in math or them). The same applies to vowels: single letters are easily recognized and all the reader has to do is decide whether to mentally read it as a short or long vowel. Vowel teams or diphthongs such as , ai, ee, oi, oy, etc. read as easily but go carefully with ones offering alternative pronunciation, eg. oo, ou or the ie/ei possibilities as in ceiling, vein, priest and pie are best used sparingly.

Your reader will read familiar graphemes easily. If you do decide to create a less than familiar grapheme, then try to stay with uncomplicated possibilities, eg, eee or double or triple consonants such as mmm or kk that don't appear in English but are familiar enough to be easily read. Avoid the really confusing graphemes such a 'ough' which, changes pronunciation in cough, dough, bough and if presented to the reader in a totally new

word, may have them pondering over pronunciation until – you guessed it: they toss the book at the wall.

Aim for simplicity, recognition and comprehension. Sounds so simple doesn't it? But, like so much in writing, simplicity takes takes work, an effort your readers will appreciate.

After developing your vocabulary, syntax (the arranging of words into sentences) is another consideration. Remember, communication is paramount. Few readers want to struggle over unfamiliar and confusing language. But some simple changes to conventional grammar can give a sense of difference without impeding reading or confusing meaning.

Think of Yoda's dialogue from Star Wars: 'Reckless he is' or 'Full of darkness it is' or 'When 900 years old look this good you will not'. His speech isn't current usage, but easy to follow and understand and has the added bonus of clearly distinguishing the speaker.

In my Paradox series, I often dropped nouns and pronouns in dialogue. For example: 'Is no trouble, lady,' or 'Am thirsty'. Small changes, but enough to signal the speakers inhabit an alternate world.

Be wary of too drastic changes to conventional grammar and, above all, work to ensure clarity.

Varying and twisting language to your purpose helps establish the unique situation in your own fictional world. Aim for recognizable innovations and inventions, dovetail your new vocabulary and syntax into established English and your altered language will enrich and embellish your created universe.

About the Author

USA Today best-selling Author, Rosemary Laurey is an expatriate Brit, retired special ed teacher and grandmother, who now lives in Ohio and has a wonderful time writing stories of vampires and shapeshifting pumas.

Her leisure time interests are vacuuming, dusting and cleaning bathrooms but regrettably the demands of her writing career leave her little time to engage in these pursuits.

Works Cited

Bujold, Lois McMaster, Barrayar (and other books in the Vorkosigan Saga) Riverdale, NY: Baen Pub. ;, 1991 Print.

Laurey, Rosemary. Paradox Series: *Sacrifice, Deep Waters, Stone Hearts.* Book Macon, GA: Samhain Pub., 2008. Print and e-book.

Robb, J. D.. *Naked in death.* (and other books in the series) New York: Berkley Books, 1995. Print.

Vaughan, Elizabeth. *Warprize.* Book 1 in Chronicles of the Warlands New York: Tom Doherty Associates, 2005. Print.

The Work of Our Hands

Kathy Watness

The word 'crafts', depending on the listener, can conjure up anything from a cheesy plastic needlepoint napkin holder to a finely made piece of exquisite jewelry. However, even though they may lie at opposite ends of the aesthetic spectrum, these two objects share much in common. Both were made by hand. Both required the time and attention of their makers, and a level of skill. (Yes, even the cheesy napkin holder. It takes time to master tight, even stitching and neat seams.) Both crafters had to make decisions about materials, color, and design based on preferences, cost, and availability.

Pick any craft at all – woodworking, basket making, weaving, blacksmith, pottery, etc. – and you'll find they all have these same requirements. Even with the aid of electric tools, it can still be argued that the requirement of being made by hand is met. An electric wheel may have replaced ones driven by human power for the last few thousand years (Sutton and Arkush 112), but the

clay is still shaped by human hands. Band saws, routers, drills, and lathes powered by electricity may be used in fashioning the parts of a chair, but human hands still assemble the pieces into a finished whole.

In our 21st century world, making something by hand is a conscious choice, done for pleasure to satisfy the need to create something tangible, and a need that many people seem to share. Google the word 'crafts,' and you come up with about 770,000,000 hits. (Google) Based on a brief (by necessity) survey of the results, I would wager that the majority of those hits are focused on decorative or personal items, e.g, home decor, jewelry, beadwork, sewing, etc. The tools and materials used in these crafts are usually machine made, purchased from a brick and mortar store, or ordered online and then delivered by some form of motorized carrier.

In the pre-industrial setting of many fantasy novels and short stories, making things by hand is required. Every single item a would-be adventurer wears, uses, or encounters on his or her journey has to be made by hand. Everything. From those magical boots that can cover seven leagues in a single stride to a cloak of invisibility that allows a wandering soldier to spy on a king's twelve dancing daughters or a certain boy wizard to retrieve a forbidden book from the library at Hogwarts (Rowling 205). (Actually, Ms. Rowling doesn't mention in the book how the cloak was crafted. I like to assume that such an extraordinary garment was hand woven.) Beginning with the sword or bow or dagger used to slay dragons, ogres, or assorted villains to the saddle on the horse our adventurer rode, or to the castle or the wizard's tower or the necromancer's den. From the mug they use

to quaff their ale to the bed covered with linen sheets and the warm blankets they slip beneath to rest up from a hard day of saving the world and thwarting evil. From…well, you get the idea. Keep in mind, too, that in a world at a medieval level of development the tools required for any craft also have to be made by hand.

The Colonial Williamsburg Official History Site (history.org) gives a feel for the types of craft professions practiced in a time at the dawn of the industrial revolution in the western world, when many everyday items were still handmade. Nineteen categories, from apothecary to gunsmith to wigmaker, are listed, together with a brief description. Depending on the design of your world, gunsmith may or may not be included. The list is by no means exhaustive; glassblowing, gold smithing, pottery, copper smithing, dyeing, spinning, and leatherworking, among other crafts, are not included To get an idea of the variety of crafts out there, check out *The Encyclopedia of Crafts* edited by Laura Torbet. Over fifty crafts from appliqué to woodworking are covered.

There's a wealth of information available on the web concerning craft techniques and history across different cultures. Just to give a sample, two of the more interesting sites I ran across are Haandkraft (Haandkraft.blogspot.com), a blog written by enactors at a viking living history village sponsored by the Ringkobing-Skjern museum in Denmark. While the museum's website is in Danish, the blog is available in English. It isn't updated on a regular schedule, but does include descriptions of what individuals are working on, together with photos illustrating the steps in the process. The amount of detail a particular blogger

goes into about techniques differs, but the quality of the photography is excellent. Projects are varied and the focus is on medieval styles. James Dilley's site(ancientcraft.co.uk), Ancient Craft, which is based in the UK, deals with techniques even further back in time, including flint knapping and arrow fletching.

Don't limit yourself to internet sources. Check out the local library and your favorite bookstore for what's available in print, which is also extensive.

One tale that nicely blends craft technique into the narrative is found in Fred Saberhagen's first installment of his wonderful *Books of the Swords* series. In the prologue, Saberhagen opens with a description of Vulcan searching in the midst of a craggy, ice-covered landscape for a place to set up his forge. This passage gives the reader a sense of what is needed to create the swords ordered by the gods – fire from the heart of the earth, earth grown wood to fuel it, an anvil, a bellows, and a lump of sky-iron "the size of a barrow." (Saberhagen 8) Details of the blacksmithing craft are worked into the storyline, adding richness to the description and even a touch of horror when the author writes "for the quenching…why human blood, of course." (Saberhagen 11)

Knowing something about craft techniques and what's required can open up plot possibilities. One of the last processes in the making of a sword is quenching (Steel), which hardens the blade so that it will hold an edge longer. Quenching involves heating then rapidly cooling the metal, usually in a trough of water. Quenching the swords in mortal blood led to the events that

followed, since one mortal survives the process and his son later on takes up the swords.

Magical items abound in fantasy, the One Ring being, perhaps, the best known. How the ring was crafted dictated the means of its destruction, driving the story forward. Forged in the fires of Mount Doom, only there could it be unmade, to steal a line from Elrond's speech in Peter Jackson's film version of *The Fellowship of the Ring.*

In the case of the One Ring, the enchantments were laid on after the ring was made when Sauron poured all his hate and malice into it. When an item is enchanted doesn't have to occur after it's made. Laying in the desired spell could be done anywhere in the process of crafting. The rules of magic for a particular universe could require that the materials and/or tools used in making an item be magical. In the case of sword smithing, perhaps the anvil or the hammer that pounds out the blade has to be enchanted. For materials, the meteoric iron Vulcan uses to forge the Swords of Power comes to mind. Saberhagen doesn't explicitly state that this iron is magical, but it's clear that this material is unique in some way. In addition, not just any wood fueled fire will do, but fire from the "heart of the earth." (Saberhagen 9)

Armor, weapons, and jewelry –usually rings and pendants - are commonly enchanted items in fantasy. But *any* crafted item could become a magical object. Folklore abounds with examples. Think of Aladdin's magic lamp housing a genii of 'phenomenal cosmic powers…itty-bitty living space' (*Aladdin)* or a carpet that flies. Magical cauldrons are found in Irish and Welsh mythology,

providing everything from endless food for feasting to one that can resurrect the dead (MacKillop 73). Cormac, a legendary early king in Irish folklore, acquires a golden cup that can distinguish truth from lies (Delaney 46). When a speaker tells three lies the cup breaks into three pieces. Tell three truths and the cup is restored.

Not only cloaks can be enchanted. Franco Bejerano in his blog, Culture Potion, discusses magical clothing, including a shirt in Irish stories that enables a person to fly to a vest in Taiwanese folklore that helps fishermen survive underwater.

In the tale of Rumpelstiltskin, a spinning wheel turns straw into gold. The magic involved in that process comes from the title character, but he still needs the medium of the wheel to do it. Also consider that it's the father's boasting about his daughter's skill at a particular craft, spinning, that sets up the premise of the plot.

One story that involves a magical item used in a craft is the Norwegian folktale, *The White Bear King.* In one version, (Batt and Ceccoli) a king's youngest daughter marries a man who's cursed to be a white bear during the day, but turns into a human man at night. Though she has three children with him, she never looks upon him. Until after a visit to her mother when she acquires a candle so she can see him. He wakes up when a drop of tallow falls on his forehead, and is then forced to flee to the castle of the troll-hag who cursed him. The princess sets out after him, and during the course of her travels acquires, in addition to a flask that can endlessly pour out any desired liquid and a cloth that conjures food, a pair of scissors that can cut silk and velvet

out of the air. The princess trades the silk and velvet produced by the scissors for a night with her beloved during her attempt to free him.

Don't limit yourself to the end product when it comes to magical items. The rules of magic for a particular universe could require that a mage has to make the item they intend to enchant. So, e.g., to make a magic sword, the mage has to learn the art of sword smithing. Making enchanted rings may also require the sorcerer to master the skills of a gold or silversmith. Or perhaps, the materials used in making that sword or ring need to be ensorcelled, and mages jealous of their secrets wish to keep the methods they use exclusive to their caste, so they craft the items themselves. Either way, how powerful the finished item is could be tied to how well the mage has mastered a craft. Well-made quality items could hold more powerful enchantments…or not.

Another possibility is that mastering a craft technique is essential to mastering some aspect of magic in order to inscribe or cast a spell. One of the universes I've developed has a magic system based on the energies inherent in earth, fire, air, and water. Mages create spells by manipulating and blending those magical energies. How they combine them depends on what effect they're going for. Rather than chanting or using specific components, i.e., herbs, wands, the bone of a dragon, etc., mages gather up and 'spin' the energies the way a spinner gathers combed fibers and twists them into thread on a spinning wheel. As part of their training, mages have to master the ability to spin various fibers to any thickness. The 'feel' of different fibers corresponds to the 'feel' of different magical energies – wool for earth, cotton for air, spider silk (a fiber in my universe) for fire,

and linen for water. Like a thread can be spun from blended fibers, e.g., sheep's wool combed with silk and alpaca fibers, so can the different energies be blended to meet the mage's needs. The physical thread they spin doesn't become enchanted. Spinning is an exercise designed to help them develop their facility with handling magical energies.

How craft and magic intersect is limited only by your imagination.

In general, in a pre-industrial world, people are going to rely on the local environment to provide them with the materials they need to produce an item. (See previous essays on geography and its effects.) Wood, stone, leather, plant and animal fibers, and dyes are readily available almost everywhere. Sources of metals can vary from abundant to almost non-existent in any particular place, and will most likely have to be imported. Any material can be imported, of course. However, transported goods in a world where everything has to be carried by human/animal labor or boat are going to be scarcer and more expensive than locally obtained materials. This also holds true in our modern, industrial world. Transporting goods long distances, even with the aid of modern ships and planes, will drive up the cost. According to a publication put out by the Alaska Dept. of Labor (Fried and Shanks) in May of 2011, the cost of food was anywhere from 27.8% (Fairbanks) to 49.4% higher (Kodiak) than in the average American city. So, a dozen eggs that cost $1.25 in Denver, CO went for $3.01 in Kodiak. (Fried and Shanks) Go further north to Barrow (located on the northern edge of Alaska near the Artic Ocean) and prices become even more extreme; $10.15 for a 32oz jar of mayonnaise, $7.25 for a 16oz pack of American cheese

slices, and $14.02 (an on-sale price) for a container of orange juice, just to give a few examples. (Akimoff)

In a pre-industrial world, traders taking an overland route, depending on the terrain they pass through, can face hardships ranging from dry deserts with no water for miles to mountain passes that can be closed by heavy snowfall and avalanches to roads closed by spring flooding. Travel could take months or even years, meaning some items might be available only sporadically. For added spice, throw in bandits and political turmoil in the countries a merchant passes through. Sea routes face dangers from storms and pirates, though more goods can be carried by ship than human/animal transportation. What's transported will more likely be the finished product, and probably lightweight, high value items such as fine fabrics and jewelry, perfumes, glassware, precious stones and metals, blue and purple dyes (the least common in nature), ivory, spices, etc.

Ease of travel across a landscape will determine if people are going to stay fairly close to their place of birth during their life, and ease of travel depends on transportation by foot/animal (See Domestic Critters) or boat. While the decoration and design elements of imported goods can certainly have an influence on local tastes, the relative isolation imposed by the hardships of travel mean that distinctive variations are going to arise in the design and decoration of everything from clothing to household items to public buildings. Individual artisans within any area will also have favored designs and patterns, making their work distinct from one another.

One example of where differences in the color and design of an item from different groups of people can be seen is the cloaks the hobbits receive as gifts from the elves in *The Fellowship of the Ring.* In Peter Jackson's film version the cloaks Frodo and Sam wear when they leave the shire are plain and brown, and held on by ties at the throat. While the elven garments are leafy green and held closed with a golden clasp in the shape of a leaf. It's difficult to determine from a screen image, but the fabric of the elven cloaks even looks softer than the hobbit ones.

Elements of color and design reflect the aesthetics and beliefs of a culture, as well as the personal preferences of the artisans. In the first episode, *Memory,* of the PBS series, 'Craft in America', Pat Courtney Gold, a Wasco basket maker draws a connection between her people's belief in the circular nature of a person's life and the design of the baskets she makes. When a child is about a year old, they're given an ancestor's name. So, it's "…the birth again of an ancestor, to live with and guide the child. Life has no real ending, no beginning. Everything is connected…like a circle." (*Memory).* She goes on to state that this circular concept of life in reflected in the cylindrical shape of the basket, and the way the designs on it are connected so you don't know where one begins and another ends.

Crafts connect people across time as well as to a particular culture, as Mary Jackson, an African-American basket maker, observes in an earlier segment of the same PBS episode. "My ancestors kept this tradition because they wanted future generations to have the baskets as evidence of where they came from".(*Memory).*

Later episodes in this series explore, among other topics, the influence of the physical landscape on the artisan (Episode 2: Landscape), how an individual is connected to their community through craft (Episode 3: Community), and how techniques are passed on from one generation to the next (Episode 4: Ancient). While these episodes focus on modern America, they do provide insights into the dynamics between craft and culture.

One of the more subtle dynamics involves the element of time and how it impacts our connection to material objects. In a world where *everything* is made by hand, people are going to have a different relationship to the goods they own and to each other, since it takes longer to acquire items and each one an artisan makes is going to be slightly different.

Take that snazzy tunic or shirt your hero wears while slaying the dragon. The first step in making that garment is getting the fiber. Let's assume wool is used. According to a friend in my spinner's guild, an experienced sheep shearer can divest a sheep of its fleece in about twenty minutes using hand shears… assuming the sheep co-operates and doesn't think the whole process is a bad idea. The fleece then has to be washed and prepared for spinning, assuming the spinner doesn't spin it 'in the grease.' A freshly shorn fleece is soft and pliable, and a spinner may decide to comb it first, then wash the spun yarn. Either way, it takes time to wash and comb a fleece that may weigh anywhere from five to twelve pounds, depending on the breed of sheep.

An experienced production spinner can turn a pound of fleece into yarn suitable for weaving in about six to eight uninterrupted

hours. In an interview with my friend, Becky Dockery, who is a weaver as well as a spinner, she told me she can turn out an 8" by 5' strip of fabric in about ten hours. The actual weaving, even with a pattern, only takes about four or five hours. The rest of the time is spent in setting up the loom. Triple or quadruple the time it takes to make that strip for enough fabric to make a shirt. After the fabric comes off the loom, it's usually put through a process called 'fulling', to tighten the weave. Then it's finally cut into the appropriate pieces and stitched, by hand, into a shirt. Keep in mind that the thread to sew that shirt also has to be spun.

So, from fiber to finished product, making a plain un-dyed shirt could take, roughly, about ten days to two weeks, depending on the skill of the worker, and assuming only one person is involved in the process. The addition of embellishments or embroidery to the shirt and/or dying the yarn or fabric, are going to increase that length of time. This estimate assumes an uninterrupted work schedule. Add in time required for meal preparation where everything is made from scratch, taking care of children and other household tasks, and being limited to daytime hours for much of the work and it could easily be a month or more before that one shirt is finished. Multiply that over every garment a person wears.

People can specialize, of course, so that fabric could be purchased from a weaver, who, in turn, has bought the yarn for their loom from a spinner. But the overall time for each step is going to remain the same. Because making a garment is so labor-intensive, it's not going to be cheap. If that shirt becomes worn through at the elbows or frayed at the collar or hem, it will be patched and repaired rather then tossed out. There's an old

proverb that goes something like 'Use it up, wear it out, make it do, or do without.'

However, craft, as both verb and noun, reflects more than a measure of skill and technique. Design and color, all the decorative elements that go into any piece are more than just the aesthetic preferences of a particular artisan or culture. I think the introduction to the PBS episode, *Memory*, sums it up quite nicely.

"Glass. Clay. Wood. Fiber. Metal. Human hands transform humble materials into works of function and beauty. Creating objects that hold the meaning of who we are as people."

This meaning applies not only to the groups that make up a culture or civilization, but also to individuals. Making something by hand expresses how we relate to the physical world, as well as connecting us to it. The act of creation grounds us in the moment and in the place where it occurs. There *is* something inherently magical in this interaction between the mind and the hand, in taking a lump of clay or a bundle of combed fibers and transforming them into something of use and beauty.

That connection seems to be a quality we miss in a world of easy access to material goods and instant information. Trying to regain that sense is a theme explored by Janet Abrams in her article, 'Craft. A Return to the Hand' in *metropolismag.com.* In a time of computer generated images and almost unlimited data, we hunger for the "handling of actual stuff," for the kind of knowledge you can only get through intimate physical contact with something.

When everything is made by hand, that is the kind of connection people and cultures are going to have to the world around them. A world perceived through *all* the senses, not just sight and hearing. Materials all have a different feel under the fingers; wood, fiber, metal, leather, stone, and clay. Each has a different scent, sometimes so strong you can taste it. When everything is made by hand, life moves to a different rhythm; where the values of patience, persistence, and paying attention are not only useful qualities for a crafter, but for the hero or heroine of a tale, as well.

About the Author

Kathy Watness has been spotted among the back roads of central Indiana. The fenced field across the street from her house is known to host an occasional sprinkling of beef cattle. Though lately, none have been spotted. Aliens are suspected. When not pondering the fate of cows, she has been known to pen fantastical stories, some of a dark nature. These tales have appeared in the *Blue Kingdom* anthology series, *Terribly Twisted Tales*, and *The Crimson Pact Volume One*. When not writing, she enjoys spinning wool into yarn, though she has yet to figure out a way to turn straw into gold. When not spinning yarns, both literal and metaphorical, she may be found lurking on Facebook.

Works Cited

Abrams, Janet. "Craft/A Return to the Hand." *Metropolis Magazine*. N.p., 11 Apr. 2011. Web. 30 Mar. 2012. <http://metropolismag.com>.

Akimoff, Tim. "Arctic Living: The High Cost of Life in Barrow." 29 June 2011. Web. 12 May 2012. <http://ktuu.com/gotoak/ktuu-photo-gallery-arctic-food-prices-the-cost-of-living-in-alaska-20110629,0,6727209.photogallery

Aladdin. Dir. John Musker & Ron Clements. Perf. Scott Weinger, Robin Williams, Linda Larkin, Jonathan Freeman, Frank Welker. 1992. Disney, 2004. DVD.

Batt, Robyn Tanya (narrator) and Ceccoli, Niccoletta (illustrator)"*The Princess and theWhite Bear King*" Cambridge: Barefoot Press, 2004. Print.

Bejerano, Franco. "Magical Clothing in Folklore." *CulturePotion*. N.p., 19 May 2011. Web. 30 Mar. 2012. <http://culturepotion.blogspot.com>.

Delaney, Frank. "Cormac's Cup of Gold." *Legends of the Celts*. New York: Sterling Pub. Co., 1991. 46. Print.

Dilley, James. "Ancient Craft." *Ancient Craft*. N.p., n.d. Web. 30 Mar. 2012. <http://ancientcraft.co.uk>.

Dockery, Becky. Personal interview. 21March2012.

"Episode 1: Memory." *Watch PBS Online | PBS Video*. PBS, 17 Sept. 1999. Web. 30 Mar. 2012. <http://video.pbs.org/program/craft-in-america/>.

"Episode 2: Landscape." *Watch PBS Online | PBS Video*. PBS, 9 Sept. 1925. Web. 30 Mar. 2012. <http://video.pbs.org/program/craft-in-america/>.

"Episode 3: Community." *Watch PBS Online | PBS Video*. PBS, 25 Sept. 2009. Web. 30 Mar. 2012. <http://video.pbs.org/program/craft-in-america/>.

"Episode IV: Ancient." *Watch PBS Online | PBS Video*. PBS, 8 Oct. 2009. Web. 30 Mar. 2012. <http://video.pbs.org/program/craft-in-america/>.

Fried, Neal and Shanks, Alyssa. "The Cost of Living in Alaska." Web. 12 May 2012. <http://labor.alaska.gov/research/col/col.pdf>

Grimm, Brothers. "Brothers Grimm The Twelve Dancing Princesses." *east of the web*. N.p., n.d. Web. 30 Mar. 2012. <http://eastoftheweb.com>.

Google. 14Mar2012.

"Haandkraft." *Haandkraft*. N.p., n.d. Web. 30 Mar. 2012.
    < http://Haandkraft.blogspot.com >.

MacKillop, James. "C." *Dictionary of Celtic mythology*.
    Oxford: Oxford University Press, 1998. 73. Print.

Rowling, J. K.. *Harry Potter and the Sorcerer's Stone (1)*. New
    York: Scholastic Press, 1997. Print.

Saberhagen, Fred. *The first swords*. New York: Tom Doherty
    Assoc., 1999. Print.

"Steel: Quenching and Tempering." *Britannica Online
    Encyclopedia*. N.p., n.d. Web. 13 May 2012.
    < http://britannica.com >.

Sutton, Mark Q. and Brooke S. Arkush. *Archaeological Lab
    Methods*. 5th ed. Duburque: Kendall/Hunt Publishing,
    2008. 112. Print.

The Fellowship of the Ring. Dir. Peter Jackson. Perf. Elijah
    Wood, Viggo Mortensen. New Line Cinema, 2001. DVD.

Torbet, Laura. *The encyclopedia of crafts: 1-3.* New York:
    Schribner, 1980. Print.

"Trades." *Colonial Williamsburg Official History Site*.
    Colonial Williamsburg Foudation, n.d. Web. 30 Mar. 2012.
    < http://history.org >.

Shaping Societies: Technology and Its Effects

EA Younker

When building a fictional world, technology plays an important role in how your societies develop. There are plenty of great societies and stories out there that present technology predominantly good or bad. Think of *Jurassic Park* (1992), and *Serenity* (2005), or the invention of the light bulb (to give a historical example). When you think of these you probably have some strong emotions as to why the technology is one way or the other.

Jurassic Park (1992) shows a new, albeit old, and wonderful world, but reality sets in and we see people being chased by a T-Rex. Even those who once dreamed of riding a dinosaur would agree this book explains quite clearly why bringing back a herd of monsters is not worth the risk, even if you think that have also invented the perfect electric fence to keep them all in. Electricity has a bad habit of going out at the worst time, and when you

have man-eating monsters, there is no best time for technology to fail.

In the Firefly universe, the Reavers are monsters. Zoe says "If they take the ship, they'll rape us to death, eat our flesh, and sew our skins into their clothing – and if we're very, very lucky, they'll do it in that order." In *Firefly* (2002), episode 1. The movie *Serenity* (2005) explains that the Reavers came into being because of a side effect of a discovery that would make the populace better. Only it caused the death of half the population, and the other half became Reavers. Anyone who has seen the *Serenity* (2005) and *Firefly* (2002) understand that nothing good came from the release of the Pax drug.

Even in the real world, we see examples of the effects of technology. A world without light bulbs, just think about it. There is no denying the positives outweigh the negatives, if there are any negatives that come to mind. Consider the fact that firelight creates more of an ambiance. Electric lighting also means that we have to work longer hours, not a positive when you are pulling an all-nighter. How many of you would give up the light bulb simply to avoid these minor consequences?

The technologies mentioned have immediate one dimensional consequences. Readers are intelligent, they aren't going to believe a harmful technology is kept around for a hundred years without someone throwing a fit or making improvements. No one is going to believe a prevalent device won't have hitches. Think of jammed guns and internet signals going down once in a while. An example from cinema includes the hyperdrive on the Millenium Falcon (Star Wars, 1980). By creating technology that

is both positive and negative and thinking through the effects, you can flesh out the societies of your fictional worlds and make them believable and logical. It doesn't have to be either good or bad. Most societies are a mixture of the two, and normally the invention that provides the most good that also has the largest negative effect on the society as shown in the following examples.

Think of some technologies that have positive and negative results which cause lasting effects on societies. The effects are not clear from the beginning. Some of the examples I will cover include historical inventions like moveable type and airplanes as well as fictional examples including teleportation, vehicles, and musical instruments. These technologies are a blend of the positive and negative, and that, in turn, makes a new world or society seem realistic.

Example 1 (Britannica Online, "Printing Press")

Technology: Printing Press invented 1439 AD

Positives: Ease of reproduction, Reshaped Communication

Negatives: Cost of production due to materials, speed of the spread of misinformation

Even with the influx of eBooks, we can still see the importance of the printed word. In the 15th century, a goldsmith by the name of Johannes Gutenberg started working on a new project. It isn't that he invented new technologies, but he combined already known techniques to create a printing press with moveable type. Gutenberg introduced it into Western society. The printing press reshaped communication through the printed word. With the design of the press, multiple copies could be printed in relatively

short order. Though the design has been altered a little over the years, the same idea is still used today in the printing industry for books and periodicals.

Due to the printing press and the faster printing speed, there was an increase in book availability. This isn't to say books were available to everyone at this point. They were still expensive, and only the rich could afford them. One of the first books printed was the Bible, known today as the Gutenberg Bible. It wasn't well received with every group and started its own problems.

The Protestant Reformation occurred in the 16th century. One of the most well-known incidents of this forced split between the Catholics and the Protestants involved Martin Luther using the printing press to get the word out about his concerns regarding the Catholic Church. Never before had word spread so quickly. It was the internet of its time, with accurate information spreading quickly as people traveled. The Reformation probably would have happened whether the printing press existed or not, but it is undeniable the importance the printing press played.

The influence of the printed word is still seen today in wartime propaganda as well as forgery, counterfeiting, and even printed slander. The internet is just another form of the printed word that causes just as many problems with rumors. Even mistyped texts and tweets cause their own slew of difficulties.

Example 2

Technology: Airplanes

Positives: Increase in Trade

Negatives: Cross Economical Hazards, Warfare

In 1903, the Wright brothers made a sustained 12-second flight (Wright Brothers Aeroplane Company, "A History of the Airplane). To think that in just over a hundred years civilization has gone from gliders that go 120 feet to a jet that breaks the sound barrier and planes that can be refueled mid-flight. Planes come in all shapes and sizes. There is even a plane that can land and take off similar to a helicopter, no extensive runway needed (Boeing, "V-22: Osprey). They aren't the only aviation vehicles that have grown in leaps and bounds over the years: rockets, helicopters, personal jetpacks, not to mention the space shuttle.

Where would the world be without airplanes? Because of flight, people now travel across the continent or make trans-oceanic trips in hours instead of months. When there's a disaster, medical supplies, food, and clothing can arrive in a short time. Businesses can expand their potential cliental. A small company located in a farming community can market to companies on the other side of the globe because they are within driving distance of an airport.

Coming up with negatives about airplanes may be like thinking about the problems with light bulbs. They're hidden a bit below the surface. Societies have had access to flight technology for more than three generations. Few people would give it up, even those who are afraid of flying. However, consider this: Animals and species have learned to hitchhike on planes and now diseases can spread rapidly even across oceans. The population had no idea that animals, bugs, or microbes might hitch rides on planes, causing disastrous results to distant ecosystems. The disappearance of flora and fauna has forced societies to alter their diets and resources. This has been especially true with the

Hawaiian Islands. They are losing flora and fauna every year because of the addition of certain breeds of snakes and grass.

Airplanes, aviation in general, changed modern warfare. Before airplanes became common, long-distance battles consisted of the range of the mortar. There had been hot air balloons and dirigibles but they weren't as reliable or versatile. With airplanes came aerial attacks, bombs, and a longer range. The enemy could have a base a hundred miles away and be there and back in a few hours. Even the planes themselves can be weapons. Think of the Japanese kamikaze pilots and more recent acts of terrorism such as September 11th.

One final question to consider before moving on to another example: How has society changed because of airports alone? Airplanes used to save people time, but now that is debated even if the drive is six hour and the flight itself is only one and a half. Is it worth getting to the airport early if your flight to the next state over will mean you don't have to go through security and wait on the tarmac? As Douglas Adams wrote "It can hardly be a coincidence that no language on earth has ever produced the expression 'As pretty as an airport.'" (Adams 1)

Example 3

Book: *Battlefield Earth* by L. Ron Hubbard

Technology: Transshipment Rigs (Teleportation)

Positives: Interstellar transportation, Increase in trade

Negatives: War, Implants

In *Battlefield Earth*, by L. Ron Hubbard, an alien race called the Psychlos developed transshipment rigs. These are teleportation devices which made nearly instantaneous interstellar trade and travel possible (Hubbard 52). The Psychlos didn't want to share when another race also started using transshipment rigs causing a war. The Psychlos completely eradicated the other race, their planets, and any other race associated with them. The novel takes place thousands of years after this occurred, and we read about the effects through the course of *Battlefield Earth.*

The Psychlos kept the technology behind the transshipment rigs a closely guarded secret, while utilizing it in everyday life. Increased trade broadened their control over other planets. The metals they mined were shipped to other races and the demand for these resources led the Psychlos to improve their mining industry. When Earthlings got the technology, they worked with the other races so as not to monopolize it. Instead offering a solution for everyone while still retaining the rights to build and use the rig. The humans, who at this point had been little more than primitive scavengers living off the land, suddenly had access to an invention that took thousands of years to develop and perfect. They had leverage and a weapon, they knew they had a chance to survive.

Wiping out an entire alien population is not a good thing. The Psychlos were a vicious race before their technology was threatened. Other changes were caused to Psychlo society due to the innovation of transshipment rigs. Every Psychlo was implanted with a chip at birth to protect their mathematics. The mathematics was required to use the transshipment rig. Incorrect thinking carried dire consequences, including vegetated states

and death. Over thousands of years, those chips changed an already psychotic race, creating an even more malicious savage because of the defense mechanism in their personalities to keep the secret safe. The teleportation device enabled them to ravage planets, now in areas far beyond their original territory. They changed all of the societies they interacted with irrecoverably.

Once humans gained this technology they were no longer unknowns in the universe. Granted there were roughly 35,000 humans (Hubbard, 64) left alive after breaking free of the Psychlo imprisonment. The bank told the humans they have to raise billions of galactic dollars, or have their planet reposed by the bank. This problem didn't bother the Psychlos. They didn't care about the planet or the humans, but they needed to come up with the money fast to keep all of the other alien races from trying to take the technology by force from the bankrupt planet. While the transshipment rigs were a positive, they also caused lots of problems for everyone involved.

Example 4

Book: *The Bromeliad Trilogy* (*Truckers, Diggers, and Wings*) by Terry Pratchett

Technology: Motorized Vehicles

Positives: Transportation

Negatives: Attract human attention, Changes their home

Sometimes technology doesn't have to be new to the world to make an impact, just to the society. In *The Bromeliad Trilogy* by Terry Pratchett, a group of nomes (there is no "g") learn about the wonders of automobiles. They are only a few inches tall and

move so fast that humans don't notice them. There are two factions of nomes, the Outside Nomes and the Store Nomes. Store Nomes don't understand there is more to the world than the Department Store Arnold Bros (est. 1905) (Pratchett, 5). When they learn the Store is scheduled for demolition, it is the Outside Nomes who come up with the idea to utilize a human truck. Only instead of hitchhiking on the truck, like they have in the past, they are going to drive it. Later a tractor and an airplane figure into the story.

Having a vehicle for moving thousands of nomes is a positive. They use the tractor to defend themselves when the humans are trying to figure out why odd things keep happening at the quarry where the nomes have taken up residence. The nomes use the airplane to learn more about their history, where they come from, and to eventually get back to their real home. All of these couldn't have been accomplished without the technology of the human vehicles. They learn that instead of fearing the humans, they can take advantage of what is already in the world around them.

They wouldn't have been able to move from the store without the help of the truck. Yet, they soon learn humans don't appreciate seeing objects move without any visible reason. Even as the nomes protect their lives and homes, they only draw attention to themselves by using human technology. Humans didn't know the nomes existed and only tried to stop the moving vehicles which caused destruction. Plus, they had to adapt to a new environment, outside, which the Store Nomes weren't use to.

Example 5

Book: *The Still, Small Voice of Trumpets* by Lloyd Biggle, Jr.

Technology: Mouthpiece

Positives: Change in government

Negatives: Change in government

Sometimes it doesn't have to be a big invention that alters society. It is easy to get caught up in the grandeur of an invention. Instead of something small like a laser, it is usually a Death Ray that changes the society. However, small inventions make a larger invention. This example is to show that a simple innovation can have drastic effects on a society.

In the book *The Still, Small Voice of Trumpets* by Lloyd Biggle, Jr., an intergalactic organization is trying to bring democracy to a planet. They don't want to force the democracy on anyone because "democracy imposed from without is the severest form of tyranny" (Biggle 3). The trick is to get the population to want to switch to democracy all on its own. One of the rules is those working on the inside can't pollute the society with outside influences. They can only introduce one piece of technology.

After hundreds of years the government has failed to turn half of the population to democracy, and as a final attempt they send in a cultural surveyor. He has no real interest in the government, and instead finds the native's artwork, music, and culture fascinating. The natives place emphasis on the arts, especially music.

The dictator's favorite form of punishment is to cut off the offenders' left arms and then send them to villages. Out of sight,

out of mind. The agent decides the best way to make people realize the monarch is not as perfect as they think is to introduce a mouthpiece. This is a small metal piece that you blow into at the end of a horn to make the noise. With the mouthpiece, the one-armed people can now play an instrument and regain a feeling of self-worth. They no longer feel like they have to stay in the villages, and they come into the city, no longer out of sight or mind. They come back to the city and their return causes the citizens to revolt.

It is important to consider that even a small tool can influence an entire society. Though it isn't discussed in the book, it is interesting to hypothesize what kind of negative effects the society will experience by throwing out their old monarch and accepting democracy. Changing the form of government often brings about its own problems.

Summary

All innovations cause change. When you're creating a world, there have to be consequences (Also see essay 'Unintended Consequences'), even if the technology was invented before the current timeline of the book. Think of a new technology, and instead of focusing on the immediate effects, imagine the long term These consequences should be logical with rational motivations. If there are irrational motivations, there is still an underlying cause, such as religion.

A desert society develops a light that produces no heat and uses less power. Think spherical LEDs. They install the device

everywhere and for years they enjoy their new lights. Those who were making the old style lights have to be retrained but hey, these new lights also create jobs so it doesn't matter. Now there is a natural disaster, a massive volcanic eruption, and all of the ash in the air causes the weather patterns to change. Snow starts to fall. The snow gathers on the lampposts and it builds until all of the light is extinguished because the bulbs don't produce heat. People stop leaving their houses after dark. Now the most important people in the society are the ones who walk around and brush the snow off lampposts when it snows. The most important technology is the ability to start a fire.

Every planet has a history, and even if it isn't part of the current situation, it has defined the society that people are reading about (Also see essay on History & Alternate histories). Brandon Sanderson, author of the Mistborn series, offers a lot of advice to writers, including his Sanderson's Laws of Magic. The law is that the limitation of the magic (or technology) has to be greater than the power (www.writingexcuses.com, episode 15.). Think of it this way, Howard Tayler, creator of Schlock Mercenary, said in the same *Writing Excuses* podcast, "If the energy you are getting from your magic is cheaper than letting a donkey do it, your medieval economy just fell apart." You can't create a new piece of technology as a deus ex machina unless you plan on showing the realistic effects on society.

In order to build a realistic world, take into consideration that the invention which survives through the ages is normally one that benefits society. No one is going to purchase a device that makes life more difficult – but technology always has a flaw. A fictional society has to be more realistic than real life, it true.

Don't get caught up in the tropes that say technology is exclusively positive or negative. That isn't realistic at all. All technology influences society, and sometimes the negative side effects are what influences societies the most.

About the Author

EA Younker is a writer who has more hobbies than time. Since she doesn't enjoy starving, she completed a degree in technical writing. She lives happily with her husband and a pooka in Northern Utah.

Works Cited

"A History of the Airplane." *Wright Brothers Aeroplane Company*. Bookworks, Inc. Web. Accessed 15 Jan 2012. < http://www.wright-brothers.org/History_Wing/History_of_the_Airplane/History_of_the_Airplane_Intro/History_of_the_Airplane_Intro.htm > .

Adams, Douglas. *The Long Dark Tea-Time of the Soul*. New York: Simon & Schuster, 1988. Print.

"V-22 Osprey." *Boeing*. Boeing Defense, Space & Security, March 2012. Web. 26 May 2012. < http://www.boeing.com/rotorcraft/military/v22/ > .

Biggle, Jr., Lloyd. *The Still, Small Voice of Trumpets*. Philadelphia: Curtis Books, 1968. Print.

Crichton, Michael. *Jurassic Park*. Random House of Canada, 1992. Print.

Hubbard, L. Ron. *Battlefield Earth: A Saga of the Year 3000*. New York: St. Martin's Press, 1982. Print.

Kirsch, Johann Peter. "The Reformation." *The Catholic Encyclopedia*. 12. New York: Robert Appleton Company,

1911. Web. Accessed 19 Jan 2012.
＜http://www.newadvent.org/cathen/12700b.htm＞.

Lucas, George, dir. *Star Wars Episode V: Empire Strikes Back*. Twentieth Century Fox, 1980. Film.

Pratchett, Terry. *The Bromeliad Trilogy: Truckers, Diggers, and Wings* . OMNIBUS. New York: HarperCollins, 2003. Print.

"PrintingPress."*Encyclopædia Britannica. Encyclopædia Britannica Online Academic Edition.* Encyclopædia Britannica Inc., 2012. Web. Accessed 29 Mar. 2012. ＜http://ezproxy.uakron.edu:2151/EBchecked/topic/477067/printing-press＞.

Sanderson, Brandon; Howard Tayler, Dan Wells (18 May 2008). "Writing Excuses Episode 15: Costs and Ramifications of Magic". *www.writingexcuses.com* (Podcast). Accessed 19 January 2012.

Wallau, Heinrich. "Johann Gutenberg." *The Catholic Encyclopedia.* 7. New York: Robert Appleton Company, 1910. 19 Jan. 2012 ＜http://www.newadvent.org/cathen/07090a.htm＞.

Whedon, Joss, dir. *Firefly*. 20th Century Fox: 2002. Television.

Whedon, Joss, dir. *Serenity*. Universal Pictures: 2005. Film.

History For Story's Sake, or, No One Cares Who The Emperor Was 500 Years Ago. Unless They Should

Matthew Wayne Selznick

There are those who worldbuild for the sake of worldbuilding, and those who worldbuild in order to add verisimilitude to a particular storyworld and depth to the stories set there. Those who worldbuild for fun can, and do, refine their creations to as detailed a degree as they like. A hobbyist can spend years adding to their creation, right down to descriptions of individual shopkeepers in every village and every proverbial (or even, perhaps, literal) blade of grass… or whatever passes for grass in their world.

If you're engineering a storyworld, writing a piece of fiction, or designing a video, role-playing, or other game that calls for some degree of worldbuilding, it can be easy to fall into the trap

of going too far in the development of the secondary creation that is meant to serve that larger creative endeavor. It's possible to go too far down the rabbit hole of worldbuilding and never emerge to tell the actual story, especially for independent creators working on spec, when the actual creative process might just be their only reward.

One area in which this creative self-deception can be especially seductive is the in-world history of a storyworld. After all, histories are, themselves, little stories. Filling in the timeline of your storyworld with the details of those who have come before, with all their relationships, wars, intrigues and family trees can exercise the storytelling muscle… but never forget that winding path is not the one you set out to explore!

Always Serve The Story

If you're worldbuilding for worldbuilding's sake, rock on, have fun, feel free to disregard this essay. Chances are, though, your worldbuilding effort is a means to an end, not the end in and of itself. You're writing a novel, building a video game, an RPG, or perhaps the story bible for a film or television series. Worldbuilding, like character descriptions, dialog, and everything else in your work, must always serve the story.

The fictional history of your storyworld setting, despite the risk it holds of your going "too deep," presents a wonderful opportunity to add depth and thematic meaning to the story you intend to tell. Even if you're not writing a multi-volume gritty fantasy soap opera like George R. R. Martin's *Song of Ice and*

Fire, at the very least the recent history of your characters and their families could, if revealed selectively, add substantive value to your work.

Just know when to stop.

Think about your own life. The person you are, the journey of your own life, is at least in part the result of the story of your parents, grandparents, and perhaps your siblings or other close relatives. The adventures of your great aunt, most likely, have much less bearing on who you are, or your current situation.

Historical (or mythical) details are probably going to be less pertinent the farther back in your fictional history you go. An example from real life: most of us know that Thursday is supposedly named for the Norse god of thunder, Thor… but few of us know (or care to know) the names of Thor's goats. Fewer still find their lives influenced, changed or dependent upon that knowledge.

Similarly, the days of the week in your fantasy world may be named after important political leaders from days gone by… but you really don't need to work the dates of each emperor's reign, the particulars of their rise and fall, and their family trees. It might be a whole lot of fun to do… but unless it's part of the story you're telling or lends greater depth and meaning to the story you're telling, resist the urge!

The Arc Of History

We all know that the best, most satisfying stories – be they novels, short stories, video games, role playing game campaigns, films, or any other narrative expression – have a dramatic arc.

Joseph Campbell's "Hero's Journey" model finds a common thread in nearly all of humanity's mythological tales. Many contemporary stories, upon dissection, follow the Campbell pattern: the hero begins in the ordinary world, faces a crisis that demands a choice, moves into the unknown, faces death, triumphs, and returns to the ordinary world forever changed.

Aristotle pretty much wrote the book on the dramatic arc – *Poetics* – wherein he describes the three-act structure of beginning, middle and end so familiar to the Western world.

Gustav Freytag expanded on Aristotle's three act structure with a five-part arc not uncommon to junior high school students in the United States: exposition, rising action, climax, falling action, and denouement.

Whether you follow the model of Campbell, Aristotle, Freytag, or some amalgamated framework of your own devising, all stories proceed in a dramatically satisfying fashion. Similarly, the principle character or characters in a narrative follow a discernable dramatic path.

If you are planning a long-form work like a series of novels, several seasons of a television show, a transmedia experience, comic series or role-playing game campaign setting full of connected stand-alone modules, you can add subtle but deeply

satisfying complexity to your storyworld by remembering that the history you create for your setting must also have a dramatic, thematic arc.

Following the "arrive late, exit early" advice that makes for compelling and engaging storytelling, accept that the story in your main narrative occurs at a critical juncture in the larger history of the storyworld. This doesn't mean your story has to be political, or epic in scope. It's simply an opportunity to build a historical arc that mirrors the beats of your narrative.

There's an example of this in my own *Brave Men Run – A Novel of the Sovereign Era.* In the main narrative, the protagonist and his long-time rival have entered into an uncomfortable truce due to events in the story. Meanwhile, larger events are alluded to through newspaper headlines, television programs and classroom discussions… and one of those international events is the uneasy but necessary negotiations between two very different and mutually antagonistic world powers.

The alliance between the two characters in the story is an important turning point for both of them, and the rest of the novel depends upon it. The pact between the political powers is a monumental event in the history of the world at large, with repercussions to come that will shape the future of the planet and, naturally, have an impact on the lives of the characters in the stories of that world.

The history of your fictional world should be more than a record of events, a roll-call of names, or a sketch of myths upon which holidays are based. Worldbuilding history allows you the

opportunity to serve the story by designing macro-scale metaphors for the dramatic narratives that occupy your center stage.

Use Your World's History

If you can connect the story you're telling to the history of your world – just enough history – the result will be a rich, immersive experience for your audience. Worldbuilding history, just like worldbuilding ecosystems, governments, the orbits of planets, the locations of lairs and stately manors, requires a bit of planning and consideration, but that can be said about every aspect of your secondary creation and the stories you set there.

Worldbuild history to enhance and enrich the stories you (or your players) will tell in your storyworld. If something in your world's history doesn't serve the story, ignore it or, at best, paint it with a broad brush and move on. Your storyworld will be better for it.

About the Author

Matthew Wayne Selznick is a creator working with words, music, pictures and people. The architect of the Sovereign Era, Shaper's World and Daikaiju Universe settings, Matt writes the e-book series "Worldbuilding for Writers, Gamers and Other Creators" and publishes *Storyworlds Magazine*. He lives in Long Beach, California, where he provides creative services to authors and other creators through MWS Media. Reach out to him at www.mattselznick.com.

Works Cited

Martin, George R. R.. *A song of ice and fire*. New York: Bantam, 2011. Print.

Selznick, Matthew Wayne. *Brave men run: a novel of the Sovereign Era*. S.l.: Swarm Press, 2006. Print.

Alternate History – Why Just Saying "Hitler Won" Isn't Enough

Sue Penkivech

The year is 1964. The place Berlin, Germany. Xavier March, an investigator for the Kriminalpolize, is looking into the apparent suicide of a highly placed Nazi official when he realizes the circumstances of the man's death aren't unique – senior party officials are being systematically murdered.

Wait, what?

If this doesn't sound like history as you know it, go to the head of your class. It's the beginning of the plot of *Fatherland* (Harris), a bestselling novel by Robert Harris in which the Nazis won World War II. The Nazis have gone on to establish the Greater German Reich which controls, directly or indirectly, most of 1964 Europe.

In other words, it's an alternate history.

Sue Penkivech

What is an Alternate History?

An alternate history is "a genre of fiction in which the author speculates on how the course of history might have been altered if a particular historical event had a different outcome" (Collins). In other words, it's an attempt to answer the question "What if?" What if the Nazis had won World War II? What if the assassination of John F. Kennedy hadn't been successful? What if the editor of this anthology had cornflakes instead of waffles for breakfast this morning?

While on the surface, the last example seems unlikely to cause a significant change in life as we know it, proponents of chaos theory would argue that even the least significant change could have global repercussions. In Connie Willis' exceptional science fiction novel *Blackout*, Mike Davies, one of the characters, explains, "In chaotic systems, positive actions can cause bad results as well as good, and you know as well as I do that the war had divergence points where any action, good or bad, would have changed the entire picture."(Willis, 530)

While Mike's actions at Dunkirk fortuitously did not change the outcome of World War II, chaos theory is one of the most common justifications for an alternate history novel. Another commonly used explanation is the quantum theory of the multiverse, first formulated by Hugh Everett III in 1957 (Byrne). In a multiverse, every choice made results in two timestreams, each of which subsequently follows its own path.

Whichever explanation you choose to employ when plotting an alternate history novel, you'll first need to answer two questions – when and why.

When – The Point of Divergence (POD)

A point of divergence is the event in history at which your alternate history breaks off from history as-we-know-it. It's the giant "What if?" that begins it all, the answer to the aforementioned "When". It's Reinhard Heydrich's 1942 survival of an assassination attempt in *Fatherland*, Richard I's recovery from the wounds he sustained at the Siege of Chaluz in Randall Garrett's *Lord Darcy* series, and the failure of the Union forces to find a copy of General Lee's Special Order 191 in *How Few Remain* (Turtledove). In my short story *Zombie Elves* (Penkivech) and its companion works, the point of divergence occurs when the English Parliament names Frederick, Duke of York, as regent for his father George III.

Selecting a POD is probably the most critical part of writing an alternate history novel, even if the POD occurs centuries before the events of your novel take place.

Why?

Why does your point of divergence matter? Can't you just say that Hitler won and be done with it?

In short? No.

The point of divergence requires extensive research, because the choices and changes you make will define the setting of your entire work. Make certain you're very, very familiar with the historic period with which you're working, so that the changes you make will stand up to a reader's scrutiny as being the plausible results of the POD. In the aforementioned examples, the immediate results of Reinhard Heydrich's survival were not explicitly stated, but it's hinted that he was instrumental in the discovery that the British had broken the German Enigma code. Richard the Lionhearted's failure to die at the Siege of Chaluz nonetheless left him a changed man, and he returned to rule England wisely and well. As a result, his brother John never took the English throne, leaving the Angevin Empire intact and the Magna Carta unwritten and unsigned. The Union soldiers failing to find a copy of Special Order 191 ultimately results in the South winning the Civil War. Chaos theory at its finest – the entire map of the world is changed when the author alters one single event.

Sort of dizzying, isn't it?

How About an Example?

In my MTPU series, the Multiversal Time Protection Unit is charged with preserving the various timelines of the multiverse from anyone who might choose to exploit or reshape them. "Zombie Elves" takes place on Earth 227, a timeline in which the Revolutionary War was won, but in which the British regained control of their former colony after circumstances caused the collapse of the United States within the first 25 years

of its existence. As agents of the MTPU, Douglas and Virginia investigate unusual crimes or situations to determine whether or not they are actually attempts to disrupt the timestream.

So…that's multiversal chaos theory with time travel on the side?

Well…yes. Time travel is a not-uncommonly utilized mechanism of initiating an alternate history. Remember the movie *Back to the Future* (Zemeckis)? Marty McFly travels through time in a modified Delorian and inadvertently prevents his father and mother from falling in love. Both the future Marty ultimately prevents (the one in which he never existed) and the one to which he returns (where his father, having punched out Biff in Marty's mother's defense, changed the nature of their relationship) are perfect examples of how a time traveler can, intentionally or unintentionally, initiate an alternate history.

But that's a side note to the actual topic at hand. Let's take a look at the MTPU series and how the questions What and Why shape the world at large.

First Question: What?

The POD of Virginia and Doug's usual assignment is the Regency Crisis that occurred in England in 1788. In our history, Parliament convened to determine whether or not it could appoint a regent for George III, who was mentally unfit to hold the throne. Opinions differed upon what powers the regent in

question could wield and who should be selected, with one side favoring George, Prince of Wales, and the other insisting that Parliament could name whoever it felt best qualified. By the time they came to any conclusion, George III had recovered, and it was another twenty-two years before the regency question was once again raised. At that time, Parliament appointed the Prince of Wales, who later became King George IV ("George IV").

Second question – Why?

Why does the Regency Crisis matter? Because in Douglas and Virginia's timeline, the regency crisis took a different turn. Since it's usually best to combine equal parts fact and fiction when building an alternate history, I'll attempt to illustrate how I incorporated the two.

Fact: Parliament, critical of the Prince of Wales' level of debt, his lifestyle choices, and his relationship with Mrs. Fitzhubert, was reluctant to grant him the regency of the kingdom ("George IV").

Fiction: Instead, they chose the King's second son, Frederick, Duke of York.

Fact: Frederick was the King's favorite and, by 1788, had received military training. Over the course of his career, he displayed organizational abilities and was responsible for revamping the structure of the British Army (Niderost).

Fiction: George III never recovered completely from his debilitating condition, and Frederick continued as Regent until the King's death in 1820, the disgruntled Prince of Wales having

previously met his death in what was rumored to be a laudanum overdose.

Mingled: At that time, Frederick handed the throne over to George's only legitimate child, Princess Charlotte, who reigned as Queen Charlotte I with her consort, Prince Leopold.

Princess Charlotte is a real historical figure. Had she lived, she would have succeeded George IV as the ruler of England. Sadly, Charlotte died in childbirth in 1817, attended by a physician appointed by her father. With her father already gone, there's every possibility she would have had another physician, survived the birth of her son, and gone on to rule England, thus keeping the throne from ever passing to her as-yet-unborn cousin Victoria (Chambers).

Why does all of this matter? Well, on the other side of the Atlantic, things weren't going so well for the newly fledged United States of America.

Fact: Historically, several armed uprisings had occurred and put down (Middleton), and the Alien and Sedition Acts passed by Congress in 1798 were unpopular at best ("Alien and Sedition Acts").

Mingled: When Congress convened in Philadelphia in August, they faced a bigger threat – a yellow fever epidemic that not only struck the native Philadelphians, but Congress and the President as well ("Yellow Fever").

Fiction: Thrown into chaos by the loss of so many of its leaders at once, the United States was on the verge of collapse. Prince Frederick, the career soldier, recognized the opportunity

for what it was and stepped in, appealing to the remaining loyalists and sending in troops to quell any resistance. The leaderless United States never stood a chance.

Mingled: Thus, in May, 1800, when the Acts of Union united England, Scotland, and Ireland to create the United Kingdom, America was returned to the fold as well.

The Acts of Union did indeed unite Scotland, Ireland, and England in 1800. All countries were given representation in Parliament (Collins). Adding America to the mix would have been a logical way to pacify the remaining revolutionary faction.

Fiction: Prince Regent Frederick, mindful of the complaints that had led to the original War of Insurrection, assured the Americans full representation in Parliament. Equally mindful of America's previous insurrection, he also nullified all of the original land grants in the American colonies and proceeded to redistribute the land of the former "states", creating a set of duchies which he awarded to loyal British peers and former American loyalists. William Franklin, the former Governor of New Jersey and the son of Benjamin Franklin, was named the Governor General of the newest British domain, America.

So, as you can see, tampering with the point of divergence – the Regency Crisis of 1788 - created an alternate history that mingles fact and fiction into a cohesive whole. One small change, one giant result.

I've got my POD covered. What's next?

The next thing you'll want to do is decide upon how your POD changes not only history, but the society in which your characters live. Skipping over to our original WWII scenario, a Nazi victory that resulted in an occupied England would cause significant changes in daily life for the typical London native, even decades later. Would London dwellers still gather at the corner pub if its patrons now include German officers? How much of the East End survived the last round of bombing, and what kind of people still live in the ruins? Are food and clothing still rationed, or have conditions actually improved with the restoration of trade with France and Germany? Is there an active resistance movement, and if so, is the occupying force aware of its existence or oblivious to it? These questions might or might not directly affect your plot, but they're ones you should think through in advance because your characters don't live in a vacuum. Everything they do is influenced by the society in which they live. If they walk down the streets of the aforementioned London, what will they see? Gestapo police in uniform pulling a printer from his shop? People standing in queues for rationed meat or cheese? A pair of nondescript individuals talking in whispers, or passing off flyers to a group of street urchins for distribution? Some of these examples might directly influence your plot – but all of them will indirectly influence your characters.

Realism's All in the Details

If you were writing a historical novel, you'd research the details – clothing, money, what kind of food was eaten, what kind of homes people lived in. In some ways, it's even more important to do so in an alternate history. You've already asked your readers to believe that your setting is plausible; you have to back it up with enough detail to support that plausibility. In Germany-controlled London, what kind of money is used, German or British? Once you've decided on the answer, research German money in the early 20th century, and figure out what it will purchase. What kind of clothing was worn in WWII London, and what kind of homes did people live in? How were the homes heated? Was this in any way changed by Germany's occupation, and if so, why and how?

While nothing can surpass a personal visit to historical sites when it comes to researching a time period, few beginning authors can afford to get on a plane and fly to Europe to investigate. Luckily, other sources of information are available.

Websites. Thanks to the internet, the world is a much smaller place. Is your character visiting St. Paul's Cathedral in London? You might not be able to fly to there and see it yourself – but nothing stops you from pulling up St. Paul's website and reading about its history, viewing photos, and taking a virtual tour. Make your character's visit that much more realistic by including some of the details; a description of a statue or window that caught their attention, the domed ceiling of the quire, the or something as simple as the pattern of the floor. Many historical sites have

excellent websites; make the most of the opportunity to gather data straight from the source.

Children's Educational Materials. Oftentimes, children's historical books and websites are valuable resources for the kind of minutia adult resources take for granted. Because children's books tend to focus on "how things were different" in an attempt to pull the child into the time period, they often contain information on clothing, food, and money; all the little things that will make your alternate history that much more realistic. The BBC, for example, has an excellent interactive website designed for children that focuses on daily life in various time periods (BBC). The "If You Lived" series by Prairieview Press is also an invaluable source of this type of information.

First hand accounts. While your local library probably doesn't have a copy of *The Letters of Princess Charlotte* (Aspinall), it's almost a given that some university in the area does. Do some research first, and find autobiographical sources for the time period of your POD. Then take the titles to your local library, and ask someone to help you with an interlibrary loan. Not only will the actual historical data help support your point of divergence, but autobiographical accounts often contain details that biographers might not bother to include.

I've done all the research. Now what?

Write! Outline, plot - you've got the setting, but all the research in the world won't create original characters or do more than suggest a potential storyline. Just remember - if the story

could just as easily occur in the "normal" world, it probably should. You're writing alternate history because the story you want to tell can't take place in the world as we know it. Let your setting influence your story, and fill it with characters and events that couldn't exist anywhere else.

After all, that's what all the research was for, wasn't it?

About the Author

In high school, where she scribbled out insanely humorous stories featuring her friends and classmates, Sue Penkivech dreamed of becoming a published writer. Never one to travel in a straight line from Point A to Point B, she instead took the circuitous route, which featured careers in human resources, information technology, bookfair merchandising, and school librarianship. She currently lives in Wisconsin with her husband, two daughters, and the requisite two cats who encourage her to write by walking on her keyboard and pouncing at the paper as it comes out of the printer. Visit her on the web at suepenkivech.wordpress.com!

Works Cited

"Alien And Sedition Acts." (n.d.): *Funk & Wagnalls New World Encyclopedia*. Web. 3 Apr. 2012.

Aspinall, Arthur. *Letters of the Princess Charlotte 1811–1817*. London: Home and Van Thal, 1949.

Back to the Future. Dir. Robert Zemeckis. 1985.

BBC. *BBC*. 2012. BBC Online Services. 13 3 2012.
   <http://www.bbc.co.uk/schools/primaryhistory/>.

Byrne, Peter. "The Many Worlds of Hugh Everett".
   Scientific American, 21 Oct. 2008. Scientific American,
   Inc. Web. 3 April, 2012.

Chambers, James. *Charlotte & Leopold : the true story of the
   original people's princess*. London: Old Street Pub., 2007.

Collins, Jacquelin. "Act Of Union." (n.d.): *Funk & Wagnalls
   New World Encyclopedia*. Web. 3 Apr. 2012.

Edition, Collins English Dictionary - Complete & Unabridged
   10th. "alternate history." n.d. *Dictionary.com.*
   HarperCollins Publishers. 13 March 2012.
   <http://dictionary.reference.com/browse/alternate
   history>.

"George IV (1762 - 1830) P. of Wales (1762) Prince Regent
   (1811) King (1820)." *The Companion to British History,
   Routledge*. London: Routledge, 2001. *Credo Reference*.
   Web. 03 April 2012.

Harris, Robert. *Fatherland*. New York: Random House, 1992.

Middleton, Lamar. *Revolt, U.S.A.* New York: Stackpole Sons,
   1938.

Niderost, Eric. "Frederick, Duke Of York's Legacy Was A
   Nursery Rhyme And The Beginnings Of A Modern British
   Army." *Military History* 19.3 (2002): 12. *Military &
   Government Collection*. Web. 3 Apr. 2012.

Penkivech, Sue. "Zombie Elves." Saus, Steven. *Spec the Halls
   2011 Edition*. Dayton: Alliteration Ink, 2011.

Turtledove, Harry. *How Few Remain*. New York: Del
   Rey/Ballantine Books, 1997.

Willis, Connie. *Blackout.* New York: Spectra Ballantine Books, 2010.

"Yellow Fever Attacks Philadelphia, 1793," *EyeWitness to History* (2005). Web. 3 Apr 2012.

Developing a Layered, Credible, and Compelling Government

Lucy Curtis

The slogan, "the personal is political," is just as relevant to world building in genre fiction as it is to activism. The governing bodies present in your stories (be they political, religious, or even family-centered) are living, breathing, dynamic entities that affect the way your protagonists interact with the world around them and frames the way they will solve the problems that keep your stories moving forward.

This essay is focused on the portrayal of governments as a villain, due to the fact that corruption in high-ranking offices is a common theme in fiction. In addition, if your protagonist exists in a true Rainbow Bright utopia, it seems reasonable that the core conflict is going to come when the utopia is threatened in some way; these tips can help you style the opposition in a compelling manner.

While it may seem burdensome to spend so much time on the particulars of a "character" designed to blend into the background, the fact is that a fully actualized governing body provides a wealth of opportunity for your world's inhabitants and for you as a writer. With that in mind, let's take a look at some key aspects of three-dimensional power structures in published literature that inject political intrigue into their stories and keep the pages turning.

Motivation

Any good character must be layered and credible. Your governing body is no exception to this rule. One essential part of characterization for an undesirable power structure is providing motive(s) for the less than ideal way that world is run. The details of the motivation can be gradually revealed, but core concept of it needs to loom over the story almost from the very beginning.

Every governing body, no matter how corrupt or evil, was allowed to come to power for a reason. That reason has to be big enough to explain and sustain the means through which the status quo is maintained. Otherwise, you just end up with an uninteresting cardboard cutout of an abstract villain.

Almost every novel cited in this essay has a cataclysmic event that is cemented as the guiding light for their protagonists' current culture and systems of power. *Harmony*, a science-fiction novel in which the World Health Organization indirectly rules most of the world, has the Maelstrom – a quick succession of wars and diseases that threatened to wipe out the human race. *Across the*

Universe has the great Plague which threw the ship into chaos and dramatically decreased its population. *Slave to Sensation* centers around a race of beings with psychic powers. Desperate to curb the number of serial killers and other mentally deranged persons emerging from their ranks, they invoked the Silence Protocol. The Silence Protocol achieved its goal, but changed their society in a number of unintended ways.

   This is important! If you just have a gluttonous, murderous, money-grubbing dictator ruining the lives of his or her people on a regular basis and treating all his or her servants like crap, the reader is going to get bored and wonder why one of the palace guards hasn't just solved the problem with a bullet to the head or a bowl of poisoned caviar. The motivation has to resonate with the common person of these societies and give them either the illusion of contentment, or the certainty that a revolt would likely make things even worse.

   Project Itoh does a fantastic job of demonstrating how to turn a past crisis into an entrenched power structure by the constant reinforcement of the fear such an event creates. In *Harmony*, he highlights this with the political spin of high ranking public officials.

> Stauffenberg was first and foremost among the expansionists. I had once listened to her give a speech in which she claimed that the Helix Inspection Agency, as defenders of lifeism, had an obligation to deal with any and every threat to human lives or health. (Itoh, Part 3, Ch. 1,¶ 84)

The spin here is that whenever Stauffenberg's agency determines a threat to human life or health, i.e. anything not conforming to the WHO's exacting standards or refusing to use a lot of the implanted high-tech health gadgets they offer, it is extremely common for the agency to begin a ground war in order to bring the locals around to their way of thinking. So large amounts of lives are lost and/or destroyed to protect a "culture of life." However, Stauffenberg's interpretation is effective at keeping control, because she's invoking the possibility that the considerable amount of comfort and safety that is provided to this society's inhabitants is fragile and must be constantly defended.

So start thinking about it now:

- What kind of governing bodies exist in your story world?

- If it's anarchy, why does that exist and how does it function?

- How does either of those options restrict your characters' choices?

- Do they at all benefit from the current way of things?

- If not, who does benefit and if no one is happy why hasn't there been a revolt?

- If there has been a revolt, why did that power structure exist in the first place and why does anyone trust the revolutionaries?

- If they don't like where they are, what holds your characters to this place?

When designing your government, think of the most obnoxiously analytical person you've ever met, and then pretend you're trying to explain it to them. Better yet, shoot them an e-mail and see what questions they come up with.

Make the Reader Argue

Nothing sparks passion like disagreement. Even the most hardened guerrilla is a product of his or her culture and will at least from time to time express views that may not jibe with how the typical reader sees the world. It doesn't even have to be your protagonist that does this, but some pro-establishment sentiments need to come from a sympathetic character. Anything else just isn't realistic. Besides, a continuous rant against the machine will have the reader nodding right until they nod off if they even stick with you that long. Shouting at the pages keeps them turning.

Nalini Singh handles frame of reference within a social group very well in her Psy-Changeling Series. In the first book, *Slave to Sensation*, the focus is on a protagonist who has been brought up by a member of the Council (the governing body) and who has been taught to follow the order of things without question. So, even though she is a character we can relate to and sympathize with, she still takes a great number of things on faith that most modern readers would find abhorrent.

> "What if the Council is wrong?"
> Her eyes met his, unflinching and eerily beautiful. "They know everything about the PsyNet. How could they be wrong?"

> Which meant, he deduced, that not everyone was privy to the secrets of the Net. "But if no one else has access to all the information, how can they be held accountable?"
>
> ….He almost thought she wouldn't answer. Then she said, "They are Council. They are above the law. (Singh 34-35)

It wouldn't affect most readers' suspension of disbelief for her to have said that last part ruefully, as though she were scared of the Council. Yet, it's more evocative to have a character we care about actually believe in and support the system that is oppressing her. It makes us take a side, and it gives us something to root for.

Another way of approaching this is to have a sympathetic character that in his or her own mind is perfectly happy with a status quo that the reader would likely find unacceptable. When I read examples of this, it always reminds me of the intense frustration that comes with discussing politics at Thanksgiving. It's simultaneously infuriating and irresistible. Aldous Huxley does this in *Brave New World,* which depicts a society where literal brainwashing from birth is the accepted norm. This results in a wide range of characters who are charmingly childlike, but (with the exception of those who are born into power) utterly devoid of the ability to think critically.

> "You can't teach a rhinoceros tricks," he had explained in his brief and vigorous style. "Some men are almost rhinoceroses; they don't respond properly to conditioning. Poor Devils! Bernard's one of them. Luckily for him, he's pretty good at

his job. Otherwise the Director would never have kept him. However," he added consolingly, "I think he's pretty harmless."

Pretty harmless, perhaps; but also pretty disquieting. That mania, to start with, for doing things in private. Which meant, in practice, not doing anything at all. For what was there that one *could* do in private. (Apart, of course, from going to bed: but one couldn't do that all the time.) Yes, what *was* there? Precious little. (Huxley 89)

Subtle cues like "mania" being associated with anything private and labeling someone as piteous for not responding well to brainwashing are a direct result of the institutional conditioning the inhabitants of this society have received, but they are also powerful triggers to the modern reader. As is the fact that none of these individuals considers how it might benefit those in control for all citizens to feel simultaneously bored by and ashamed of, having a sense of privacy or an interest in themselves as an individual. Think about this:

- How do the mores of your fictional society make your main characters different from the average person you'd meet on the street?

- What boundaries do they have to work within or find a believable way to overcome?

- We're all shaped by our society in some way. A character completely detached from the world they grew up in can't help your reader engage with it.

Use Key Words or Images
to Keep the Reader on Edge

In *Harmony*, Japanese author Project Itoh portrays a worry free society but he uses code words to let the reader know early on that something sinister lurks behind the veneer.

> "You couldn't find any of these things in Japan, a nation obsessed with health, or anywhere else under admedistration rule, for that matter. All these vices, things which had gone more or less ignored in the past, had been carved into a list of sins by the all-powerful hand of medic, and one by one, they had been purged from society." (Itoh, Part 1, Ch. 2, ¶ 17)

As seen in this paragraph, *Harmony* is peppered with references to sin, vice, cleansing, and purging right from the very beginning. From that, the reader learns quickly that the governing body of Itoh's future Japan is more a cult than a political process. Without any further provocation the reader becomes suspicious of their motives and transparency even though all of the citizens are well fed, employed, happy, and in fantastic health. Suspicion is key to holding the reader's interest in novels where the source of the main conflict is well hidden beneath the surface. If, in the first few pages, the reader is confronted with an ideal society with no hint of problems, or vice, or bad guys who might create problems, it's going to be difficult for them to imagine what kind of plot could possibly unfold that would be worth their time.

In contrast, Paolo Bacigalupi's corrupt and starved society in *The Windup Girl* is never mistaken for utopia by its citizens, but instead of having any of the many point of view characters tell us this directly, he shows it through their actions by using key juxtapositions that turn our notions of normalcy on their head.

> The man drinks from a bottle of Mekong whiskey that he sent Hock Seng out to buy as if Hock Seng was nothing more than a servant. Hock Seng sent Mai, who came back with a bottle of fake Mekong with an adequate label and enough change to spare that he tipped her a few baht extra for her cleverness, while looking into her eyes and saying, "Remember that I did this for you."
>
> In a different life, he would have believed that he had bought a little loyalty when she nodded solemnly in response. In this life, he only hopes that she will not immediately try to kill him if the Thais suddenly turn on his kind and decide to send the yellow card Chinese all fleeing into the blister rusted jungle. Perhaps he has bought himself a little time. Or not. (Bacigalupi 24)

Here, we see that bribery, embezzlement, and fraud are accepted parts of life in this culture but that is not what truly stirs the reader. This grown man, who is the manager of the factory and a very accomplished and capable person, is deeply afraid of a little girl who works for him. It makes the reader almost desperate to know what exactly Hock Seng and the rest of the

yellow card refugees have endured that would spark this kind of paranoia in an otherwise mentally stable personality. The effect is a great deal more profound than simply detailing the horrors, and promotes an empathy that keeps the reader rooting for Hock Seng even as he does things that may seem morally repugnant later in the narrative.

Walking that particular tight rope is an extremely difficult, yet essential skill for any writer to master, because well-developed characters must be three-dimensional no matter where they register on the reader's moral compass. In the same way that villains must have fleshed out perspectives that make them somewhat relatable, protagonists must have flaws deep enough to provide real obstacles and push their stories forward. The tricky part for the writer is to find ways to balance or present those flaws that keep the protagonists sympathetic so that the reader will actually care when your selfish, alcoholic, kleptomaniac main character is pinned down in an alleyway by a roving band of zombie weregerbils.

Another great visual designed to hint at a government's intolerance to dissent is to present their agents as a radically cohesive unit. The power of that image is why storm troopers are so iconic, and orcs are so threatening. Homogeny is a trigger. In the prologue to *Matter*, Iain M. Banks portrays an entire platoon that is essentially advancing on one woman and her computerized assistant.

> For a while, it watched the army move. From a certain perspective it looked like a single great organism inching darkly across the tawny sweep

of desert; something segmented, hesitant—bits of it would come to a stop for no obvious reason for long moments, before starting off again, so that it seemed to shuffle rather than flow en masse —but determined, unarguably fixed in its onward purpose. And all on their way to war, the drone though sourly, to take and burn and loot and rape and raze. What sullen application these humans devoted to destruction. (Banks 3)

By describing the army as "a single great organism," Banks forces the reader to take some emotional distance. The reader no longer sees people, or even a group of people. Where individuals had once been there is a massive, unthinking bacteria slithering across the landscape. He uses explicitly threatening language later in the paragraph with, "burn and loot…," etc., but it is the image of a creepy dark organism moving towards the woman and her computerized assistant that gives you the notion that they must necessarily be threatening. This is in the first three pages and there is no other judgment of this army to be found, but it is an effective note that lets you forget about the casualties, when they come, or at least assume they were unavoidable. It may be an unearned judgment, but it helps the reader pick a side and form the attachment that allows them to follow the point of view character through the story.

To see if you've done this, try reading through your story after determining the emotions you're trying to provoke in each scene. Maybe make a list of images or words that give you the feeling you're looking for, even if they don't fit. Then really look critically, scene by scene, and try to pick out anything specific

that gives you that same impression. If you can't find anything, it's time to get to work.

Control and Consequences

Once you've got the reader caring about the policies, but seeing realistically how those policies may be in place, it's time to really show them why it's vital that there be a shift in power or at least a challenge to it that brings about change from within. For my money, the most effective way of doing this is to really drive home how the governing bodies you are portraying use their power to control their citizens. The themes that most resonate for me in this arena are freedom of movement, reproductive freedom, freedom of speech, and the more ethereal freedom to simply be an individual.

Going back to *Brave New World*, Huxley drives home the initial discomfort the reader gains at the mention of The Fertilization Room in the opening pages by having the Director, in the course of instructing new workers, clearly spell out his society's view on the traditional family unit.

> "In brief," the Director summed up, "the parents were the father and the mother." The smut that was really science fell with a crash into the boys' eye-avoiding silence. "Mother," he repeated loudly rubbing in the science, and, leaning back in his chair, "These," he said gravely, "are unpleasant facts; I know it. But

then most historical facts *are* unpleasant."
(Huxley 24)

No one in the story, including the narrator, is bothered by this interpretation, nor is anyone fussed about the fact that all children are now wards of the State, raised in the Central London Hatchery and Conditioning Centre. It is the reader who is appalled at the loss of control over something so basic the right to a family.

Especially interesting in this paragraph is the last sentence, elegantly designed to trip alarm bells in the reader's head. The notion of history as dirty, not to be explored too thoroughly lest one start thinking too much about it, speaks of a secret. It's unpleasant. Move along, nothing to see here. It is an excellent foreshadowing to the more in depth culture of brainwashing endemic to Huxley's pleasant dystopia.

Likewise, in *Across the Universe*, Beth Revis shows us how a device that heretofore has been viewed as an innocuous and convenient step in the progress of technology can quickly become the fingers on an iron fist.

> Immediately, a low-pitched buzz fills my left ear. I clap my hand over it, but the noise isn't coming from outside; it's coming from inside my ear, in my wi-com. The buzz rises into a screech for a second, dips back into a buzz, then makes a grating, teeth-jarring scratching sound against my eardrum.
>
> I jab my finger into my wi-com. "Override!" I say. "Command: stop all sounds!"

> "Access denied," the female voice of my wi-com says over a sound worse than the squelching noise of a cow giving birth. Augh! This isn't like the biometric scanner where I have the same clearance as Eldest. Wi-coms are different, unique to each of us. The only thing that can stop mine from bugging out is Eldest's. (Revis 93).

Eldest is the ship's leader. Viewed as a patriarch, his power is absolute. The point of view character here, Elder, is in training to be his successor. Eldest has resorted to this sort of audio torture simply because Elder wishes to visit someone in the hospital that Eldest does not approve of. The jarring tone will only dissipate once Elder enters the Learning Center to await further instruction. This isn't the first time Eldest has done something the reader will disagree with, but it is the first time we get a glimpse of how little regard he has for anyone but himself, or how willing he is to abuse his absolute authority.

In *Slave to Sensation*, Singh shows us how a society built on practicality can result in some of the most brutal punishment ever imagined.

> Her mind was deteriorating at such an accelerating rate that she'd begun experiencing physical side effects—muscle spasms, tremors, an abnormal heart rhythm, and those ragged tears after dreams she never recalled. It would soon become impossible to conceal her fractured psyche. The result of exposure would be incarceration at the Center. Of course no one

> called it a prison. Termed a "rehabilitation facility," it provided a brutally efficient way for the Psy to cull the weak from the heard.
>
> After they were through with her, if she was lucky she'd end up a drooling mess with no mind to speak of. If she wasn't so fortunate, she'd retain enough of her thinking processes to become a drone in the vast business networks of the Psy, a robot with just enough neurons functioning to file the mail or sweep the floors. (Singh 4)

In Psy culture, this is tolerated because it seems to make sense. With such a long and bloody history of murderers in their ranks, it is seen as absolutely necessary to eradicate any person connected to the PsyNet that displays mental instability, lest it infect the rest of the population. Plus, they get a ready source of manual labor in a culture full of executives and still get to keep any of the other races out of their inner sanctums. The Council has absolute authority over who receives such a punishment without any obligation to justify it, because that too is presented as the most efficient way of handling things but at the same time it creates a whole host of possibilities for corruption and misdeeds.

It is important to note here also, that Nalini Singh has been consistent with her protagonist's frame of reference. The protagonist is terrified of rehabilitation, but she does not disagree with its existence because this system is all she's ever known. It's very tempting for a writer to want their hero to see and rail against injustice everywhere it lurks. That's a mistake. It makes

your protagonist boring, and it prevents your reader from connecting with the story world.

This is actually a fairly easy thing to check for in your own writing. Write out the basic form your government takes, and then simply jot down the consequences (intended or unintended) that stem from those basic principles. Then, skim your story and see if you've illustrated at least the ones that factor into your story's arc or which ones might be added to thicken the plot.

Conclusion

It's important to remember that the most interesting villains are the ones that think they're the heroes. No one believable pushes evil for the sake of it, or tyrannizes their people because they once received soy instead of whole milk in their latte and swore revenge. Governments are made up of people, and people are scared and ambitious and insecure and quick to feel that their notions about the world are the only ones that matter. Everyone can identify with these and other basic character flaws and all of them can be expanded to create a compellingly villainous power structure.

About the Author

Lucy Curtis is the proud owner of two masters degrees and zero marketable skills. She writes fantasy short stories and video games and is working on two urban fantasy novels. You can find her spending an inordinate amount of time on twitter @lucyanncurtis.

Works Cited

Bacigalupi, Paolo. *The Windup Girl*. San Francisco: Night Shade Books, 2009. Print.

Banks, Iain M., *Matter*. New York: Orbit Books, 2008. Print.

Huxley, Aldous. *Brave New World*. NewYork: Perennial Classics, 1998. Print.

Itoh, Project. *Harmony*. Trans. Alexander O. Smith. San Francisco: VIZ Media, LLC, 2010. Kindle Edition.

Revis, Beth. *Across the Universe*. New York: The Penguin Group, 2011. Print.

Singh, Nalini. *Slave to Sensation*. New York: Berkley Sensation, 2006. Kindle Edition.

The Effects of Forming a Government

Graham Storrs

A Pervasive Influence

If words like federalism, feudalism, meritocracy, monarchy, oligarchy, plutocracy and technocracy are rattling around in your head, it may be because you're a political science major, but it might just be that you're a speculative fiction writer, thinking about the government of the shiny new world you're building. Putting together an imaginary government from scratch is difficult, but by no means impossible. However, most governments that you see in literature are straight steals from actual past or current governments with which we are already familiar.

There are few things that impact on the world of a speculative fiction story more than the governments that rule that world. Sometimes a government is a core aspect of the story –

particularly in utopian and dystopian tales (think "Brave New World") or tales of rebellion ("Star Wars") – and sometimes it is an incidental backdrop. Yet it is always there, setting the parameters for so much that goes on.

Think about your own government and how it impinges on your everyday life. You might be in a presidential democracy, with elections blanketing the news and everybody's conversation every few years. It may be you live in a theocracy where science and philosophy are "controversial" classroom subjects, or may even be banned. Perhaps you live in a plutocracy, where wealth and political power are synonymous and ordinary people do not participate in the political process except as civil servants. Or perhaps your state is a mixture of all three.

There are as many variations on the major political themes as there are nations and times. The politics of a nation interacts with its physical environment and its economic environment, it reacts to the politics of its neighbours, it is subject to evolution, but also to violent and chaotic change, sometimes even extinction. Marx and Engels could have had no idea that their ideas on communism would lead to modern China. The Founding Fathers would no doubt have been astonished at modern America. The good news – or the bad – is that governments tend not to last very long in any particular form. As Samuel Butler said, "Governments like natural bodies have their time of growing perfection and declining, and according to their constitutions, some hold out longer, and some decay sooner than others." In governments, as Heraclitus put it, "Change is the only constant."

What is Your Government Doing?

If you take John Locke literally, "Government has no other end but the preservation of Property." Other thinkers – and you – may disagree, but in the context of this chapter, the question is meant to be read as, "What purpose do you, the writer, intend the government to serve in the world you create?"

The most obvious use for a government in fiction is as the target of satire or allegory. Picking a style of government you disapprove of and setting your story in that context allows the speculative fiction writer to build an elaborate and detailed critique.

There are some great models around to use as a basis. Hitler's fascism is widely used as a backdrop to alternate histories (like Len Deighton's *SS GB*, or Norman Spinrad's *The Iron Dream*) while similar authoritarian and totalitarian regimes of the early 20th century are also seen in allegorical dystopian literature (most famously Orwell's *1984* and *Animal Farm*). Tolkein's *Lord of the Rings* is often considered allegorical (although Tolkein himself refuted the idea). Certainly the contrasting styles of government in Middle Earth (benign monarchy vs cruel dictatorship) emphasise the divisions between good and evil in the story and parallel the divisions between Tolkein's view of wartime Britain and Nazi Germany.

Whether Tolkien intended any allegory in his work or not, one of the hallmarks of speculative fiction has been to cloak current circumstances in fictional worlds so that issues can be explored in situations where the real world's emotional baggage does not

weigh us down quite so heavily. It is a tradition dating back to Plato's *Republic*. Thomas More's *Utopia* exists on a fictional island in the West. Modern writers have moved the island off-world, or into other realms entirely.

Science fiction in particular, often uses government types that have no historical precedent (or have been only partially implemented in the real world). Meritocracies, technocracies, anarchies, hive-like collectives, and so on, provide the context for any number of sci-fi worlds – often with little explicit detail. However, it is in the critiquing of forms of government – some of which are widely aspired to – that science fiction often deserves its label as "the literature of ideas". H. G. Wells' novel *The Sleeper Awakes* was perhaps the first in this line, setting up a straw-man future government (a plutocracy in this case) and then knocking it down (even though Wells clearly believed a benign dictatorship might work, as in *The Shape of Things to Come*, or even anarchy, as in *Men Like Gods*). Kurt Vonnegut's novel *Player Piano*, a more typical example, was an outright attack on the ideas of technocracy and meritocracy (and, less blatantly, capitalism too). The many novels that build worlds based on reputation economies (e.g. *The Moon Moth* by Jack Vance, and *The Algebraist* by Ian M. Banks) are critiques of a very different kind of meritocracy.

But the use of government in a story's world doesn't need to be so obvious or so central. Sometimes a government exists for a didactic purpose, but more often, it is there simply to enable a particular kind of story, sometimes simply to set the 'tone' of a work. World governments often seem to exist in stories just to show how enlightened a society has become (the government of

Earth in the Star Trek franchise typically plays this role) or to legitimise wars waged by humanity (as in Heinlein's *Starship Troopers*).

If the author wants particular kinds of freedoms for their characters, or to allow, or enable, certain moral positions, setting up the right kind of government can be an easy way to achieve it. The whole of the sword-and-sorcery Fantasy genre, for example, is dominated by a model of feudalism taken straight from Medieval England. Why should this be? Why not a pluralist democracy, or communism? The choice of a feudal government gives the author a world with very little law and order (until the local Lord takes an interest), where feuds can be settled with violence, where local despots can oppress without check, where clans can go to war with one another to settle disputes, where there is little education, superstition is rife, communities are small, and so on. Governments that depend on inherited power also create a setting which legitimises the idea of bloodlines and inherited abilities, making these notions seem less offensive than they would in a different milieu (an hereditary dictatorship, as we currently have in North Korea, for example) and avoids the taint of fascism. A related and often-used model of government is at the boundary between feudal governments and the capitalist monarchies that replaced them in Europe. Add a dollop of corrupt, inept and stultifying bureaucracy, and you have Terry Pratchett's *Discworld* series and the many fantasy works it parodies.

Explaining Your Government

Unless a story is a political thriller, or the characters themselves are in or interacting directly with the government, the world-builder won't have much opportunity to describe the government behind the story. After all, the government under which a person lives is such common knowledge that, unless there is an election or a revolution going on, they would be extremely unlikely to mention it, let alone describe it in detail.

For near-future sci-fi, or urban fantasy, it is enough to say what country the story is set in. Most readers know the political system current in Britain, or China. For most other sub-genres, some explanation is necessary. If the world of the story is another planet, another time, or a fantasy realm, all the mechanisms of subtly describing the world need to be brought to bear. Today happens to be the new Queen's coronation, for example, the freighter from Kargis V is still waiting to clear customs because no-one trusts a trading ship from such a repressive theocracy not to be carrying illegal immigrants, and so on. People mention a snippet of political history in conversation, someone says that they miss being able to vote, another sighs over a picture of their daughter who was arrested for speaking against the Supreme Soviet ten years ago and has not been heard of since. The last thing anyone in the story can do is sit down and explain their own government to a fellow citizen.

Except…

There is a particularly interesting trope in speculative fiction which involves foreigners visiting a strange culture. Harry

Harrison's *Deathworld* series is an excellent example of the technique. *The Martian Chronicles* by Ray Bradbury use this device—in this case emphasising the blundering, destructive consequences of misunderstanding. It is a very natural way to explore an alien society on behalf of the reader ("Dradin in Love" from Jeff VanderMeer's *City of Saints and Madmen* is a fine example of how effective this can be.) And a curious sub-variety of the visiting foreigner trope, involves stories of ambassadors.

An ambassador not only gets to describe a society as an outsider (almost an avatar for the reader) but, by their profession, deals with the very heart of the government of that society. In the *Foreigner* series, C. J. Cherryh uses this device extensively. Ursula le Guin uses it in her science fiction classic *The Left Hand of Darkness* to introduce us to the workings of the various governments and cultures of the planet Winter and to help us understand how they were shaped. The TV series " *Babylon 5* is an extreme example, where the ambassadors of many different alien governments are brought together in a single place in a time of fragile interstellar relations. In *Babylon 5,* writer, J. Michael Straczynski used many different forms of government for the different species, including a caste-based theocracy (the Mimbari), a federal democracy (EarthGov), and a monarchy (the Centauri), to create a world that was richly-textured and full of tensions.

Another invaluable device is to introduce children. Young teens ask a lot of questions and they're old enough to be given serious answers. A shocked teen asking, "Why are they arresting

that man?" can be the world-builder's opportunity to give as much exposition on the government as they like.

Details, Details!

Government interacts with all aspects of our lives. If you don't think so, consider this book you're reading. It has no dedication to a member of the aristocracy or a rich patron. It is not part of an educational indoctrination program, or other government propaganda scheme. It was (most likely) purchased in a lightly-regulated open market, and the price almost certainly included taxes – if not paid directly by you, then by the creators of this book. The material in the book conforms to your local laws and, if it did not, agents of your government might be able to arrest you for possessing it, and prosecute and punish you according to the laws it violated. You are able to read it because you were taught to read – and the educational system that taught you was probably designed, implemented and maintained by your government. You have the leisure to read and the money to afford the book because of the way your government runs its local economy, its labour laws, even the military that has kept you safe these past few hours. Almost nothing about reading this book is unaffected by your government. Almost nothing about your life is free of the effects of the regime under which it is lived.

When building a world, the influence of the government under which our characters are labouring to resolve their conflicts, needs always to be kept in mind. It affects the freedoms they have to move and act, even to speak. It affects the way they get

things done (consider the amount of everyday bribery and nepotism under a corrupt and bureaucratic government — be it an African-style dictatorship, a Chinese-style one-party state, or an Indian-style pluralist democracy) and even the way people speak.

This last is an interesting area for world-builders. Ever since Tolkien, many have thought it important to invent languages or dialects for a world. But there is an interaction between styles of government and language that is not often noted. This can be quite an extreme effect. For instance, in the feudal societies beloved of fantasy writers, most people are tied to the land — often legally bound to the owners of a place. A side-effect of this is that people do not travel. They rarely, if ever, leave the farm or village they were born in. Societies like this develop strong local dialects. In some areas, the dialect or language of one group can be unintelligible to the group in the next valley, let alone farther afield. The idea that you could travel around such a world without encountering language difficulties is unrealistic.

Even the vocabulary of a character might reflect the style of government they were raised in. This could be as obvious as not having members of a theocracy blaspheming — even when emotions are running high — or as subtle as the removal of sex-related personal pronouns or honorifics (an experiment attempted under Soviet and Chinese communism, replacing all honorifics by "comrade"). In the series of novels by Ian M. Banks, the official language of the Culture is "Marain", an artificial language designed to avoid concepts involving dominance, submission, aggression and ownership. Orwell's "Newspeak" from *1984* had the same objective of managing the

way people think so as to control their behaviour. In these cases (as, in a more limited way, it did under communism) language itself comes from the government.

The Organs of State

Of course, world builders need to be careful about what they mean by "government". Most commonly, the word refers to the legislative body that governs a state, yet most people's interaction with government is through the administrative arm. If a character is unfortunate, their interactions will be with the judiciary or law enforcement, or even the military. In some styles of government — especially authoritarian governments — the separation between the various branches of the state are blurred or nonexistent. Religion can play a greater or lesser role in the running of a state. The separation of church and state in most Western democracies attempts to restrict the influence of particular religions and the subsequent loss of religious freedom that would ensue for others. In some of the most repressive governments, there is no separation of church and state. Iran and Saudi Arabia, for example are theocracies, but then, so is the Vatican. A theocracy will sometimes have "religious police" as well as the more usual kind.

In fact, it is so much the case that a character in fiction typically interacts only with the organs of state, that these are often the only parts of a government that need to be finely drawn in worldbuilding, the rest of the machinery of government can be sketched in. Since this particularly applies to books written from the first person point of view, or a subjective, limited third person

perspective, and both are very common in literature, examples are legion. (However, consider *The Trial* by Franz Kafka, or Margaret Atwood's *The Handmaid's Tale* if you want particularly intense instances.)

It is worth remembering that even the biggest and most labyrinthine of bureaucracies comprises perfectly ordinary people. Civil servants are not adenoidal, pompous jerks, puffed up with an overinflated sense of their own importance and eager to squeeze every last drop out of the tiny power they wield over people (well, not all of them). In fact, they represent a broad cross-section of society, they live in the same world as the rest of a story's characters, and react to it in the same way. They are just people, as varied and colourful as the rest of us. It is sad to see clichés and stereotypes in any writing, but the officious, petty civil servant has been done to death and should be laid to rest.

Beyond Human Government

In speculative fiction a government need not be a human government. It might be a government of aliens by aliens, of humans by aliens, or of humans by magical beings. This last is perhaps the most well-known of the four. In fact, there is even a name for government by magical beings – a magocracy. Ursula le Guin's *Earthsea* world is probably the best known example from the fantasy literature, although many will also know the *My Little Pony: Friendship is Magic* TV show. The style of government involved is frequently a dictatorship (as with Tolkien's witch-king of Angmar) or a monarchy (e.g. Lev Grossman's *The Magicians* and *The Magician King*). A frequent

variant is that of a monarch or dictator advised by magical beings (echoing the fabled relationship between King Arthur and Merlin, perhaps, or the reality that many leaders in human politics have employed magical advisers, such as Ronald Reagan and his astrologers).

In science fiction, government by powerful aliens — a kind of dictatorship — has often been used as a device to save or enslave humanity. *Childhood's End,* by Arthur C. Clarke is definitely at the benign end of the spectrum. Ruled by the alien Overlords, humankind is shepherded towards a new state of being and a place in the Group Mind. In David Brin's Uplift world, humanity is subsumed into a vast, alien polity known as the Five Galaxies. The exact political makeup of this state remains vague although it appears to be an oligarchy of dominant species. It is, on the whole, benign, but has many dangerous and threatening aspects. Ian M. Banks' world of the Culture, has us not dominated but integrated into a large, multi-species collective — an anarchy, in fact — allowing complete individual freedom, within limits, watched over by artificial minds, which manage the whole system. As you can see, these enormous, alien societies are marvellous playgrounds for science fiction writers to explore models of government.

On the other hand, governments of non-human beings by non-human beings tend to be less adventurous, being modelled on human political systems (for example, Faerie is typically a monarchy when it appears in fiction). The Marvel Comics Universe has three massive alien groupings and, politically, they are all empires or imperiums (essentially like an empire but with a dictator rather than a monarch at its head). Empire as a form of

government has a special place in speculative fiction. The word typically invokes "the bad guys" (the Star Wars universe being typical, see also the Covenant in the Halo series of video games). This may have arisen because real empires in the Twentieth Century had a bad rep and American authors in particular harboured a historical antipathy towards the old bogeyman of the British Empire.

A particularly interesting form of government by non-humans is a theocracy. An inspired and convoluted example of this is Roger Zelazny's *Lord of Light* in which a spaceshipload of humans set themselves up as gods and rulers of an alien race and their own offspring. Margaret Atwood's novel, *The Handmaid's Tale* is a chilling, near-future glimpse of life in a fundamentalist Christian theocracy, where virtually every thought and action of the protagonist is strictly proscribed by the government.

Governments of the Future

Will there be new types of government invented in the future that don't exist already? Sure! But the great majority of them will be slight variations on existing themes. I'm pretty sure we have not exhausted all the many kinds of democracy there might be, for example. In fact, with electronic voting and Web access for everyone, we might see a trend towards a universal direct democracy — cutting out all those political middlemen (the politicians) and letting the people vote on the issues themselves. The same is true for monarchies, dictatorships, and so on, technological change can mean new ways of interacting with

government and bring about changes in the way government is structured.

Yet it seems unlikely that a completely new kind of government could be devised unless there are considerable technical and social changes. The scale of technical change I'm thinking of is Government by Group Mind, say, enabled when our political leaders are fitted with neural interfaces that allow a shared consciousness to arise. Or Computer-Assisted Socialism, available as an option when the entire economy can be electronically monitored and centrally managed by a vast, impartial artificial intelligence.

Socially, there are major economic shocks ahead — when the world reaches "peak oil", say, or when climate change begins to trash the world's coastal cities. We saw what the "Global Financial Crisis" did to confidence in our global economy. This time we had the "Occupy" movement, and social unrest across Europe. Next time people might begin demanding real change.

Yet there are other changes coming, changes in the human condition itself that will almost certainly feed back into changes in styles of government. How will post-human societies of uploaded minds govern themselves, do you suppose? Would a representative democracy seem crude and ineffective to such people? Robots are already pushing people out of manual work in primary production and manufacturing. What will happen when they and AIs replace people in the service industries too — not just in retail jobs but in finance and the professions? What kind of government is appropriate for a world with 50% or 80% "structural" unemployment? And farther down the road, if the

human race is spread across the neighbouring stars, and inhabited worlds are tens of years' travel apart (even if that is only months or years of subjective time) will their governments be like those of today's nation states, or more like the isolated kingdoms of the ancient world?

And That's a Wrap

Building a government for a new world does not mean writing its constitution and drafting its laws — although that might be a fascinating way to go about it. Generally, it means alluding to the broad style of government involved — democracy, dictatorship, monarchy — and letting the readers fill in the details from actual governments they know. But then the wordlbuilder needs to ensure that their characters and the events in the story are consistent with that style of government, however vaguely defined.

Government is important. It affects us all in countless ways. So governments themselves are often the subject of a story. Political thrillers and allegorical critiques, tales of rebellion, invasion and defence of the state, all have one or more governments centre stage.

Government is important because of the way it shapes the lives of its citizens, the lives of ordinary people. Even under current, real-world circumstances, its influence is pervasive and powerful. In some imagined worlds, its power can be ubiquitous, invasive and pernicious. Whatever kinds of worlds our stories inhabit, there will always be governments (or an anarchic self-

government) and they will always interact on multiple levels with the people in those stories. They will shape people and be shaped by people — and even non-people.

The worldbuilder has almost limitless opportunity to invent and explore when it comes to governments — although few actually take that opportunity. For those who are brave enough to build new forms of government in their fiction, it's certain that there are about seven billion people in the market for a really good idea.

About the Author

Graham Storrs is a science fiction writer living in Queensland, Australia. A former research scientist, IT consultant, and award-winning software designer, he now lives and writes in a quiet corner of the Australian bush with his wife, Christine, and an Airedale terrier called Bertie. His writing credits include three children's science books, over a hundred magazine articles, and more than thirty academic papers and book chapters, in the fields of artificial intelligence, psychology, and human-computer interaction. It is only in recent years that he has turned his attention to writing science fiction. Since then, he has published about twenty short stories in magazines and anthologies as well as his first novel, a time travel thriller called *TimeSplash*.

Works Cited

Atwood, Margaret, *The Handmaid's Tale*, Everyman's Library.

Banks, Ian M., *Consider Phlebas*, Orbit.

Banks, Ian M., *The Algebraist*, Night Shade Books.

Bradbury, Ray, *The Martian Chronicles*, Harper Perennial Modern Classics.

Brin, David, *Sundiver*, Spectra.

Butler, Samuel, *Prose Observations*, Oxford University Press

Cherryh, C.J., *Foreigner*, DAW.

Clarke, Arthur C., *Childhood's End*, Del Rey.

Deighton, Len, *SS GB*, Sterling.

Grossman, Lev, *The Magician King*, Plume.

Grossman, Lev, *The Magicians*, Plume.

Harrison, Harry, *Deathworld*, Wildside Press.

Heinlein, Robert A., *Starship Troopers*, Ace Trade.

Heraclitus, quoted in Diogenes Laertius, *The Lives And Opinions Of Eminent Philosophers*, Kessinger Publishing

Huxley, Aldous, *Brave New World*, Harper Perennial Modern Classics.

Kafka, Franz, *The Trial*, Tribeca Books.

Le Guin, Ursula, K., *A Wizard of Earthsea*, Spectra.

Le Guin, Ursula, K., *The Left Hand of Darkness*, Ace Trade.

Locke, John., *Two Treatises of Government and A Letter Concerning Toleration*, Yale University Press.

Mark, K. and Engels, F., *The Communist Manifesto*, Verso.

More, Thomas, *Utopia*, Cambridge University Press.

Orwell, George, *1984*, Main Road Books.

Orwell, George, *Animal Farm*, Houghton Mifflin Harcourt.

Plato, *Republic*, Hackett Pub. Co..

Pratchett, Terry, *The Colour of Magic*, Harper Perennial.

Spinrad, Norman, *The Iron Dream*, Oldcastle.

Tolkein, J.R.R., *The Lord of the Rings*, Mariner Books.

Vance, Jack, *The Moon Moth*, in The Science Fiction Hall of Fame Vol 2, (Ed. Ben Bova), Doubleday and Company.

VanderMeer, Jeff, *City of Saints and Madmen*, Spectra.

Vonnegut, Kurt, *Player Piano*, The Dial Press.

Wells, H. G., *Men Like Gods*, Bibliotech Press.

Wells, H. G., *The Shape of Things to Come*, Gollancz.

Wells, H. G., *The Sleeper Awakes*, BiblioLife.

Zelazny, Roger, *Lord of Light*, Harper Voyager.

Building Believable Legal Systems in Science Fiction and Fantasy

Addie J. King

If a writer is contemplating writing fantasy or science fiction, they are creating a made-up world. That means that there is an infinite number of ways to write a story with a legal system or a political or governmental system, because they can create whatever they want. Or can they?

Just as the science in a science fiction story needs to be at least consistent with itself to allow for the suspension of disbelief, the basis for a legal system needs to be something a reader will identify with. The legal systems in a fictional world need to be *identifiable* to today's readers. Have you ever read a book that talked about being a teenager when you were a teenager, and it just didn't ring true? Or how about any book where the explanation of facts just didn't match what the writer seemed to be going for? Why?

Well, readers, just like the rest of us, all watch the same TV shows and movies, read the same books and newspapers, and generally live in the same world. We see *Law and Order*, in all of its various incarnations, and *CSI, Cold Case Files, Monk, Matlock, Criminal Minds, Castle, Southland,* and all the other police, lawyers, and court shows. There are even similarities in *Star Wars, The Dresden Files, Battlestar Galactica,* and in *Minority Report.* The system we have is what is familiar; it sticks in our mind as what a legal system does, what it's supposed to do, and what it is. Real life lawyers have to deal with the prejudices and problems of the public perceptions of these shows every day, in explaining issues to their clients and in selecting jurors for trials. Readers of fiction have the same problems and prejudices…they have the same exposure as everyone else.

That doesn't mean that you're stuck with the American legal system (or whatever other legal system you are familiar with), warts and all. You're not. It is an alternative world, after all.

The idea here is to balance enough of the familiar to draw in your reader, for them to sink instantly into the world you are building, and give them enough of a foundation to build on in your alternate world. Using a Western court system allows you to use the concepts of due process, counsel, hearings, juries, and even arrest procedures, while still twisting the details to fit the world you're in; which is why we accept the rights read to Captain Reynolds when he is detained by the Alliance in the *Firefly* episode, "Bushwhacked", as well as why the Wizengamot in *Harry Potter and the Order of the Phoenix* is recognized as a trial court without overwhelming explanatory details.

World building is important, but you want the world to be the backdrop for your story, not the showstopper itself. You want it to be believable enough that it works with your plot, instead of distracting the reader from the plot to explain a world that they don't live in and have to work to understand.

So how do you get started? The hope is that these questions help you narrow it down enough to figure out what you need to learn more about.

Why?

The first question is to figure out why you are using a legal system/court system. Is there a point you are trying to make?

Whether you are trying to use the courts or legal system to make a statement about your fictional world, or if you're commenting on a certain aspect of our existing legal systems, figure out what you want to say, and why you're using a legal, political, or governmental system to say it. Is it something that can be said without the use of such a system? If so, what does the use of a legal or governmental system add to your story? If the answer is that it doesn't add anything, if it doesn't move the plot of your story forward, why is it necessary?

Here's where the world building comes in…

What?

Using some resemblance to a familiar legal system helps hook in your reader. You might choose to have a character read another

character their rights as they are arrested but their rights might be different than what you're used to hearing in the mainstream media:

- You have the right to make a statement in your own defense,

- You have the right to choose your own dragon for the execution,

- You have the right to provide your own scribe

- You might choose to use the detail of the technology in the cuffs, the cruiser, or the robes that a judge might wear.

Writing a young adult dystopian (such as *The Hunger Games)* that involves the detention of teenagers? You might research juvenile detention centers before you describe things that might not make sense for holding kids behind bars. For example, how do guards deal with issues regarding bedwetting, or puberty, or burgeoning mental health issues? Are these going to be issues in your world? As a former juvenile prosecutor, I can promise you that they are issues for real life teenagers in the system. These details can help your world be more accessible to a reader trying to immerse themselves in your world without distracting from your story.

Other good details could include:

- Rocket propelled boots for cops to use on foot chases

- Dragon Patrol (cops riding dragons flying around the countryside)

- Unicorn skin riot gear

- Alien judges and translator robots

- Detention facilities on a space station to limit the ability to escape (i.e., like Alcatraz being on an island)

- Fingerprints or DNA being the "old-fashioned" way of solving crime…reading brain waves left behind

- shock handcuffs with neuro-stunners

- digital sensor jail cells

- drone monitoring of home detention

- Magic driven plumed quill pens for court stenography… no court reporter attached

- Unicorn hoof powder as truth serum; no need to swear in a court of law

Directions and ideas are limitless; ranging from the serious police procedural to the silly, and readers subconsciously recognize the basics of what you're doing…if you do the research to get the underlying details right first.

Who?

Who is your story about and where are they in the legal system? Do they work in the system itself, are they affected by it, or are they outsiders looking in? Are they in the system on purpose, or have they found themselves involved when they did not want to be? There's also the question of whether you're talking about criminal actions or civil disputes (for example,

money damages, property issues, contracts, divorces, custody disputes, wills, debt collection, bankruptcy, or foreclosure).

Jim Butcher's *The Dresden Files* series does a good job of presenting a fully fleshed out character (Murphy), who personifies "cop" in just about everything she says and does. She makes decisions based on a specific moral compass, and her mannerisms and reactions all scream to the reader that she is a police officer, and one who cares deeply about the job. Murphy has no problem standing up for the right thing under the law…even if Harry thinks she's wrong. She wants to solve the mystery, but she's not a two dimensional character; through her, Butcher also shows the cost of her job, in her failed relationships, the loss of a partner, the attitude towards protecting the people of Chicago against dangers that she might not even recognize. Those are all classic personality traits that cops in real life deal with all the time.

For a non-science fiction/fantasy example, John Grisham has written a number of legal thrillers. Some have involved criminal cases, some civil cases, but in all cases, the reader gets an in-depth look at the world the characters live and interact in. Grisham has to explain enough technical detail for a non-lawyer to understand why his characters see drama in the events of his story. He can take advantage of the fact that his readers are familiar with some general basics of what a lawyer is, what a court does, and the general basics of how a trial works, because many readers have seen legal or political stories on television or in the movies, or read about them in stories, books, magazines, or in the news. He builds on their general familiarity with the details that are needed to tell his specific story.

In Grisham's books, however, he doesn't spend pages and pages and pages and pages explaining how the entire legal system works…he explains what is important to understand why Mitch McDeere was so attracted to the prestigious job in *The Firm,* and enough background for readers to understand the pressure his character was under as he started working as a first year associate, studying for the bar exam. This is important for the reader to understand Mitch McDeere's thought processes and motivations, and helps set the stage for the story of a young, ambitious lawyer looking for a way out of a bad situation…and why he felt so trapped.

The role your protagonist and your antagonist will play in your story will shape the way your story comes together. Once you've started to piece together why your story is about a legal system in another world, another time, or another universe, and what similarities and differences it might have to real world events, it's time to go smaller. Start building the people that populate the important parts of the story. They can't be two dimensional…they can be *wrong.* They can be flawed. In fact, they should be, or they run the risk of being too bland to be interesting.

- Who is your character?

- What is their role?

- How did they get to where they are? (i.e., education, training, luck)

- What is it that they want to change about their job, or their role?

Figure out what place they have in the society and the system you are building and how their role affects the reason you are writing the story and the details you've started to develop for your world. Save yourself time and explanation by building on already existing similarities that readers might recognize.

Where and When?

The 'where' is really wherever your story takes place. Your setting is part of your world building. And since this is science fiction and/or fantasy, you have a lot of freedom to place your story anywhere and anytime you want. Often in science fiction and fantasy, the two go hand in hand.

Even if you decide to set your story among the clouds, and have a trial in (such as the movie *Defending Your Life)*, you still have to decide the physical landscape and characteristics of where you are. In that movie, the main character's life is literally on trial to determine whether or not he gets into heaven based on his choices and his actions, reliving the highs and lows as his eternity is decided.

If you choose to do something similar, you would have to determine what a court setting would be like in heaven, where a judge would sit, would there be jurors, or would there be attorneys? Are there attorneys in heaven (boy do I hope so, since I am one)? Would St. Peter be the judge? What would you think of as heaven? Could anyone actually lose a trial in heaven? What happens if they do lose? Is it Purgatory or do they go straight to Hell without passing Go or collecting two hundred dollars?

The writer should also decide if the trial is modern day, near future, past, far into the future, or just in an alternative world. The closer your world is to modern day, the more expectation a reader will have that the writer "gets it right" with regard to the legal systems that the reader is familiar with. That's not an argument to write modern day stories, or to avoid them. It's a cautionary warning that writers run the risk of alienating readers if they failto weave the proper details to suspend disbelief.

How?

- What if you want there to be an actual trial in a fantasy world?

- Is the point of the trial the verdict?

- Or is it the process to get there?

- Are you using the trial to unseat power, (as in a trial in front of the throne, where you want the crowd to get so incensed that they unseat the person on the throne regardless of the outcome)?

- Are you using the trial to show that the system in your world is unfair (i.e., someone who can't get their case into court because they're not human, or needed six days to process an application that's due in three)?

- What kind of things would be allowed in your world?

- Are there any unforgivable acts?

- Is there a way for society to regulate behavior without a legal system?

- Are you making a point that there should be such a system, or that there shouldn't, and is there a downside to your proposed world? Do you imagine it being a system where the king is judge, jury and executioner, as well as doing all the other things necessary to run a kingdom? If so, how did that work as a medieval system in Europe? Does that work with the world you are building?

Once you have answers to these questions, you can start to flesh out whether something works, or whether it doesn't,and how to get from real world to your world enough to tell the story that only you can tell.

There are a lot of questions here to answer. But those are mechanics of building the system your story will use. Once you begin to piece together your system, and the similarities you plan to mirror, or at least mention or touch upon, then you can consider the story as a whole,and how the world you are in lends itself to the story you are trying to tell.

Another question to consider is whether you wish to show the impact of the system on the society you are using, as a larger part of your story, or whether you want to show someone working from the inside of the system, trying to make it better, or tear it down from the inside out?

What rings true to you about *Judge Dredd?* Or does it? What about *Robocop? The Running Man? Demolition Man? Minority*

Report? Breaking down what made you as a viewer instantly accept the legal or political system the story is set in (or not) can help determine what could be used in your own story.

What about the Galactic Senate in the *Star Wars* prequels? Yes, that's about a political system, rather than a legal system, but governments and governmental systems are as fallible as the people who run them. Good people can make decisions about smaller matters that have larger, far-reaching consequences down the road…and they might not always know how their decisions could make things worse in the end.

There's a saying among lawyers that bad facts make bad law, basically meaning that the right decision in one case might make for a legal precedent that doesn't work in other cases…and could lead to legal principles that people think are wrong or unfair. It can also lead to unforeseen consequences. Did the Senate make a bad decision in contracting for Clone soldiers in the war that led to Palpatine founding the Empire and executing the Jedi? Did they have any way of knowing what would happen as a result, and if they did, would they have still made the same decision? That can also be applied to instances of real life foreign policy; the United States providing arms to Afghani rebels during the 1980s, getting involved in the Vietnam conflict,, Castro coming to power in Cuba, or, well, many different issues involving relations with Middle East countries over the last forty or fifty years.

The best advice to a writer who is interested in building an alternative political/governmental/legal system in genre fiction… is to be aware of how the system actually works in reality. And

trial lawyers and police officers and other insiders will thank you for getting it right. Public perception of how things are supposed to work is shaped by readers and TV and movie watchers.

Already people in the system talk about how jurors expect DNA testing in all cases (even though not all cases lend themselves to DNA evidence), or think certain processes should be instantaneous….even though in real life there are lab backlogs and longer processes and budget constraints that fiction doesn't always get right. Fingerprints might put someone at the scene of a crime, but don't necessarily tell an investigator when that person was there. They might have an entirely innocent reason for going to that location two weeks prior to the crime and leaving that fingerprint.

How Part 2:
Getting the Details Through Research

How does one go about getting that knowledge? Well, you might be planning to write about the mystical world of Keeble-manvia, where gnomes are judges and unicorns are lawyers. That does give one some wiggle room in creating your own system, however knowing *what* one is deviating from and what remains the same can be accomplished by a simple ride-along with your local police department, an afternoon of observation in your local court system, an appointment with a local prosecuting attorney or defense attorney. Your research will depend on your story and your needs.

You might see if there are political office holders in your community (commissioners, mayors, staff members of elected representatives) who might sit down and talk about what kinds of issues they have to consider as they run a governmental system in real life. Be nice. Be polite. Be flexible enough to meet them at a time that works with their schedule…they have busy jobs that don't always allow for hours and hours of time to answer questions, so be prepared to ask what you need, take notes, and be considerate with their time. Be up front about what you need, why you need it, and follow up by thanking them for their time and help.

If you're working on a system based in medieval life you might contact a university history department and see if someone there specializes in the time period, culture, or political system you're interested in and offer to buy them a cup of coffee to pick their brains. Same goes for anything touching on Marxist, Leninist, or communist systems; a history or political science professor might be your best resource for this. Think *1984, Equilibrium,* or even the *Dark Angel* series;

- What times in history most resemble your world?

- What belief system has taken over your setting and why does it work, or not?

- Is there some resistance against your system?

- What happens if someone objects?

Ask the questions of those people who do that kind of work on a daily basis. Find out what they think works and what doesn't in the system they work in. You might even get lucky enough to

find someone who is willing to spitball ideas with you about what would work or not in your fictional world….or someone who is willing to read your work for insight into your system.

In short, don't reinvent the wheel if there's a way to use things from existing, or historical systems. Familiarity helps draw in your reader so that they will accept the unfamiliar as they get hooked into your story. Getting it right can actually help readers to understand something about their own world, as well. These are just the beginnings of questions for you to ask yourself as the writer as you build your world, and to ask professionals as you research what you're considering. You don't have to accept any of it, but having the knowledge of how things work (or not) can help you to tackle your work in a way that fits together and lets your reader enjoy your plot rather than work to understand a world that is completely foreign to concepts of law, law enforcement, politics, or government they know from their own experiences.

About the Author

Addie J. King is an attorney in Urbana, Ohio, and has over eleven years experience as an assistant prosecutor handling adult felonies, misdemeanors, juvenile delinquency cases and appellate work, and writes paranormal mystery and contemporary fantasy whenever she can. She holds a degree in criminal justice from Ohio Northern University and a law degree from the University of Dayton School of Law. Her blog can be found at www.addiejking.wordpress.com. Her short story, "Poltergeist on Aisle Fourteen" was published in the anthology, MYSTERY TIMES TEN 2011, and her novel, THE GRIMM LEGACY, is being released from Musa Publishing in Spring, 2012.

Works Cited

Battlestar Galactica, Prod. Glenn A. Larson Productions/MCA Universal, ABC, September 17, 1978, Television.

"Bushwhacked" *Firefly,* FOX, September 27, 2002, Television.

Butcher, Jim. *The Dresden Files,* series. New York, Penguin, Roc. 2000, Print.

Castle, Prod. Beacon Pictures, ABC Studios, ABC, March 9, 2009. Television.

Criminal Minds, Prod. The Mark Gordon Company, CBS, September 22, 2005, Television.

Cold Case Files, Prod. Kurtis Productions, A&E Network, January 1, 1999. Television

Collins, Suzanne, *The Hunger Games,* New York, Scholastic.
2008, Print.

CSI: Crime Scene Investigation, Prod. Jerry Bruckheimer,
CBS, October 6, 2000. Television

Dark Angel, Prod. James Cameron, Charles H. Eglee, Rene
Echevarria, FOX, October 3, 2000, Television.

Defending Your Life, Dir. Albert Brooks, Geffen Pictures,
March 22, 1991, Film.

Demoliton Man, Dir. Marco Brambilla, Silver Pictures,
October 8, 1993, Film.

Equilibrium, Dir. Kurt Wimmer, Dimension Films, December
6, 2002, Film.

Grisham, John, *The Firm,* New York, Random House, 1991,
Print.

Judge Dredd, Dir. Danny Cannon, Cinergi Pictures, June 30,
1995, Film.

King, Stephen, writing as Richard Bachman, *The Running
Man,* New York, Signet Books, May 1982, Print.

Matlock, Prod. Dean Hargrove Productions, Fred Silverman
Company, The Matlock Company, Viacom Productions.
NBC. September 23, 1986. Television.

Minority Report, Dir. Steven Spielberg, Amblin
Entertainment, June 21, 2002, Film.

Monk, Prod. Touchstone Television, USA Network, July 12,
2002. Television

Orwell, George, *Nineteen Eighty Four,* London, Secker and
Warburg, June 8, 1949, Print.

Robocop, Dir. Paul Verhoeven, Orion Pictures, July 17, 1987,
Film.

Rowling, J.K., *Harry Potter and the Order of the Phoenix,*
New York, Scholastic. 2003, Print.

Southland, Prod. Ann Biderman, Christopher Chulack, John
Wells, NBC, TNT, April 9, 2009, Television.

Star Wars, Dir. George Lucas, Irvin Kershner, Richard
Marquand. Lucasfilm, May 25, 1977, Film.

The Art of Restraint

Bryan Young

It's a hard thing to get a reader introduced to your world. You've spent weeks, months, years, building this complete and natural other world and you just can't wait to toss your reader into that pool. If you're not careful, though, they're going to drown. Unless you're a sadist, you don't want to drown your reader. Instead you want to draw them into your world one step at a time so that by the end of the book, they're scuba diving in the deep end all on their own. They'll even think it's their idea. But you need to give them touchstones, items and ideas from the world they know to help them acclimate to the world you're bringing them to.

The details of your world (particularly words, phrases, and names indigenous to it) need to be doled out carefully and sparingly, just like exposition.

If you overload the reader, they're going to get bored and annoyed. The last thing anyone wants to read is some long drawn

out name or place that's completely unpronounceable. Add eight of those in a few paragraphs in the first chapter and people are going to put down your book before you can say Joruus C'baoth. (Zahn 1991)

If you absolutely have to use a name that defies logic or pronunciation, at least shorten it to something readers can wrap their heads around. Take "Thrawn" over "Mitth'raw'nuruodo" every single day of the week. Names like "C'baoth" should be right out. (Zahn 1991) I mean, I've read that word hundreds of times over the last twenty years and I still have no idea how to pronounce it.

The success of books with unpronounceable names is *despite* these things, not because of them. Those as skilled as Timothy Zahn can get away with these sorts of shenanigans, but I'm not Tim Zahn and you're probably not either. (And if you are Tim Zahn, I'm thrilled you're reading this and I swear I meant no offense. It was all the editor's fault. Promise.) (Editor's Note: Not me, blame the publisher.) (Publisher's Note: Hi, Tim! Good seeing you at Origins again!)

It's easy to see why words and names like this would confound readers, no matter how good your writing style might be.

Here's a terrible example you should try on for size. To protect any actual authors that might be terrible, I put on my own "terrible author" cap and went to town:

> A low mist hung over Varalazio, the imperious stone keep that was home to the Valria clan. It had been in their family for decades, through thirteen Keldommas, which were the ancient

rites and trials of lordship in the land of Balmassa. The Valkors, the silent order of guards that kept watch over Varalazio, stood along the parapet wall, waiting for any sign of the Har'karians imminent attack.

Let's have a show of hands. Be honest. How many of you just skipped that paragraph and wanted to stop reading? All of you?

You see what I mean?

Even just writing that made me cringe. Can you imagine what a reader would go through, trying to decipher all of that made-up horse crap? Think of all the time spent explaining what each term meant, then think about how much more streamlined these paragraphs could be if we limited ourselves to one term at a time or even no new terms at all.

Read this version now, and tell me which one is more interesting and easier to read:

The guards standing watch above the stone keep, were nervous. Rumours of war were frequent, but they knew it was coming. They could feel it in their bones. But through all the expectation, there still grew a spark of anxiety when Hamza spotted the dot of a flag-bearer on horseback, rising up over the ridge in the misty distance.

Squinting his eyes as it grew closer, he could see the standard of their enemies. The idea that it was merely a scout was easily discarded, when

an entire detachment of horsed soldiers appeared,
galloping over the crest behind him.
    "To arms!"

Now, these are obviously ridiculous examples and certainly not even close to my most mediocre of prose, but you get the idea, right?

You need to slowly immerse the audience into your new environment at a pace fast enough for them to understand the story completely and not a minute sooner.

- Is it more important for the reader to have a visceral reaction to the story's conflict, or to know the technical names of all the participants?

- Does it matter if every single detail in the account has a proper name?

- Do you think readers will care more about your world when you've dumped all the names and information on them as quickly as possible?

- Do you think readers will care more about your story when you give it to them piece by piece in an easily digestible manner?

The appropriate use of exposition is an excellent analogue to the use of the created terms, names, and places of our unique worlds. If used properly, we can keep our audiences asking questions about the world in a way that will keep them reading, not in a way that will turn them off.

I know it's a classic film reference, but the storytelling on display is unparalleled whether it's a film or a book, so bear with me. Remember in the film *Casablanca* (Curtiz 1942) when we're introduced to Rick (played magnificently by Humphrey Bogart)? We're given nothing about his background whatsoever. We're given a window into the status quo of his attitude and demeanor. He doesn't drink with anyone. He doesn't get involved, and he doesn't stick his neck out for anyone. He's politically neutral in a world crawling with French resistance and Nazi soldiers. Then one girl shows up, Ilsa Lund (played beautifully by Ingrid Bergman), and he's not acting at all the way we've been told he would. He's drinking with her, getting involved with her plight, but there's a hurt sadness to it. He wants to verbally cut her down, he wants to know what happened, why she left.

Left from where? We don't know. All we can see is that he's in pain and his tough guy routine is to mask an emotional hurt, not because of the machismo we previously assumed.

As an audience member, we're left trying to figure out what it was that happened to Rick, where he was before he found himself in Casablanca, and what his relationship to the girl was. Then, the moment we *need* to know what happened, we're given a flashback of their life together in Paris.

It was vital information dropped in at exactly the right moment in the story, not too soon, not too late. It gave us all the context we needed to force us to re-evaluate what came before, and understand what was coming next.

Imagine if we followed that entire story in a linear fashion and began it in Paris, with Rick and Ilsa's relationship, La Belle

Aurore, and their breakup on the rail platform. Would there be any driving mystery behind the actions of the characters through the first act? No. Everything would be spelled out for us and it would be boring.

Kurt Vonnegut told us in his book *Bagombo Snuff Box* (12) that his fifth rule of writing was to "start as close to the end as possible." I feel the same is true of exposition. Don't give it to readers until they're so hungry to know it and *need* it to understand the story and they won't care that it's exposition.

Other science fiction worlds have done an excellent job with taking familiar, real world situations and adapting them slightly to the new present of the future. Take Gene Roddenberry's *Star Trek*. As we watch this series unfold, we're treated to all the familiar touchstones of a naval vessel, right down to the yeoman's whistle and ranks. We're introduced to alien or futuristic concepts sparingly.

The newness of the world they built came in the form of Spock, the single alien member of the crew. The technology was another vision of the future, the phasers and tricorders were both items that we knew instinctively how they'd work because of the context of their use, the dialogue surrounding them, and the design of their construction.

We're still left a reasonably familiar world. We know what Captains are. Doctors haven't changed much in their entire existence in history. Ensigns appear to make the ship work. The science officer has a name that sounds comfortable. Why do you think Roddenberry didn't make up a whole bunch of fancy sci-fi

terms for all of it? I think it's because he wanted people to feel comfortable enough in his world to draw them in slowly.

How well do you think *Star Trek* would have done if they started with the story of *Deep Space Nine*, with the Borg, the Cardassians, the wormhole, the Bajoran occupation, and everything else? That story could have only existed in that world because of the slow build-up of terms, races, and words we'd seen over the past few decades of the show's history.

Another universe that takes familiar themes, stories, and character archetypes and bends them into an unfamiliar world is *Firefly* (Whedon 2002). It's basically just a western in space and feels very familiar, even if you've never seen it before.

That's by design.

Another great example would be George Orwell's *1984*. It seems to me that Orwell built on authors like Graham Greene (think *Ministry of Fear* Graham Greene) and created a paranoid science fiction world out of it. You have this futuristic dystopia with ministries that function as the tools to suppress the world instead of aid it. Ministries are a normal function of British government and the idea of a Ministry of Truth would seem odd, but not foreign.

There's always a balance to strike with the design of your world, though. You can use different levels of that design to create different experiences. One can easily look to William Gibson and Bruce Sterling's *The Difference Engine* as the antithesis of what I'm saying. It drops you right in the world and you feel like you're in a foreign environment right off the bat,

but that disorientation is by design. As a reader, I feel you're supposed to feel disoriented by this new world. You can make it work and use that to your advantage if you're careful about it.

One technique some authors employ is to create a totally normal and understandable world and then slowly creep in with fantasy elements. One of my favorite examples of this technique is Umberto Eco's *Baudolino*. Eco is well known as an author of incredibly detailed historical fiction and drops us deep into the Fourth Crusade in 1204 Europe. It tells a compelling and seemingly historically accurate account of this man's life, delving into great detail of a world gone by. About halfway through the book, Baudolino and his companions begin a quest to a faraway land. They begin to meet things as innocuous as eunuchs which seem normal enough. Then things like unicorns, skiapods, and all other manner of mythological creatures creep into the text, culminating in a massive fantasy battle that would give the Battle of Helm's Deep a run for its money. Eco creates such a whole, well-researched, and believable world through the first half of the book that we're left scratching our heads, wondering if our con-man of a narrator hasn't actually run into these creatures and situations.

Another excellent trick to show restraint in world building is to gloss over terms and only hint at their meaning in context. Throw your reader into a small concept they don't *need* to understand, imply what you mean, and move on. They'll take it for granted and want to keep reading.

Take the first paragraph from Robert Heinlein's *Starship Troopers:*

> "I always get the shakes before a drop. I've had the injections, of course, and hypnotic preparation, and it stands to reason that I really can't be afraid. The ship's psychiatrist has checked my brain waves and asked me silly questions while I was asleep and he tells me it isn't fear, it isn't anything important—it's just the trembling of an eager race horse in the starting gate.
>
> I couldn't say about that; I've never been a race horse. But the fact is: I'm scared silly, every time." (1)

This is a brilliant opening with a lot of world building, but it exhibits the best of the techniques I've told you about. It throws you directly into the world, blazing right by a dozen ideas that give you a clear picture, and it doesn't weigh you down with a single made-up or hard to pronounce word.

It's so well-designed and well-written that it *begs* you to keep reading.

Read it again, we'll dissect it a little bit. The only concept we really need to guess at is "a drop." The rest of the paragraphs tell us exactly what we can expect. For one thing, we're led to believe that these drops would ordinarily be frightening as hell if scientists hadn't dulled that fear out of our protagonist. The paragraph speaks matter-of-factly about our hero being on a ship. If he's "dropping" out of a ship, we can reasonably assume it's probably a space ship. Since there's no wonder in the tone of the narrator, we can assume being on a space ship is commonplace.

We can also discern that our hero is incredibly intelligent. He knows that what he's doing, despite the best efforts of science, should be terrifying, and is able to intellectualize it. He's still afraid, scared silly, even though he shouldn't be able to. This tells me we're going to get something that should be scary as hell coming, and we have a narrator intelligent enough to tell us about it.

To top it all off, we get a joke about not being a race horse, giving our man a wry sense of humour we instantly take a liking to.

Giving the reader something to see between the lines, information to discern without spoon-feeding it or giving fancy names, they're left with something exciting that forces them to turn pages. That sparse 89 word opening of *Starship Troopers* tells us far more than is written there.

Heinlein didn't talk down to his readers or drown them in made-up jargon, and he gave them commonplace cultural touchstones that were easily understood. Few readers today can't conjure an image of a race horse, nervous at the gates.

Whatever approach you take to building the world your story is set in, it's going to require a measured, intelligent hand. There can be no detail, no matter how small, left to chance. You are the ultimate architect here, and if you don't do it right no one is going to want to visit your side of the swimming pool and it will be all your fault.

But if you do it right, everyone will want to come and play.

And that's what sells books.

About the Author

Bryan Young works across many different mediums. As a film producer, his last two films (*This Divided State* and *Killer at Large*) were released by The Disinformation Company and were called "filmmaking gold" by *The New York Times*. He's also published comic books with Slave Labor Graphics and Image Comics. He's a contributor for the *Huffington Post* and the founder and editor in chief of the geek news and review site Big Shiny Robot! He is also the author of two novels, Lost at the Con and Operation: Montauk.

Works Cited

Berman, Rick, dir. *Star Trek: Deep Space Nine*. CBS: 1993-99. Television.

Curtiz, Michael, dir. *Casablanca*. Writ. Epstein Julius, Epstein Philip, and Koch Howard. Warner Brothers, 1942. Film. 2010. DVD.

Eco, Umberto. *Baudolino*. 2nd ed. New York: Harcourt, 2002. Print.

Gibson, William, and Bruce Sterling. *The Difference Engine*. 20th Anv ed. New York: Bantam, 2011. Print.

Heinlein, Robert. *Starship Troopers*. New York: Penguin, 1987. 1. Print.

Orwell, George. *Nineteen Eighty-Four*. Centennial ed. New York: Plume, 2003. Print.

Roddenberry, Gene, prod. *Star Trek*. NBC: 1966. Television.

Vonnegut, Kurt. *Bagombo Snuff Box*. 1st trade paperback.
　　New York: Penguin, 2000. 12. Print.

Whedon, Joss, dir. *Firefly*. FOX: 2002. Television.

Zahn, Timothy. *Star Wars: Heir To The Empire*. 1st ed.
　　Bantam Books, 1991. Print.

A Sense of Style

Tim Waggoner

When it comes to worldbuilding, the basics are obvious: natural (or unnatural) laws, ecology, history, culture, religion, government, economics, etc. But one element that many creators ignore is style. What does their world *feel* like, and what sort of stories are told there? I'd argue that in many ways style – for lack of a better term – is the most important element of worldbuilding, one that will define your world more than any other.

First, a few examples.

Consider *Star Trek* and *Star Wars*. Both come from a tradition of space fantasy adventure, both employ the same basic technological tropes – starships with faster-than-light travel, energy weapons, sophisticated computers – both are set in interspecies galactic civilizations, and both employ magic to a certain extent. Despite all their many commonalities, these two settings couldn't *feel* more different.

Star Trek's adventures deal with the wonders and dangers of discovery or the difficulties of galactic military/peacekeeping missions. Their universe is clean, streamlined, and optimistic. Battle is a last resort, and the "magic" – Vulcan mindmelds, godlike beings of pure energy – is presented as alien biology or advanced technology. Starfleet crews are a combination of adventurers, soldiers, scientists, and diplomats, and the stories they become involved in often deal with extending the ideals of civilization while struggling to act from one's highest, best nature.

Star Wars' stories are high adventure with the emphasis on fast-forward action. The characters live in a gritty, rundown universe, and they fight to restore freedom in a galactic civilization ruled by a tyrannous dictatorship. No exploration here, but there are themes of familial ties and redemption. Their magic looks like the real thing: robed mystic warriors who use the equivalent of magic swords and employ "the Force." If *Trek* comes down on the science end of science fantasy, *Star Wars* is definitely well on the fantasy side of the fence.

How about role-playing games? Like *Star Trek* and *Star Wars*, Dungeon and Dragons and Warhammer employ the same basic tropes: medieval fantasy settings, generic fantasy races (humans, light and dark elves, dwarves, orcs), and generic character classes: fighters, magic-users, thieves, priests, etc. D&D tends to have a lighter feel to it (though of course individual gamemasters can run whatever style of game they wish), while Warhammer tends to have a dirty, brutal, blood and thunder feel. This stylistic difference is really noticeable in the novels based on the games.

What about the three *CSI* series? Each is based on the same premise and yet has its own style and way of storytelling. DC universe versus Marvel universe, the *Mission Impossible* films versus the Jason Bourne movies, the original *Clash of the Titans* versus the remake, Looney Toons versus Disney, *Night of the Living Dead* versus *Zombie Land* . . . I could go on and on with examples, but I hope you get my point. And if you're still not sure, think about how the same song can be interpreted in very different ways by different singers. Listen to Leonard Cohen's original version of "Hallelujah" and then k.d. lang's interpretation. Same song, different style – different *feel*. (If you're unfamiliar with the song, zip over to You Tube and check out both versions. I'll be here when you get back.)

Okay, at this point you may be saying to yourself, "I get it. But why does it matter to me? I just want to tell a story."

It matters if you want your world to stand out from all the other stories in the same vein and grab hold of an audience's imagination. What makes your medieval fantasy setting worth visiting? Why should we be interested in your zombie apocalypse when there are so many (many, many, many) others out there? If you want to attract and hold an audience, your work needs to stand out. Style is one way to make sure it does.

So how do you go about considering style as you're worldbuilding? Here are few tips.

Light or dark?

Is your world going to be a place of light-hearted adventure, somewhere that will be fun to visit – at least virtually? Or is it going to be a dark place, where bad, even traumatic things happen to scar your characters both physically and emotionally? Consider Agatha Christie's Miss Marple mysteries versus *The Girl with the Dragon Tattoo*. Both deal with the investigation of a murder, but one's so light it's almost a soufflé, while the other is about as dark as it gets.

High or low?

Think of the grand, mythic, spiritual feel of Narnia or the nobility of Arthurian fantasy versus the down-and-dirty feel of Conan the Barbarian. All three are fantasy adventure settings pitting good against evil, but you'd never mistake one for the other! Consider whether you want your world to have the "high class" feel of King Arthur's England or the "working class" feel of Conan's Hyboria.

Fast or slow?

Post-apocalyptic adventurer Mad Max lives in a world of fast-forward action. The man and boy in Cormac McCarthy's *The Road* travel a very different post-apocalyptic landscape, one where the slow pace of the story mirrors their dead, sterile world. The pace at which events happen – and how you relate them to

readers – can give your story a very distinct feel, and it's worth considering right from the beginning.

Big or small?

Doctor Who has a gigantic scope. You can't get much bigger than a virtually immortal alien who protects the whole of space and time. On the other hand, the *Back to the Future* films have a much smaller scope: one time-traveling teenager who's just trying to fix the temporal problems that he's created. Think about how big a cast you want and how big a stage you want them to perform on. Is your world going to be a big one or a small one? Your choice will have a huge impact on the kinds of stories you'll tell in that setting.

Serious or funny?

A Game of Thrones vs. Terry Pratchett's *Discworld*. At first, the choice between serious or funny would seem like an obvious style issue, but keep in mind that audiences are willing to suspend their disbelief more when it comes to comedy than they are with drama. The Improbability Drive works great in *The Hitchhiker's Guide to the Galaxy* but *Star Trek*'s audience wouldn't buy it. Humor allows you to create characters and plot points that stretch reality without totally breaking it. But you don't have to go for complete cartoon wackiness. Think of Shakespeare's comedies – the mistaken identities, coincidences, and silly plot twists. The worlds of those plays still have their own internal logic and reality. If anything can happen at any time, a story loses any

sense of tension. So if you're going to go for funny, tread carefully, but know that it will give you more creative freedom in how you design your world and tell your stories. Just remember that too much freedom isn't always a good thing.

Minimal or maximal?

Terry Brooks' Shannara versus Piers Anthony's Xanth. Both are fantasy settings, but where magic is rare in Brooks' world, Xanth is overflowing with the stuff. Both settings have very different feels to them – and it helps that Xanth is also light and funny, so readers are more willing to accept so much magic. Going the maximal route might seem like a good choice, especially if you enjoy really getting into worldbuilding. However, sometimes too much simply is too much, and if your world is full of magic, super science, or a billion monsters, your characters will need to be superheroes to navigate it (which brings up a whole different set of storytelling problems). *Star Trek* is maximal. Think how often the crew solves a problem by simply jury-rigging a piece of future tech. In *Alien*, the crew doesn't have such sophisticated technology, forcing them to work harder to battle the titular threat. There's a reason why so many fantasy and science fiction stories are set in the time after the Golden Age. A few maximal artifacts and characters might still be around, but not so many as to make things too easy on the characters.

Realistic or fantastic?

I'm not talking science fiction, fantasy, or horror versus real-world mainstream drama here. Once again, I'm talking about the feel of your world. Oz and Wonderland are very fantasy-filled places, whereas Middle Earth is more grounded in reality. Edgar Rice Burroughs' Barsoom is more fantasy-like while the planet of Pandora in James Cameron's *Avatar* – a film which owes quite a debt to the old-fashioned space adventures of heroes like John Carter – has a more realistic feel to it. In terms of horror, the zombies in *Night of the Living Dead* and its follow-ups are flesh-eating walking corpses, nightmarish creations that, while stylistically effective for a dream-like horror film, could never exist in reality. (If you're not sure why I say this, do some research on what happens to our bodies once we die. It ain't pretty.) The Rage-infected humans in *28 Days Later* are much more plausible.

A final note:

Even though I've set up the preceding seven items as either/or statements, you're of course welcome to blend stylistic elements however you wish. For example, the TV series *Castle*, a mystery-romance show in which a bestselling thriller novelist shadows an NYC homicide detective for inspiration, has an essentially light premise, but occasional episodes are dark, partly for stylistic variety, and partly as a metaphor for romance, which has its ups and downs, its lighter and darker moments.

Of course, certain aspects of your world's style will come out naturally as you create it, but by consciously thinking about style during the worldbuilding process, you can ensure that the world you develop won't be generic and forgettable. It'll be one we want to spend time in and – even better – one we'll want to return to.

About the Author

Tim Waggoner is the author of the *Nekropolis* series of urban fantasy novels and the *Ghost Trackers* series, co-written with Jason Hawes and Grant Wilson of the *Ghost Hunters* TV show. In total, he's published close to thirty novels, over a hundred stories, and his articles on writing have appeared in such publications as *Writers' Digest* and *Writers' Journal.* He teaches creative writing at Sinclair Community College and serves as a faculty mentor in Seton Hill University's MFA in Writing Popular Fiction program. Visit him on the web at www.timwaggoner.com.

Works Cited

Adams, Douglas. *The Hitchhiker's Guide to the Galaxy,* Pan Books, 1979.

Alien, 20th Century Fox, 1979.

Anthony, Piers. *A Spell for Chameleon*, Ballantine/Del Rey, 1977.

Avatar, 20th Century Fox, 2009.

Back to the Future, Universal Studios, 1985.

Baum, L. Frank. *The Wizard of Oz,* George M. Hill Company, 1900.

The Bourne Identity, Universal Pictures, 2002.

Burroughs, Edgar Rice. *A Princess of Mars,* A.C. McClurg, 1917.

Brooks, Terry. *The Sword of Shannara*, Ballantine/Del Rey, 1977.

Carroll, Lewis *Alice's Adventures in Wonderland*, Macmillan, 1865.

Castle, ABC Studios.

Christie, Agatha. *The Murder at the Vicarage,* Collins Crime Club, 1930.

Clash of the Titans, Metro-Goldwyn-Mayer, 1981.

Clash of the Titans, Warner Brothers Pictures, 2010.

Cohen, Leonard. "Hallelujah," *Various Positions,* 1984.

CSI, CSI Miami, CSI New York, CBS Broadcasting Inc.

Doctor Who, British Broadcasting Corporation.

DC Comics.

Dungeon and Dragons, Wizards of the Coast.

Howard, Robert E.. "The Phoenix and The Sword." *Weird Tales*, 1932.

lang, kd. "Hallelujah," *Hymns of the 49th Parallel,* 2004.

Larsson, Stieg. *The Girl With the Dragon Tattoo,* Alfred E. Knopf, 2008.

Lewis, C.S.. *The Lion, the Witch, and the Wardrobe,* Geoffrey Bles, 1950.

Mad Max, American International Pictures, 1979.

Martin, George RR. A *Game of Thrones,* Bantam Spectra, 1986.

Marvel Comics.

McCarthy, Cormac. *The Road*, Alfred A. Knopf, 2006.

Mission Impossible, Paramount Pictures, 1996.

Night of the Living Dead, 1968.

Pratchett, Terry. *The Colour of Magic,* Colin Smythe, 1983.

Star Trek, CBS Broadcasting, Inc.

Star Wars, Lucasfilm Limited.

Tolkien, J.R.R.. *The Hobbit,* George Allen and Unwin, 1937.

28 Days Later, 20th Century Fox, 2002.

Warhammer, Games Workshop.

ZombieLand, Columbia Pictures, 2009.

Making a Consistent World

Kelly Swails

You've got a concept, a handful of characters, and a working plot outline. Now you just need to make a world for it all to happen in. You've got decisions to make in terms of time and place and society and language. You have to make the world your characters live and act in a real one, one that you can see and feel and taste, a world so real your readers feel like they've actually visited it when they've finished your book.

By now you've read a lot of great advice—much of it in his book—on how to make your world nuanced and real. We've covered crafting, geography—including urban landscapes—creatures, language and governments. Your world is filled with creatures, flora, and fauna. You know how to create a history (even if that means altering our own) and unintended consequences of world-building decisions. You've even learned how to make your world a character in its own right. It's advice

you should heed. But all the bells and whistles boil down to this: if the world isn't consistent, it's not real. Recently a friend sent me a long-winded email joke that illustrates my point:

Q: How do you put a giraffe in a refrigerator?

A: Open the door, put in the giraffe, and close the door.

Q: How do you put an elephant into a refrigerator?

A: Open the door, take out the giraffe, put in the elephant and close the door.

Q: The Lion King is hosting an animal conference. All the animals attend … except one. Which animal misses the conference?

A: The elephant. He's in the refrigerator.

Q: There is a river you must cross but it is used by crocodiles and you don't have a boat. How do you manage it?

A: You jump into the river and swim across. All the crocodiles are at the Animal Conference.

-Anonymous

Building a unique world for your characters to live in is complex. You will juggle hundreds of details and facts, only a fraction of which may end up in the final manuscript. Those details include—but are certainly not limited to—dates of historical events, geography, economics and currency, languages, government, the eye color of the protagonist's first girlfriend, and dietary habits of long-forgotten tribes. But—and this is a big

caveat—a thousand years of history or a detailed list of every one of the protagonist's sex partners won't do you a bit of good if you're not consistent. If a detail changes midstream—if you say in chapter two Sally's favorite ice cream is peppermint but in chapter twenty it's chocolate, for example—it kicks the reader out of the story and makes them remember, "Hey, wait, this is just a *book*." That's something you do not want to happen.

We have to remember to take the giraffe out of the refrigerator so we can put the elephant in.

So how do we do this? The simple answer: organization. As with most areas about the craft of writing, this isn't an easy question to answer because there is no right answer. I can't tell you the best way to keep everything straight. What I can do, however, is point you in a few different directions.

Keep it all in your head.

Some writers are great and keeping everything in their head. The worlds they create are so real to them that they don't need to make big encyclopedias about the bloodlines of the main families to keep everything straight. Ted Kosmatka, author of *The Games*, has this to say: "I keep track of character traits mostly in my head. Though I tend to pick out one trait to center the character around." (1) Patrick Rothfuss, author of *The Name of the Wind,* also keeps character traits this way. "It helps that I keep physical descriptions very spare in my writing. I rarely give more than three or four descriptors for a character." (4)

These writers tend to let the readers to the heavy lifting in terms of description and setting. It's easy to not get a character's hair color wrong if it's never mentioned. It's crucial to give your readers some details to ground them in the story, of course, but judicious use of such details allow you to spend your time on other tasks instead of compiling a reference book.

Put pen to paper.

Speaking of reference books, making one can be an invaluable tool for writing your novel. You may hear it called a "bible," "encyclopedia," "compendium," or even "the notebook," but it all boils down to same thing. Grab a notebook, make sections for characters, settings, family trees, history, language, etc., and write down everything you know about your world. Any time something new surfaces while you're writing—maybe you discover your main character's dad has asthma while writing chapter three—add it to the book. Forget the dad's illness when you're writing chapter thirty? No need to scroll through the whole novel. Just check the notebook.

One caveat: this method does have a tendency to get a little messy. As a world grows over time, so does the notebook. When you started you thought half a page for each character would be sufficient, but by the end each character's traits bleed onto the edges. Random slips of paper covered with information find their way into the notebook but may never be transcribed. The writers that use this method find order in chaos. One obvious advantage is portability; a notebook slips easily into a laptop case, backpack, or purse. The downside? It's also easy to leave at home when

you're writing at a café. It's hard to keep a world consistent if you've lost its encyclopedia.

Put it on the wall.

Anything that can be written on a notebook can be stuck to your wall. Buy a whiteboard and a bundle of dry-erase markers or a few bulletin boards and a big stack of index cards and use them to organize the aspects of your world. Are you the type of world-builder that snaps pictures of buildings, collects samples from fabric stores, or clips pictures from magazines for inspiration? If so, some sort of large board in your office could be the way to go.

This method provides an instant visual reminder about all the little details. Need to know when the Great Uprising started? Glance at the bulletin board. Forgot what sort of shoes the protagonist owns? It's on wardrobe list at the top corner of the white board. At a loss for how to describe your main character's hairstyle? Use the picture on your wall for reference.

The obvious downside is portability. If you do all your writing at home this isn't an issue, but if your local coffee shop is anything like mine, they won't appreciate you lugging a board and an easel into their place of business.

The Bible version 2.0.

Don't like handwriting notes? Do you start a notebook with the best intentions but after a few months all your neat and tidy

sections are a mess of unintelligible scribbles? Are there post-it notes on your post-it notes? Does a cork board collect dust? Then perhaps you need something more linear. Several computer programs are at your disposal including—but not limited to—Microsoft Word, Microsoft Excel, Open Office, iWork Pages, mapping software such as Fractal Terrains, the virtual corkboard Pinterest, and all-around workhorses like Scrivener. It might take a little patience to work out the kinks, but electronic versions of book bibles do have their advantages over the pen-and-ink variety. You can make different folders for each topic or character or one huge document with every single detail that pops into your head.

Anton Strout, author of the urban fantasy series featuring Simon Canderous, uses electronic methods for his encyclopedic needs. "I have one grand Word document called the Simonverse Book Bible." Also, "Being a tech geek, I use Excel to track word count, and one line outlines of each scene." (2)

Winds of Khalakovo author Brad Beaulieu uses Scrivener for his world-building needs. "Scrivener is my workhorse. I tell people that there is no one, compelling reason to switch, but there are a hundred smaller ones. I use it as my primary writing tool." (3)

If using new software intimidates you, don't worry. You can write your novel and pay someone to transcribe it, or you can keep using the software you're used to. Rothfuss uses "Microsoft Word. The 97 version." (4)

Computerized book encyclopedias are visually clean, instantly searchable, and as long as you have everything on one computer,

always with you when you're writing. If technology frustrates you, however, don't feel like you need to use anything other than basic word-processing software.

Fact-checkers–R-Us

So how do you know you've succeeded? By the time you've finished your first, third, or tenth draft of a novel, is easy to get confused about the details. Sally's favorite ice-cream was peppermint, sure, but you changed it to chocolate at one point because of a plot issue, but you've since taken out that twist, so it's peppermint again. Right? And you're sure you took out all the references to chocolate being her favorite. Of course you did. But how can you be sure before you submit the manuscript to an agent or editor?

Have someone read your work. Just like two heads are better than one, four eyes are better than two. You know what's even better than four? Ten. Sixteen. Twenty. Your cabal of first readers can be other writers, of course, but it also should include people with varied backgrounds, expertise, and tastes. It's easy for you to miss that one reference to chocolate ice cream, but a reader who isn't familiar with the story won't. Rothfuss employs this method. "I have people with a wide array of skills and knowledge sets beta read my book. Even the least attentive of them catch one or two things while reading." (4) Having people you trust to tell you the truth about your work is your most valuable asset.

As with everything in writing, there isn't any right or wrong answers. Whatever gets you in the chair and a cohesive, finished

novel on your hard drive is the method you should use. Want to use the same method all the time, or five different systems for the same book? Have at it. It's your world; build it the way you want. The reader doesn't care how you keep track of everything. They just want to be sure you remember the crocodiles are at the Animal Conference so their beloved characters can get across the river in one piece.

About the Author

Kelly Swails is a writer and clinical microbiologist. When she's not playing with words or bacteria, she reads, knits, and struggles with her guitar. To her knowledge she's never left a giraffe in a refrigerator. You can visit her online at www.kellyswails.com.

Works Cited

Kosmatka, Ted. email interview, 3/3/12
Strout, Anton. email interview, 2/29/12
Rothfuss, Patrick. email interview, 3/19/12
Beaulieu, Brad. email interview, 3/16/12

Publisher's Note

Steven Saus

This book doesn't cover everything. It doesn't pretend to.

It shouldn't.

The most awesome thing about going to writing seminars—even when you're a published author, even when you're a publisher—is that the seminars *get you creating again*.

Reading these essays for myself, even when I've had long conversations with the authors *about these very same topics*, got me thinking again about my own fictional worlds. My own stories. They gave me ideas for a couple of tales, and got me past a thorny story problem that had me occupied for months.

So go. Write your stories. Design your games. Create your world. Come back and take a look at this book again when you need a reference, when you get stuck, or when you simply need to be inspired again.

Get excited and make stuff.