

World Building Tips



Volume 1

Deborah Teramis Christian

"An excellent primer in worldbuilding."

~ Jacqueline Lichtenberg



World Building Academy

World Building Tips Volume 1

by

Deborah Teramis Christian



World Building Academy

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INTRODUCTION

Hello, fellow world building fan!

You may have noticed this book is brought to you by the World Building Academy. The WBA is dedicated to teaching writers and game designers the skills of world building. We offer basic and advanced programs and free content on the art and science of creating fictional worlds.

This book is a collection of a half-year's worth of weekly worldbuilding tips distributed to our mailing list subscribers. This info is now available only in this book form, and a new, fresh crop of tips are going out to list subscribers as we speak. By delving into this content, you will be getting a (mostly) thematically related assortment of great food for thought and pointed tips about various world building topics that are not available anywhere else.

If you find this material helpful and would like more of the same **for free**, you can get weekly world building tips by signing up for our mailing list. Visit this url to do so: <http://world-building.com>. Signup form's in the sidebar.

I hope you enjoy this book, and that it helps you to bring your invented world to life.

-Teramis

Create worlds, change lives.

Deborah Teramis Christian
Science Fiction and Fantasy Novelist
Role-Playing Game Designer
Founder, World Building Academy

COMMENTARY BY JACQUELINE LICHTENBERG

Jacqueline Lichtenberg is the author of the well-regarded Sime-Gen series of science fiction novels, primary author of Star Trek Lives!, creator of the term Intimate Adventure for the newly identified plot archetype, winner of the Galaxy Award for Spirituality in Science Fiction and the first Romantic Times Award for Best Science Fiction Novel. Through her blog she provides a wealth of sophisticated information about the craft of writing. She offers this commentary on this book and on world building:

This is an excellent primer in worldbuilding. It shows you all the disciplines to read up on or take courses about and what precisely to watch for as you study.

I would add that the error most beginners make with worldbuilding leads to incoherence in the end product and confusion among the end-users.

The secret to getting others involved in your "world" is to understand that all of these areas that are outlined in this book are not "independent variables."

Choose any ONE, and that determines precisely what must be present in all the others. They are all inter-connected. To make your "world" stand out from all other beginners. start by choosing a theme, a single philosophical statement about the nature of Reality garnered from a study of our everyday world. Then use that theme to select one of the variables from this book and create all the others from that one. Make your "world" as coherent as "reality" and it will be irresistible.

Jacqueline Lichtenberg

<http://jacquelinelichtenberg.com/>

thejlbox@gmail.com

<http://www.simegen.com/jl/>

<http://twitter.com/jlichtenber>

STRUCTURE TIPS

1 TECH LEVEL

When creating a fictional world, it's easy to target an era very generally. We think of knights and dragons, and call it "Middle Ages." We think of gunslingers and cattle rustlers, and call it "American West." Or we envision starships fighting and near-magical spiritual forces in play and call it "science fiction in a galaxy far, far away." Then we start our design work and off we go--or do we?

The less we've defined the development level of our setting, the easier it is to unconsciously put in elements that don't make sense for the era at hand. At the very least, this creates a setting where elements don't work well together.

For instance, a Late Iron Age/Early Middle Ages type setting (500-1000 AD) will not have carracks (like Columbus sailed) voyaging across the sea to trade. That kind of ship came from the Late Middle Ages, and was beyond the construction capability of Early Middle Ages shipbuilders. It was also beyond the navigation skills of European sailors, who did not have the navigation tools for long cross-oceanic travels in the Early Middle Ages.

Yet it is very easy to mix up things from different eras--and different levels of tech development--in one setting. Other things not present in the Early Middle Ages include clocks, buttons, glass mirrors, distilled alcohol and spinning wheels. Introducing one or more of these items creates a ripple effect, changing how people live, work, and produce goods, that can seriously throw your world out of whack.

If there is a mix of late and early technology developments in a setting, you either have to bite the bullet and reconcile the implications of this coexistence, or go the alternative route: let things go unreconciled and live with anachronisms and mis-cues that can ruin your audience's suspension of disbelief.

There is, though, one step you can take that greatly reduces this problem or avoids it entirely, and that is to plan the level of technology in your world *before* you begin your substantive design work.

TIP: When creating a world, first carefully define the technology level that is present. Do this for the world as a whole, or, if there are many diverse levels of development, focus on the setting where most of the story or adventure action takes place.

The term "technology level" first got a lot of traction in world building in 1977 when the science fiction rpg *Traveller* introduced the concept to define exactly how primitive or advanced the civilization on a given world might be. The principle holds true for any world building work, though when dealing with low-technology settings the word "technology" is used in its broadest possible sense.

It is always useful to have a good idea of what the level of technological development is in a setting. Do people live in the Stone Age? Bronze or Iron Ages? Is it an agrarian setting, or an industrial one? Does "industrial" mean home-based manufacturing, or does it mean factories?

What have people created for tools and machines to assist in daily tasks? Questions like this are important to help pin down the state of development of your setting.

If your world is an analog of an Earth-based time and space, your task is much easier: do some research on the web, and especially look at the developments in a given period of time that interests you. In the American West, for instance, in 1868 it took 6 months to travel across the country, but in 1870 you could go from Omaha to San Francisco in 7 days. Why? Because the transcontinental railroad was completed by then, and rail travel altered everything from travel time to the nature of the cattle industry and where towns developed.

In the end, it is much more useful to know that you are developing, say, an alternate reality inspired by London in 1320 AD than just "someplace European in the Middle Ages." And if you wish your setting to be even more original than that, then you must be meticulous about the tech level and its implications.

BONUS TIP: Take two pieces of paper. Label one "Has", and the other "Has Not." On the first sheet write down quick one-liners about tech features of your world ("plows used for farming; spinning wheels to make thread; river barges help inland trade; long-distance travel done by foot, horse, wagon or ship; coastal navigation dominates, not much far ocean travel," etc etc). Do this to whatever level of detail you like.

On the "Has Not" page, line out the things your world lacks. Here you want to focus on things that **could** exist in this setting, but *don't*, because they haven't quite gotten there yet. ("No clocks, no navigation aids like compasses, no postal or courier services for regular message carrying over long distances," etc etc) This is your "upper limit" of tech development and helps create a boundary for what you can do and have happen within the limits of this setting.

Between brainstorming and some research about what technologies existed in different Earth-eras, you'll be able to create a setting that hangs together much better. Remember, the way people live is related to what they've developed--and what they haven't.

Pictured: Replica of Columbus's carrack, the Santa Maria. (Source: Miguel Angel, 2007/Wikimedia Commons.)



2 CULTURAL HOMOGENEITY

How "all alike" is your society?

Historically, geography, shared language, and religious beliefs are probably the biggest factors that cause people in a given location to bond on the basis of culture. They end up defining themselves through that lens, from personal identity to international politics.

When people grow up sharing a culture, they think of themselves as one: one clan, one tribe, one city-state, one nation. They may think the world revolves around them, too--until they have to deal with a different culture from over the hill or across the pond or on the far side of the world.

In world building this is of particular interest because, although you may populate your globe with a variety of cultures in different locations, the actual story or adventure you focus on will usually take place in a more limited locale. In your story setting, you need to decide if the culture is a pluralistic one, or if it is homogeneous in nature. If it is homogeneous, it is "all alike." People share the same beliefs, customs, practices. The change and conflict brought on by dealing with other cultures is generally not an issue, except perhaps in the context of outright war.

TIP: Decide how homogeneous the culture is in your world as a whole, and your local setting in particular. This matters because all manner of social, economic, and political changes come about when a place becomes heterogeneous (a mix of many peoples, what we call pluralism or multiculturalism today). If you want a more stable environment (also more conservative and traditional), lean towards homogeneity. If you want something where things are in flux or many groups within a society are in conflict, lean towards heterogeneity.

This factor is such a large meta-influence on all of a world's societies that I consider this a structural element on a par with determining tech level (which is why this is a Structure tip, not a Socio one).

The Homogeneity Pattern

It is possible to have both kinds of cultural mixes in existence at once (though not in the same place). In our world, we've seen the globe start out with scattered pockets of humanity developing their various cultures, with more population leading to ever more diverse groups of people. These many regions of different cultures kept their identities very easily back in the days when the average person never traveled more than a day's walk away from home. Every culture was homogeneous in its own local area.

When communication is slow and travel is slow, at the pace of animals or wind, then local cultures continue to be very cohesive. They are not exposed to outside influences, or if they are, that influence comes in only at a trickle. There is never a flood large enough to wash away local practices or seriously challenge the cultural beliefs and practices that have developed. In fantasy settings, the classic elves and dwarves (and orcs if you have 'em) are typically homogeneous

groups: they keep to themselves, don't intermarry, have their own unique customs, and even though they interact with other races, they don't generally take on those "foreign" cultural traits.

But the world evolves, and the day that we introduce fast(er) communications, things begin to change. Through the channels of communication, travel, and commerce, foreign ways of being-along with different goods, languages, and ultimately the foreigners themselves-all come into contact with a local culture. Lo and behold, that society is no longer isolated. It is challenged to either accommodate new influences (like the Beatles displacing American rock and roll in the '60s); shun the influences entirely (like the Amish, continuing to live for all intents and purposes in the 19th century); or be dominated or even destroyed by the new influence (like the Aztecs swept away before the Spanish).

If this blending of cultures continues long enough and thoroughly enough, presumably the separate elements can again be mixed into one homogeneous whole. Globalization is doing this right now in certain aspects, creating a homogenized culture where certain kinds of clothing and music are the common denominator no matter where in the world one lives. Carrying this sort of trend to an extreme, or if you are writing science fiction, it is possible to build entire worlds with one single homogeneous culture on them. This is especially likely in colonization scenarios, where one group comes to a new world and their descendants all have the same cultural roots and heritage.

The Exception

This is the natural ebb and flow of cultural contact throughout history: a culture starts out being all alike, becomes pluralistic when exposed to outside influences, may again become homogeneous at some point as a new common culture emerges from that mix. But there is one big exception to this pattern. If a culture is old enough and big enough (in population and geography), then in a given setting it may remain homogeneous virtually throughout its existence.

China is a great case in point: throughout its history it has been changed very little by outside contact. Until relatively recently, it has been the "changer," not the "changed," famously assimilating foreign influences while leaving a much larger transformational mark on most if not all of the cultures it came in contact with.

Aspects to Consider

I'm not going to talk about diverse societies here. Most of us live in one, and they predominate in fiction. Instead, I'll focus here on attributes of societies where a single common culture is the rule. Whether your homogeneous culture is large or small, the following things about it are especially noteworthy.

1. **A homogeneous culture will probably be easier to govern than a diverse one.** Diverse cultures bring more competing demands to the table simply because of the diversity in play. This element is absent in a homogeneous culture, where there is more commonality in shared values and beliefs.

2. **A homogeneous culture is likely to be suspicious or unwelcoming to foreign cultures or foreigners if and when they finally meet them.** Certainly this depends a lot on the local

attitudes towards "people who are not like us," and historically there has been a lot of variance in that (Polynesian islanders welcoming strangers with open arms; Korea shutting all foreigners out of its country). Across the board, though, it seems that cultures where everyone is all alike simply have less practice in dealing with diversity and strangers, and more often than not will feel threatened by them or offended by their differences. Of course, you will need to decide for yourself exactly what attitudes are in play in your own setting.

3. If a homogeneous culture is large enough and entrenched enough, it can come to dominate other cultures that it encounters. China is a prime example of this: as noted above, she has remained relatively unchanged by her encounters with foreign cultures, but has transformed foreign societies time and gain by the diffusion and export of Chinese culture.

4. A homogeneous culture that is also old will tend to be fundamentally conservative. After all, "we are how we are," and that has never changed very much. There is great psychological security in sticking with a way of being that is familiar and time-tested. As the saying goes, "What was good enough for my grandfather is good enough for me." In this kind of setting, people who question how things are will be a real problem for the body politic, which generally does not question and does not change (or only changes incrementally and slowly).

So, what's it going to be? A homogeneous group where conflict probably comes more often from within, or a heterogeneous group with a lot of external influences in play? Whichever you decide, know that this will affect not just local events but potentially the tone and tenor of your entire world.

GEO TIPS

1 RIVERS AND CITIES

This week's geography tip looks briefly at a classic combination: the relationship between rivers and cities.

When people build settlements, they must have a reliable water supply near at hand. This might come from wells or streams, and so most villages and towns are established near some kind of watercourse. (This assumes a technology level that does not have the ability to pipe water over long distances.)

Typically, the size of the settlement is limited in part by the availability of water. A hamlet of 10 cottages that exists by a small seasonal stream^[1] is unlikely to grow much larger than that, simply because the small stream cannot provide enough water for larger numbers of residents.

If there is a good-sized river in the area, people are likely to settle along its banks. Historically, in lands where there are frequent waterways, more people live along those waterways than in alternative areas like mountains or backwoods. This liquid resource provides not only a steady supply of water, but also that most valuable of things, a transportation route for travel and the shipping of goods.

TIP: Rivers boost commercial prosperity. A settlement that produces goods is more likely to grow prosperous the easier it is to ship surplus goods to other markets. The towns along a river bank (in low-tech settings) are, as a rule of thumb, richer than remoter settlements without easy transportation routes nearby.

This of course is affected by the nature of the waterway. A shallow, fast-flowing river full of rapids and sand bars may not support transportation at all. A broad watercourse with a navigable channel is most conducive to commercial use.

BONUS TIP: Where two rivers meet, traffic and commerce converge.

If people are living along waterways and shipping their goods to market that way also, then the place where rivers meet becomes a hot location for a market town. This place is likely to grow larger and faster, and be more prosperous, than all the surrounding towns up and down river.

An example of this in the real world is the location of Nashville, which grew up on the Cumberland River just west of the confluence of the Stones River. An example in fiction is the location of House Tully's holdings in *Game of Thrones*: prosperous Riverrun is situated where a tributary meets the Red Fork.

In our next tip I'll talk more about river confluences and mouths and the regional capitals that tend to grow up there.

1. "Seasonal" in this context means the stream's flow and quality is affected as seasons change. It may be a trickle in the summer, a silt-filled flood in the rainy season, and frozen in winter.

2 RIVERS, OCEANS, AND CAPITALS

Unless it vanishes underground, a river will eventually flow into other rivers, lakes, or the sea. If a river tends to sprout towns and commerce along its length, what happens when it reaches a larger body of water?

Just as people gather along a waterway because it provides water and transportation (and food, if it is fished), they likewise often dwell near lakes. The spot where a river meets a lake is a likely place for a settlement to grow up. If there are other settlements around the lake, the one nearest to the river will be the place people go when staging travel or transportation up or down the river, and so that spot is more likely to become a hub of commerce and population.

Where a river flows into the sea this effect is amplified. The sea does not merely connect some otherwise landlocked towns, as a lake does. Instead, it potentially connects across the ocean to far-flung places in the region, the continent, or the world.

This effect is seen at its most vibrant when a long river traverses populated and fertile terrain--i.e., a region that is rich in natural resources or agricultural produce, or which supports many commercial centers along its length. When such a river reaches the sea, a seaport is likely to evolve at or near the river mouth. It will be closest to the ocean if the waterway is direct, or farther inland up the delta if the river breaks into many inlets and pathways before reaching the ocean.

If the coastal terrain does not favor a good port, then a trading city may be located some distance upriver from the sea instead.

In time--and often very swiftly--the village near the juncture of river and seaport will grow into a town, and then into a city. Population gravitates there, following the flow of goods, commerce, and money. With this increasing commercial bounty comes governance, official and often military interest in the location. Such a place often becomes the most powerful city in a region, and might even be designated the capital of a country. Often a capital is declared to be such precisely because it has been the de facto center of trade and power for a long time, and the geography of the region has favored development in this direction.

A settlement so fortunately situated benefits from inland commerce making its way to foreign ports. Or the reverse might be true: foreign goods arrive and make their way inland from the port. (This is often the case in colonial lands, where settlements must be supported with manufactured goods shipped from the mother country.)

The most noteworthy of these burgeoning cities will have commerce flowing both in and out, often in extraordinary volume. Think London on the Thames; New Orleans on the Mississippi; Shanghai on the Yangtze River delta. Even in the ancient world this held true: Babylon was a brief journey from the Persian Gulf along the Euphrates River, part of the famous Fertile Crescent in ancient Mesopotamia (the "Cradle of Civilization")

It is the geography of river and ocean, the tendency of people to live near bodies of water, and the trade uses of the waterways that propel such areas to prominence.

TIP: Place your most powerful cities at the nexus of river and ocean, or river and noteworthy large lake, or some distance up a navigable waterway that has outlet to the sea. The capital of an empire or vast and powerful kingdom is very likely to be located in such a position (as long as "river flowing through fertile region to large body of water" is in keeping with the general geography of the region).

Use the same pattern on a smaller scale for smaller regions. Look at old maps of Europe or the classical world for examples of this disposition of powerful cities and prosperous towns. "Old" means from an era before mechanical means of transportation altered man's patterns of habitation and trade.

BONUS TIP: The less people depend on water for transportation, the less this pattern of city development holds true. For instance, waterways were major travel routes through the American Great Plains through the 1860s; wagon trains followed them, and steam boats traveled them. But after about 1870, rail travel became commonplace, and at that point settlements began to spring up all across the land in places far removed from bodies of water. Mechanical travel profoundly alters settlement patterns because it makes man independent of natural resources he would otherwise rely upon to ease his travel.

3 MOUNTAINS, RAIN, AND POPULATION

Mountain chains have a big effect on weather and climate. This week's tip is a broad generalization because it can be affected by many local variables, but it generally holds true on a planetary scale:

TIP: Generally speaking, the windward side of a mountain range will be the "weather-break" side. It will get more rain than the leeward side. If this is in a temperate or tropical zone and is not an extreme amount of weather, good farming and larger populations are more likely to flourish on the windward side than on the dryer side of a mountain range.

The windward side of your mountains gets rain because moisture-laden air flows up the first mountainside it hits, and as it reaches higher, cooler elevations, the moisture condenses and becomes precipitation. (See the picture at the bottom of this email.)

Sure, the far side will also get precipitation too, but less (often a LOT less) than the windward side. A marked example of this can be seen in the Sierra Nevada mountains of California. Warm, moist air blows in from the Pacific Ocean and retains humidity across the state until the air finally hits the mountains. There, it breaks into spectacular weather fronts along the length of the mountain. These weather fronts dump their load of moisture mainly on the western side of the Sierras. The eastern side is much dryer, and marks the beginning of the Great Basin desert.

The same thing happens with the Andes in Chile, and the near-desert plains country in neighboring Argentina.

It is very simple to translate this process to your local game or story setting map.

1. Decide what your prevailing wind direction is (How to do this based on real-world factors is a lengthy discussion for a future time. For simplicity's sake, it is easiest to just pick a prevailing direction that makes sense to you based on whatever you know of your world's geography. For more detailed information on this subject see links at the end.)

2. Draw a chain of mountains and (on another layer of the drawing, or on tracing paper overlay, or just in light pencil) **also draw arrows showing the dominant wind direction** for most of the year. This will be a permanent visual reference and reminder for you in this and future design work.

3. Decide if the weather general flowing down this prevailing wind path is usually moderate in nature, or extreme.

4. If incoming weather is in the moderate range, situate your biggest population centers (those relying on well-watered abundance) on the windward side of the mountains. If incoming weather fronts are extreme or harsh (frequent blizzards; constant, hefty trade winds), then place more of the settlements on the lee (sheltered) side of the mountains.

BONUS TIP: When you have a big population center in a counter-intuitive place (like, say, a regional trade town on the harsh blizzard-catching side of the mountains), invent a good rationale for why it grew up in that location, and not someplace more amenable to residence. This is a good way to create interesting backstories and storyhooks about a region.

Here's one example: Virginia City, Nevada grew large and prosperous on the eastern side of the Sierra Nevadas in the 1800s. It was in a dry area where providing water was a challenge; it caught the worst of the winter storms and was frequently hammered by gusty winds. Why tough it out in such an inhospitable location? Well, that was because it was also the location of the largest silver bonanzas in US history! Most residents thought that was a good enough reason to hunker down through cruddy weather--and so they did.

BONUS LINKS

"Wind Map" brings US wind patterns to life - article & video

http://www.huffingtonpost.com/2012/03/29/wind-map-video_n_1390149.html

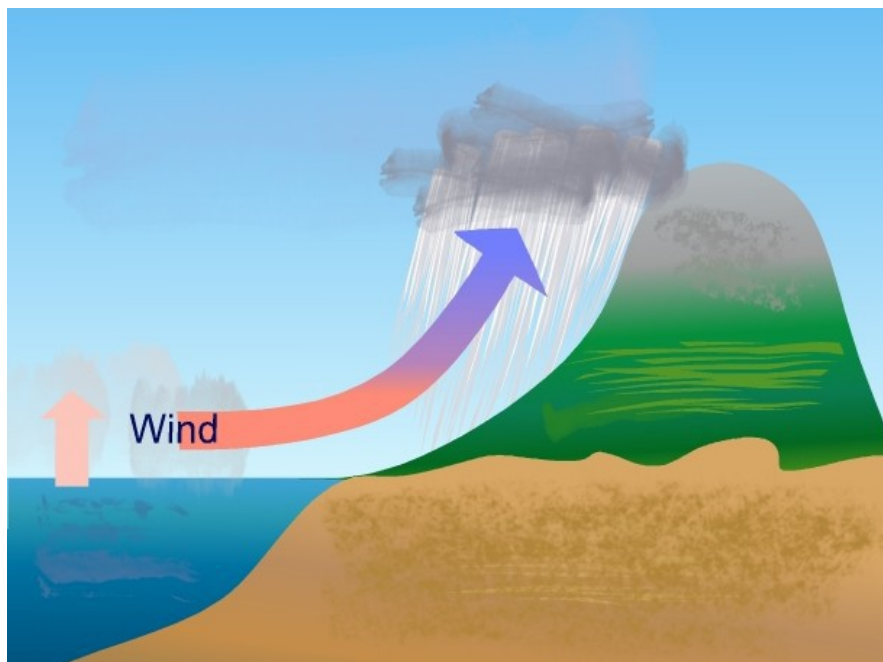
Prevailing Winds

http://en.wikipedia.org/wiki/Prevailing_winds

Global Wind Patterns

http://en.wikipedia.org/wiki/Global_wind_patterns

*Pictured: Orographic precipitation, aka convectional rainfall.
This is rain caused by an elevation increase.*



4 THE MOON AND ITS EFFECTS

Look up in the night sky of your world, and what do you see? Is it an endless carpet of stars, uninterrupted by a moon? Or is it a moon like ours, or maybe even multiple orbs circling your planet?

The existence of a moon or moons is much more than set dressing in your world. The impact of one moon is far-reaching; of multiple moons, even more so.

TIP: Decide if your planet has one or more moons, or none at all. Then consider the effect it has on water, plants, animals and people.

Here are some things to think about when you have a moon in orbit around a planet.

Tides

If your world has ocean tides that come and go—or if you want such a thing to be there--then your planet must have one or more moons. A moon exerts gravitational pull that affects the sea level as it moves around the globe. If you want to be exotic and have multiple moons, the tidal forces can become quite complex.

A moon needs to be of a certain size to noticeably affect tides. A very small moon, more on the order of a large asteroid, will have no discernible impact. In contrast, a planet with two moons the size of ours (or larger) can have tides that are huge and which create floods far inland and upriver.

The degree of effect here is actually a complex set of calculations using many variables, and beyond the scope of this tip. The important takeaway here is to consider if you have—or need—ocean tides, and if so, what is causing them.

Tides impact the lives of the people of your world in a few major ways. High tides can flood inhabited areas; people will generally build above the expected high-tide mark and not below it. Tides aggravate storm surges and can help push water far inland and far above that presumed-safe high-tide mark.

Tides are necessary to create and support the life in coastal wetlands and river estuaries; it is safe to say that without them, these places simply would not exist. And of course, the most frequent and direct impact on human life is the effect tides have on shipping.

Ships at Sea

In non-mechanized sailing, ships need a favorable tide to leave port and carry them out to sea: otherwise, it is difficult or impossible to work their way against the force of an incoming tide. This is why sailors have from time immemorial watched the rise and fall of the sea and planned their voyages to take advantage of high or low tide. In sea warfare tides have often bottled an enemy up helpless in a harbor and prevented them from coming out to give battle to the enemy. And a favorable tide has sped ships on their way, helping them to outmaneuver an enemy at sea.

Plant Growth

Although modern science has not systemically tested these claims, farmers for millennia have been planting and reaping harvests based on moon cycles. The basis for this is the belief—or fact—that moon cycles affect plant growth. Common folk knowledge has it that above-ground crops should be planted from the new (fully dark) moon to the full moon, while below-ground crops are planted during the dark of the moon (in its waning phase from full to the day before it is new again). Plants are also harvested by moon cycles.

In fact, one piece of folklore that even many suburbanites know is that you should mow your lawn only during the dark of the moon, and the grass will stay short longer. If you mow during the waxing phase instead, when the moon is growing large, the lawn will just grow back faster.

Animal and Human Behavior and Health

The werewolf of legend is famously affected by the full moon. If you have a planet without a moon (or with multiple ones) and also with were-creatures, you'll need to consider how these altered moon cycles affect the beast transformation.

More rooted in real-world science is the issue of how moon cycles affect the behavior of all living creatures. Lunar effects on animal life are [well documented](http://www.nature.com/news/2006/060828/full/news060828-13.html) (<http://www.nature.com/news/2006/060828/full/news060828-13.html>), from animals hunting under the bright full moon, to sea creatures that change their level in the sea to keep their light levels constant, to beetles that navigate by the pattern of moonlight in the night sky.

[Emergency veterinarian visits](http://www.dailygalaxy.com/my_weblog/2007/08/does-a-full-moo.html) for dogs increases by 28% around the full moon, and by 23% for cats. (http://www.dailygalaxy.com/my_weblog/2007/08/does-a-full-moo.html) These medical incidents include epileptic seizures and cardiac arrests. While scientists cannot say what role the moon plays in these health crises, there is a statistical correlation with the phase of the moon itself.

Human behavior is far less empirically tested than that of animals, but there is both anecdotal and scientific evidence of moon effects on humans. Emergency services workers commonly report more “crazies” coming out during the full moon (more accidents and road rage); surgeons from ancient times and into the 19th century preferred to operate only around the time the moon was new, because a patient's bleeding would be less during that time.

A research review done in 2006 noted,

“The lunar cycle has an impact on human reproduction, in particular fertility, menstruation, and birth rate. Melatonin levels appear to correlate with the menstrual cycle. Admittance to hospitals and emergency units because of various causes (cardiovascular and acute coronary events, variceal hemorrhage, diarrhea, urinary retention) correlated with moon phases. In addition, other events associated with human behavior, such as traffic accidents, crimes, and suicides, appeared to be influenced by the lunar cycle.”

That report comes from the Department of Experimental Therapy in the Polish Academy of Sciences, and is viewable [at PubMed online](http://www.ncbi.nlm.nih.gov/pubmed/16407788). (<http://www.ncbi.nlm.nih.gov/pubmed/16407788>) (This is the abstract page; click “LinkOut—more resources” at the end to see the full text pdf of this report.)

All of these physical results and folk wisdom are the result of a moon orbiting a planet. If you must have more than one moon, either make the additional ones very small and fast moving, or slow-moving but far out from the planet (therefore with minimal impact on tides), or--if you want realism--be prepared to do some astrophysics research to understand the tidal effects that multiple moons will have on your world. The impact on the biosphere will need to be extrapolated, but the above links can be a starting point for that kind of work.

The moon will have effects both subtle and obvious across your globe. From killer floods to how plant life grows and the state of human and animal health, give some thought to the impact of the moon or moons that orbit your world.

Interesting Links

What if the Moon Didn't Exist? <http://blogs.scientificamerican.com/guest-blog/2011/09/16/what-if-the-moon-didnt-exist-the-fun-of-counterfactuals-in-science/>

Tides. A good basic description of tides, the moon, and earth rotation.
<http://www.badastronomy.com/bad/misc/tides.html>

Calculating tidal forces – more technical, with nice illustrations.
<http://squishtheory.wordpress.com/the-tides/>

5 CATASTROPHIC VOLCANIC EXPLOSIONS

We all probably have some passing familiarity with volcanoes. In our era they are mostly dormant; some spout magma periodically, while some others erupt in spectacular and often unpredictable explosions.

If this is all that volcanoes did, they would be points of interest and perhaps endanger nearby residents in any world setting. But a violently exploding volcano can do much more than create a local hazard.

A large explosion from a big volcano is unimaginably violent (even the lesser explosions are nothing to sneeze at). Mount St Helens, which exploded in 1980, is the most violent volcanic explosion on the North American continent in recorded history. It exploded with the power of 100,000 Hiroshima bombs, and blew the forest flat in a 19 mile radius all around. The near-supersonic speed of the lateral blast and the volcanic debris it carried obliterated everything within 8 miles of the volcano. It put so much ash into the atmosphere that people 500 miles away had ash falling in their yards, and the ash was detectable in the atmosphere even years later.

Yet even this pales in comparison to very large volcanic explosions. The most powerful and devastating in our recorded history is that of Mt. Tambora in Indonesia. It exploded on April 10, 1815 with over 100 times the force of Mount St. Helens. It killed over 90,000 people as a direct effect. Located near the equator, its eruption column could circulate more widely and have a global not just a regional impact. The resulting mass of particulates thrown into the atmosphere caused a miniature "nuclear winter," and caused the year 1816 to be called "The Year Without a Summer." It is estimated that over 200,000 Europeans died of famine due to the drastic climate change that did not allow summer crops to grow. New England farmers suffered in the same way, and the year without a summer helped accelerate migration into the Midwest.

Obviously, catastrophic explosions on this scale affect far more than the local area, and can impact geography, plant, animal, and human lives all around the globe. Here we see years of aftermath, life and even history-altering consequences, all from a single mountain blowing its top in a spectacular cataclysmic event.

TIP: Consider which regions in your world are geologically active and have the greatest incidence of active volcanoes. Of these, pick one or two that are at risk for exploding within the next century. In the alternative, pick an area with dormant volcanoes and decide which one will become unexpectedly active again, this time with a bang. Then decide if that event takes place within the time-frame of your narrative. If it does, the consequences will likely affect your local setting no matter where in the world it is located.

Do You Have a Ticking Time Bomb?

Do you have a volcano in your world that will violently explode on a massive scale? You can determine this in one of two ways: 1) random generation, and 2) intentional placement.

Random generation of mountain location and the timing and scale of an explosive event is the easiest route. RPGs often feature this approach, with charts for randomly generated "catastrophic events" or something similar. In story writing, the randomness comes from just

arbitrarily deciding that a volcano exists in a certain spot and is going to have a cataclysmic explosion at some point. The damage done becomes an improvisational narrative exercise and may or may not relate well to other elements of geography and climate.

The alternative to the random path is a planned one . If you work out some basics about your geography, the location of a volcano and its eventual explosion make much more sense. You will know where such an explosion is likely to occur, what regions will be most affected by it, and can extrapolate the global impact much better.

I recommend the second approach, not only for the volcano-centric realism, but also because this gives you many more layers of related narrative richness to mine, either for atmosphere or for actual story and adventure hooks. It puts your world building to best use: if you have a region that is volcanically active, it is only a question of when, not if, a noteworthy geological event like this is going to happen. If you decide it happens in a time frame that can impact your story or adventure setting, then you have either added to the depth of your setting, or you have created an event that can be leveraged for direct story impact.

Ripple Effects

When you decide to have an exceptional volcanic disaster happen, there are a series of related events that occur that can create drama, character challenges and story events. Our next tip will talk about the specific consequences of this kind of disaster, both dramatic (people-centric) and geographic in scale.

Pictured: Mount Saint Helens erupting, May 18, 1980. (Source: USGS)



6 RIPPLE EFFECTS OF VOLCANIC EXPLOSIONS

Last week I talked about catastrophic volcanic explosions, and the potential for their effects to be felt around the world. This week I'll look at what some of those effects might be.

TIP: If you plan a volcanic catastrophe for your world, consider which of these related effects and issues come into play in your setting. Think about how your people react in advance and after the fact, and what geological and climate changes may occur. Map the path of destruction, including immediate and long-term effects of the explosion. If the eruption or its aftermath destroys major structures or settlements, or severely tweaks the climate, reason out what impact this has on other parts of your world's government, societies, and geography.

Foreshadowing the Event

If you have planned a catastrophe to take place in the future of your world's timeline (whether a week away, or a century away), that makes the event a prime target for predictions and prophecies of a spiritual or supernatural nature, or for the predictions of scientific teams who specialize in studying geology and earth activity. Whether or not these forecasts are heeded is for you to decide. At the very least they can be used for ominous foreshadowing of something that indeed comes to pass.

Warning Signs

Before a volcano explodes, there are usually tell-tale signs that something is up. There may be ground tremors, smoking fissures that appear on the mountain side, occasional belches of venting gas from the mountain top, or random lava flows. People who venture to look into the caldera will see a swelling, steaming dome where once the terrain was simply rugged. If a lot of volcanic activity is leading up to something big, the signs can be visible and huge: a bulge on the side of Mount St Helens, for example, grew exponentially and visibly from day to day in the weeks leading up to the explosion. People even 60 miles away could see the sudden and ominous alteration in the mountain's profile.

Of course, there are various [types of volcanoes](http://en.wikipedia.org/wiki/Volcanic_eruptions) (http://en.wikipedia.org/wiki/Volcanic_eruptions) with different attributes, that exhibit different behaviors when they get ready to explode. In fact, most never “explode” per se; instead, they release lava flows or simply vent gases sufficient to relieve the pressure, instead. But for the sake of catastrophe illustration we are concentrating on the most wide-reaching cataclysm an active volcano can produce, which is an abrupt and powerful explosion. This comes about because of a landslide or tectonic earth shift that suddenly releases pressure from within the volcanic cone. Imagine shaking a bottle of champagne, and then popping the cork: the contents under pressure burst forth explosively. This is the same basic physics that are operating when a volcano lets go.

It is also possible for a volcano to show very little noticeable activity before it explodes. If

no one lives near or no one is paying attention, it is easy to overlook the growing pressure dome, and think the bit of steam from the mountain top is just that: a bit of steam, and no more.

When Locals Notice What's Up

When locals do notice odd volcano behavior, they are likely to recognize an increased risk of volcanic activity—even more so if they've experienced an active volcano before. Although they usually won't anticipate a devastating explosion (unless their technology level is high enough), they will realize that things are getting dangerous. If a volcano like Krakatoa becomes active, it steams and smokes for weeks or month beforehand, sometimes having minor eruptions or lava flows beforehand.

Animal life may migrate out of the area, and will often (though not always) outright flee when the explosion is imminent. Fish leave nearby waters, if the body of water is not contained like a lake. Or, fish may suddenly appear floating dead in nearby lakes or streams, poisoned by volcanic gases venting into water, or cooked by lava-heated outflows. If the locals depend on fisheries for food, suddenly their problems are magnified.

What is the human reaction to these warning signs? It depends on the people, their culture, and their past history of volcanic events. In Roman times, Pompey was famously buried under the ash of Mount Vesuvius along with almost the entire population. People did not flee because they were used to their volcano being active, and did not think they were in any particular danger until disaster was upon them. Whereas in Indonesia, people are used to watching the behavior of their animals, and generally leave an area when the animals do so.[1] In the contemporary western world, people are likely to rely on scientists to warn them of danger, and won't take any special precautions until geologists or the government tell them it is necessary to do so.

Refugees. A slow trickle (or later, a flood) of refugees out of an active volcano area is a distinct possibility. Where will they go, and what will their neighbors make of this influx of refugees? Another wrinkle to consider. If you've planned your volcano placement and catastrophic event, you can use the ripple effect of these consequences to great dramatic effect. How is your happy city Over Here going to deal with the influx of 10,000 refugees suddenly made homeless by catastrophe Over There? Disasters on this scale can displace entire populations. Good times, if you're looking for drama.

Early Climate Impacts

A large volcano can cloud and fog surrounding atmosphere with smoke and ash releases long before any major explosion occurs. Daytime can become shadowed with ash-darkened clouds, or sooty fogs float out into the surrounding sea and hinder seafarers.

People will talk about all this and worry about it as well. If their culture is on the primitive side, they may worry about what god they've upset, or may ask a soothsayer what they can do to avert disaster. If they have seen villages or towns destroyed by volcanic activity before, they will be even more wary and some may simply evacuate the area, unwilling to stick around to see what happens next. If they are technologically oriented they may not worry at all unless the warning signs hit a trigger threshold that signals clear danger.

The Event and Aftermath

A lot happens when a volcano goes. Rather than repeat all that here I'll refer you to [this source](http://www.tulane.edu/~sanelson/geol204/volhaz&pred.htm) (<http://www.tulane.edu/~sanelson/geol204/volhaz&pred.htm>) for more info.

The short version is that you are looking at an eruption column throwing megatons of ash and debris into the upper atmosphere, creating ash fall that blankets the region for hundreds of miles around. In the coming days and weeks, there will be spectacular sunsets (from particulates) and dropping temperatures around the globe.

Local devastation will include a blast radius surrounding the explosion site that is many miles in diameter. You will have blown down timber, mud or lava flows, the venting of poisonous gas, ash and debris up to many feet thick ("many" includes tens or even *hundreds* of feet, depending on a spot's relation to the epicenter of the explosion). There are likely to be associated earthquakes surrounding the event, and possible flooding. If anywhere near a body of water, the seismic shock and related quake activity creates waves, possibly even tidal waves.

A tidal wave (also called a tsunami) can cross entire oceans and still hit land with devastating force. Who is in the path of travel of any massive water disturbance emanating outwards from the volcano? That's something worth making note of on your world map.

Clouds and pollution: The ejected megatons of ash and dirt hit the atmosphere and two things happen. The heavier stuff sifts out, raining down in a wide radius (likely hundreds of miles wide) around the volcano. The lighter stuff gets swept up by high atmospheric prevailing winds. If the volcano is in the right place this ash is caught up in trade winds or the jet stream and then sails forth on its journey around the world. And around. And around.

Volcanic pollutants can linger in the upper atmosphere for years. Effects: darkened skies, colder temperatures, more rain (moisture condenses around particulate matter), and spectacular sunsets (light refracting off high particulate count). Rainfall is dirty, dumping ash with it. Volcanic gases are also carried aloft and translate into acid rains and other pollutants that will rain out anywhere the prevailing wind may go in the world.

Terrain Changes

Where once you had a mountain, now you may have nothing left but a smoking crater. Other changes come from the landslides, mudslides, lava flows that come from the volcano. Besides changes in a mountain profile, look for geo changes radiating outward from the explosion site. Where does lava or mud flow? This is a prime cause of lakes and valleys being wiped out, or new land being extruded into the ocean. When Mount St Helens went, for instance, the rush of debris raised Spirit Lake's elevation by 200 feet and splashed the lake waters 800 feet higher on the hillsides. The resulting new lake is 10% smaller and much shallower than before.

Earthquakes and tsunamis bring their own devastation in their wake. Be sure to track significant changes caused by these after-effects of the volcanic explosion.

Climate Change

Explosions do not have to be as large as the one that caused “The Year Without a Winter” (1816) in order to affect the climate. More particulates in the atmosphere mean more sunlight is deflected from the globe, allowing temperatures to cool. How much cooling and how long it lasts is a question of the size of your volcanic disaster. If it lasts long enough, it can go so far as to create a miniature ice age, spur glacier growth, and alter vegetation patterns and animal life zones around the globe.

It is more likely, of course, that an explosion will simply darken skies and cause acid rain for weeks afterward, but if you decide you want a major change in your world's biosphere, having a truly major explosion is one good way to accomplish this without retconning your world.

BONUS TIP: Decide what role you want your volcanic disaster to play. Is it a minor inconvenience? A noticeable problem far away? Or a life-altering event for either your characters, or some significant population in your world? This will help you to determine the scale of disaster you need, and the best way to orchestrate what goes wrong.

Happy disaster planning! Your characters may not appreciate it, but your audience certainly will.

1. Relying on animal behavior is problematic if the animals don't flee ahead of time, which was the case in the 2010 eruption and tsunami in Indonesia that flooded far inland. (<http://voices.yahoo.com/indonesian-animal-warning-fails-7059862.html>) Atypically, animals did not give forewarning of this event, and people going about their daily business were caught by surprise. The lesson here might simply be that animal warnings are obvious when they occur, but they don't occur 100% of the time. No one knows why.

7 CONNECTING YOUR WORLD WITH PLATE TECTONICS

No doubt you've heard of plate tectonics and continental drift: the theory, now accepted as fact, that our continents have moved across the surface of the earth over time. Plate tectonics account for the same flora and fauna existing at one time in areas that later became vastly separated in space by oceans[1], and is responsible for mountain formation and the stresses that cause earthquakes. It is the result of a process that reshapes the earth's crust and, in our case, the ocean floor in a constant (if slow) process of renewal.

Over millions of years, continental drift has shuffled the surface of our planet around, changing the organization of its land masses considerably. **If you are building a world from the ground up**, this is a geological process you'll want to understand and possibly incorporate into the evolution of your world. If you're not building from the ground up but are just jumping into a world with a fairly static geography, continental drift is nevertheless something to be aware of because it **will affect a lot of your world's characteristics in the present day setting**. If your world is completely created by fantastic or supernatural forces, of course, this may not matter, but if you have science-founded natural processes at work in your world, this will be very relevant.

TIP: Understand the basic patterns of continental drift as it applies to your world. This will help you determine where continent-spanning mountain chains must lie, where deep ocean trenches and island chains will be found, and give you an idea about the patterns and types of flora and fauna that will exist in your world.

NOTE: This is a two-part tip. In this installment, I'll talk about the basic principles of plate tectonics and these kinds of earth-forming processes. In part 2 next week, I'll give you a quick-and-dirty method for emulating plate tectonics if you are building a world from scratch, as well as guidelines for figuring out natural, plant and animal features that fall out of this process. The latter can be applied to your setting even if you are not going to "grow it yourself" by starting with Pangaea and letting things drift from there.

The Theory of Plate Tectonics

We accept the theory of plate tectonics as a fact today because of the preponderance of evidence supporting the theory. As recently as the 1950s, however, plate tectonics was not yet accepted because questions remained about the mechanisms that could cause it to happen. I'll explain the basic theory here and in the process go over the elements of plate tectonics that are most important to know for world building applications.

In the 19th century, the most common theory about mountain formation was that the earth was a cold and solid ball, and as the crust had cooled it shrank, leaving scrunched-up bits of crust as mountain chains. The problem with that idea was that if that were true, all mountains would be the same age, and already by the late 19th century, geologists knew that wasn't the case. There had to be a better explanation.

Pangaea and Continental Drift

In 1912 German meteorologist and researcher [Alfred Wegener](http://en.wikipedia.org/wiki/Alfred_Wegener) (http://en.wikipedia.org/wiki/Alfred_Wegener) proposed that at one time all the earth's continents had fit together into a single protocontinent that later drifted apart. He called this "Pangaea" (meaning "all lands"). He called his theory "continental drift." The problem was that he didn't have a mechanism to explain why the continents could drift around the earth's surface.

Some of the evidence for Pangaea was that the same fossilized plants and animals from the same time period were found in South America and Africa. The same was true in Europe and North America, as well as India and Madagascar. In other parts of the world, the surface-scraping footprint of glaciation was identical in places like Africa and South America, suggesting these regions had been close together during the Pennsylvanian period[2]

While some geologists thought land bridges connected the continents (thus accounting for animal similarities), there was little evidence for that theory, and it did not explain for the same glaciation footprint on different continents.

In 1929, British geologist [Arthur Holmes](http://en.wikipedia.org/wiki/Arthur_Holmes) (http://en.wikipedia.org/wiki/Arthur_Holmes) expanded on the idea of thermal convection: that when a substance is heated it becomes less dense and rises. When it cools it sinks again. If the interior of the earth were not cold and solid, but hot, liquid rock, this would cause convection currents in the earth's crust. Nice theory, but like Wegener's it was dismissed at the time.

Pictured: Pangaea



The 1960s Science Revolution

Then came the 1960s, and new technologies allowed unprecedented understanding of earth processes. Suddenly we could see mid-oceanic ridges, island arcs and oceanic trenches coming together near continental margins, and other indicators that convection was indeed affecting the earth's crust. With these new insights came the theory of "sea floor spreading"--the same as Holmes' idea, but with more evidence to support it.

Geologists realized that if sea floor spreading was occurring, then the earth's crust was

moving in a "conveyor belt"-like motion that could carry the lighter continental plates along with it. And that was the missing mechanism to account for continental drift.

Now we know that ocean floors spread when magma wells up and builds up the crust. This causes an outward-spreading pressure that pushes the plate of the ocean floor up against a neighboring continental land mass. There, the spreading floor shifts under the lighter surface land mass in a process called subduction. (The Mid-Atlantic Ridge is a central nexus for this process on our world. [See this short video \(http://science.discovery.com/tv-shows/greatest-discoveries/videos/100-greatest-discoveries-the-mid-atlantic-ridge.htm\)](http://science.discovery.com/tv-shows/greatest-discoveries/videos/100-greatest-discoveries-the-mid-atlantic-ridge.htm) for a cool look at this mile-and-a-half high, 12,000-mile long mountain chain that spans the earth beneath the sea.)

The land pressures from this build mountains and create stress planes that result in fault lines and earthquakes. Over time this spreading and subduction process also causes entire continents to shift their position and move across the earth's surface.

Thus Wegener's theory of plate tectonics was validated, and changed forever how we think of planetary formation and earth formation processes.

Video: Wegener's inspiration about continental drift: <http://science.discovery.com/tv-shows/greatest-discoveries/videos/100-greatest-discoveries-continental-drift.htm>



BONUS LINKS

Plate Tectonics

<http://www.platetectonics.com/index.asp>

Great concise "one-stop" article archive (covers the basics with good detail). Interesting panorama of the world's ocean floors

The Mechanism of Plate Tectonics - UC Berkeley

<http://www.ucmp.berkeley.edu/geology/tecmech.html>

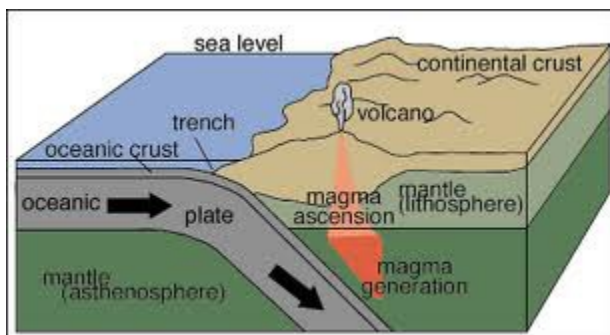
Annotated, Clickable World Ocean Floors Tectonic Map.

<http://www.platetectonics.com/oceanfloors/index.asp>



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1. Of course, flora and fauna propagate by other means than continental drift, and much more rapidly as well. Both birds and wind carry seeds far distances and drop them in new lands; animals migrate and fly or swim to sometimes very distant places. But to take our own world as an example, the fossil record (http://www.corzakinteractive.com/earth-life-history/416_pennsylvanian.htm) shows that at one time the same flora and fauna in the same historical period existed in both Africa and South America, and again in Europe and North America. After continents separated, divergent evolution accounts for species developing differently in different locations. But for a time everyone shared the same back yard, so to speak. See the "Pangaea" header above for more discussion about that.
 2. The Pennsylvanian period was part of the Paleozoic Era roughly 300 million years ago. It is the time when Pangaea formed, the age of the giant swamps and forests that later gave us coal deposits, and the time when reptiles first appeared on land.

Pictured: subduction, the traction motor of continental drift



8 A QUICK WAY TO GROW YOUR WORLD WITH CONTINENTAL DRIFT

Last week I talked about the basic theory of plate tectonics and the continental drift that results from that process.

This week I offer a simple method for emulating plate tectonics if you are building a world from scratch. I was going to get into flora and fauna impacts as well, but this tip was running too long, so I've chunked that out into another Geo Tip. It follows this one.

TIP: If you wish, you can “grow” your planet by evolving continents from a Pangaea-style proto-landmass. In this way your resulting continents will have logical associations between mountain chains and other topographical features.

It can also just be fun to see how your world might develop in this manner. **N.B.:** **This is not an essential step** in world building, but it can provide information you can't get any other way, and has other benefits I'll get into down below.

The Continent-Evolving Process, Summarized

Here's the exercise in a nutshell.

- Create a Pangaea-style landmass on a globe
- Arbitrarily create 'seams' in that mass
- Pick one to be the main nexus of geologic forces pushing continental plates apart.
- Move plates laterally apart from that central schism
- In addition, let them drift slowly towards the equator, collide into each other, and twirl about like leaves in a stream (albeit veeerrrryyy slowly) This movement is partly random, partly dictated by geological forces, and partly your own choice informed by whatever you know about geology. I do this with dice rolls to determine the direction and type of movement.
- Break continents into smaller chunks as they move, at first along initial “seams,” later with arbitrary stress fractures as landmasses collide.
- Mark mountains as they start to grow.
- Move and mix to your heart's content.
- Stop when you like the look of the evolving map.

This process is not as completely random as the above description might sound. It results in an assortment of continents in locations that make sense given the basic principles of plate tectonics. It is helpful but not essential to have a basic understanding of geology and earth crust movement processes to do this.

[Click this link](http://world-building.com/world-building/how-to/build-your-world-with-continental-drift-video/) to see a short video demonstrating this process and the kind of map that can result from it. (<http://world-building.com/world-building/how-to/build-your-world-with-continental-drift-video/>)



Growing your planet from a Pangaea landmass is certainly not an essential step for creating a fictional world, so if it seems like too much work, feel free to skip it entirely. It is an optional exercise. However, if you have time and inclination to give this a try, I highly recommend it for these reasons:

- It creates a logical association between geological features (mountains, oceans, etc), which you can see developing as you go through the pangaea-evolution process. Your resulting map at the end is not a collection of totally random landmasses, but formations that came to be as the result of a natural geological process.
- It is easier to determine which regions on a globe might have shared types of flora and fauna.
- If your habit is to just draw a single continent or smaller region, creating an entire globe introduces global weather patterns, and also can inform the climate, terrain, flora and fauna of the location where your adventures are centered. You don't need to develop that world in depth, but it becomes a background reference for your eyes only which informs the character of the continent you are focusing on.
- If your adventure setting is some kind of prehistoric era on your planet, this process can help you to create “the world before”, that ancient landscape before much differentiation existed between continents.

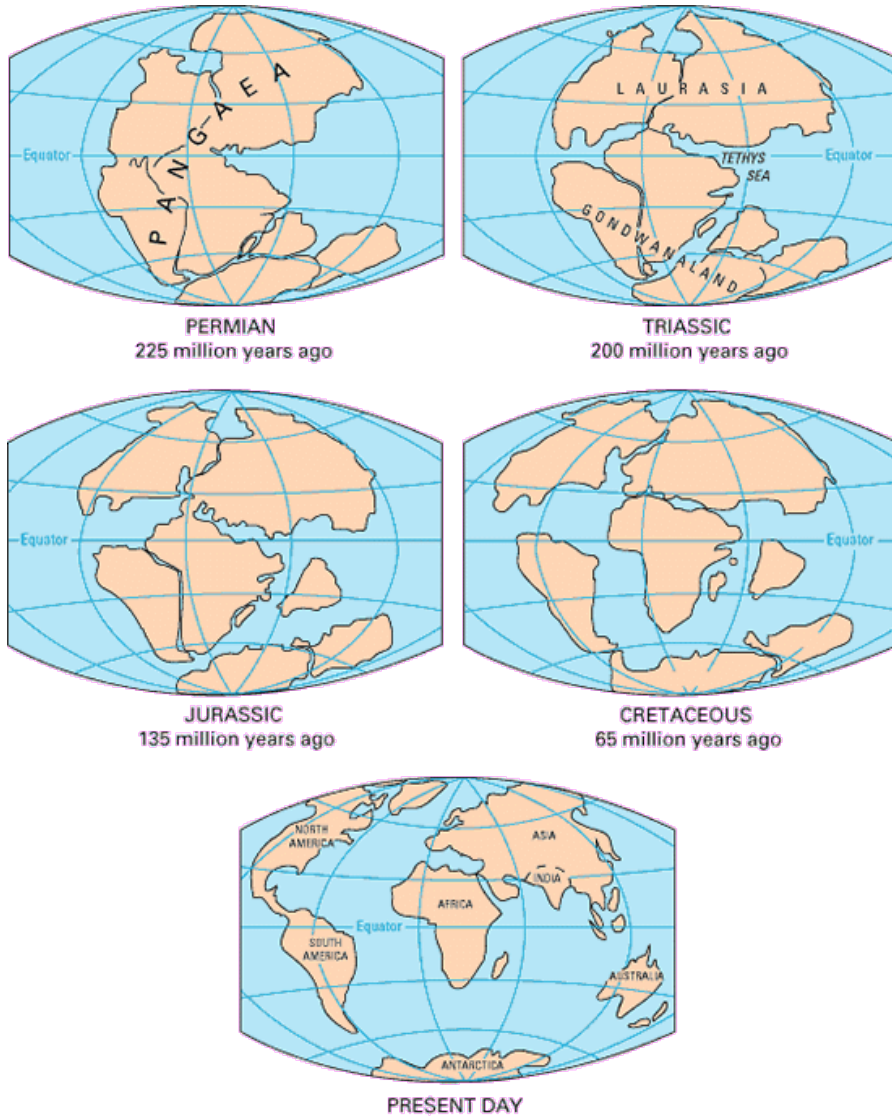
This is doubly helpful if your setting includes time travel or other setting changes over vast periods of time (millions of years), because you can see how your world looked at various points in its geological evolution, or will look in the future. If you have this kind of scenario in mind, it is essential to photograph or otherwise record your world at various stages of continental drift. That way you will have a record of the different configurations the globe has gone through.

This continental-drift approach to creating a globe is especially fun if you game with kids and want to involve them in a world building project. Not only is it a hands-on demonstration of

plate tectonics, it also provides teachable moments about many other aspects of geology and geography.

So there you have it, a fun exercise that can create a truly unique world based on plate tectonics.

Pictured: Pangaea breaking up and drifting into the continents we have on Earth. (Source: USGS)



9 PLANTS AND ANIMALS ON AN EVOLVING PANGAEA WORLD

In Geo Tips 7 and 8, I talked about plate tectonics and using continental drift to create a Pangaea-based globe for your own world-design use.

The last thing I want to touch on in this area is the effect that continental drift has on the flora and fauna of your world. Things that start out in one climate zone don't necessarily stay there. How does this affect your world over time? If you want distribution of plants and animals to make sense on the global scale, here's another step you can take while you have a mega-continent on your map.

TIP: Keep an eye on environmental changes on your planet over time. Then you will have a well-founded backstory and “real-world” rationale for long-term shifts in climate, flora, fauna, and civilizations. Even if you are not using the Pangaea-based continental drift process I've recently described, being aware of climate zones and long-term changes can add layers of depth to the part of your setting that shows on the written page.

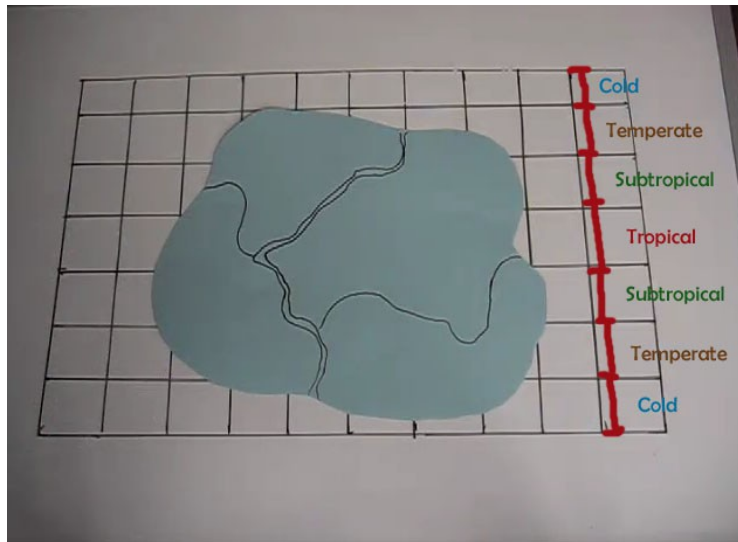
This tip is presented assuming you are trying the Pangaea exercise discussed in Geo Tip 8, but the principles can be applied to almost any large-scale world creation you are doing. (Some illustrations below are derived from that video but may make more sense if you [view the video first](http://world-building.com/world-building/how-to/build-your-world-with-continental-drift-video/). (<http://world-building.com/world-building/how-to/build-your-world-with-continental-drift-video/>)

Climate Zones and Changes in Them

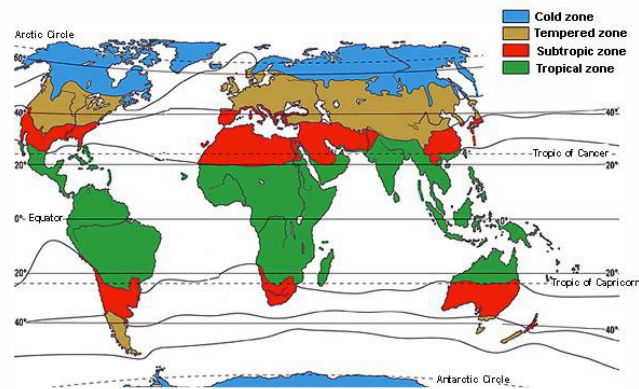
Before you move continents around, look at your globe and mark out basic climate zones. If you have an Earth-like planet, these zones will be:

- tropical
- subtropical
- temperate
- cold

It's easiest to note these as bands on the globe that is your world map, like so:



1. Rough environmental guidelines. These climate zones offer a very rough metric about climate and what will grow or live where. The point is that you want to know where zones typically fall on the globe itself, regardless of continent position. This won't change even after your continents move. On our own globe, these zones look like this:



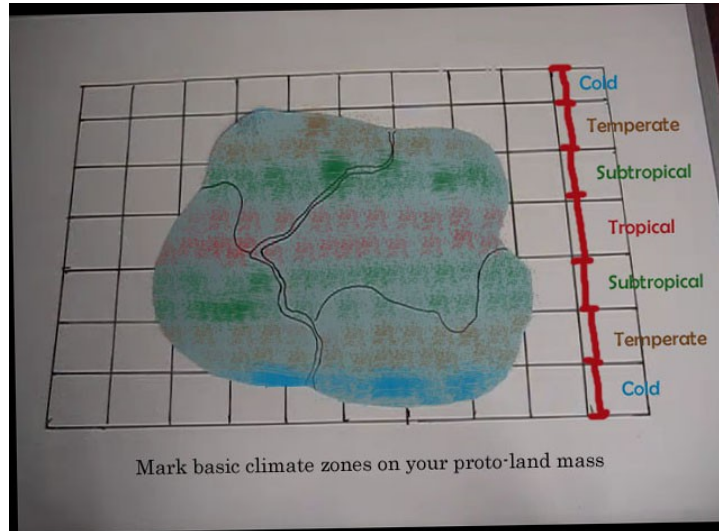
2. On a master reference document, create a numbered list of zones and the major types of plant and animal species in them. For instance:

1) Tropical (equatorial zone): hot, wet, lots of rain. Rainforests, jungles, lot of surface water in streams and rivers. Animals: scavengers in underbrush (reptiles, wild dogs, lemurs, etc), arboreal life forms (monkeys, birds, snakes), major predators are mostly ground-bound great cats, velociraptors who prey on the cats, and pterodactyls hunting in treetops and in open land.

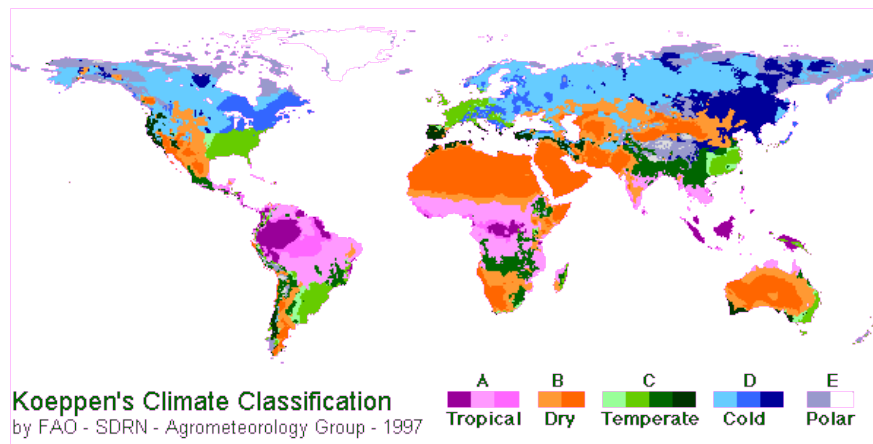
Repeat this summary for each of your zones. It should of course be tailored to the needs of your world, not merely imitative of our Earth norms. You don't need a lot detail unless one of these regions is your actual story setting (and even then I wouldn't generate the detail until you're sure the landmass is in its "final" location for your storytelling to start). These lists are

placemarkers to give you a mental jog about the type of flora/fauna in the area.

3. Color or number areas of your Pangaea landmass to correspond to your master climate zone description list.

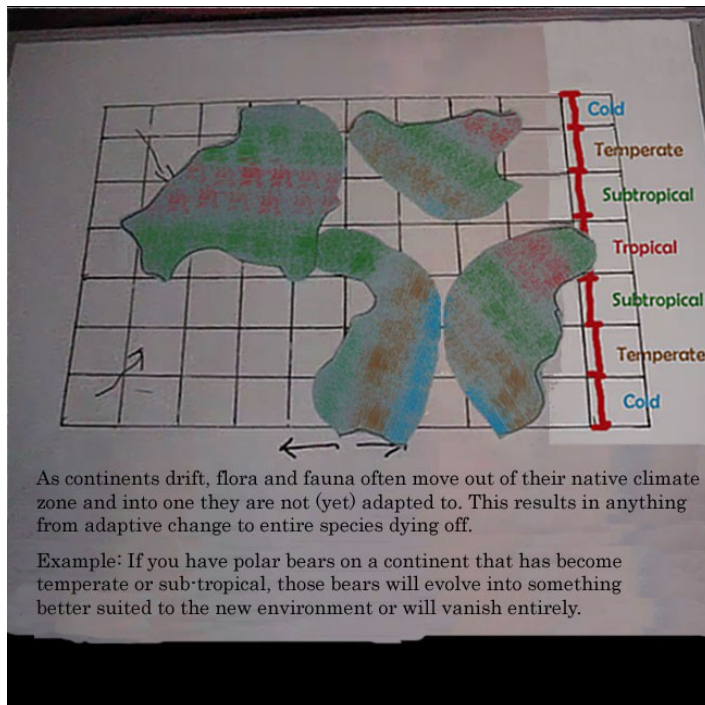


As a point of reference, a proper, detailed climate and biosphere map has zones of plant and animal life affected by rainfall, geographical vagaries, and many other factors. Here is an example of what one looks like:



Unless your world-building project is very demanding, there is no need at this point to get into this level of detail. If you want to map out things in a more detailed manner, I would wait until continents are in their “final” position (the point at which your storytelling begins), and then think about any global-scale things or more regional traits that might influence the local setting. Those are things you might reasonably want to map at that juncture. (That process is beyond the scope of this tip, but if you'd like more info on the detailed climate zones of the map above, [click here to read more](http://www.blueplanetbiomes.org/climate.htm). (<http://www.blueplanetbiomes.org/climate.htm>))

4. Continental movement. Once you know where your climate zones fall on your proto-globe, move landmasses around with continental drift as demonstrated in the video at <http://world-building.com/world-building/how-to/build-your-world-with-continental-drift-video/>. When you're done moving land (or at any point of particular interest), notice how the global climate zones reinforce or clash with the continental climate regions.



Same zone. Areas still in the zone they started in will continue to have the same or similar flora and fauna as you first noted. Especially in the case of forested areas, this is how you will get massive old-growth mega-forests (or swamps, or whathaveyou): through eons of continuous growth.

Die-offs and shifting populations. If an area started in one zone and ends up in another, plants and animals will change as they adapt to the new climate. If you know where your prevailing winds come from and where mountains cause weather breaks, you'll also be able to see what regions are now dryer or wetter than they originally were. (See Geo Tip #5 for more on these processes.)

Biospheres change and adapt all the time. Usually this change is gradual along with the earth movement. If for some reason movement is speedy (see #6, below), or the new climate radically different, entire species may die off and be replaced with something more suited to the new environment. Where there is a difference between your original climate zone and the final one, you'll need to decide if and how the local plants and animals have changed in response to this environmental shift.

Human populations. Over long millennia, our physical biology changes and adapts to local conditions. Think of dark skin protecting against UV sun rays in tropical climates, or the extra layer of body fat providing insulation against extreme cold in Arctic tribes, and so on. More quickly changing and easily recognizable are cultural shifts. How people dress, how they build shelters, their practices and beliefs about how to live in the world around them, are all influenced by climate and environment.

For example, if you have humans living in an area once tropical that now has drifted into a cold climate, their lifestyle will change. Certainly they will adapt to living in the cold north or south. But—most interesting for world building—they are likely to have cultural memories of coming from a hot land where the sun shone all year round. Their origin stories and old memories (perhaps only in folklore or myth) will talk about “when the land was warm and abundant”. Maybe they account for the coldness of the realm in “present” time because of a curse, or displeasure of the gods. Maybe warm-climate customs persist in some sort of cultural manner. In any case, there can be cultural echoes of life in different climates.

Alternatively, the people themselves may disappear. Many archaeologists believe that many of our “lost” civilizations that seemingly vanished without a trace in fact just faded away over time as people left a region that had become inhospitable in some way.

5. Evolution. Depending on how long has passed (remember, drift takes millions of years for major changes to occur), you may wish to think about evolutionary changes in plants and animals over time. For continents that once shared the same flora and fauna but have now drifted apart, divergent evolution (<http://www.biologie.uni-hamburg.de/b-online/library/cat-removed/u4aos2p4.html#Divergent>) will change lifeforms over time. The more time has passed, the more and/or greater the changes that will appear. (link)

6. Divine Intervention and Supernatural Influences. If you have a world with geologic processes in play, but which (in your cosmology) is also a place literally created by god/s or influenced by the supernatural, you can add otherwise illogical features here and chalk it up to divine intervention or supernatural causation. I'd suggest having a well-thought-out rationale for any such anomaly, though. This can be on a large scale or small.

Environmental change and adaptation can lead to a morass of detail and a big time sink in world building. I don't recommend getting any more detailed than a few sentences of summary description (as you did for the initial climate zone list), unless the region plays a direct role in your story setting. Then you will want to flesh out the details of the environment anyway as you proceed with your world building. That's where it makes sense to focus your efforts.

However, knowing how your continents have evolved and understanding the long-term development of plants and animals on your world can help you determine things like the following:

- Where are there large formations of coal and oil? This will occur in areas of massive wetland and forestation that got buried by later land movements. After millions of years have passed, the heat and pressure of the earth's crust presses old carbonaceous growth into coal, oil and other carbon-based materials.
- Where are there fossils and evidence of life in past earth eras? Look for places once wet and damp where footprints and bones became preserved in mud which later (througha

water-leeching process) turned those bones to stone.

- Where are the largest primeval forests on your world? Look for areas that have had long stretches of uninterrupted near-continuous plant growth of the same or similar type of vegetation.
- What regions of your globe have been comfortably habitable for the longest period of time? You are likely to have very old civilizations clustered in these areas. (The principles in Geo Tip 2 can help you figure out where such civilizations might have been located.) Where is the “cradle of civilization” in your world? Look for someplace that has been fairly stable in environment across millennia—or at least long enough for human/oids to get a strong foothold there before branching out into other lands.
- Where were promising civilizations that vanished because of climate changes they could not weather? For instance, if there was once a flourishing society in a temperate zone that now lies under a polar ice cap, you not only have legends of a lost civilization, but actual ruins (and who knows what else) for ambitious adventurers to discover.
- What areas have developed interesting variety in plant and animal life? Look for a place where life flourished, and then moved into or through a stressful environment—something harsh enough to prompt adaptive evolution, but not harsh enough to kill off the species. This works even better if the place in question is relatively land-isolated from other continents. Then, as with odd animals evolving on the Galapagos Islands off the coast of South America, you may have all kinds of oddities based on more common life forms elsewhere, but all taking rather strange turns because of isolated evolution.

If you have divine or supernatural forces at work in your world, have they ever shaped or interfered with natural geological processes like land formation and movement? If so, where, why and how? This both becomes the stuff of legend and accounts for particular oddities you might wish to introduce into your world. What areas of your shifting continents suggest god-touched opportunities to you? Maybe that bit of tropical land that is now in the far north remains completely tropical because a jungle goddess wills it so.

Those are just some quick ideas for ways that climate, terrain, plant and animal life can affect the look and feel of your world. The process outlined above can inspire more ideas and shape the history of your evolving world.

10 THE LINK BETWEEN GEOGRAPHY AND CULTURE

Many people don't realize that the culture and lifestyle of a given society (generally below an industrial level of tech development) is largely shaped by the geography of where they live.

Especially in the early beginnings of a community or civilization, the lay of the land has a great deal of influence on what people eat, how they dress, how they build their housing, how far or easily they can travel and trade, and many other societal and cultural factors.

TIP: Think of the beginning of your society when they were in a more primitive state living very closely with the land. This is when they are most affected by geography. Define the cultural practices that evolve out of this setting.

These practices, or a form of them, will shape your culture's beginnings and likely leave a trace in attitudes and customs for millennia to come.

When we look at cultures through this lens, there are three steps to follow.

1. Understand in broad strokes how geography and climate work on your world. Get clear on major geographical features of the globe. What are the major weather patterns? How does this create temperate, arid, and wet zones? What kind of vegetation and animal life come to be to those zones? Are winters long and harsh? Oceans non-existent? Understand major climate and vegetation patterns because these affect local conditions.

2. Get a working understanding of the local geography and biome. This should be the area where your story is set or most of your adventures will take place. Here you cover the same kinds of consideration as in (1), but on a local scale. Understand the seasons, how harsh or mild, the dominant weather pattern, what kinds of vegetation and therefore animal life flourishes in this region, given those conditions.

3. Plunk people down in this local area and ask yourself, how did they survive here when they were very early in their civilization? Especially consider what impact geography and its related elements (weather, flora, fauna) will have on how people live.

Does the geography favor the growth of forests? Then they might build with wood. Is it a rocky land? Then they might live in stone huts. How do they get their food? If they raise goats and sheep and live as nomadic herders, maybe they learn to make felt and live in yurts (felt tents) that are very snug and warm against harsh winter winds on the plains. Is living with nature a struggle in a harsh environment? Then this might be reflected in their relationship to or supplication of nature deities.

And so on.

I don't have space here for an exhaustive treatment of this process. In the real world there is an entire discipline called *cultural geography* that gets into these kinds of things in detail. We follow a similar process in developing cultural geography for a fictional world. It's great stuff, but more than a little beyond the scope of this single tip.

But the point to today's tidbit is to remind you to look at the early start of a culture when people live closest to the land, and see how people and their cultures are shaped by the place they

live. That place is always heavily influenced by geography. Consider the connections between the "lay of the land", the climate and ecosystem, and how a social group develops their lives in that setting.

That will give you the seedling from which you can grow a civilization.

BONUS LINKS

Speaking of cultural geography, here's a great overview of the field:

"Culture: A Geographical Perspective," from the New York State Education Department <http://www.p12.nysed.gov/ciai/socst/grade3/geograph.html>

As the author notes, "This subfield is vast; its key concepts, however, can be related to the needs of third-grade teachers. Those concepts are culture region, cultural landscape, cultural diffusion, cultural ecology, and cultural interaction." There's great stuff here if you want to dig deeper. We'll also be covering a lot of cultural geography concepts and material in more detail in future instructional programs from WBA, as well as in various weekly tip installments.

Blackwell's Companion to Cultural Geography

<http://www.fhqv.unipo.sk/~bucher/D.pdf>

Not for the faint of heart, this is a purely academic reference book treatise (full book, downloadable) with commentary and analysis on various byways of the discipline. IF you are really enjoying the cultural geography thing, and are comfortable absorbing pretty dense academic writing on the subject, this book has some interesting things to offer.

SOCIO TIPS

1 GUILDS AND SKILLED CHARACTERS

Skills and crafting abilities are often important to characters. In fantasy stories some artisan ability might play a crucial role in the tale. In rpgs entire systems exist to round out characters' skill sets, including in the area of craftsmanship.

In both cases, though, there is something that writers and game masters almost always overlook if the setting is an analog of medieval Europe, and that is something that looms very large indeed: guilds.

Perhaps because we have no equivalent of this today (other than the guild's distant cousin, the trade union), people do not usually think to add or emphasize guilds in a fantasy setting. Yet doing so omits a powerful institution and way of life that was dominant in the Middle Ages.

Guilds were not merely something craftsmen joined just because it seemed like a good idea. They were also not organizations favored especially or exclusively by thieves. The invention of "thieves' guilds" in rpgs is exactly that: an invention. There is little historical evidence of crime being organized in that manner, outside of loose associations of beggars and pickpockets.

Rather, guilds were responsible for the training of nearly every skilled craftsman, for the certification of their ability, and the practice of their craft. Aspiring craftsmen taken on as apprentices sometimes even before they were teenagers. They trained for years until as an older teen or young man they became journeymen, who then trained for even more years in their specialty. Eventually, if they passed a test of superior craftsmanship, they would be granted master status and become a master craftsman in their own right, able to take on apprentices of their own.

Guilds regulated the sale of goods, engaged in (perfectly legal) price fixing, and controlled not only trade in their specialty but the craftsmen and workers who were part of that trade. The more powerful guilds influenced laws and had their own laws and courts that heard cases, imposing fines and punishments on transgressors.

In short, guilds were far more powerful than they are usually represented to be in fantasy settings. If a game or story is set in a version of medieval times that is meant to resemble our own, guilds must be included. The character who has learned to weave, work leather, has the skills of a tailor, a mason, an armorer or smith, has very likely learned his craft in a guild-controlled setting. If not, then he has still likely learned it from a guild-trained master or journeyman.

A character trained in this way might still be under obligation of some sort to the guild. He might be expected--or even legally compelled--to be a member if he is going to practice his craft for profit at any point. A craftsman will owe his guild dues, is expected to make his presence known to the guildmaster if he is in a new town for any length of time, and might need guild permission in order to set up shop even if this is just for repairs for himself and friends.

This is because many guilds had a virtual monopoly in their specialty, and were jealous and protective of their prerogatives. They made certain they were the only ones who provided that service in the given area. A character who practices a guild-style craft without permission or licenses from the local guild is setting himself up for trouble. If it is a place where guilds have very strict control over business, then a craftsman who insists on operating independently (without license or permission, and not paying dues) will be cast out of the organization and

possibly fined (a judgment which is legally binding even if he no longer belongs to the guild.) A craftsman in this situation may find that no one will sell supplies or specialty tools to him, or rent him workshop space. It is very difficult if not impossible to defy a guild and still perform a craft in places where the guilds control artisan-related commerce.

TIP: If you have specialty craftsmen in your setting, or artisan skills that characters can learn, consider the role that guilds are likely to be playing in the power structure and politics of your setting.

Legally and politically powerful, socially respected, operating with legal monopolies, guilds can significantly ease or complicate your characters lives. Brainstorm how you can use this to best advantage in game or story.

You don't need to work this out in great detail (unless you want to), but you do need to understand enough about the guilds to know if and how they will affect the life and actions of your characters.

2 ILLNESS AND DISEASE

In fictional worlds the issue of disease is often glossed over and ignored. That makes perfect sense when disease as such does not play a big role in a particular story or game.

But if we are constructing entire worlds (or even just a well-developed part of one), at some point we need to consider the impact disease has on people and societies. How do the people of a given world come to deal with illness and contagion?

All through time man has dealt with disease. Humankind has developed many ways of thinking about it, defining it, dealing with it, and attempting to treat it. These different understandings of disease have varied across time and cultures.

While disease itself may never be center stage in your world, it's important to remember that customs, beliefs, medical or healing practices and even the influence of religious institutions can be shaped very strongly by commonly held thinking about disease.

How societies think about illness and disease creates a ripple effect across the culture. It shapes how ill health is treated, how people react to someone who is sick, and what steps are taken to deal with wide-spread epidemics or pandemics. In places where people are concerned to prevent illness, the cultural understanding of disease will influence whether they bother to build sewer systems, boil water for childbirth and surgeries, or invoke prayer to end an epidemic.

Other parts of the “ripple effect” include the status that healers have, the role that religions play, and common superstitions and knowledge about avoiding illness. “Don't go out in the rain, you'll catch your death of cold,” is just one cautionary memory of this sort that has come down to us in our own civilization.

How will people deal with illness in your world?

TIP: How your society thinks of disease colors all kinds of social interactions and cultural practices. Think about what causes it, how it is spread, how it is cured, and who does the curing. These factors will shape portions of your society in interesting ways. For instance, people who are trusted to cure others often become a privileged, high-status social class (such as doctors and surgeons in our own era, or the respected shaman of a First Peoples tribe.).

I've created a free worksheet you can download that gives some questions to help think about these issues in more detail. You can find the worksheet here: <http://world-building.com/free/world-building-tip-worksheet-illness-and-disease/>

While thinking about disease and illness may not be the brightest point in your world building endeavors, it is indeed a part of life. The people in your world will have evolved a certain way of dealing with it. Once you know what this is, you can see implications for other aspects of society, and will add that much more depth to your setting.

And that is a part of your exploration I hope you will enjoy.

3 WHAT'S THE HOT INVENTION IN YOUR SETTING?

What is the big invention of your era?

In every era in history, man has invented things. Silly inventions, sensible inventions, things that ease life or make work more productive: all are possible. This kind of creativity usually burbles along in the background unless some really earth-shaking thing is invented and everyone is abuzz about the clever creation. But an invention doesn't need to start an industrial revolution in order to have a marked impact on everyday lives and the distinctive feeling of a setting.

TIP: Decide what interesting or helpful thing has been (relatively) recently invented in your setting. What device or method has been invented that did not exist before, or performs a function in a new way? In the alternative, it may be that an invention from elsewhere is finally making its appearance in a certain area.

Figure out what impact this has on your local culture, and what kind of social footprint it is leaving. Ask yourself if and how this invention intersects with your characters' lives. If it is a weighty enough thing, it may even affect the course of the plots and stories that evolve out of your setting.

Some inventions burst upon the scene with sudden and sweeping effect. However, most of them—especially during eras of slow communication and travel—creep gradually over the landscape, moving from village to town to marketplaces and on to other towns, slowly replacing whatever used to fill a similar function.

Take the spinning wheel, for example. It made its first appearance in the Middle East in the 12th century, and became common in Europe in the 13th century. But the change was slow: here in a village every woman spun thread with a spindle or distaff, and it was only when some relatively well-to-do person splurged and brought back this fancy wheel from a fair or a town (or saw one in action and replicated it at home)--it was only then that everyone oohed, and aahed, and then realized how much easier and faster this could make their spinning. Suddenly every wife clamored for one, and after a time, nearly every cottage would come to have one.

Eyeglasses followed a similar path—from a clergyman's invention in the 13th century, to the formation of entire guilds based on their production in the 16th century, to the addition of arms to support them on the head and the subsequent boom in their popularity in the 18th century. The change might take a generation as an invention goes from new, cool, and expensive novelty, to something everyone wants, which is then made in sufficient quantities to satisfy the demand.

Inventions are about more than technological progress. They change how people live and how they do things. They can create social buzz and become a phenomenon in their own right. Some inventions become things everyone must have: either because they're cool (hoop skirts!), or because they're so practical they become indispensable (like long-handled gridirons that made cooking on hearth coals easier and safer).

What inventions are pleasing the people in your world? What aids their work, or makes their social life more enjoyable? Who has become the local celebrity because he or she came up with something new and unique? And how does this affect the rest of your world?

BONUS LINKS

Here are some good reference links to timelines of inventions. They also help give a feeling for what was available during different historical periods.

Find a period that is an analog for your setting, and you'll get some rough rule of thumb idea about what technology and artifacts might exist then. Of course, the farther away from our historical Earth your setting is, the more you might need to fill in this list of inventions on your own. And if you are writing science fiction—well, this is a great way to exercise science fictional imagination, by extrapolating what will be invented, and when, in the future.

Timeline of Historic Inventions

http://en.wikipedia.org/wiki/Timeline_of_historic_inventions

Timeline of Inventions – About.com

<http://inventors.about.com/od/timelines/tp/timeline.htm>

Major Inventions Timeline to 17th century

<http://teresacoppens.hubpages.com/hub/Invention-Timeline-Dawn-of-the-Common-Era-to-1699>

Inventions of the Middle Ages – sparse on exact years, but good overview list.

<http://www.middle-ages.org.uk/inventions-in-the-middle-ages.htm>

Timeline of Chinese Inventions

http://afe.easia.columbia.edu/song/readings/inventions_timeline.htm

Victorian Inventions Timeline

<http://www.woodlands-junior.kent.sch.uk/homework/victorians/inventiotimeline.html>

For Fun: Card Game about Inventions!

<http://boardgamegeek.com/boardgame/85256/timeline-inventions>

4 KNOW YOUR HOLIDAYS

One of the things that can really bring a fictional world alive is a vibrant sense of customs, traditions, and social life. And there are few things that can do that so quickly as the celebration of holidays.

TIP: Know what holidays play a prominent role in your setting. Interject them into events and character lives not only as background info, but as something with an immediate impact on the narrative.

People the world over spend a great deal of time, energy, and social attention on holidays. Whether they are casual, fun social events, or solemn high-state or high-church occasions, people frequently orchestrate their lives, their travel plans, their entertainment and clothing budget and more, to allow for the requirements of a holiday event. This was no different in ancient times, and it should be no different in your own world (unless you have a reason why people don't have holidays!).

In fictional settings we often completely ignore holidays, or at most mention them only in passing. When we gloss over holidays in this manner we shut out a lot of cultural richness and nuance, as well as the opportunity to create adventure hooks and plot threads that directly involve characters.

Three Categories of Holidays

A lot of things can be cause for sanctification or celebration as a holiday, but generally speaking they break down into three categories.

1. Religious Festivals and Observances

The very word "holiday" is a shortening of the phrase "holy day," which gives you a good idea of the origins of a lot of the days we mark as festive occasions. Religion is one of the main sources of holidays for a civilization. Various days of the year or seasonal events (like the solstice or equinox) are associated with deities, their spiritual attributes, their devotees or religious history and events.

Societies that do not use strict calendars (like, say, aboriginal tribes in various regions) do still have their holy days, or occasions that are set aside to honor something or someone spiritual or religious in nature. They are more likely to mark this event out at a time when (say), "the moon is new," or "when the salmon come home to spawn."

To establish religious holidays, you must have a basic idea of what deities are worshipped in your world. Different cultures will have different pantheons and practices, and therefore different holidays. No need to invent religious calendars for the whole world, though: best is to focus on your primary setting. If you wish to embellish, you might want to identify a couple major

holidays celebrated by neighboring peoples or a trade partner. These should be holidays that are either very famous or that will influence your local setting in some manner.

2. Seasonal Events

Seasonal events are often celebrated with a holiday. The first planting, the completion of harvest, the solstices and equinoxes during the year, presence of the full or new moon: all these and more have been honored as special occasions very often coinciding with a religious holiday or observance related to the season.

Details about this kind of association are beyond the scope of this tip, but if you'd like an idea how this kind of thing works, look up the history of Easter and Beltane for a good example of this intermingling of seasonal and religious events.

3. Public Events

A "public event" is any occasion that is a hallmark in the public life of a society. This includes things like the birth, coronation, marriage, or death of a sovereign; the anniversary of a significant battle (won or lost); a date set aside to honor a public figure; holidays declared by a bureaucracy for various bureaucratic reasons (like bank holidays, for instance).

Public events often affect everyone in a society (like when celebrating the founding of a nation), or just one strata of society. For example, the annual ball and "coming out" presentation to Queen Victoria was effectively a holiday for all the upper crust: a festive occasion, complete with many associated parties and at least among the ladies, no one doing any routine business on that occasion. But for the ordinary person not affected by presentations at court or coming out parties, this was a day like any other.

BONUS TIP: A quick and dirty way to set a holiday framework might go like this:

1) Set at least one main High Holy Day for the society--a day dedicated to the premier god/dess of the pantheon. This may well be a week of celebrations and religious events, not just a day.

2) Look at the local area where most of your narrative events take place. Create a couple of holidays dedicated to deities with large local followings or who are associated with the location: a sea god for a sea port, or the lesser god who happens to have a roadside shrine nearby.

3) Create two or three season-related holidays. Harvest, planting, start or end of the seasons, moon phases, and solstices/equinoxes are likely events. But of all of these, only a few will be the most popular, or result in the biggest party, or be the most interesting. Those are the ones to focus on.

4) Define two or three public events of note that everyone is aware of. There should be great anticipation towards these events every year. Maybe honoring the Tomb of the Unknown Soldier is a solemn memorial day and parade every year, or the Queen's birthday means free food on public banquet tables. Or maybe the day our country conquered and annexed our neighbor is

worth a week of drunken revelry (except, probably, in the conquered territory. Depends on how assimilated they've become!).

Put these on a calendar, and next time one of these dates approaches, foreshadow it with buzz and surround it with unusual events. And don't forget to consider the aftermath, as well. This is great staging for unexpected adventures and chance encounters that can directly hook your characters into a whole new story thread.

BONUS LINKS

List of holidays by country:

http://en.wikipedia.org/wiki/List_of_holidays_by_country

Winter holidays celebrating the solstice:

<http://ancienthistory.about.com/od/winterholidays/p/WinterHolidays.htm>

And a sampling of some localized holidays and traditions in Catalonia, Spain:

http://en.wikipedia.org/wiki/Traditions_of_Catalonia

5 DOMESTIC PETS

Unless you are writing *Old Yeller*[1] or *Cujo*[2], a family pet will probably not figure largely in your fictional setting. Sure, we might assume that folks have pets--somewhere--but in most constructed worlds the simple business of pet ownership is rarely given any thought. Pets almost never have impact on the dramatic stage. For that matter, they are almost never visible in fiction or games except as the most passing of references. I suggest we rethink this.

Pets are common companions in human social life. They are around real people--and characters--in roles ranging from inconsequential to life-changing. Most importantly, they can add a layer of depth that helps to make your setting very real to your audience.

TIP: Determine what kinds of pets exist in your world. Think about which are rare, and which are commonplace. Then figure out what kind of relationship your characters have to animals in general and pets in particular. If you see a likely pet owner, match up critter to care-taker and then think about the dramatic implications (if any) of this pairing.

Think Outside the Box

When we say "pets" we think of cats and dogs, the most popular pets in contemporary western society. But the range of animals kept as pets is broad. It also varies from historical period to period, changing with people's tastes, their attitudes towards animals of a given type, and is affected by geography, climate, and a population's travel and trade habits. Monkeys, mice, rabbits, birds, fish, snakes and more have been kept as domestic pets for ages.

Here is handy run-down of a variety of [currently popular pets in the U.S.](http://www.writers-free-reference.com/10pets.htm) (<http://www.writers-free-reference.com/10pets.htm>; a "top ten" list, not an exhaustive one), along with some notes on the history of that animal's domestication.

Drama Involving Pets

Your story doesn't have to focus on the animal just because you've noted their presence in the setting. Pets can indeed be mere set dressing. They can provide some background color, or incidental encounters that are entertaining in their own right, but nothing more than that.

If you want to kick things up a notch, though, start to think about how a person sharing their life with a pet creates changes for both the animal and the person. If you take this approach, dramatic implications will suggest themselves on a large or small scale.

On the small scale might be something like, someone learns responsibility by caring for a pet bunny, and scores a social coup when they teach it tricks it performs for visitors.

On the large scale can be anything that has a major impact on the characters and heroes of your setting. This effect might even reshape the course of your story. For instance, if your hero is an only child whose only friend is his pet parrot, when he runs away from home to seek his fortune he may very well strike out with his parrot on his shoulder.

After all, would you leave your best and only friend--who depends on you for everything!--

abandoned in an uncaring household just because you decided to go elsewhere? Probably not.

And therein lies the drama for that particular scenario. Maybe this story ends up being "The Adventures of John and his Parrot." Or maybe a parrot-companion is an albatross around the neck (haha) that you didn't really want, and so you need to get rid of the bird to move ahead with the story. Okay: then how does the bird go away? Kidnapped by macaw thieves? Lost on a dark and stormy night? Perishes of old age, excitement, and overeating at John's first fancy rest stop?

Have fun figuring it all out. My point is simply that if a society keeps pets, this cultural attitude and relationships should be reflected in your setting. Define what kinds of pets are considered suitable for domestication, how people treat them, what the attitudes are towards pets socially. From that beginning, it follows that once you have an animal in your character's life, your plot decisions become more challenging but also more rewarding. You have more opportunities for plot twists and you can give as much or as little stage time to the animal as serves the needs of the story.

Focus on the Emotions

It seems that when we care-take and share our lives closely with a pet, we become emotionally bonded to it (surprise). This is a perfect setup for drama. This human behavior stretches across cultures and time, from the cherished pet mice kept by court ladies in ancient China, to the dog [an owner risked his life to save](http://www.ktvb.com/news/Man-rescues-dog-from-house-fire-Thursday-night--168090876.html) (<http://www.ktvb.com/news/Man-rescues-dog-from-house-fire-Thursday-night--168090876.html>) in an Idaho house fire this year.

BONUS TIP: Look at the flip side of this coin as well. Someone who despises animals or is intentionally cruel to them may not keep pets, or may kick every dog they see. They have harsh behaviors that come into play when they're around animals. What does this imply for their actions and interactions with other characters and animals in your world? How does your society regard a person of this nature?

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1. **Old Yeller.** One of the best-known "beloved family dog" stories of the 20th century. Browse it here: <http://amzn.to/ZjYne8>.
 2. **Cujo.** One of the best-known "Your family pet is not behaving like it should" horror stories of the 20th century, by Stephen King. Browse it here: <http://amzn.to/ZcmZEp>

Pictured: My pet mouse Max in his sock pouch, Oct 2012.



6 THE IMPACT OF HERBALISM

When designing a world, it might seem like something as obscure as herbalism[1] is unimportant. Unless a major character uses plants to cure illness, and that plays an important role in the setting, why bother to give any attention to this point?

Here's why.

The medicinal use of plants (or absence of the practice) strongly influences how a society deals with illness. It reflects how closely people live (or have lived) with nature. It affects how (and possibly even if) alchemy develops, and has a huge influence on the evolution of science-based methods of curing illness and treating injuries. In short, the use of plants as curatives is actually a long-term "meta" influence in the development of a world's civilizations.

The decisions you make about your setting's use of herbs (or lack thereof) has a ripple effect that impacts many other areas of societal development. Herbalism helps to shape health, medicine, science, food production, and culture and customs relating to these things. It is integral to practices ranging from spirituality to a character's ability to MacGyver[2] a sleeping potion in a crisis situation.

TIP: Decide what awareness people in your created world have of herbs as medicine, and how developed the herbalist's art is in your setting. The use of curative herbs and the existence of herbal medicine potentially affects your whole population, and will certainly influence your cultural practices.

General Health. A tradition of herbal medicine in your setting can improve the health of your general population, making them more resistant to disease and injury. It will certainly influence what steps local folks take when someone falls ill. Herbalism might be a skill set your characters have, ranging from the ability to treat minor illnesses, to helping someone recover from life-threatening injuries. For instance, long before the invention of chloroform and other early anesthetics, painless surgeries were done in ancient Egypt with the aid of opium for the patient. This would not have been possible without the herbalist's craft in refining the juice of the poppy.

Alchemy. One of the earliest "alchemical" practices was learning how to distill essential oils and concentrated liquids (with concentrated healing properties) out of curative plants. It was a short step from this, to experimenting with ways to distill and recombine other elements and essences, and thus some of the precursors of chemistry and scientific experimentation were born.

Life Without Herbalism. In the absence of herbalism, people either do without medicines, or become dependent on manufactured drugs and a medical industry to treat their illnesses. "Doing without medicine" might be a great (albeit scary and life-threatening) scenario if your setting is post-apocalyptic, or science fictional where there is a breakdown in a drug supply system. After all, if civilization collapsed today, how many people know what weeds to harvest to get a curative, what dosage to prepare, and how to do so? Yeah. That's a very small minority in modern western societies.

Perception of the Practice. Of course, attitudes towards herbalism and the use of herbs can shift over time. Yesterday's "wise woman" dispensing herbal potions becomes today's "witch" and tomorrow's "homeopath." What's your society's take on this practice? It may be only a part of the background of your world, but the effects of natural medicine and attitudes towards it can be far-reaching.

As to the practical side of herbalism, if you want to put it in the foreground of your setting in some way, there is a lot of well-grounded research and information to be had, including folklore, history, homeopathy, and scientific research. For instance, here are a few examples of curatives from herbs and plants:

- **Willow Bark.** Used by Native Americans to treat headache. Contains salicin, the key ingredient in aspirin.
- **Foxglove.** Used to treat heart problems. Contains digitalis, extracted today as heart medication.
- **Aloe Vera.** Sap used to treat skin conditions and burns. Used virtually unaltered by health and beauty product industry for exact same purpose today.
- **Turmeric.** Popular Indian spice. As paste, treats wounds and excema; as liquid used as "blood tonic." Contains curcumin, which lowers cholesterol, reduces blood sugar level in diabetics, boosts liver function and acts as anticoagulant.

I point these out here to illustrate that herbalism offers a different basis from which to approach healing and emergency care, as well as larger social issues like the role of science versus folk wisdom. For instance, if herbalism is the standard practice in your setting, then after your heroic fighter suffers serious combat wounds, he may well be given opium for the pain (or an equivalent that grows in your area). If he insists on tottering off to fight stoned, or if he develops an addiction--well, some people might call that "interesting plot complications." And they stem from the meta-decisions you make about how illness is treated in your world.

BONUS TIP: Here are some attitudes to pin down if you do (or don't) have herbalism as a health and medical meta-structure in your setting:

- If herbalism is a strong practice in your setting, decide if there is formal education people can get in the subject, or if it is taught by master to apprentice.
- If it is falling out of favor, what is the status of those who still do herbalism? Do old ladies dispensing herbs fall under suspicion of witchcraft?
- If science-based medicine predominates, how is herbalism regarded? Is it dismissed as quackery? Tolerated as an unproven adjunct to "proper" medicine? Are there penalties for people who still use it?

1. Technically speaking, "herbalism" can be considered a subset of the broader concept of "natural medicine." That is how we define it today, anyway, but along with the "natural medicine" label go issues of healing philosophies, disease theory, spirituality and energetics work and much more. To keep this tip more narrowly focused, and also in the realm of what might suit common world building concerns, I'm going to confine my remarks to the framework of herbal medicine for now.

2. MacGyver: for our non-American readers, this was a TV show featuring a fellow named MacGyver who would get into perilous situations and improvise an escape or a solution by cobbling together something clever from whatever he could find close at hand. This has given rise to the slang use of his name, meaning, to improvise a clever solution.

7 BARTER AND BARTER TOKENS

The evolution and use of currency can be an involved topic. I'm not going to get into it in a deep historical measure, but for world building purposes there are some aspects every world designer should be aware of, and factor into the setting they are creating. From that perspective, then, this week's tip will look at barter, and how a lot of this activity eventually gives rise to barter tokens, an early sort of currency using items of symbolic value as barter "placeholders" in what is usually local trade.

TIP: Decide if your economy is operating on a barter basis, if it has advanced to the point of using actual currency, or if it is at an in-between stage on this spectrum. Following are some guidelines for when an economy is operating on a barter or near-barter basis.

The Nature of Barter

In a barter system, people trade goods for other goods. You have cheese, I have a blanket; we trade and are both happy with the deal (one hopes). This is the simplest form of trade and economic exchange. It is also a common one when people come into contact with another people with whom they do not have economic common ground: i.e., where there is no commonly acknowledged currency to use in lieu of goods (possibly also there is no shared language).

Barter has been the basis of trade throughout man's history. Even in eras where currency is common, the willingness to dicker over items and trade X for Y seems to be common to human psychology. It happens even today. For centuries many traders based their entire commercial business on the process not of selling a cargo and buying another with cash, but on directly trading their cargoes for other goods. Shippers would trade Italian wine, say, for Egyptian cotton; Hudson Bay traders would swap blankets for furs, that then were sold for currency back in Europe. This is barter at a commercial level. It can quickly become cumbersome, and if the person you trade with does not have what you want to acquire, the system can rapidly break down, but when it works, it facilitates trade without the need for currency.

Barter also occurs where previously unacquainted people are exploring a new relationship by trading whatever each has and wants in a direct one to one relationship. This happens frequently in exploration and colonization scenarios, where people new to an area come into contact with locals for the first time. This behavior pattern might even apply to aliens, if you are working in a science fiction setting.

Paying "In Kind"

A type of barter that is closely related is to pay for services "in kind." A modern example of this would be paying a house painter for his work on your house by providing the wedding cake and other catering for his wedding. A typical example from an older era would be a local war chief who agrees to protect outlying farms in exchange for their bringing produce to his village to feed his followers.

Payment in kind became a formalized system in the Middle Ages, where tenants and serfs on a lord's land would pay in kind in exchange for the protection that the nobleman gave them.

Instead of paying rent in money, many tenants would pay in kind to support monasteries whose property they lived on and farmed. Payment in kind continues today; it pops up most frequently in poor communities and rural areas where there are more consumable goods locally produced than there is currency. During the Great Depression, for instance, it was quite common for doctors to tend patients who could only pay with a chicken or something else edible for the doctor's dinner table. Shopkeepers would allow people to take canned goods in exchange for fresh eggs that their laying hens provided in their back yard chicken coops. Even today, some generous landlords have allowed tenants who couldn't pay rent to do some work for them in exchange, thus paying their rent with service in kind.

The Shift to a Barter "Currency"

If our barter system starts to get real busy, though, or if we're trading in large volumes of stuff, we'll quickly develop barter tokens, a sort of currency representative of the barter value.

For instance, let's say you deal in cut lumber, and I have a grain mill. I need some of your wood now and some later, but I can deliver all the flour you need right now (sets you up for the year, let's say). So I dump a lot of flour bags on your doorstep, and you give me a wooden stick marked off with hashmarks--each mark stands for lots of 10 pieces of wood. I can claim those from your lumberyard whenever I like, and you'll cross-hatch a mark so we can both see at a glance on the stick how much wood I've claimed and how much you still owe me for our barter deal.

If we're a little more sophisticated, I can give this stick to Fred the butcher in exchange for meat. Now *he* can come to you to claim the wood you used to owe me, and I've just traded for--or, actually, "bought"--meat from him with the stick. That stick is a barter token and it now is functioning almost like currency. It represents value based directly on a barter arrangement we've concluded, but we're using the stick now as if it were money.

Maybe Fred redeems the stick for just one lot of wood, and then passes the barter token on to someone else in another barter exchange. Suddenly we're looking at a symbolic item (the tally stick) that is acquiring a value of its own, because we've all agreed it has value (it represents wood we can claim from your lumberyard).

This is how currency comes into being. We agree that an item has a symbolic value. If we get tired of toting cumbersome tally sticks around, we may decide to streamline our tokens, make them more standardized, and start exchange those instead of direct barter trades.

If we trade widely enough, then we want a currency that is easily portable and recognized as having value. This unit has a value independent of the goods we're trading for, and is no longer tied to an informal network of barter deals. Pretty soon we're talking about currency proper. This and other evolutions of currency will be the subject of next week's tip.

For now, some things to define for your setting:

1. Do people barter? Is it occasional, or is it the normal manner of economic interaction? If trading with a people who do not use currency, barter will be the necessary means of exchange.

2. What goods are most in demand for barter swaps? Which are most valuable in and of themselves? The people who have or control these items will tend to be the most well to do or influential in the community.

3. Manufacturing and finishing processes add value to a good or resource; products created in this way therefore have a higher barter value. Woven cloth is more valuable than raw wool; baked bread is more valued per unit of weight than the flour that went into. When

people interact with a good and do something to change or transform it, it generally becomes more valuable.

4. What is the relative value between goods? Even if you don't use this in detail in your story or setting, you need to have a feel for these relative values so you can reflect the trade relationships and economic well being of different producers accordingly.

It may help to draw up a chart with some common trade equivalencies on it: 1 wool blanket = ½ bale wool; 1 bale wool = 2 barrels flour, or whatever you think works for your setting. (See Bonus Link #1 for examples.)

5. Supply and demand. Remember that when there is a lot of a certain item, its value becomes less (because it's easy to get). When there is less of an item, its value becomes more (because it is difficult to get). Coal may be cheap, but if the local mine collapsed and we can't get any more easily, and the smith needs it to work his forge with, he'll be paying a lot more for the suddenly rare and limited supply of coal. As a rule of thumb, the same scarcity principle applies no matter what good you are working with or what milieu your setting is.

6. Does this society use barter tokens or have a barter-based currency in place yet? Tally sticks, beads on a string: anything will do that becomes a marker representing units of a barter good. If this symbolic item itself can be traded, and is not used only to tally quantities owed, then it is a barter currency.

BONUS LINKS

Here's an excellent source showing relative value of trade goods in the mountain man/fur trapping days of the American West. Scroll about halfway down the page, although the entire discussion is interesting: <http://www.mman.us/tradegoods.htm>

This great article discusses the evolution of wampum as a symbolic and ceremonial item that developed a trade value over time among the Iroquois: <http://www.ganondagan.org/wampum.html>

Economic systems don't need to be complex or cumbersome in your setting in order to reflect some basic realities about how people conduct their economic life. If your culture uses barter, a little work here in the design phase will create interactions that make a lot of sense as your world continues to grow.

*Pictured: Barter tokens and counters from the Cucuteni culture (Romania), circa 3000 BC.
(Source: Cristian Chirita, 2009/Wikimedia Commons)*



8 CURRENCY

Last week we looked at the process of barter and the evolution of barter tokens to make trading easier.

As trade becomes complex, tokens become used more heavily. But at some point, the fact that a token is redeemable for goods becomes problematic. What if this tally stick I'm swapping around (as if it were money) represents slabs of smoked salmon? Sure, it's smoked, and it will last for a while-but if I keep this barter token too long, the food itself will perish. The fisherman can only hold it in storage for a limited time before it vanishes, and then my barter token becomes worthless.

The problem is that using a barter token as currency assumes there will always be a trade good behind it, in case a person wants to redeem the token. At this point people start to think about using **currency: a medium of exchange that has its own unchanging value.**

TIP: Decide if currency is used in the economy of your setting. If it is, think about who has the authority to create or issue the money, and who uses it. How frequently is it used as a medium of exchange? Is it commonly used in daily purchases, or is it in short supply, perhaps hoarded in order to pay taxes once a year?

In fiction, it is also helpful to determine how the units of money break down and what their common names are. In game design, it is essential to establish different denominations of currency and their values if your player characters will be conducting monetary transactions.

Types of Currency

Commodity Money: One of the earliest forms of currency to come into use is what we call "commodity money." This name comes from the fact that the money has value from the commodity out of which it is made. First it is simply a useful but scarce commodity, and then begins to serve as a currency of exchange. Examples of commodity money include peppercorns, shells, barley, furs and tobacco. Prisoners or P.O.W.'s trading in cigarettes are also using commodity money.

In cultures with the metal-working ability, gold and silver have also been popular as commodity money--not always as minted coins, but also as armbands, jewelry, wire, gold dust, and other portable forms of the commodity. In a culture that uses commodity money, a minted coin retains its value even if it is melted down, for its value comes solely from its weight of precious metal.

Representative money: This form of currency predates the use of coinage. In cultures like Babylon and ancient China, commodity warehouses issued certificates of deposit. People began to trade the certificates, which represented value held in the warehouse. Later when coins of precious metal became commonplace, they were often clipped or shaved and this depreciated their value. Governments and local authorities then began to issue representative money: paper certificates representing deposits made in banks. The money held in the bank vault could not be depreciated like coins in circulation could, and the paper money represented the value of the bank reserve.

Before large-scale nationalization of banking, all kinds of entities issued representative money: from small towns to companies to local banks got in on the act. Two difficulties arose from this practice: 1) would a bank or issuing entity far away honor the paper money you received and used locally? And 2), in time of financial insecurity, a run on the bank could wipe out their reserves of precious metal and render their representative money worthless. The proliferation of monies that occurs in representative currency systems is the basis for one of the arguments for state control of financial systems: to standardize currency so that trade and regulation can be facilitated across the land.

Fiat money: This is money that has value simply because a governing entity has declared it to be so. For instance, America left the gold standard in 1971 (where our money represented gold reserves in the Treasury) and moved to a fiat money system, where issued paper and coin had an arbitrary value assigned to it. State-issued money cannot be converted to other goods, and does not have an intrinsic value. Most countries in the world today have a fiat money system in place. Fiat money works because a government declares it to be legal tender for debts, and anyone wishing to receive payment for goods or services must accept that legal tender. This very process gives the money an inherent value because of how it is used daily.

Although there is some debate about this among contemporary economists, fiat money seems to be the most practical currency system to use in large, complex civilizations. Our current trend towards virtual currency (receiving payments virtually, spending money virtually, relying on bank balances virtually, all without touching real currency)--is based on a fiat monetary system. Presumably this system (certainly fiat, possibly virtual), or a version of it, is what will be found in the economies of futuristic civilizations and science fiction settings as well.

BONUS TIP #1: Some useful rules of thumb about "what money where," at least if your world has an analog of Earth-historical development:

- **Commodity money** is more likely to be found in disparate local areas without a large-scale, overarching government authority in place
- **Representative money** is used in both local areas and large-scale areas of government organization
- **Fiat money** is implemented mainly by governments managing fairly robust trade economies (or following suit of other governments in order to be part of that trade community).

BONUS TIP #2: If you want your government to control and issue money, decide if it is representative money, or fiat money. If representative, decide what underlies the currency to give it value (gold reserves at the king's mint?) If you opt for commodity money instead, any scale entity can manage that, from an entire government (like Babylon managing grain warehouses), to a council of elders deciding the use of wampum in a local village.

Money is not the only thing that makes a fictional setting go 'round, but it does play an important role. Now that you know a little more about currency, you can better decide what the

financial life of your characters and their world looks like. In a future tip we'll take a look at the more commercial forms of currency intended to speed commerce on its way.

Pictured: Japanese commodity currency before the 8th century. Arrowheads, rice, gold dust: Japan's first currencies.



9 MOVING MONEY, PART 1

In Socio Tips 7 and 8 I looked at the development of barter and cash money. In this last of these “money” tips, we'll look at some of the ways people have worked out to move or manage large sums of money.[1]

TIP: The ability to move large sums of money is not merely a personal convenience, but is critical to the flow of trade and a flourishing economy. When people deal with large amounts of cash, they develop ways of moving and managing it that they feel is secure and trustworthy. These methods and practices become a part of the economic backbone of a world. A society with a solid economy must have one or more commonly accepted ways to move money around to facilitate commerce and serve personal needs.

Depending how sophisticated an economic system is, one or more of the tactics discussed here may be in play. **Determine which (if any) of these practices are present in your setting and make them available to characters and adventurers who have need of them.** NOTE: This tip focuses primarily on the handling of cash money. When it comes to “putting your money to work for you” by investing, that is a different topic and one I'll deal with in a future tip about investment practices.

Getting Funds From Point A to Point B

Banking as a commonplace service, checking accounts, and electronic transfers of funds are relative late-comers to the money scene. Long before these existed, people dealt with cash of various sorts, and very quickly had to face this problem: money (or whatever you value as having monetary worth) has weight, and a lot of money has a lot of weight. In most places and times large sums of money have been difficult to transport and safeguard.

Why was this a problem? Some examples:

- Say you borrow or inherit a lot of money. How do you transport a small fortune from the place where it is, to your own safekeeping or wherever you need to have the funds?
- Imagine you have to take a trip for business and personal reasons, that will keep you abroad for a year or longer. Travel is slow and you're going far away. When it comes to financing this trip, you have only three choices: a) haul all the cash with you that you will need during the time you'll be gone; b) take something as good as cash, but lighter and more portable (jewels or jewelry is a good choice)--and hope to find a buyer for them at your destination; or c), find a way for someone to extend you credit at your destination so you can spend money without having to risk your fortune physically on the road. Good luck with all that.
- Your uncle has gone to the frontier, and has asked you to come in on a lucrative business venture with him. It's sure to make you both a fortune—but how can you finance it from afar? The scale of money he needs, you have, but getting it from where you are to his

location is a whole 'nother level of headache. If you don't sort it out, you won't be in business at all.

The Guarded Shipment

The earliest (and most obvious) solution to the problem of moving money was the use of armed men for protection. They would carry or guard shipments of money, or protect those who performed the actual transportation work. Their goal was to ensure that valuables were safely delivered from a point of origin, to its destination.

This level of protection could take on several forms. Here are some examples:

- An individual carries his own wealth on his person (say, a heavy purse of gold coins), while being armed and prepared to defend himself against anyone who might try to rob him.
- One or a few armed retainers accompany their master through city streets while the master has a large sum of money on his person.
- A guard or guards accompany money shipped via some mode of transportation. In this case, there is so much cash a single individual can not easily carry it a great distance. Historically, this need gave birth to the strongbox—a sturdy, reinforced lockbox especially built so as to be difficult to break into. This was typically hauled on wagons, stowed aboard ships, or carried in motorized transportation of some kind. Lords borrowing from moneylenders would have their coin transported in this fashion, as would those bringing back the spoils of war, or the industrial magnates of a later era shipping payroll monies to a distant point of disbursement.

Stealth and Disguise

When a person could not afford guards or didn't wish the display, stealth and/or disguise offered an alternative. In this case a person moved about with a lot of money but behaved as if they had nothing worth stealing.

Dressing down (even to the point of looking outright poor), not staying anywhere expensive, spending only low-denomination coinage and never showing gold, concealing money in garments or strapped against one's body—all of these measures enabled the transportation of wealth without exciting suspicion or larcenous intent. If there was a lot of money to move, concealing it among other ordinary cargo in conveyances and maintaining a dressed-down, unassuming appearance could also provide successful cover because, again, it did not appear there was anything to steal.

This manner of transporting money and valuables was not only a tactic used in distant historical periods. It is as recent as the experiences of refugees in war-torn Iraq or Bosnia and may even be practiced by travelers moving through a “bad area” today. This approach relies on deception and discretion to be successful. Historically, not everyone would or could travel in this manner, but for those who did, there could be considerable advantage in this tactic. (As a data point, this stealthy approach has a lot in common with the practices of smugglers.)

Banks

In Socio Tip 8, I talked about the development of money and currency, and the evolution of banks which issued these things. Once banks (and their precursor, the moneylenders) came into existence, they were soon asked to deal with the customer's need to move funds from place to place. Before I explain how that works, let's take a moment to look at what banks did with commodities like gold that either backed their currency, or were the currency itself.

Vaults R Us. In simpler banking systems, the valued commodity is kept somewhere safe and usually very close at hand. This is especially necessary when the commodity itself is the currency, as with gold and silver coinage. This was the case, for instance, in the late Middle Ages when Jewish moneylenders essentially ran banks out of their homes or offices. They kept their stores of gold and silver in strongboxes and secure counting houses, ready to be loaned out or stored against future need.[2] (A counting house or room is a specialized structure with reinforced doors and the best locks, a place in which wealth is stored and counted. “The king is in his counting house, counting out his money,” as the child's nursery rhyme has it.) Later, as proper banks came into being, vaults were built and the commodity was stored there in the bank proper.

In more sophisticated banking systems, currency is issued (see Socio Tip #8). The more currency comes into common use, the more likely banks are to stock only currency on their local premises. They entrust their actual gold (or whatever is backing the currency) to a central depository like, say, a massive vault in the bank's headquarters. As long as currency is commodity-backed, that valuable must also be stored somewhere secure. An example of this is greenbacks being issued in the 19th century, with each dollar backed by an equivalent amount of gold in the vaults at Fort Knox.

So, once again: say we have a small fortune. How do we move it long distances with the aid of banks? The answer to this will come in next week's Tip, Moving Money, part 2.

1 Money: I use this in the broadest catchall sense to mean any unit of value used for trade transactions. It includes anything from paper currency to coinage to valued goods used as money. However, practically speaking, the problem of transporting and managing money was not really an issue until economies became diverse enough and enough cash was in circulation to make handling large amounts of money a particular challenge. That is why the topic here is “moving money,” not “moving barter goods.”

2 The evolution of moneylending is an interesting bit of history, albeit rather beyond the scope of this tip. What is important to know for worldbuilding purposes is that moneylenders existed before banks did. In the Europe of our timeline they came to play a critical role in local and international finance in large part because of strictures on usury placed by the Catholic Church. In a fictional setting that is not an Earth analog, the historic role of moneylenders may be different, so you will of course need to tailor this function to your setting. Here are some links with more info about the historical context of moneylending in western European history, and why Jews came to play the role they did in this business in the history we are familiar with:

<https://sites.google.com/site/hashtaumd/contents-1/banking>

<http://englishhistoryauthors.blogspot.com/2012/06/money-lending-in-middle-ages.html>



Detail from The Moneylenders by Quentin Messys, c 1500.

10 MOVING MONEY, PART 2

In Part 1 of this tip I talked about the difficulties in physically moving large sums of money. Once banks and networks of financial association came into being, however, some alternatives to physical shipment also offered themselves.

TIP: If you have characters who are wealthy, who borrow money, inherit large sums, or need to move large sums for business or personal reasons, consider the ways that financiers and financial institutions help in this process. Money flowing in this manner becomes part of the larger economy, and all economies will evolve some way to address the reality of money being located in one place, but needed in another. Here are some methods that professional money handlers have used in our own timeline.

The Rise of Express Services

If we are in an era with established banking, a network of private financiers, and/or money lenders who are associated with each other, then we can ask them for help in moving money. The most obvious tactic here is once again the physical movement of cash funds. In this case the money men will undertake exactly the same thing the wealthy individual could have: they physically ship the coins or currency from their own storage vaults at point A, to someone else's vaults at point B. They might do this with their own armed guards and transportation arrangements, or they might use a specialized freight carrier for the service. In fact, this is how Wells Fargo got its start: they were originally an “express”, or rapid-hauling, service, as well as a banking service provider, mainly carrying bullion and coins back and forth between the silver mines in Nevada, to banks and individuals in San Francisco, with an overland express service to New York.



Commodity hauling was typically a cumbersome process, and it could be a while before the money caught up to its owner—maybe a long while if that person traveled far away, and maybe never if the shipment was robbed. One advantage offered by using a service (instead of hauling one's own cash) was that in case of robbery, the bank or hauling service itself was responsible for any losses that occur. Eventually the bank or express service would make good to their customer, but that reparation might not be in time to help the fellow waiting for his funds. If your setting is a time and place where long-distance travel is slow or expensive, then the more expensive and unusual this physical money transfer service will be.

But toting tons of cash across country or overseas at some rich person's whim has obvious drawbacks. Money men found an alternative early on: the letter of credit. Wherever there were money lenders or banks of good repute and a network of business associations, this became the preferred method of “remotely” accessing funds from the late Middle Ages onwards. Forms of this instrument are still in use today.

The Letter of Credit

The premise of a letter of credit is that a bank or moneylender issues a formal letter saying that the customer has a line of credit with the bank up to a specified amount. Generally this was covered by funds the individual had on deposit with the bank, but might have gone even beyond that into a borrowed sum of money.

The standard form of an LoC is a payment instrument for a monetary transaction. The early forms of this document were simply letters issued through families or business networks, introducing the traveler and stating a guarantee of payment to reimburse any money advanced to the bearer.

The bearer of a letter of credit would simply present himself to the local bank, moneylender, or other associate he has been referred to. That person would advance him money up to the amount specified in his letter of credit. The bank would recoup its funds from whomever issued the letter of credit. The banks made their money on fees charged at both ends of the money transfer.

Later the letter of credit came to stand in as a sales payment document. Say our Englishman travels to Italy and decides to buy fine furniture for his house back in Old Blighty. His cabinetmaker presents a bill of sale to the local bank, which then deducts the amount from the balance of the traveler's letter of credit. There were various documents involved and ways of working this out logistically, but in this way letters of credit came to be used more and more for large business financial transactions internationally.

Letters of credit became very popular because they allowed travelers to have money during their trip without the risk of carrying cash. It made money highly mobile and also protected it from theft. Almost incidentally it also protected countries against the loss of currency, for it kept local money local and did not need to move it across borders to be spent elsewhere. Letters of credit became complex in design, to help prevent forgery, and participating banks would typically have copies of authorizing signatures on file to verify that an LoC came from an authentic source.

As international travel became more common, and banking referrals became more business-like and less personal, this instrument evolved into what came to be called a Circular Letter of Credit. The letter is called “circular” because it was addressed to any and all correspondents of

the issuer. Letters of credit are still in use today, especially for large-scale business financing, but with the advent of ATMs and electronic money transfers, the need for Circular LoCs for travelers has greatly diminished. Click here for more on the history of letters of credit, and illustrations of same: <http://library.law.columbia.edu/CircularLetterOfCredit/>

Checks

Once a certain density of banking was achieved, checks came into use. In its original form this was simply a paper instrument issued by a bank, with amounts filled out by the customer, allowing a recipient to draw money from the customer's account.

Checks became increasingly popular during and after the 19th century, although one of their drawbacks is that for a long time they were not often honored by other banks, or by banks geographically distant from where they were issued. This fueled a continuing need for letters of credit and led to the invention of traveler's checks. Throughout the 20th century checking services support by banks became ever more refined and comprehensive, culminating in the speedy electronic withdrawal and transfer of funds that we have today.

Because checking services are familiar to the modern reader I won't get into them in detail here except to note that checks are only used as a way to move money about when the rest of the societal infrastructure is in place to support this practice. That includes relatively speedy communications, check transportation via couriers (later via digitized imagery), and check processing in a matter of weeks or days and eventually only hours, minutes, or instantaneously.

Credit Cards, Electronic Transfers and Virtual Money

With the advent of networked telecommunications and the build-out of banking infrastructure, it became possible to quickly and easily move funds electronically from one account to another, or access distant accounts no matter where one is located. Credit cards not only allowed customers to spend on credit, but also served the same purpose as a letter of credit, allowing a person to spend their money no matter where they were, as long as a merchant would accept the credit card. The proliferation of ATMs has put money at your fingertips in most geographical areas.

Our latest evolution in money handling seems to be towards virtual banking and currency. We can earn money, move it, and spend it electronically and never even touch material money. We trust that the virtual accounting of our funds is correct, and use that virtual body of money in the same ways people used to use cash, letters of credit, checks or credit cards. There is even a move underway now to use a completely virtual currency called Bitcoins; there will no doubt be more efforts in this direction as we collectively explore money in the digital era. (<http://en.wikipedia.org/wiki/Bitcoin>)

If you wish to have this scale of money fluidity in your fictional world, you need to make certain that the technological requirements are in place, and that the society has come to be comfortable working with and thinking of their money as this virtual, perhaps-never-touched thing. It is not likely that a 15th century merchant, used to counting gold coins in his counting house, using letters of credit and shipping funds in guarded strongboxes when necessary, would ever be truly comfortable with money he could not see, and a hand-wavy sort of “OK, now your money is over in that foreign land when you need it” kind of approach to finance. That's not to say that he could not get used to it, but it is a paradigm shift. Rapid and unseen forms of money

movement require a different way of thinking about money and its use.

BONUS TIP: Methods of moving money described in the last two tips are of course based on our Earth history. If your world cultures and peoples are significantly different from what is familiar to us, feel free to invent or devise a “money management” method or tradition that fits better into the culture you have established. Hopefully the approaches explained in these last two tips can give you a good starting point for invention based on your own culture's peculiarities.

Pictured: A traveler's letter of credit from 1892 for 1000 livres.



11 KNOW THE MOST FAVORITE GAMES IN YOUR WORLD

Wherever people live and grow together, there is play. From earliest childhood when a mother plays patty-cake with a baby, to the games and competitions and sports of youths, to the many varied entertainments of adults, people love to play.

This week we'll look more closely at that subset of play that we call "games," and in particular at games that people play together. Many cultures share similar amusements, but at the same time, many games are unique to a setting. Why is this of interest to a world builder? It's because **games evolve out of attributes of the locale, the customs, the beliefs, or other aspects unique to a people and where they live.** If your world is different from our world, the games are likely to be different in some way as well.

TIP: Shared amusements are social glue and help bind the people of a culture together. Games can play a small or large role in your setting and your characters' lives, and can also appear as key elements in story or adventure narratives.

Define a couple of games that children commonly play together, and an assortment of games that youths and/or adults engage in. **Consider what role these most notable games play in your society.** Are they referred to in jokes? Have they influenced slang? Are they something people go out of their way to do as a team? Have they attracted a mass following and audience? Who plays, who attends, and who doesn't like this game at all-and why? How are games worked into your characters' lives?

Although a game is born of a culture, if it is popular and well-known enough, it can grow to influence the culture itself. Decide the role games have in your setting, and be sure to incorporate them as appropriate into your characters' lives.

Defining Games

Asking what a game is is a rather large question, with many answers and different definitions. ([See this link](#) for the tip of the iceberg on the "what is a game" discussion.) So for the purposes of this tip, I'm keeping my working definition extremely simple, and am hoping you grok the spirit of this definition as it applies to your own world.

Much of the quibble about defining games revolves around the issue of rules, competition, ability to interfere with others playing, and so on. I'm skirting that definitional swamp for now. For this discussion I'm using this very simple meaning of game: it is **structured play that is interactive with others.**

If you decide to define "game" more strictly (and you probably should), some of the things I describe below may be "play" or "an amusement," but not a "game." Nevertheless, the principles I talk about are worth considering, so for now, I'm putting this all under my very simple "Game" umbrella.

OK. Qualifiers done, let's forge ahead.

Types of Games

Here are some broad categories of games, to give you an idea of the sorts of things people

and societies come up with in this regard. Not an exhaustive list, but a sampling. (Full urls to these hotlinks are listed at the end of this article.)

Games of Skill - this class of games rely upon the player's physical abilities in some manner. It may be a question of physical performance (baseball; foot races), or the ability to perform a set of movements and demonstrate agility, coordination, or dexterity (jump rope; darts; [Twister](#); [pick-up sticks](#)).

Games of Chance - some element of chance is involved here. The most common examples are games that lend themselves to gambling (dice; roulette), but includes other sorts like, for instance, the road trip game of counting cars of an unusual color, with the winner being the passenger who has spotted the highest number of his chosen color in a given time period.

Games of Skill and Chance - many games combine these elements. ["Blind Man's Bluff"](#) is a good example.

In this game, a blindfolded person seeks to tag one of the opponents standing around but avoiding her reach. The blindfolded player uses her hearing to figure out where people are, but since she can't see their movements there is an element of chance about where she goes and where her arms reach out to tag an opponent. Dice games might fall here too: it is said that a skillful player can 'set' dice in his hand so they will tend to roll certain numbers and not merely the random ones they ought to.

Games of Strategy - in these games, physical performance is not called upon, but rather a mentally planned strategic approach to winning. Chance may or may not be involved. Chess, go, and poker are examples of games of strategy (and arguably in the case of poker, skill with numbers).

Guessing Games - one person knows something, or knows where an object is, or when or how something will happen. Others must guess what this is.

Games of Cooperation - games that involve a team effort fall into this category; some require more coordinated planning and cooperation than others. In our culture most games that include cooperation are actually competitive in nature: one team cooperates together, but is attempting to beat their opponents. There are also games that are purely cooperative in nature, with no winners or losers, or with the "winning" victory conditions shared in by all. Role-playing games, for instance, are essentially games of cooperation.

Non-Competitive Games - these are games where players are not pitted against opponents, although there may still be a "winning" condition. ["Simon Says"](#) is non-competitive; , as are party games like [Spin the Bottle](#) and [Truth or Dare](#).

Memory Games - This is a test of memory and possibly also inventiveness. Word and song games often depend on how well someone's memory works. Trivia quizzes also rely on this.

Games of Remembrance (Memorial Games) - This is a game put on in order to mark a special event or memorialize something significant. This class of game is particularly noteworthy from a

world building perspective because it is inspired by history or remembrance of things past. For instance, ancient Romans held funeral games (athletic competitions) when someone important died. In more modern times, the Cezmi Or Memorial track meet in Turkey takes place annually and is done in remembrance of the late Turkish sprinter Cezmi Or who set records but died of typhoid fever in 1945 at age 24.

Also in this category are cultural remembrances of past events which become memorialized in children's games. Children playing "Cowboys and Indians" is a remembrance of the Indian Wars of the American West. While the children's game "Ring Around the Rosie" is not in fact a remembrance of the Black Death, as [urban legend](#) would have it, a rhyming game of that sort *could* have that kind of origin, especially in your fictional world where you can memorialize whatever you like in play.

Non-Human Cultures

It may go without saying, but thinking of games played by non-humans will doubtless be more challenging than it is for human-populated settings. If your culture of interest is humanoid, like elves and dwarves, they *might* be similar enough to human nature to extrapolate from what you know about our own race.

If they are actual non-humans or aliens, then before you can design games and amusements that make sense, you really need to design your non-humanoid species first. You'll have to understand a race's physical capabilities, what they find amusing and fun (or if they even enjoy play), and something about their culture and values, before you can begin to concoct games that make sense within their culture.

Next week we'll conclude this tip with a look at what inspires games, and how to work them into your setting.

Full urls for hotlinks in this article (in case your ereader does not make everything clickable but you'd still like to look things up):

Twister: [http://en.wikipedia.org/wiki/Twister_\(game\)](http://en.wikipedia.org/wiki/Twister_(game))

Pick-up Sticks: http://en.wikipedia.org/wiki/Pick-up_sticks

Blind Man's Bluff: http://en.wikipedia.org/wiki/Blind_man's_buff

Simon Says: http://en.wikipedia.org/wiki/Simon_Says

Spin-the-Bottle: http://en.wikipedia.org/wiki/Spin_the_bottle

Truth of Dare: http://en.wikipedia.org/wiki/Truth_or_Dare%3F

Ring-around-the-Rosie urban legend: <http://www.snopes.com/language/literary/rosie.asp>

Pictured: Ladies playing Blind Man's Bluff (1803)



12 GAME INSPIRATION AND USE IN A SETTING

Last week I talked about the types of games that people might play in a human culture. This week we'll look at some things that inspire games and some ways to work them into your setting.

People play all sorts of things: guessing games, puzzle games, word games, physical or skill challenge games, memory games, and more. When it comes to pinning down an exact game, though, thinking about the type played (as reflected in the list above) is only part of the picture. It is also very helpful to imagine what might have inspired a game or helped shape its development.

Here are some things to consider when you're coming up with games your people play.

Inspirations for Games

In tribal cultures, many of the games played are inspired by animals or imitative of their behaviors. Anthropologist Sir Everard F. Im Thurm wrote in 1901 about the "monkey" games of Guiana tribesmen, in which they rampaged through the village acting exactly like monkeys, climbing, leaping, tearing and snatching things, chattering madly, even behaving destructively. In the book *Lacrosse Legends of the First Americans*, the author documents how Native Americans believed their game was initially played by birds and animals, and the game itself was imitative of the animal behavior.

Other tribal games involve items that are commonplace to the tribe. The Sioux Indians played dice games with carved bone or marked stones. The point was to cast them in certain patterns. They also played hand and moccasin games, in which tokens were hidden and their hiding place guessed. In the case of the Sioux, their games were usually accompanied by religious or spiritual ritual. For instance, when playing hand games they would also perform hand game songs accompanied by hand drumming to confuse their opponents and help their own team. A shaman might also use prayer to get an advantage over another team.

Tribes and more developed cultures frequently make games out of martial endeavors. Target shooting contests, for instance, are not only fun for the participants but encourage everyone to practice archery (or shooting a firearm, in later times) as training for warfare.

As cultures become more complex and less nature-rooted, these inspirations give way to things reflective of what the society is engaged with. Tabletop wargaming, for instance, first became broadly popular in the 1950s, after board game publishers produced the first large-scale, mass-produced board games about military conflict. Interest in strategy, tactics, and warfare had time to percolate into the social consciousness after World War II, and a new gaming passion was born.

Today computer games are in vogue, but how will things transform the day we have immersive virtual reality or holographic technologies, where our surroundings can seem to really be a constructed reality? You may need to think about this and other possibilities when you consider the games in your world. If your setting is an Earth-like culture, this may not be difficult, but the more unique your setting, the more creative you may have to be.

Working Games into Your World

If games are part of your world, there will come times and places when it is natural for characters to either interact with games, or to talk about them or use a reference to them in their

speech. And if you want to really feature a game and make it integral to events in some way, that can take things to a whole new level. Here are a few areas to think about if you want to work games into your setting.

Language. Slang and vernacular use all kinds of popular references, and games certainly leave their mark. In American English, our language is notably influenced by the vocabulary of games, and especially by sports, at the more organized end of the game spectrum. For example, I might be working on a project that I think will hit a home run[1] at work, but a friend hasn't been running interference[2] for me. I thought I had all the bases covered[3], but now I'll have to call my rival's bluff[4] before he can beat me to the punch[5]. If it doesn't work out, I'll have to throw in the towel[6].

For our non-American readers, here are the meanings and sources of this vernacular:

1. "hit a home run" = be a winner (baseball)
2. "run interference" for someone = stop others from interrupting one's forward progress (football)
3. "have bases covered" = all likely contingencies have been planned for (literally, we have a man on each base to prevent a runner from progressing: from baseball)
4. "call someone's bluff" = challenge someone to see if their assertions are real, or if they are pretending to be in a better position than they actually are (poker)
5. "beat someone to the punch" = to get a noteworthy thing done before the competition can do so (literally, land the first telling blow: from boxing)
6. "throw in the towel" = quit trying and give up (literally, the action which signals one is quitting a match and forfeiting it: from boxing)

TIP 1: Decide what terms and catchphrases have come from the games in your world and worked their way into common use in people's daily speech. This might be something you want to reflect in their vocabulary or dialog at some point.

Children. In the cultures in our world, it is fair to say that children generally leave childhood games behind when they get older. Even so, there are certain games that kids start as children, but which carry through into adulthood.

Anthropologists have described how much of child's play is imitative of adult behavior, and in a way offers practice for when the child is an adult and doing that behavior for real. In less complex cultures this training may be quite literal: a boy plays with a boy-sized bow and arrow, which he trades up for larger sizes as he grows, and by time he is a man his play has turned him into a skilled archer and hunter, just as the other men in his tribe are. In our culture a kid playing Little League baseball who ends up in pro ball as an adult has followed a similar path from game to adult life as the archer.

If we get away from body-oriented play, there are examples like computer games today-- certainly a game form that children begin with, and which they can stick with into and through adulthood. But even if the game in question is something only children do, it's smart to consider what kind of an impact this has on the kid in question. Is it "only" an amusement? Or do they learn something deeper or more lasting from it?

Some related questions: When and where do children play in your world? Is game play something that happens only informally among kids when they get away from the supervision of adults? Is it preparatory or imitative of something kids will do as adults?

TIP 2: Know which "childhood games" remain exactly that, and which are "portable" and can grow and change with the child into adulthood.

Events and Plots. A game can be local color, or it can be the whole point of your narrative, or it can fill any space in-between. But just as with any other plot device, it will feel clunky and pointless if you paste the game onto your narrative as an afterthought.

In contrast, a well-thought-out game fits well into your culture. It can captivate your readers and fit neatly into your narrative, even playing a central role. *The Hunger Games* is a great example of a game becoming central to the story itself. And for an example of a game that has captivated the imagination of people in this world as well as the fictional one, we need look no further than J.K. Rowling's invention of quidditch (<http://en.wikipedia.org/wiki/Quidditch>) in the Harry Potter novels. Today there are even real-world quidditch teams and tournament games held on quidditch fields (with certain adjustments made, of course, for the absence of magic in our world. See bonus links for more info).

Now *that's* a successful invented game!

Few fictional games achieve that level of impact, of course, but that's not the important part. What matters is that putting a little thought and planning into the unique games in your world will add an important layer of depth to the social fabric, and your audience will resonate with it.

TIP 3: If you want to make a game integral to plot events, it needs to be well thought-out, your characters need to have a relationship to the game itself, and it needs to be well integrated into their lives and the setting.

I'll have to stop here for length reasons, but I hope this and the previous post have given you some good ideas about how to use games in your world to good effect. Happy playing!

BONUS LINKS AND CITATIONS

This is a list of citations for things mentioned in both parts of the Game tips posts (Socio Tips 11 and 12).

Gagnon, Gregory O. Culture and Customs of the Sioux Indians. ABC Clio, 2011. Browseable at [Google Books](#).

International Quidditch Association
<http://www.internationalquidditch.org/>

Ring Around the Rosie Rhyming Game
http://en.wikipedia.org/wiki/Ring_a_Ring_o'_Roses

Thurn, F. Im. Games of the Red-Men of Guiana. *Folklore*, 12(2) (June 1901), pp 132-161.
<http://www.jstor.org/stable/1254051> (accessible only if you have academic database access, but this was also released as a monograph and might still be found in used book sources.)

Vennum, Tom. Lacrosse Legends of the First Americans. JHU Press, 2007. Browseable at [Google Books](#).

Pictured: A Ravenclaw/Slytherin Muggle Quidditch game played between Millikin University students, December 2006. Source: Wikimedia Commons



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