

Be Careful What you Ask for: How to Build Worlds, Look Silly, and Argue with Imaginary People

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Revised September 23rd 2005 for Better Sense after a Decade More of Official Spell-Checking!

A klaxon in your mind says your story has wandered into the "Vague Zone."

"I want to use a purple animal which spits darts of poison. Uhh, what animal would do this neat trick?"

In our world, a microscopic tropical hydrozoans.

Not as much library work as I used to fear - the danger is falling into seductive other researches! Call libraries on the phone, if you're pressed for time. We can reach more obscure libraries than we realize. *Auto* companies employ librarians because they must have their own research libraries. Good librarians love wild questions. References are useful for future projects, so it is never time or energy wasted. If nothing more, you learn to find Zip Codes for mailing packages!

Revision note: These days, the US Postal Service has a lookup website page for this. Other countries may vary.

Classes in basic sciences, humanities like military history and languages, are approved SF training. But reading non-fiction and biographies becomes addictive to a writer in hot pursuit of an imaginary culture. Most important is noticing anywhere data might help, and how valid it may be. Design News or Chemical Abstracts in the college collection are less flexible sources than third-hand gossip about somebody's nervous breakdown in the upstairs office. You are listening to the gossip? It tells you things that have nothing to do with that distressed person.

Revision note: It tells you far more about what the person gossiping thinks will connect with the person listening, if they're not just spurting out so much extra steam they just can't bear to hold that story in! So, it may or may not match what the person listening is interested in. A blog posting recently commented that, in the spirit of "methinks the lady doth protest too much," what people claimed to be true about themselves was what they wished was true. Not, in fact, their true character. With some pretty stiff examples of how people behave the opposite of what they've been saying for months. Could lead to some interesting reversals in fictional conversations. The stereotypes might run something like: Rigid people claim to be adaptable, boring people claim to be party animals, and brave people confess to being terrified.

Our genre relies so firmly on print sources, I had to *learn* to ask a living person this or that vague question, learn to ask things from a veteran babysitter, a hod-carrier who plays saxophone in bar bands, or the clerk who's secretary of a regional Olympic fencing society. People have extraordinary histories. Asking dumb questions, with a silly grin at your own clumsiness, shouldn't remain a spectator sport.

Some literary artists never learn from print sources. Such writers go into the street and listen to people – some struggle like wrestlers with crises, pushing limits. Some are quiet, acute recorders. Others hear their own inner whisperings loudest, and work like miners on the forces inside. Readers recognize themselves in such personal mirrors, however distorted and strange.

Talking to practitioners of many skills, across many disciplines, builds worlds on a

broader level than just working out a planetary inclination for seasons, or building a purple poison-spitting creature that eats people. I learned the glories of this approach at an SF fan party. I asked a simple question, "What hard strata are found in sedimentary limestone?"

I was trying to find a suitable description for a character, in terms native to the area he lived in: A person unyielding when others have washed away. "Stony" is meaningless to a people who work stone, an impression taken from an Irving Stone novel about Michelangelo, who began as a stone-cutter -- no pun intended. I knew Eskimos lacked a generic word for snow; later the PBS series, "The Story of English," described cowboys' words for breeds, ages, conditions, and peculiarities of cattle. Education channels help!

Answer? Flint. An answer from someone trained in anthropology and ethnology--and Pandora's box coughed up pressure flaking with deer horns, *Lifestyles Among the Coastal Rich and Indigenous*, and religious rituals, which provoked a series of questions about the characters' use of an eternal flame.

Lesson?

Ask the Next Question.

I had spent that day wrestling with a difficult fight scene set in a cave complex. As thrillers continually prove, setting is profoundly important in fight scenes, and I knew these caves looked odd to anyone but a geologist - who'd laugh if I did it wrong! What soft credible sedimentary stone are you likely to have in a sea cliff, beneath a fortification built of pink granite, beside a major river draining into a harbor?

First, the cave. Erosion did it. The coastline shifted, exposing an old seabed of shells compressed into limestone so both sea and river began cutting through. Later, I saw a PBS special on a region famous in Chinese art, where repeated uplift caused shifts in the groundwater flow through porous limestone rock. New caves formed lower while the higher, older caves drained out, and as the stuff crumbled into pillars, cave complexes reached open air and human interest.

Flint is metamorphic, a sedimentary rock changed by heat, pressure, unusual torsion, or twisting — something I'd forgot from high school classes. The flint appears in resistant plates, and would become a local byword. With such an abundance of a useful hunter's stone near a harbor, with a navigable river to barge heavy materials, with the caves for early shelter, this site is a wish-list for the genesis of a sea-power city which is barge-fed and needs fortification. I read too many National Geographic articles on archeology.

The fortification? Pink *granite*!

On a cliff full of limestone caves? Granite is fine-grained, tough, cuts wonderfully, and makes glassy siege walls.

But granite is igneous rock, not sedimentary.

Recall of a fortified city famous for the color of its walls had provoked the word. I meant to retract the inexplicable word, which stuck out like a swollen thumb. Then my characters got stubborn about the fame of their walls.

I have good reason for finding their synonyms for "stubborn."

And they said the walls were pink granite. I could have dropped the trivial detail, much as I hate dropping details.

They wouldn't.

Well, it would take stubborn people to hold such a rich site against other groups.

I had other trivial facts. I had set up that these civilized folk descended of pirates

who conquered the place three generations ago. They were bigots about the people they ruled over, much like Normans in eleventh-century Britain. They were themselves in danger of destruction by a new invader. These research lines formed out of interpersonal tensions among the characters - unrelated to my cave, to the geologic and economic and political forces generated by the site. Unrelated to those stupid walls!

Funny how these things lock together like so many tumblers.

Researching the gaps between these facts, I found that the trivialities dovetailed with startling consistency. I did not plan those facts with file cards. Which says scary things about non-linear thinking. We don't even realize what we already know.

"Pink walls, when they bother to wash off the yellowish dust blown in from rich, sandy grainfields," these stubborn characters told me, and I believed them.

Awkward. Coral and shell-based limestone is generally white, crumbly, not sandy, not pink or yellow, and very soft. No good for either the color or uses. Imported? Even with river barges to float the weight, people don't haul stone farther than they have to. They might use the whole immense pile. So the most durable stone they can find for resisting frontal attacks by sappers, catapults, rams - which, after the fact, I examined in D&D manuals, medieval and Roman "history of warfare" books - the source of all that stone *must* be local. And they insisted it was granite.

Uplift + flint + granite, my brain clicked, = a sedimentary rock fractured, stressed, and uplifted with volcanic intrusions. Granite forms when magma cools slowly under pressure; the quarry site had to mine a vein that must have formed underwater, under the shell beds. Perhaps the river changed course and eroded away the overburden. Later, uplift cracked and raised the mixture, causing flint formation in other strata as well as that burnt nearest the granite. I checked it with a geologist friend who's into volcanoes. Those sandy grainfields? Old river bed meanders.

The characters were equally firm that their religion used an eternal flame. Some types of sedimentary rock develop natural gas and oil pools from buried swamp, rain forest, or timber. Clearly this site was a wildly active zone, an interaction of sea and land, of fractures and repeated laval intrusion upon a rich biota and deep sedimentary formations. Oil fires would be a regular event in the caves, and respect for the supernatural power of such flames, and of the molten rock itself, would be a psychological force in these folk.

Yet the original reason I wrote that they used flame as a saint's icon, to inspire worship, were those grainfields. Grainfields and beer-making: two trivial details tossed off in passing by my protagonist ... By now I *was* listening. Listening hard.

The river affected their religion, too. Their grain would be barged down that river and exported by sea. Farmers with large storage fear spontaneous combustion so much they try to propitiate flames!

Wealthy farmers build both cities and armies. Prairie grassland is rich, but it takes advanced metal tools and strong draft animals to break thick sod (PBS, *Connections*). The river itself, like the Nile, also forces organization. Digging irrigation increases crops and leads to building dikes to control floods. From living in a river town, I know the importance of it: Hundred-year disaster rains take organization to survive.

I've had real-life concerns about earthquakes. These fictional people would repair constantly, their architecture is likely to be as peculiar as Japanese houses built entirely of wood over stilts on loose flat rocks that shift harmlessly in quakes ... a practice I heard

about from my anthropologist friend.

Yet the characters build stone *towers* to help them watch longer distances, to guard against assault. Building stone towers on a fault zone isn't sensible! But they also admitted the walls were old and needed attention. Aha! Troy was built that way too, and repaired endlessly in an active fault zone.

If it's been a long while between shocks, people don't know stress has been building in the ground; they forget the old warning stories, as in the San Francisco shakes. Conquerors, like colonials, build a grand style better suited to back home, and ignore the advice of their servants during the luxury of a quiet period. Such folk reject the old local style. A rude awakening is clearly in store.

An eternal flame requires drilling, piping, perhaps distillation, and pumping. They have pumps; wooden ships also need pumps, so easy technology-borrowing there. Rise in the pipes is by naturally artesian pressure, or the fuel is drawn out of the matrix by water-wheel-driven vacuum pumping (James Burke's specials on PBS, and a class section on hydraulics). Miners used that method to pump groundwater flooded into lower workings.

Drilling takes metal bits and skills lost to the pirates' descendants. They might still use fuel oil to pour plate and cast pipes to repair gas lines. Why metal pipes? Dunno. Then I asked dumb questions of another geologist who had worked oil wells in Louisiana. Close to the wellhead, organics like rubber or leather corrode even faster than metal, from the sulfur fumes; and near melt furnaces, cannot take the heat.

Could a people keep such an oil supply going by ritual means? The ritual must keep the pipe system from the undersea wells intact, dried out, and pressurized – but they already work metal, use vacuum gaskets, and do large-scale engineering. Oil cracking just takes a large pressurized metal vessel with drains at various levels and a fire below to boil the liquid. Add a cooling tower, and you remove both water and gasoline fumes. The eternal flame could have started as a natural gas flare to control surge pressures, so flares might become mysterious religious signs. Equally mysterious would be depletion of the source, eventual failure of artesian pressure, then of pumping, to extract crude.

But if these folks are so clearly on the verge of what we experienced in a very short time as the Industrial Revolution, why have they hung up in mid-course? Why would their melt furnaces stagnate at that level? Articles on ancient cultures as-is for centuries suggest they don't *need* to change. They have the wealth of those fields, the sea, the barge trade, the oil for cooking, lights, and forging. Factory retooling hurts short-term production. If they have the most effective weapons in the area ever since their conquest, they don't even need to improve their weapons, just organization of bodies to use the weapons.

Some continuing needs would still press them toward improvements. For instance, the prairie requires metal cutting edges to break the heavy grass roots for plowing. But it's rich soil; excess grain will feed lots of troops. River barges, ships, and the metals conspire together to make large-scale export farming possible, with a political clout to march out large troop forces, whose reputation grows such that they should be needed less often. A sea-power needs metal weapons, wood-shaping tools, and corroded parts replaced on a regular basis. If they do not smelt ore locally, they must import ingots - which, unlike ore, was worth transporting to the prehistoric Beaker people in their tin trade across Europe and Britain. My fictional Folk could mold and forge as exportable tools in all the metals but aluminum, which has too high a melting point to work without

advanced furnaces.

High-grade steel is difficult - most grades of steel alloys take fine mineral content mixture control and gas controls - but barely possible. There are, rarely, natural steel ores! Along with pure metal ores of copper, gold, and silver, correctly mixed iron ores *could* appear naturally if this old volcanic vent-site has been cold-rolled by a glacier. If skilled smiths play with lengthy, ritual, folding methods, different steel alloys, and charcoal, they can develop damascene steel. A friend watched a Japanese swordmaster; I kept a startling article on a local sword collectors' club, demonstrating the traditional method of forging katana blades.

Damascene steel in a region otherwise short of iron ores will certainly promote heavy concentration of political power. Once that power is disturbed from its usual equilibrium, conflicts will occur over control of such a critical strategic source.

I thought about lava hitting an oil-pipe. I asked a machine-shop engineer about gas explosions and air intake through pipe breaks. I thought about what would happen if the aging oil refinery and pipe complex was subjected to a new fracture zone. What about further movement from a strike-slip zone that could distort pipes that reach throughout tunnels and cave complexes?

I thought about pirates ruling such a place with no knowledge; about how only ritual, and a ritual hierarchy, might keep it going.

Not just my fight scene in the cave, but a whole series of them, resulted.

When those characters insisted on trivial facts, they produced a civilization rich in explosive events. Literally. Now, as my subconscious drives my plots - as it ultimately does for every writer - I've learned to trust it.

And we all call it fantasy.

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