OPUNTIA

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Stampede Parade 2015

Opuntia is published by Dale Speirs, Calgary, Alberta. My e-mail address is: opuntia57@hotmail.com
When sending me an emailed letter of comment, please include your name and town in the message.

THE WORLD'S LARGEST COSTUME CON
photos by Dale Speirs

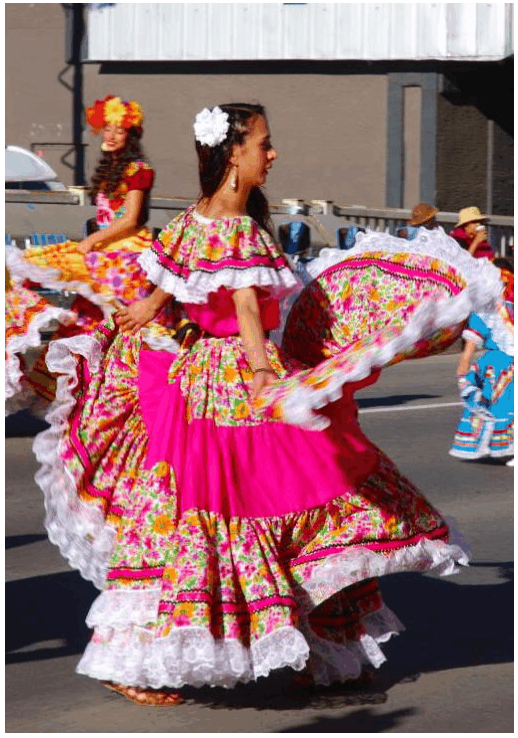
The Calgary Stampede is the world's largest rodeo, with 1.2 million paid visitors to the grounds over ten days in early July. There are as many events going on outside the rodeo grounds as within. Everyone dresses up western, even if they don't know the difference between a steer and a bull.

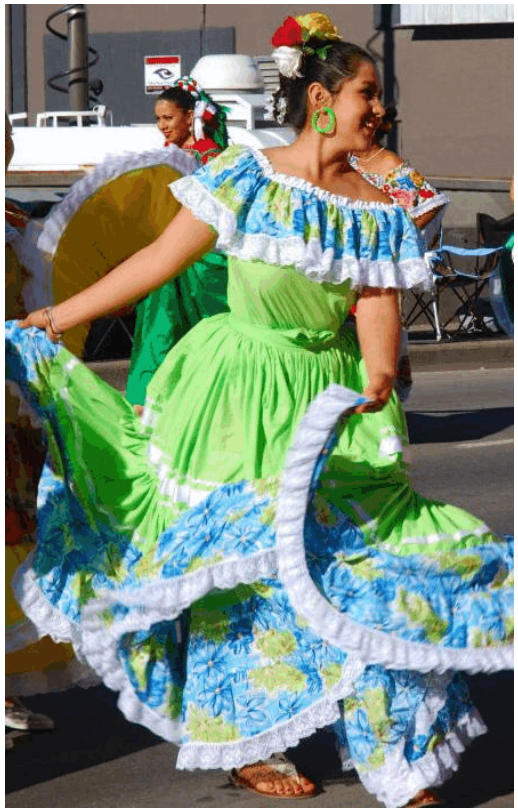
I don't attempt to cover everything about the Stampede in one report, so each year I focus on one aspect. Since the Stampede is the world's largest costume con, I'll make it this year's topic. In previous issues of OPUNTIA, I covered the free breakfasts in #253, the after-effects of the great flood of 2013 in #264 and #265, utility box art in #279, and the parade and window displays in #280.

Above: This is the official Stampede float.

Top right are the Stampede Queen and Princess (runner-up). They have to be farm girls, although they would never dress like that to milk a cow.

The aboriginal tribes of southern Alberta choose their own beauty queen for Stampede.





All sorts of ethnic costumes. The Mexican women won first prize for costumes.

Ukrainian shymka troupe. Altogether now: HY! HY! HY! HY! (leap into air) HY! HY! HY! HY! (reverse circle) and repeat.

Falun Dafa group from China.

Harry the Horse is the official Stampede mascot.

It was sunny and hot for the parade. The mascot wearers were cooking inside.

Simon the Safety Bear looks depressed. Probably fainting from the heat inside.

The Calgary Fire Dept. mascot was more sensible.

The Calgary Stampeders football team cheerleaders were very sensibly dressed.

Colour guards are always popular. The two below are of the Mounties past and present, the North West Mounted Police and their successors, the Royal Canadian Mounted Police. Calgary was founded in 1875 by the NWMP.

There are three aboriginal tribal Reserves in the Calgary area: Tsuu T'ina, Nakoda, and Siksika.

I don't know her name but I first saw this girl performing as a trick rider at the Stampede grounds a few years ago when she was about three years old. She is a natural-born rider and it would take a video to do her justice.

Two Xenas of a certain age.

THAR SHE BLOWS!: PART 2
by Dale Speirs

[Part 1 appeared in OPUNTIA #70.1D.]

Whatever other problems we have in Alberta, vulcanism isn't one of them. We are not in a tectonic zone. The worst that could occur is that we are sprinkled by ashfall from volcanoes south of the border, as happened in 1980 when Mount Saint Helens blew its top.

Supervolcanoes.

The scientific definition of a supervolcano is one that ejects at least 1,000 cubic kilometres of ash. None have erupted in historical times. For comparison, Mount Saint Helens blew out 1 km^3 of ash in 1980, Pinatubo about 10 km^3, and Tamboro about 100 km^3. The largest supervolcano is Yellowstone, which last erupted 640,000 years ago, when it threw 1,000 km^3 of ash into the atmosphere.

By its position in the middle of the North American continent, Yellowstone is considered to be the most dangerous volcano on Earth. If it erupted anytime soon, it would wipe out the American Great Plains and Gulf states, where most of the USA's food and petroleum comes from, and, depending on which way the wind is blowing, do considerable damage to eastern USA.

Harry Turtledove wrote a trilogy of novels about the Yellowstone supervolcano erupting in the near future. SUPERVOLCANO: ERUPTION (2011) set up the main characters. Father has his problems, his ex-wife is not much better, and two grown children out on their own are coping but not always wisely. Far too much characterization at the expense of ideas and plot. One gets bored paging through the novel's angst while trying to find the exciting bits. Finally Yellowstone detonates, almost as an anti-climax.

SUPERVOLCANO: ALL FALL DOWN (2012) takes place just after the eruption. Gasoline is difficult for the American public to come by since most American oil production came from the Great Plains. The Canadian pipelines are cut off, not so much the pipelines themselves but the pumps don't run when their air intakes are clogged. The novel gets off to a slow start as family details and forebodings are laid out for the main characters and the American economy respectively.

The rest of the world has been affected but it isn't the end, just a difficult economic patch. The ash has cooled the northern hemisphere and the Great Plains are no longer the world's breadbasket. Local areas in the USA are experiencing shortages and power blackouts as the every-man-for-himself philosophy takes hold. Hundreds of thousands live in refugee camps around the outer limits of the ashfall. The long slow slide begins. Survivalists out in the bush are having trouble finding moose, deer, or even squirrels, having eaten most of them. In the cities, food is expensive and of lower quality. Electricity is intermittent and even if you have your own generator, you won't find fuel.

SUPERVOLCANO: THINGS FALL APART (2013) carries on the narrative. The novel, however, mostly meanders through family relationships. Surplus crops in the bin before the eruption are now mostly eaten. Good luck finding fuel at an affordable price. Forests surrounding the towns are clearcut for firewood, and Peak Wood is evident.

The American bureaucracy comes into its own though. More officious and now openly corrupt, they rule as citizens beg for help. Petty crime increases because police have to ration their time and resources for more important cases. Northern Europe has crop failures from the colder weather. When African or Asian countries have disasters, there will not be any aid teams from the USA. It isn't the total collapse of civilization, since the rest of the world can carry on, albeit severely inconvenienced. There is danger of humanity settling back into a village economy.

The plot meanders back and forth between the family characters as they stumble about trying to survive. One character muses about alternative history. What if the supervolcano hadn't blown for another century? or another millennium? Could it be that we are in the AH?

Assorted Alarums And Excursions.

The movie SCORCHER (2002) opens in the Antarctica with a camera flyover so like the opening sequence of THE DAY AFTER TOMORROW that one can be forgiven for thinking they used outtakes as stock footage. Instead of the hero hopping over deep crevices though, the scientists in this movie crawl their way to the rim of a suddenly active caldera, bubbling with countless lava spouts.

But that was just the overture. Volcanoes are erupting around the world. The subplots are set up. There is Julie McGrath, a woman-of-the-hour scientist,

dragooned into an emergency task force by the American President. Acting for security on the committee is Col. Ryan Beckett, who fancies himself a playboy and was once disciplined for making a pass at the First Lady. Considering his smarmy behaviour towards superior officers throughout the movie, it is surprising that he wasn't broken to Private and given a dishonourable discharge. McGrath's father Dr. Matthew Sallin is also a vulcanologist, and the two are put together on the same research team. She has unresolved childhood issues with him and just won't let go.

There is a traitor on the team, Special Agent Kellaway, who is out to get Beckett and sabotage the mission. Beckett's daughter Faith gets in and out of trouble, including being kidnapped by a religious fanatic. In short, no one on the team is concentrating fully on the job. Mind you, these are the people who are going to be in charge of two megatonnage nukes within just a few scenes.

And why are the volcanoes erupting? The Chinese military was testing underground nukes and detonated three of them in a pattern that fractured the Pacific Ocean tectonic plate. Magma is working its way up everywhere, and the world is doomed in three days unless the Pacific plate can be stopped. The only place to do so is Los Angeles, where two nukes must be detonated under the city.

(Pause for digression. Consider a possible alternative history. What if nukes had never been invented? How then would Hollywood be able to reverse the polarity, etcetera, in all those disaster movies?)

The President announces on television that greater Los Angeles must be evacuated. Yes, only three days to move ten million people out of the area. That's what the freeways are for, of course. Northern California and Nevada roads will also be busy. While the panicky mobs are trying to get out, the nuke emplacement squad has to get into the city to plant the bombs. Lots of running about, supporting characters meeting their sudden deaths, and people providing the idiots for the idiot plots. The leading actors succeed and escape with the usual seconds to spare. The nukes are detonated deep underground but the SFX show aboveground mushroom clouds, the better to smash skyscrapers with shock waves. And so to the happy group hug and the end credits.

MIAMI MAGMA (2011) begins with a drilling rig off the coast of Miami. A blowout occurs but it isn't oil, it's magma. That must have been one heck of a deep drill stem. The Holter Oil Company is covering up something, but what? Ominous forebodings begin, as they always do, when various bit players splashing around in Florida swamps or swimming pools are suddenly cooked in boiling water. There is a scientist who did work predicting an extinct volcano offshore from Miami. Her work was stolen by Holter Oil, who used the geological data for drilling, heedless of any concern about a volcano lurking in the vicinity. The machinations begin as half the cast tries to cover up the bad news and the other half tries to expose it. The infighting between Holter Oil executives is even more vicious than the attacks on the brave heroine.

Lava begins to bubble up in the streets of Miami, and the Army is called in to assist in stopping it. Surprisingly, no one mentions bringing in the nukes. Instead, they scrounge up 400,000 gallons of liquid nitrogen overnight, to be used in freezing the lava flow and diverting it into the oceans. There is a happy ending for everyone except the next of kin and the Miami Tourist and Convention Bureau. Miami no longer has those stunning beaches to gambol on, but now faces out onto kilometres of solidified lava to the far horizon. So much for the tourist trade.

Hubris.

There have been a few attempts to control volcanoes by dynamiting trenches or spraying water to redirect the lava flows, but beyond that it is not for humans to control. Nonetheless, humans will try to do so, for good or evil.

"Elemental" by Geoffrey Landis (1984 December, ANALOG) is set in an alternative Earth where magic is technology, not done by sorcerers in flowing robes, but techies sitting in front of consoles. Magic uses Elementals, forces of nature such as fire, water, and earth. The trouble in this story begins when farmers in Italy start using mild earth elemental spells for their crops. There are soon so many that their combined influence inadvertently brings up an earth elemental from the molten core of the planet. As a result, Vesuvius is going to blow and there isn't time to evacuate everyone. The techies therefore invert the spell to cancel it out. If it were an action-adventure movie, they would be doing that old reliable, reversing the polarity. It means that the earth elemental will instead emerge at the opposite end of Earth, which turns out to be in the ocean just off New Zealand. Vesuvius is safe, but the Kiwis now have a new volcanic island to trouble them.

SCIMITAR SL-2 (2004) by Patrick Robinson is an action-adventure novel about a Hamas plot to fire nuclear cruise missiles into the Cumbre Vieja

volcano of the Canary Islands. The idea is to start an eruption or collapse of the volcano's flanks into the ocean deeps, thereby triggering a giant tsunami that will devastate Europe and the Atlantic coast of the USA and Canada.

Robinson writes in an exaggerated and breathless style. Everything is black and white. There are the wild-eyed terrorists, gutless wimpy Democrats in the White House, stern but kind military commanders who will save us all, and Commie bastards who want to destroy us all. He is obviously preaching to the choir, those who resent so much money being spent on nukes if no one is going to use them.

The Hamas terrorist group leader has got himself a submarine from the Russians, with which to fire his cruise missiles he got from the North Koreans, fitted out with nuclear warheads by the Chinese. After being outfitted, the submarine takes the scenic route along the Aleutian Islands, while the U.S. Navy hunts unsuccessfully for it.

En route to its final destination, the submarine pauses off the Oregon coast and launches four cruise missiles to weave their way up to Mount Saint Helens, where they dive into the crater and detonate, triggering another eruption the size of 1980. Then a trip around South America and up to the Caribbean, where the procedure is repeated with the island of Montserrat, erupting their volcano into a cataclysm the natives weren't prepared for.

The Hamas demands are sent to the American government. Remove all American forces from the Middle East and evacuate all Israeli settlements in Palestine, or else the Cumbre Vieja will be made to erupt and trigger a tsunami that will destroy the infidels. The American President doesn't take his military commanders seriously, thinking the whole thing is a bluff, so they stage a coup and replace him with the Vice-President, who is more amenable.

The story then veers abruptly into the evacuation of the eastern USA population. Tens of millions of people must be moved inland to where? and how will they eat? Museums and libraries must transport their treasures to safety, for the tsunami will be 50 metres high and not just at the coast. The final few pages count down. The Hamas submarine manages to launch two cruise missiles at Cumbre Vieja, but American fighter planes shoot them down. The U.S. Navy takes care of the sub. There is the usual two seconds to spare on the countdown clock, and all ends well.

The novel is a fast read for them that reads books regular, but is obviously written for the crowd who want their beliefs in God, Republicans, and the military validated. Some of the characters' behaviours are a bit unbelievable, but it's the action and concept that counts, triggering volcanoes with nukes and hustling the plot along in fourth gear.

BOILING POINT (2011) by K.L. Dionne is a novel set in the Patagonian region of Chile, where a long-dormant volcano Chaitén is not going to stay dormant much longer. The book starts off, as it must, with the introduction to the characters. Microbiologist Sheila Kennedy is collecting specimens on the slopes of Chaitén. Vulcanologist Phillipe Dumas, confined to a wheelchair, is monitoring the world's volcanoes from his lair in Paris. Science documentary producer Dr. Max Heat** and his people are buzzing about in helicopters filming a television special on volcanoes.

Kennedy spots a convoy of 22 tanker trucks on some mysterious errand to a lake in the Chaitén caldera. Assorted environmentalists move in to help find the purpose of the tankers. They are still stumbling around in the figurative dark when the volcano blows. Heat, flying over Chaitén when it blows, gets spectacular film footage.

Dumas shows up in Chile, drawn by sensor reports that Chaitén may erupt. It was he who had a secret plan in geo-engineering. The tankers were paid for by him, dumping sulphuric acid into the lake. He is apparently a man of unlimited wealth, for it is later revealed that he has been doing this for caldera lakes all the way around the Pacific Ring of Fire. His plan is that eventually one or more of the volcanoes will erupt, injecting the sulphuric acid into the upper atmosphere where it will convert to sulphur dioxide. This will then cool Earth and thereby reverse global warming. Even for a mad scientist this is an audacious plan.

As Chaitén pumps out ash and lava, the characters all begin running about collecting plot coupons. Many of them converge to the volcano where their story lines cross. After a number of alarums and excursions, the cast of characters, including Dumas, is thinned out considerably. The epilogue is unconvincing. Dumas's plan is accepted worldwide, and the surviving characters all end up happy, happy, happy. The novel gave away its key secret a few chapters too soon, but all told the book is a good read.

** Since this is not a parody but a serious novel, the editor, if there was one, should have had the author change the name of this character to something a little less cutesy.

The 1902 eruption of Mount Pelee on the Caribbean island of Martinique killed 30,000 people in minutes in the town of Saint Pierre. Steven Utley uses this event in "The Glowing Cloud" (1992 January, ASIMOV'S), mixing in self-righteous time travelers who are there on a mission. The problem is, as one time traveler finds out, that there are other time travelers from further up-time who aren't as concerned about altering history or anything else in the way of ethics. The story seems to be mostly an excuse to throw in all the research the author did on the eruption, with a patina of science fiction.

Peripherals.

A volcano story but not about an eruption, "Firewalker" is Episode 9 of Season 2 of television series THE X FILES (1994). Mulder and Scully investigate a suspicious death at Mount Avalon in the Cascade Mountains. Scientists investigating this volcano found a rock that looked like porous obsidian. It turned out to be an infectious spore body from the depths of the volcano that, if inhaled, grows a fresh spore case in the throat before bursting and spreading the next batch of spores. It doesn't help that Mulder and Scully have to deal with a team leader turned mad scientist. Eventually the truth will out (or not), and an army hazmat team called in to sterilize the place, as well as putting Mulder and Scully in a month-long quarantine. The volcano doesn't blow but is declared off limits to the public. As a general rule, anything the higher-ups couldn't hide, they gave a plausible reason. This television series was the delight of the tinfoil hat crowd.

SEEN IN THE LITERATURE

Whiteside, J.H., et al (2015) **Extreme ecosystem instability suppressed tropical dinosaur dominance for 30 million years.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 112:7909-7913

Authors' abstract: "*A major unresolved aspect of the rise of dinosaurs is why early dinosaurs and their relatives were rare and species-poor at low paleolatitudes throughout the Late Triassic Period, a pattern persisting 30 million years after their origin and 10 to 15 million years after they became abundant and speciose at higher latitudes. New palynological* [pollen and spore analysis]*, wildfire, organic carbon isotope, and atmospheric pCO_2 data from early dinosaur-bearing strata of low paleolatitudes in western North America show that large, high-frequency, tightly correlated variations in d13Corg and palynomorph ecotypes occurred within a context of elevated and increasing pCO_2 and pervasive wildfires. Whereas pseudosuchian archosaur-dominated communities were able to persist in these same regions under rapidly fluctuating extreme climatic conditions until the end-Triassic, large-bodied, fast-growing tachymetabolic* [fast metabolism, warm-blooded] *dinosaurian herbivores requiring greater resources were unable to adapt to unstable high CO_2 environmental conditions of the Late Triassic. ...*"

"This is, to our knowledge, the first multiproxy study of climate and associated faunal change for an early Mesozoic terrestrial ecosystem containing an extensive vertebrate fossil record, including early dinosaurs. Our detailed and coupled high-resolution records allow us to sensitively examine the interplay between climate change and ecosystem evolution at low paleolatitudes during this critical interval of Earth's history when modern terrestrial ecosystems first evolved against a backdrop of high CO_2 in a hothouse world. We demonstrate that these terrestrial ecosystems evolved within a generally arid but strongly fluctuating paleoclimate that was subject to pervasive wildfires, and that these environmental conditions in the early Mesozoic prevented large active warm-blooded herbivorous dinosaurs from becoming established in subtropical low latitudes until later in the Mesozoic."

Speirs: There are doomsayers who predict the end of the world if CO_2 levels keep rising, ignoring the fact that this has happened many times in the past. What got me to thinking after reading this article was the message that smaller animals were more adaptable. Smaller, as in human size, not mice or cats. Of course back in the Triassic and indeed until a century ago, there were no animals that could see ahead into the future or consciously adapt to a hazard not yet arrived. Humans can do that. Perhaps not without a lot of kicking and screaming and denial, but eventually adapting. The real adaptations have not yet begun. Hundreds of millions of human now live on floodplains who weren't there even twenty years ago. Tens of millions of Americans buy property along the hurricane coasts. In the mountain resorts of Alberta and Saskatchewan, entire suburbs are being carved into forests that we know will erupt into flames every three or four decades and wipe out all those houses built of particleboard and roofed with cedar shakes.

Larbi, M.A.M., et al (2015) **First lunar flashes observed from Morocco (ILIAD Network): Implications for lunar seismology.** EARTH, MOON, AND PLANETS 115:1-21

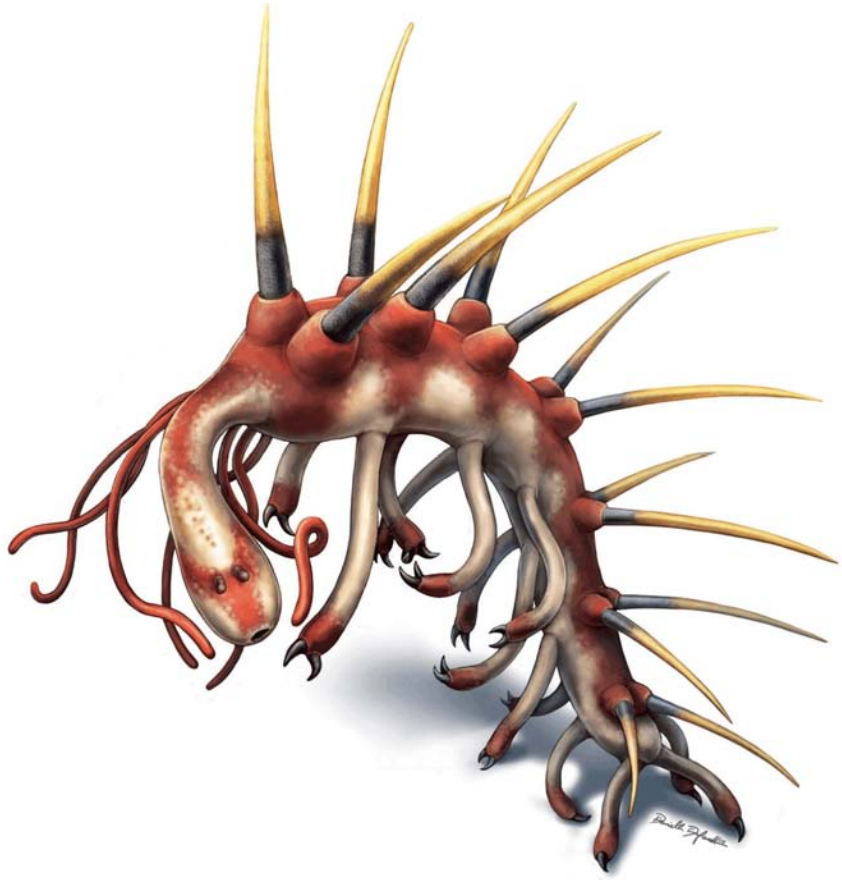
Authors' abstract: "*We report the detection of two transient luminous events recorded on the lunar surface on February 6, 2013, at 06:29:56.7 and April 14, 2013, 20:00:45.4 from the Atlas Golf Marrakech observatory in Morocco. ... We show that these events have the typical characteristics of impact flashes generated by meteoroids impacting the lunar surface ... The meteoroids would have produced craters of about 2.6 +/- 0.3 and 4.4 +/- 0.3 metres in diameter.*"

Watson, A.S., et al (2015) **Early procurement of scarlet macaws and the emergence of social complexity in Chaco Canyon, New Mexico.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 112:8238-8243

Authors' abstract: "*High-precision accelerator mass spectrometer (AMS) 14C dates of scarlet macaw (Ara macao) skeletal remains provide the first direct evidence from Chaco Canyon in northwestern New Mexico that these Neotropical birds were procured from Mesoamerica by Pueblo people as early as ~A.D. 900–975. Chaco was a prominent prehistoric Pueblo center with a dense concentration of multistoried great houses constructed from the 9th through early 12th centuries. At the best known great house of Pueblo Bonito, unusual burial crypts and significant quantities of exotic and symbolically important materials, including scarlet macaws, turquoise, marine shell, and cacao, suggest societal complexity unprecedented elsewhere in the Puebloan world. Scarlet macaws are known markers of social and political status among the Pueblos. New AMS 14C-dated scarlet macaw remains from Pueblo Bonito demonstrate that these birds were acquired persistently from Mesoamerica between A.D. 900 and 1150. Most of the macaws date before the hypothesized apogeal Chacoan period (A.D. 1040–1110) to which they are commonly attributed. The 10th century acquisition of these birds is consistent with the hypothesis that more formalized status hierarchies developed with significant connections to Mesoamerica before the post-A.D. 1040 architectural florescence in Chaco Canyon.*"

Smith, M.R., and J.B. Caron (2015) **Hallucigenia's head and the pharyngeal armature of early ecdysozoans.** NATURE 523:75-89

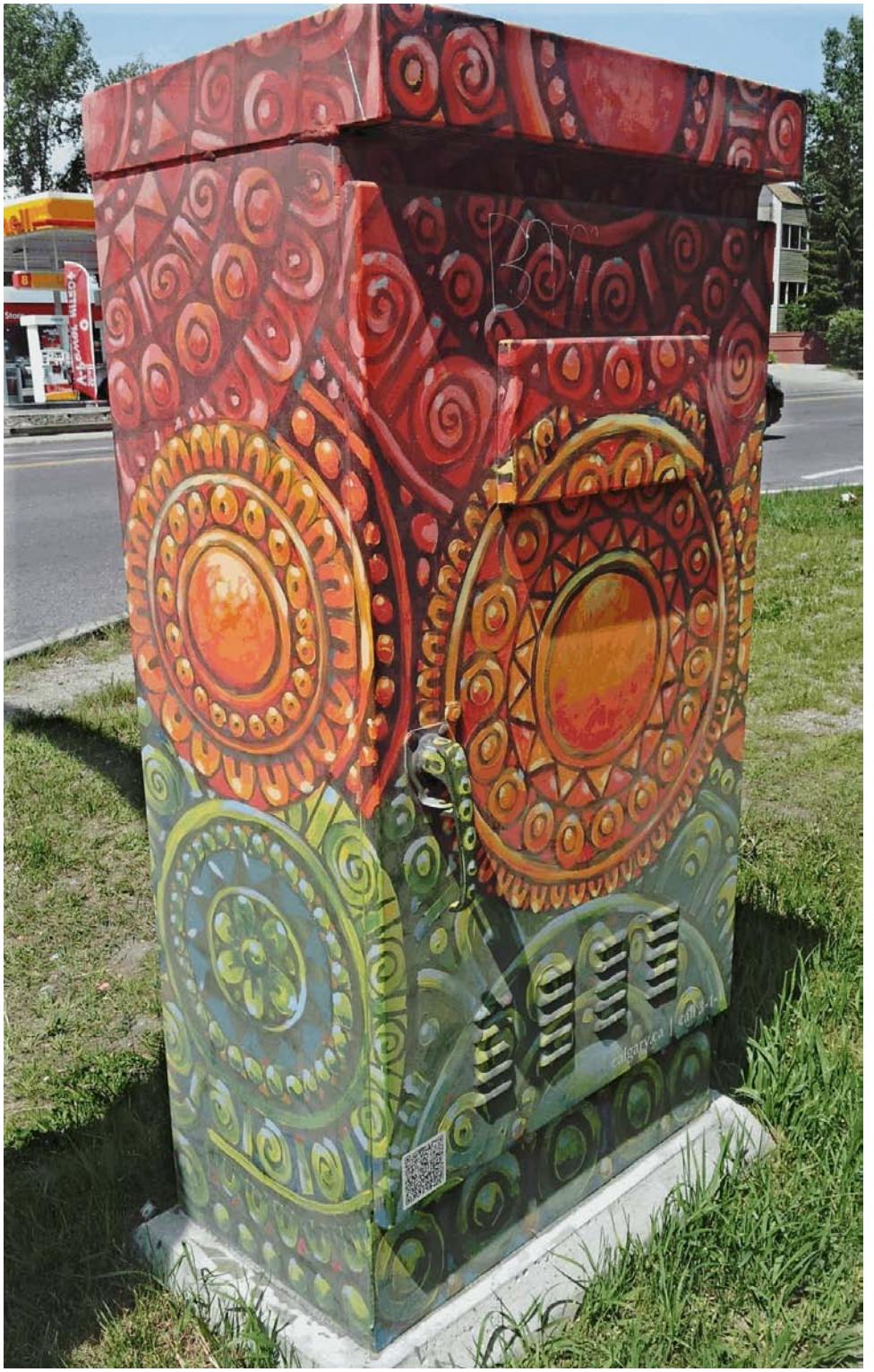
Authors' abstract: "*Here we redescribe the 508-million-year-old stem-group onychophoran Hallucigenia sparsa from the mid-Cambrian Burgess Shale. We document an elongate head with a pair of simple eyes, a terminal buccal chamber containing a radial array of sclerotized elements, and a differentiated foregut that is lined with acicular teeth. The radial elements and pharyngeal teeth resemble the sclerotized circumoral elements and pharyngeal teeth expressed in tardigrades, stem-group euarthropods and cycloneuralian worms. Phylogenetic results indicate that equivalent structures characterized the ancestral panarthropod and, seemingly, the ancestral ecdysozoan, demonstrating the deep homology of panarthropod and cycloneuralian mouthparts, and providing an anatomical synapomorphy for the ecdysozoan supergroup.*"



Li, W., B.L. Beard, and C.M. Johnson (2015) **Biologically recycled continental iron is a major component in banded iron formations.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 112:8193-8198

Authors' abstract: "*Banded iron formations (BIFs) record a time of extensive Fe deposition in the Precambrian oceans, but the sources and pathways for metals in BIFs remain controversial. Here, we present Fe- and Nd-isotope data that indicate two sources of Fe for the large BIF units deposited 2.5 billion years ago. High-eNd and -d56Fe signatures in some BIF samples record a hydrothermal component, but correlated decreases in eNd- and d56Fe values reflect contributions from a continental component. The continental Fe source is best explained by Fe mobilization on the continental margin by microbial dissimilatory iron reduction (DIR) and confirms for the first time, to our knowledge, a microbially driven Fe shuttle for the largest BIFs on Earth. Detailed sampling at various scales shows that the proportions of hydrothermal and continental Fe sources were invariant over periods of 100–103 y, indicating that there was no seasonal control, although Fe sources varied on longer timescales of 105–106 y, suggesting a control by marine basin circulation. These results show that Fe sources and pathways for BIFs reflect the interplay between abiologic (hydrothermal) and biologic processes, where the latter reflects DIR that operated on a basin-wide scale in the Archean.*"

Speirs: When the first photosynthetic microbes evolved, there was a long delay of hundreds of megayears before the oxygen they gave off finished reacting with carbon and metals and a surplus began to exist in the atmosphere. A time traveler going back to the Precambrian would need oxygen tanks. The free oxygen eventually ran out of iron or other substances to form oxides with and then began to exist as a gas in the atmosphere. Iron is the most abundant metal in the crust for oxygen to react with. Prior to photosynthesis, it was recycled back into the crust as metal, but the microbes changed Earth's geological record by oxidizing all the surface iron into banded layers of oxides. Iron is also an important nutrient for life; it is needed as a catalyst in photosynthesis and carries oxygen in hemoglobin.



More utility box art, from Elbow Drive SE at Heritage Drive.