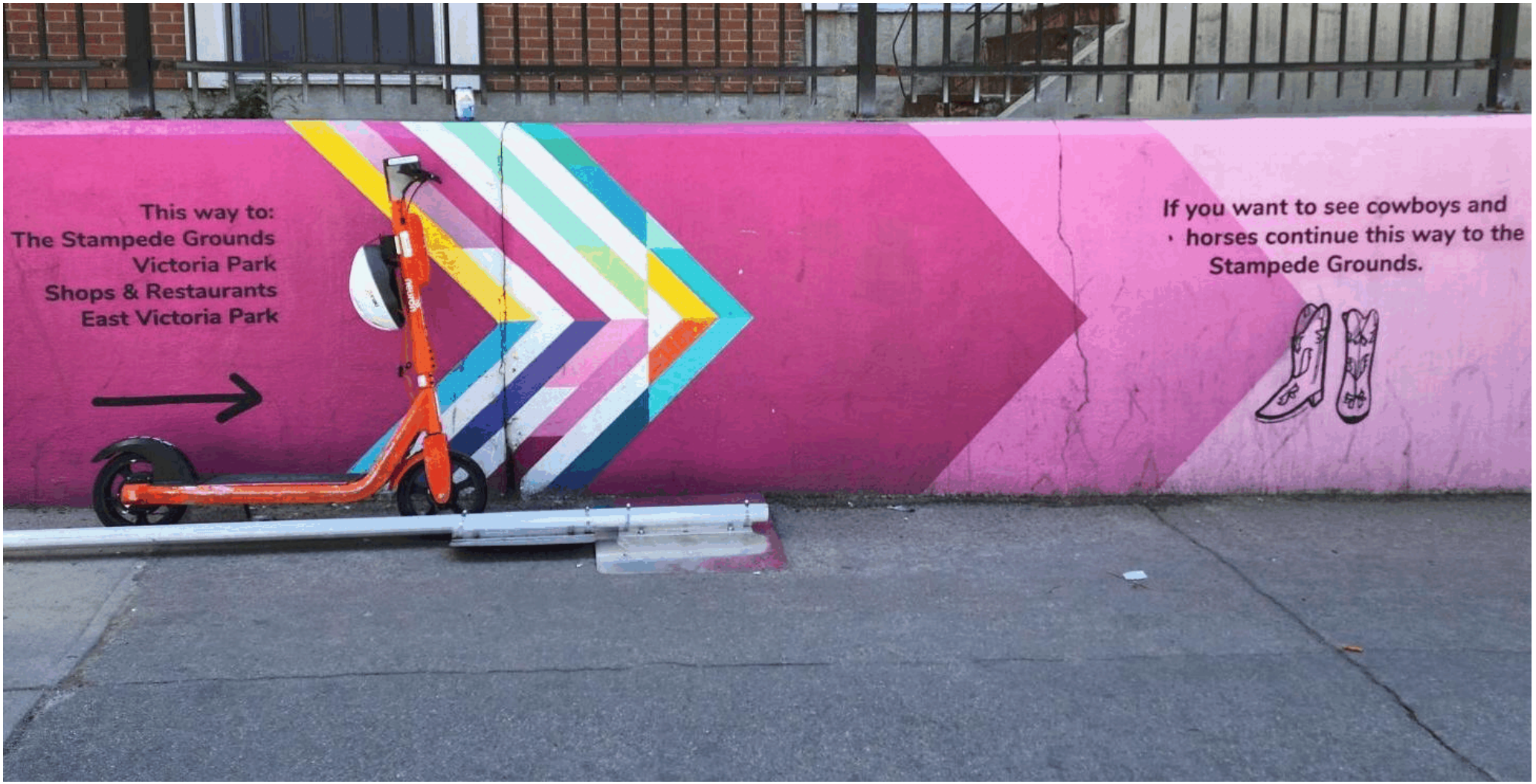
OPUNTIA 576


This way to:
The Stampede Grounds
Victoria Park
Shops & Restaurants
East Victoria Park
If you want to see cowboys and horses continue this way to the Stampede Grounds.

Stampede Parade 2024

Opuntia is published by Dale Speirs, Calgary, Alberta. It is posted on www.efanzines.com and www.fanac.org. There is also an cumulative subject index to all issues available at those sites. 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.

BUT FIRST, LET'S EAT

photos by Dale Speirs

1.4 million paid admissions over ten days in early July down at the Calgary Stampede rodeo grounds. The entire city gets into the act as early as middle June. Everyone dresses western even if they are city slickers or newly-arrived immigrants. Every shopping centre, church, and community association puts on a free pancake breakfast.

I try to visit different Stampede breakfasts every year, which gives me an excuse to go out to districts not ordinarily traveled. This year I began with a June 22 breakfast at the Deer Run Community Association in southeast Calgary. Their free breakfast was two pancakes and two pork sausages, plus juice.

You always get a good crowd by offering free food. June is normally rainy but this year it was mostly showers at night and sunny by day. Room temperature weather, although if you were out in the open you might have needed a light jacket against the wind.

The heat dome afflicting the USA brushed the 49th Parallel, so Alberta was getting just-right weather. However the last week of June turned wet, what the Environment Canada weather bureau jocularly refers to as “periods of rain”.

That was why this zine didn’t have a Canada Day issue this year. I’m as patriotic as the next Canadian but July 1 was too rainy to go on a walkabout to the events.

The Calgary Stampede has a rodeo Queen, three Princesses, and a First Nations Princess (aboriginal).

They work all year long traveling between rodeos and municipal fairs to advertise Calgary.

The Deer Run breakfast was graced by one of them. They each get personal limousine service.

On July 2, the re-start of Calgary's water supply was almost complete after the broken 2-metre watermain was repaired (see the previous issue of OPUNTIA for details). Residential restrictions were lifted, while lawn watering remained verboten. The Stampede celebrations were already well underway even though the parade wasn't until Friday morning, July 5.

On July 4, the First Flip pancake breakfast was staged on the Stephen Avenue pedestrian mall in the downtown core. I was there. All Stampede breakfasts are operated by volunteers. After a century of serving pancakes, the system is down pat. When I arrived, the line was around the block but moved so fast that I had my plate full in ten minutes.

Entertainment on the mall.

PARADE DAY 2024-07-05

photos by Dale Speirs

The rain had gone, the sun was shining, and 300,000 spectators lined the streets of downtown Calgary for the 3-hour parade. I had my usual position on the south side of 9 Avenue SW, so the sun would be behind me, which made for better photography and less sunburn.

At top left: Owen Crow Shoe (mounted on horse at right) is an actor in Hollywood who has apparently been doing quite well, although I never heard of him or his television series. He was born and raised on the Piikani Reserve about two hours drive south of Calgary.

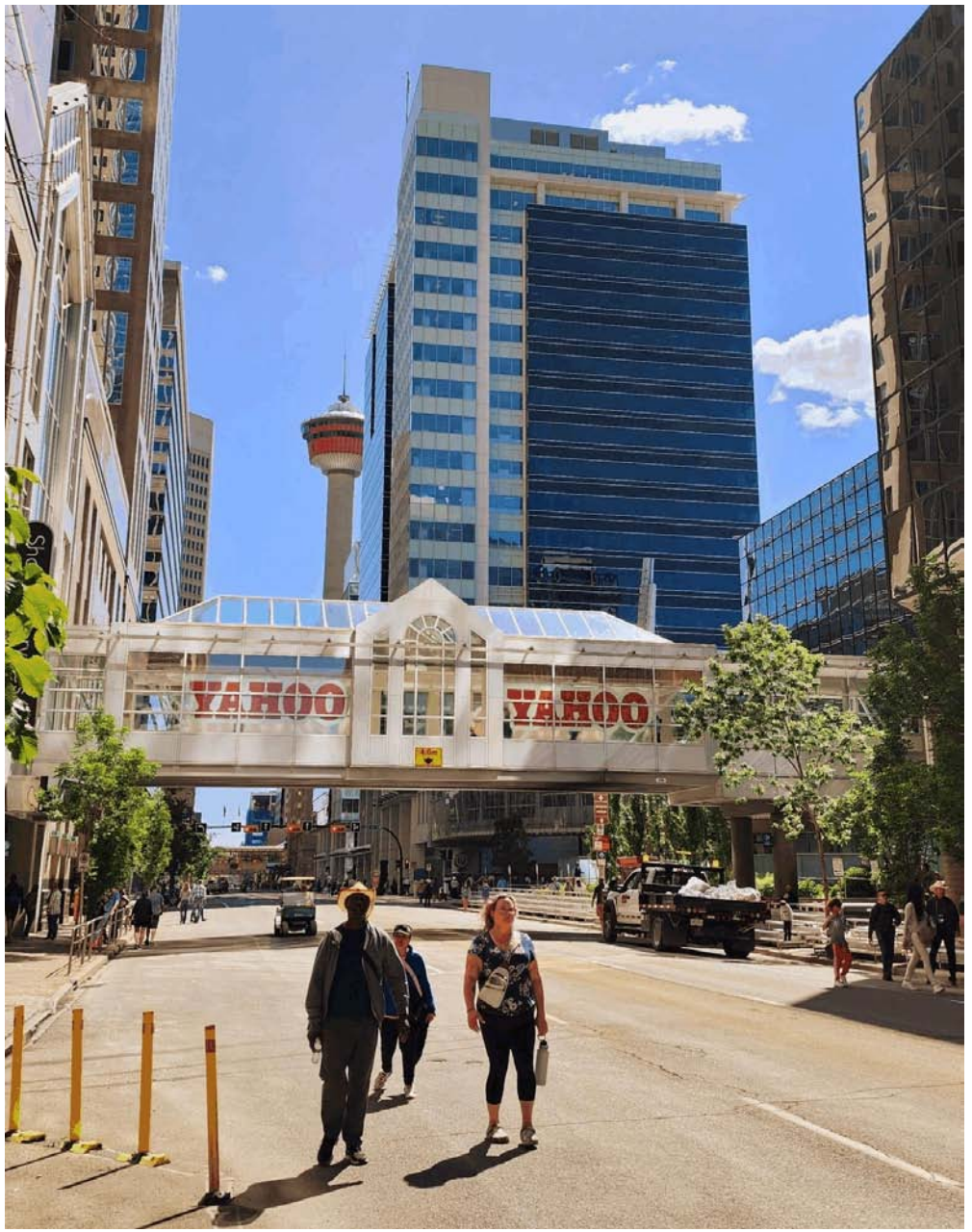
The Piikani, along with the Siksika (two hours east of Calgary on the Trans-Canada Highway) and the Kainai (a short drive south of Piikani) are part of the Blackfoot Confederacy.

Below left: Following Crow Shoe were fellow members of the Piikani tribe.

Top right: A wagon from the Tsuu T'ina Reserve advertising their Grey Eagle casino. They are Dene, unrelated to the Blackfoot, whose land is now contiguous with Calgary after the city sprawled out their way.

After the parade, the Stampede organization announced there were 700 horses in the parade. I'll take their word for it. I didn't count them.

Calgary has the fourth largest Chinatown in Canada after Toronto, Vancouver, and Montreal.



Above left: Across the avenue from where I was, these spectators were looking into full sunlight. Notice the girl sitting on top of a utility box.

Above right: After the parade, the route is kept closed for an hour so that workers can clean up. I took this photo as I walked east on 9 Avenue SW en route to the Stampede grounds. More in the next issue of this zine.

OUT WHERE THE WEST COMMENCES: PART 11

by Dale Speirs

[Parts 1 to 10 appeared in OPUNTIAs #68.1D, 356, 418, 419, 435, 446, 478, 504, 529, and 553.]

Back On The Farm.

"Chicken Or The Egg" by Clayton Matthews (1967 June, THE MAN FROM UNCLE MAGAZINE) was about Roger Templeton, a veterinarian with a shady past. He fell in with a con man Silas Rankin, who set up a chicken ranch scam.

Rankin supplied some small diamonds which Templeton surgically embedded into the ovaries of hens. Rankin then supplied the eggs to a client, who was soon anxious to buy the farm at a ridiculous price and did.

The cash having been received, Templeton later met with Rankin to divide the spoils. Templeton took the cash and gave Rankin a bullet in the head in exchange. The twist was that the cash was counterfeit. Templeton was later run in by a Treasury agent when he tried to spend the money.

A Man Rode Into Town To Do What A Man's Gotta Do.

SHOGGOTHS IN TRAFFIC (2021) was a collection of 23 stories by Tobias S. Buckell. Some of the stories were westerns.

"Sundown" brought aliens in an airship to a mining town at the same time a U.S. Marshal was tracking his prey. The Marshal was a black man, which made him an alien as well. It all ended in flames (the airship) and a hail of bullets from a Gatling gun.

"The Scar That Stains Red The Gulch" was about a gunslinger, well a Pinkerton man, who rode into town like a man must do. He found himself dealing with an alien that fell from space and took over the minds of townfolk and cowboys alike.

"The Waiting Room" was an episode of the television series NIGHT GALLERY. The episode was an original script written by Rod Serling and aired on 1972-01-26. A gunfighter named Samuel Dichter rode into a strangely silent town, passing a hanged man dangling from a tree en route. Dichter stepped into a saloon for a drink. Four men playing cards and a bartender were the only occupants. The cardplayers were gunfighters, all dead men somehow revived.

Each of the four stepped outside in turn each time a clock struck the hour, from whence gunshots were heard. Then it was closing time. Dichter found himself on the road again, once more passing the hanged man. He took a closer look and discovered it was himself twisting in the wind.

Frightened out of his wits, he dashed back to the saloon, where he found the four men revived. He was trapped in an infinite loop. For his sins, Dichter and the other gunfighters would constantly return to meet their deaths again and again.

How Ya Gonna Keep Them On The Farm?

THE ADVENTURES OF LEONIDAS WITHERALL was heard during the 1944-45 radio season, and was loosely based on the novels of Alice Tilton, pseudonym of Phoebe Atwood Taylor.

The character was a bachelor who owned and operated a boys school, which today might make listeners wonder. He taught a class in English literature and his vanity was that he looked much like Shakespeare. His housekeeper Mrs Mollett was played by an actress who gave her character one of the worst stage Irish accents heard anywhere, begorrah.

Witherall wrote the Lieutenant Hazeltine radio series. This was not a secret from his friends and as a result of which he was frequently dragged into amateur sleuthing. His friends figured that if he wrote about detectives then he must be one himself. He tried to explain that the real world didn't operate the same as fictional detecting, but to no avail.

"Murder At The State Fair" was written by Howard Merrill and aired on 1944-09-24. Leonidas Witherall and his housekeeper Mrs Mollett were off to the state fair.

She was competing in the fruit preserves contest but worried about the judge Mrs Axelby. The latter was a golddigger, having divorced one husband and now trying for a widower who was the wealthiest farmer in the state.

The farmer's son Randy was angry at her because he was expecting to inherit the farm. He didn't want her interloping. Others had their reasons to dislike her.

Axelby was diverted to the war bonds drive at the last moment. Witherall agreed to judge the preserves but never got the chance. Just as he was to begin, a prize bull escaped and caused a commotion.

Someone knocked over the jars of preserves in the process. Eventually the bull subsided and licked up the preserves. The animal began to look woozy but the owner blamed the excitement.

After all that, Witherall decided to relax in the midway. He went to a shooting gallery. After several shots, Mollett noticed blood seeping from the back wall. Someone had gagged and bound Axelby as a hidden target.

More bad news followed. The bull died. One jar of preserves had been poisoned. That jar had been prepared by Randy's girlfriend Connie. She was suspected for the same reason as Randy, to prevent Axelby from getting the farm.

Witherall named Randy as the killer, who promptly blabbed all. He intended Axelby to taste the poisoned preserves. When Witherall took over, Randy let the bull loose to create a diversion so he could spill the preserves, then get away to grab Axelby and put her in the shooting gallery.

We never get this sort of trouble at the Calgary Stampede.

Weird Westerns.

THE WEIRD WEST (2019) by William Meikle was a chapbook of three stories. Available from Amazon print-on-demand. The chapbook read well, and you don't have to be an old cowhand like me to appreciate the stories.

"One Hand And The Fiddler" was about a strange carnival that came to a dusty frontier town. The same day, two strangers walked in from the desert. The carnival was billed as The City Of The Future, showing off science fictional devices such as a washing machine and a vacuum cleaner.

There was an airship, and there were steam-powered androids, life-like as all get out. But the townfolk weren't ready for the future. The two strangers made certain the steam men would not survive to bring the jubilee.

"Descance En Paz" brought a preacher out west to a dissolute gold mining camp. He wondered why he had the calling until some of the miners blew out the side of a hill looking for ore. Instead they found the skeletons of a long-lost party of conquistadors who resented the disturbance.

The slaughter of miners was immense until the pastor called on the Spaniards to cease in the name of the lord. More trouble ensued. The miners were consigned to hell as the conquistadors came out of it. The pastor found himself administering to his new flock.

"Where The Kobolds Dance" began with trouble down at the mine. A new tunnel had been opened, and with it came white creatures made of rock. They loved to dance when the church organ was played up top. (Low-frequency sounds travel great distances through rocks.)

When the creatures got in the way of the miners or vice versa, humans ended up on the refuse tip. The sheriff had to resort to an unusual method to control the kobolds.

Ride 'Em, Cowthing.

THE MUNSTERS was a low-brow situation comedy television series that aired for two seasons from September 1964 until May 1966. The premise was a spooky family who didn't realize they were spooky. They tried to fit in with society despite Herman Munster being a Frankenstein monster, his wife Lily a ghoul, their son Eddie a werewolf, and Lily's father Grandpa a vampire.

"Bronco Bustin' Munster" was a Season 2 episode which aired on 1965-09-30, written by Bob Mosher and Joe Connelly. Eddie kept bragging about his father being the greatest dad in the city. Eddie inadvertently backed his father into a corner by signing him up for the bronco riding event at a local rodeo. Herman had never ridden a horse of any kind, much less a bronco who resented anyone on its back.

Grandpa had some pills to turn himself into livestock. After two false starts, becoming a goat, then a hog, Grandpa assumed the guise of a horse. The idea was that he would give Herman a safer ride. Gentlemen to the left and horses to the right and it's off to the rodeo. Unfortunately Grandpa's pill wore off before the event and he reverted to human shape and size.

Herman didn't know that and thought he would have a nice safe ride on Grandpa. The horse he got instead was Volcano, named such for good reason. But Herman managed to hang on and win the event.

All's Fair.

YOURS TRULY, JOHNNY DOLLAR was the second-last of the old-time radio series, airing from 1949 to 1962. (The final episode of SUSPENSE aired immediately after the final episode of YTJD.) Johnny Dollar was an insurance investigator based in Hartford, Connecticut.

Each episode began with a claims adjustor from an insurance company ringing him up and asking him to take on a case. The running joke of this series was that Dollar shamelessly padded his expense account. Each scene was introduced by Dollar reciting a line item from his expense report, followed by a segue to the action.

"Out Of The Fire Into The Frying Pan" was written by Paul Dubley and Gil Doud and aired on 1949-08-21. The episode also circulates under the title "Prize Hog Bodyguard", which describes the plot. An insurance company sold a policy for $25,000 on a pedigreed hog being exhibited at an Iowa county fair. Call it about $500,000 in today's depreciated currency.

Too late the company had second thoughts, so they sent Johnny Dollar to guard against sharp practice. Assorted alarums broke out as soon as Dollar arrived. The hog owner's wife had a $30,000 diamond broach which was stolen as Dollar was looking for the hog. That wasn't Dollar's problem. What concerned him was learning that the hog owner had only paid $10,000 for the hog. Dollar was suspicious that the owner might try to make a profit on the policy.

The local sheriff was a few hay bales short of a stack. Needless to say his bumbling was an annoyance to Dollar. Only an annoyance though, as Dollar had no difficulty flummoxing him. The search for the diamonds seemed to be connected with a pork barbecue. The stones were insured, so the suspicion was doubled.

All ended well with hog and diamonds safely returned. The hog policy expired as the fair closed. Then Dollar learned that the animal would later be slaughtered and barbecued at a special ceremony. Total expense account was $1,463.

FOOD COZIES: PART 28

by Dale Speirs

[Parts 1 to 27 appeared in OPUNTIAs #432 to 434, 436, 438, 441, 442, 444, 447, 450, 454, 456 to 458, 460 to 462, 465, 475, 507, 512, 524, 530, 538, 550, 565, and 573.]

One important rule about food cozies: Never read them on an empty stomach.

Sweet Dreams Are Made of Cheese.
Who Am I To Dis A Brie?
I Cheddar The World And The Feta Cheese.
Everybody's Looking For Stilton.

[With apologies to Annie Lennox. Okay, I stole this off the Internet but who could resist? The cheese labels are scans of what I've eaten over the past year.]

CHEDDAR OFF DEAD (2022) by Korina Moss was the first novel in a food cozy series about Willa Bauer of Yarrow Glen, California, in the Sonoma Valley. This book should not be confused with a food cozy of the same title written by Julia Buckley and reviewed in OPUNTIA #463.

Willa had just opened a cheese shop, not as silly as might seem because the surrounding wine country could reasonably be expected to provide plenty of tourist trade. Her stock also included olives, jams, nuts, dried fruits, and dried meat.

The grand opening included a contest to guess the weight of a giant cheddar wheel, free samples of exotic cheeses, and cheese-making classes in the evening. Not such a welcome part of the first day was a visit to the class by nasty food critic Guy Lippinger.

He was a drunken boor but someone later that night taught him good manners by sticking a knife into his neck. With a knife from the cheese shop. In the back alley behind the cheese shop. Thus Willa became a Miss Marple, all on that day.

Her sleuthing had to alternate with desperate attempts to advertise her shop. The location was on a side street, off the pedestrian routes. She forgot that it is not enough to open a store. If the customers don't know you exist, then not much business will come your way.

Advertising is essential for every business. Willa and her staff, both of them, went to a local fair handing out flyers and eavesdropping on gossip about Lippinger. One of them dressed as a cheese wedge. They got results, and the next day the shop was busy.

Unlike many Miss Marples in cozies, Willa knew how to use Google. Her ineptness at personal investigating got her into trouble with both police and fellow citizens who resented being interrogated by her.

The plot rolled along with sleuthing that uncovered Lippinger's nasty background and more than enough about exotic cheeses the reader will never find in a supermarket. Suspects were identified and dismissed. The history of Tilsit cheese was explained as part of a visit to a suspect.

As part of her Marpleing, Willa and friends met in the cheese shop to re-enact what happened just before Lippinger staggered outside and went off to be murdered. This involved preparing fondue, dipping in baguettes, and then walking around trying to recreate everyone's movements while munching on the bread and cheese.

Not standard police procedure. Fortunately I had deep-dish pizza just before settling down to read. Even so I was sorely tempted to go to my refrigerator for a piece of Applewood smoked cheddar. But I digress.

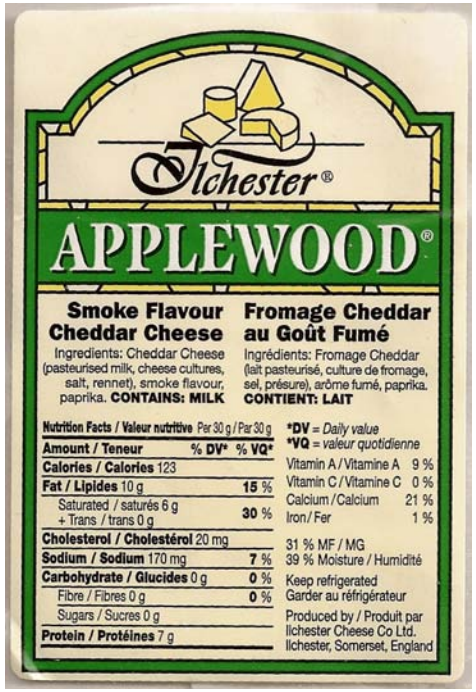
Willa kept blundering around the village, repeating hearsay that in the real world would get her sued for slander. She was gullible enough to believe anything a suspect told her and act on false information. A blithering idiot.

The prime suspect (both hers and the police) disappeared but not for long. She found him dead behind a dumpster. Only forty pages left in the book. A murder attempt against her failed. She assuaged her fears by stress-eating with Gorgonzola and olives, followed by gouda and dried apricots.

The next day she sat down with her two staff, Mrs Schultz and Archie. Over a breakfast of stir-fried cheese blintzes with blackberry syrup, they discussed how to carry on sleuthing. The others left and Willa was alone in the cheese shop when the murderer arrived.

There was an extended discussion in which the killer explained how Lippinger fathered an illegitimate daughter he refused to acknowledge or support. Having run out of things to say, the murderer then went after Willa.

Remember that giant cheddar wheel weight guessing contest? The wheel was still sitting on the counter. It weighed 78 pounds and Willa wasn't afraid to use it. And so to the recipes appendix after the police hauled away the culprit.



Starting off was Gruyère-Slathered Croque Monsieur, basically a ham and cheese sandwich with cheese sauce. The only other item was a three-cheese fondue.

GONE FOR GOUDA (2022) was the sequel. Willa Bauer was hosting celebrity vegan chef Phoebe Winston, which seemed strange for a cheese shop. Phoebe was a prima donna and her assistant Thomas Doolittle a sycophant.

They were there to boost her new cookbook, which contained a variety of vegan and non-vegan recipes. The Stinging Nettle Loaves and vegetarian fake cheese were examples. They didn't taste very good but vegans will eat anything if they think it's plant based.

Phoebe was on the comeback trail. She had been a cooking show star until someone posted a video of her being nasty to the hired help, which went viral.

She stayed out of sight until the scandal blew over, then made a video of her cute lapdog Buttercup and announced she was going vegan. Disaster struck just before the event.

Photos were posted online of Phoebe heartily chowing down one of everything delivered from a local barbecue restaurant. The sold-out event suddenly became unsold as irate vegan fans abandoned her.

Willa and friends went to visit Phoebe. They found her dead in a bathtub, her body underwater and booze nearby. The initial assumption was that she passed out drunk and drowned. The police soon determined that she was murdered, forcibly held underwater until she drowned.

A new subplot was introduced. In a desperate attempt to bring in tourists from the big city, the village of Yarrow Glen decided to host a harvest festival. The event would begin with a parade of business floats, including the cheese shop.

The investigation got underway, Willa's, that is. The police felt they had jurisdiction but the reader knows who will break the case. The Willa gang, pardon the expression, discussed their plans over tacos and melted cheese. Types of cheese and how to melt them helped fill a page or so.

Buttercup was passed around because no one knew what to do with a lapdog. He got them in and out of scrapes, while Willa and friends got into their own scrapes, such as crossing police yellow tape to snoop around crime scenes.

Willa did some of her interrogations over lunch at her cheese shop. She grubbed up details of Phoebe's life over jalapiño cheese popovers, the preparation of which was also explained in detail. Occasionally she took time to work on the cheese shop float, which had its own troubles, although mostly relegated.

With fellow Marpleites she went out to snoop at Phoebe's house but they never got there because someone disabled the brake line of their car (not hers, fortunately). They survived and the alarums carried on.

Undaunted, Willa continued sleuthing while dispensing beer-cheese soup to all and sundry. She mentioned boiling the soup stock to remove the alcohol, which had me wondering what was the point of adding the beer. I'm a teetotaler, so I wondered why beer-flavoured cheese in a soup would be considered edible.

The denouement was an idiot plot with Willa doing all the stupid things to get herself trapped with the killer. Buttercup came bursting in and saved her. The murderer had taken revenge against Phoebe for her past sins. He explained all the details during an extended confession over several pages.

The epilogue jumped straight to the final hours of the harvest festival.

What about the float? A few loose threads, not including the float, were wrapped up over apple cider and thence to the recipes appendix.

Bavarian Beer Cheese Dip led off, followed by Cheesy Apple Pockets and Jalapeño Grilled Cheese Sandwich.

CURDS OF PREY (2023) by Korina Moss was the third novel in the series. Willa Bauer was catering a cheese bar for a bridal shower. The happy bride-to-be Summer was of the Harrington family, who were Richie Rich rich. Olivia was her mother, the matriarch of the family, a battleaxe it must be said.

The groom was Nelson Trumbull. His aunt Kate was mayor of the village. Money versus political power. Summer's sister Chloe had previously been with Nelson but dumped him. He wanted to marry into money and enjoy the good life.

Willa was chasing Roman Massey, whom Nelson thought was chasing his fiancée Summer. Roman had left Summer at the altar a few years ago. The two men came to blows. Willa didn't know what to think. She had enough problems setting up the cheese table.

She had an additional problem. After the Lippinger murder in the first novel of this series, the Harringtons bought the local newspaper for which he had written. Willa had to be nice if she wanted a good review for her cheese shop.

The bridal shower never happened. Nelson and Roman got into a physical altercation just before the guests arrived. A short while later Willa found Nelson's body in the stable. Roman was not on the estate.

The good news was Olivia Harrington had paid Willa in advance. The cheeses were moved to the mansion's kitchen since they were paid for, saving Willa the trouble of hauling them back to her shop. After the police were done, she returned to the cheese shop.

Willa and her staff, Mrs Schultz and young Archie, began analyzing the murder over cheddar and egg pancakes. Kate wanted Willa to come over the next day for a consultation about solving the murder. As this was Willa's third murder, her reputation as a Miss Marple preceded her.

To give an idea of why you must read this novel only on a full stomach, the next morning, and the next chapter, began with Willa rousing herself from bed and preparing breakfast. The details of making a cheese and apple slice tortilla, drizzled with honey, will certainly make you hungry.

Willa was away and Marpleing, collecting co-conspirators and suspects in equal quantity. Many of the chapters began with Willa and her staff in the cheese shop preparing the daily special while speculating about murder suspects. They eventually decided to call themselves Team Cheese.

As an example, while they laid out Saint André soft cheese on thick slices of raisin bread, they gossiped about who was where and when at the bridal shower. The day was rainy, which actually increased trade in the shop. Willa remarked: *Luckily cheese is the perfect accompaniment for any weather.*

There was a subplot about intermittent wallet thefts. Only cash was taken, not credit cards or government ID. Willa was too busy chasing a murderer to worry about a petty thief.

One interesting kickback to the previous novel in this series occurred in Chapter 16, where a new dog George was introduced. A brief sentence explained that Buttercup from the previous book now lived out of town with a new owner. It's nice to have little continuity details such as this properly explained. Trouble was, George promptly disappeared from the narrative and was never mentioned again.

Willa's sleuthing was interspersed with assorted alarums. Shots were fired, a painting of the late Nelson was slashed with a knife. That sort of thing. Most of her suspects were interconnected in one way or another. Nelson had played around and played too long.

As the pages counted down, the first climax was at a community dance. Potluck, with Willa supplying Gruyère Gougères, which were labeled as French Cheese Puffs so that people would eat them. The dance ended with a crash as the wallet thief was caught red-handed. Not just figuratively, as a trap was set using a red wallet smeared with indelible red paint. The thief's hands convicted him.

No time to gloat, as that same evening the Harrington's were hosting a big gathering. Willa dashed over to interrogate the housekeeper Polly but wasn't successful because Olivia was keeping an eagle eye on the staff. From there to the stables out back, where Olivia almost managed to dispatch both Polly and Willa.

She failed. Polly was just a bit player but Willa was the series leading lady.

Olivia didn't like Nelson playing around with her daughters and blabbed a full confession.

The recipes appendix began with Goat Cheese Breakfast Quesadilla.

Next was Dutch Baby Oven Pancakes (cheese and ham), and Spicy Snack On A Stick (cheese skewer).

CASE OF THE BLEUS (2023) was the fourth installment in the series. Yarrow Glen was hosting the Northwest Cheese Invitational. That was a bigger thing in the Sonoma Valley than it would be elsewhere. Willa Bauer was excited to see so many great names in cheese congregating together.

The late Max Dumas, killed in a car crash, was famous for his blue cheese known as Church Bleu. (His shop was in a converted church.) He kept the recipe secret but everyone expected someone would inherit it at the reading of the will. Willa had once worked for Max but quit to open her own shop.

The day before the reading, several claimants fought over the last remaining wheel of Church Bleu. Physically, that is. They were four of Max's staff, plus his estranged daughter Maxine, who had arrived in town.

The will reading was a disappointment. Max's shop went to Maxine as expected but the will said nothing about the Church Bleu recipe. Maxine had no interest in cheesemongering and had already announced she was going to sell the shop.

Willa didn't attend the reading. She was busy in her shop and visiting friends, one of whom owned George the dog. Remember him from the last book? He got a walk-on part.

One of Max's staff contending for his shop and the recipe was Kendall Waterstone. She mentioned that she was allergic to honey and carried an epi-pen. That wasn't just a foreboding, but waving a red flag, jumping up and down, and blaring an airhorn.

The village held a fête at which Willa had a booth. Twas there that Kendall met her fate from something she drank.

Someone stole her epi-pen and a medic pronounced her dead at the scene from honey anaphylaxis.

A honey allergy? I checked Google and all the citations agreed such a thing is incredibly rare, to four decimal places of a percentage point. Not impossible but a nut allergy might have been more plausible.

After the police interrogated her, Willa went back to her shop to meet with Team Cheese, comprised of her friend Baz and her two employees Mrs Schultz and young Archie. Willa classified Max's employees and now suspects, by what kind of cheese they would be.

"Well, Claire's a lot like her favorite cheese, Parmigiano Reggiano. Parm is usually a supporting player that boosts the other flavors, helping them shine. Consistent and reliable, with a sharpness you might not expect if you don't know it well."

They smiled at my description. "Do the others. What would be their cheese?" Archie said.

I considered this for a minute. "Pepper's might be Red Witch. Raw milk, alpine style, with a paprika-rubbed rind, it's bold, creamy, and unapologetic. It's known for its vivid exterior color, but is unsung in its meltability and versatility. Pepper definitely feels she's unsung."

"And Freddie?", Baz said.

"Freddie's would be Honeybee. It's a young Gouda, light and sweet, with a touch of a bite from the acidic goat's milk it's made with. Because it has an easy flavor, it pairs well with something a bit stronger."

That's a new way to Marple. However, Willa did go the traditional route, questioning villagers with all the subtlety of a Gestapo agent. The police were annoyed with her as they usually were. She leaped to conclusions like an Olympic high-jumper.

To add further to the mystery, just before her death Kendall had sneaked into Willa's apartment and stolen a book. Max had given the book to Willa on the occasion of her departure from his shop.

Those who attending the reading said Max had written in the will what were apparently a few code words to his Church Bleu recipe. The clue apparently was tied to the book Kendall stole.

That book became the MacGuffin of the plot. Confirmation came when Willa received a sealed envelope from Max, whose attorney, in accordance with instructions, forwarded it to her post-mortem. The letter from Max told her the secret of Church Bleu was hers, to be deciphered only via the book.

Fortunately Willa recovered the book. On various pages Max had circled letters, which produced anagrams. Unfortunately the local news reporter blabbed the secret because she couldn't keep her mouth shut. Maxine then stirred the pot by saying she believed her father's death was murder.

At this point I suddenly realized that several plot elements had gone missing even as new ones were added. The Northwest Cheese Invitational had faded from view. And where was George the dog?

The book was stolen again because Willa left it sitting on her shop counter. Various alarums were sounded, and excursions made hither and yon. Just normal life in any village unlucky enough to have a Miss Marple.

Notwithstanding all that, Team Cheese was able to puzzle out some more clues.

They concluded that the secret to Church Bleu's taste was that Max had been aging the cheese in a lava tube in an extinct volcano.

The denouement, however, was in nearby woods where about a dozen people gathered, basically everyone who had ever worked in a cheese shop.

The killer made her move but naturally failed. The question remained about where the cheese recipe was.

More clues surfaced that led Team Cheese to the grave of Max Dumas. The whole mystery, and deaths, were the result of his joke from beyond the grave. The secret of making Church Bleu had died with him.

The recipes appendix began with Ham And Blue Cheese Tart, followed by Gorgonzola Garlic Bread, and finally Creamy Dolce Dip.

Auntie Clem's Bakery: Omnibus #2.

P.D. (Pamela) Workman has a lengthy series of food cozies called Auntie Clem's Bakery. The protagonist was Erin Price of Bald Eagle Falls, Tennessee. She couldn't set foot outside her bakery without tripping over a corpse.

The first six novels are available in two omnibus volumes, which I bought from Amazon print-on-demand. Each volume of three novels is about 600 pages in the trade paperback format. I reviewed the first omnibus in OPUNTIA #573. The second omnibus of this series by P.D. Workman comprised books 4 to 6.

Leading off was STIRRING UP MURDER (2018). The opening alternated between the quiet life at the bakery and a setup with two men discussing how to silence an unnamed woman for reasons not specified. Not by murder; they just wanted her on ice for a while until they completed a deal. The boss told the fixer he wanted her to run and hide.

Erin Price, meanwhile, was wondering how to search for a half-sister whose name and residence she didn't know. That half-sister would be heir to half the Plaint estate. The sister's half-brother Davis was doing hard time in prison but that did not disqualify him from inheriting his half.

The threads came together when the woman to be silenced, Charlotte Campbell, became the possible sister. However the latter was not definitely established. What was established was that Erin was still an idiot.

She was informed that Charlotte was part of an organized crime family, the Dysons. Nonetheless she decided to meet Charlotte. They had barely met when the police busted in and arrested Charlotte for murdering her boyfriend Bobby Dyson.

As the officer told Charlotte, she should be more afraid of the Dysons than the police. Erin was run in as a found-in. She was worried she wouldn't be able to

get back to the bakery before closing. She did but was soon drawn back in. Charlotte had a pet chameleon who needed feeding. Guess who volunteered?

Back home there were more alarums in the village, which would never again slumber in peace as it did before Erin arrived. The boss and the fixer had their own alarums. They hadn't wanted Charlotte in jail nor loose where the Dysons could get her. The boss just wanted her to run away in fear and never be found again.

To be fair to Erin, she was encumbered with massive psychological problems. As a foster child she was shuffled from place to place. As an adult she was desperate for family connections and stability, hence her latching on to anyone who might offer the same.

Erin and Vic managed to barge their way in between two crime families, the Dysons and the Jacksons. Vic was a Jackson but had been expelled because he was a transvestite. Crime families draw the line at that sort of thing.

In the denouement, the fixer went after Erin instead of Charlotte. She survived, as she had to, while one more character was eliminated from the story arc. There were no other resolutions because the next novel in the series was nigh.

Which was BREWING DEATH (2018). Charlotte Campbell was trying to re-open the Plaint bakery but was feuding with her half-brother Davis Plaint. The previous owner, Davis' full brother Trenton, had died intestate.

Charlotte and Davis each had a half-share of Trenton's estate but that wasn't official until probate. The only thing of value was the bakery as a working operation. The building by itself had minimal value. If Charlotte's belief that Davis had murdered Trenton could be proved, then she would get the entire bakery because murderers cannot inherit.

Erin and Vic, meanwhile, carried on with the gluten-free bakery. They were nervous about what would happen when the other bakery re-opened. The good news, for them, was that the estate trustees and Davis' lawyer dragged their feet.

Charlotte was frustrated and wanted to get the bakery going again since she needed some income. To add spice to the mix, Joelle Biggs, Trenton's former girlfriend, also came back into town.

Joelle was sniffing around for something but seemed to be suffering a lot of accidents. She took to bed after injuring her leg and died after drinking some herbal tea. Erin and Vic were there when she passed on. Their third poisoning death, as the police noted.

The lab test indicated the tea was comfrey, laced with foxglove digitalis, which was what killed her. Now a pause for a digression. Erin's house was on a country acreage. At the far end was a cottage she rented to Adele, who was until now only mentioned in passing a few times.

Adele was a herbalist who had prepared the comfrey tea for Joelle. Comfrey is banned for internal use in Canada and most countries because it is toxic to the liver.

Further tests revealed there wasn't enough foxglove in the tea to kill Joelle. However she had applied a poultice to he injured leg that was almost pure foxglove. The digitalis was absorbed through her skin and killed her.

There was an alarum with a missing man with dementia. Roger Cox wandered away and was lost, then found. Erin still had to run her bakery, reminding occasional customers she didn't carry peanut butter bars. Bakers get up early, so late night sleuthing took a toll.

Erin and Vic debated theology as they prepared the day's food, specifically why bad things happen to good people. Such as someone spiking her strawberry jam with belladonna extracted from nightshade, which happened a few days later.

During the police interrogation Erin said she always turned on the house alarm system at night. The officer patiently pointed out that the system had to be on during the day when she was at the bakery. Duh.

Erin had the usual confrontation with the killer and the usual last-second rescue. Joelle was in the blackmailing business and tried to shake down Roger. His mind was failing but he still remembered the lessons in herbal potions his grandmother taught him. Joelle had to go and did. Erin had to go because she just wouldn't stay out of other people's business.

COUP DE GLACE (2018) began in the bakery with Erin and her teenaged shop assistant Bella Prost discussing nut-free recipes. From there they managed to segue to a haunted barn where Bella's grandmother had been murdered years ago.

You can't hold a chuckwagon horse back when the race steward blares the airhorn, and in like manner Erin was off to the races. Or the Marpleing rather. On the business side she bought a display freezer so she could go into the ice cream business. Tennessee gets hot in summer.

On the bad side, Reg Rawlins was a ne'er-do-well foster sister of Erin who suddenly showed up in the village. She meant trouble. Erin barged about stirring up even more trouble.

She found the murderer, who attempted to dispose of her and Bella but was stymied, to no reader's surprise. Reg had her own con game going and later skipped town after stealing loot from several homes.

Charlotte finally got legal permission to open the competing bakery, which worried Erin more than she would let on. The good news was that Erin's new freezer would allow her to sell non-dairy ice cream.

There were 13 more novels in this series as of 2023. I won't bother with them. In small doses these novels aren't bad but Miss Marple should not always be a wimp who makes idiot decisions. Her characterization explained why she did so but the constant stupidity was wearisome.

FREE STUFF ONLINE

I provide sources for the scientific pdfs and mp3s reviewed in this zine. Here is a summary of some good resources, all of which are free.

In particular, the "Seen In The Literature" column cites only peer-reviewed papers. For topics such as climate change or social media effects, more people should be reading these papers instead of blogs where commentators confuse their opinions as being facts.

For scientific papers for which free pdfs are available, the easiest method is to Google either the title of the paper or its digital object identifier, the phrase beginning with doi.org.

Many papers are behind a paywall, so unless you have access to a university library computer, you can only get the abstract. However, the abstract is often enough to understand the gist of the article.

Every scientific periodical has free email notifications of each new issue's table of contents. I subscribe to dozens of notification services, in case you were wondering how I manage to keep up with the literature.

For zines, www.efanzines.com provides current pdf zines as well as some older ones. A club called Fanac at www.fanac.org does the reverse; they provide thousands of old zines from the 1930s to date, with a few current zines. Both sites have a free email notification service you can subscribe to.

The Old Time Radio Researchers have thousands of old-time radio shows (1930s to 1950s) covering all the genres, such as comedy, science fiction, fantasy, and mystery. Visit www.otrr.org/OTRRLibrary.

They also publish a free bulletin OLD RADIO TIMES, available at www.otrr.org/?c=times, with an email notification service. Don't pay money for audio books and listen to a droning voice when you can listen for free to full-cast shows such as Jack Benny or Inner Sanctum from the OTRR.

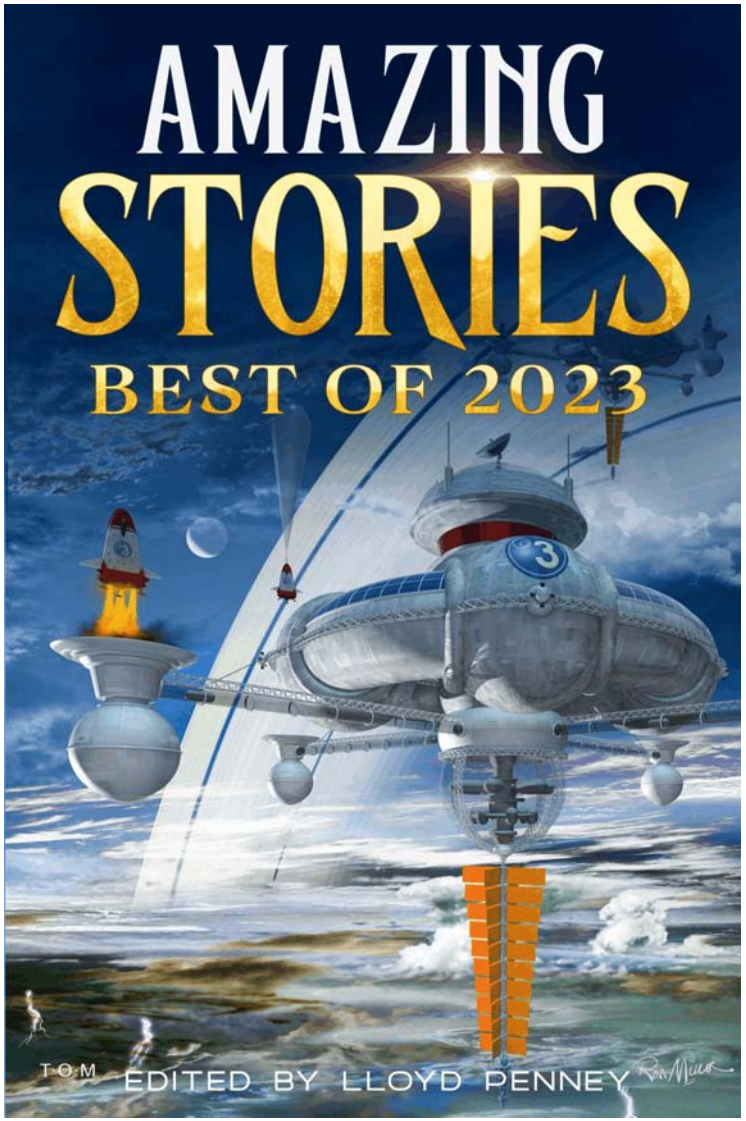
For pulp fiction magazines from all genres, visit www.archive.org/details/pulpmagazinearchive?&sort=-downloads&page=2
Books in the public domain are free from https://gutenberg.org

LETTERS TO THE EDITOR

[Editor's remarks in square brackets. Please include your name and town when sending a comment. Email to opuntia57@hotmail.com]

FROM: Lloyd Penney 2024-06-27
Etobicoke, Ontario

I've been very busy getting the AMAZING STORIES BEST OF 2023 ready, and it is ready to get from Amazon. Edited by me, and published through Amazing Selects. Available through Kindle download and print-on-demand.



[I found it on Amazon with their search engine and will order a paperback.]

OPUNTIA #572: [Re: cover photo of crow waiting to cross Calgary street] The crows have made it here, too. I don't see them often, but I certainly hear them in the distance.

[Crows are rare in my neighbourhood because the magpies dominate. That was the first crow I had seen in months.]

We've been at our massive anime con for five year now as vendors and staff. We've left as staff, and given the 40,000 warm-body count and the level of noise within the building (the nearby airport would be quieter), we must make a hard decision, and choose to return or not.

Yvonne was able to sell most of the tropical shirts she made (she sold 27 of them at the con, a record for her shirts), but I still have a lot of jewelry to sell, and I might choose a less strenuous way to sell it.

[Try a booth at a street festival.]

[Re: Calgary mall torn down for new LRT station] More than a dozen shopping malls are being partially or totally torn down here to build yet more condominium towers. No doubt, once the malls are removed and the towers built, those lucky ones who live there will wonder why there's nowhere to shop.

[In Calgary, most new condominium towers have a ground-floor pedestal for retail and professional services.]

We've got the summer patios as well, but in such numbers that it can really restrict traffic in busy areas.

[In Calgary, that is part of the plan, not only to boost restaurant business (and thereby City tax revenue) but to get people out of their cars.]

My previous letter: We have some big conventions to go to, and I think our budget is about used up, so I don't think I'd be able to go to Cancon this year. Perhaps the next.

We had our World Wide Party on the 21st! As always, we got ourselves to drink, and something to snack on. We bowed to the four corners, and toasted fanzine fandom, and all fandom, for that matter. The pandemic has gotten rid of so many events like conventions, so we have to preserve what we have left.

OPUNTIA #573: The zine library looks great. Garth Spencer gave me some contacts about zine conventions and zine libraries a while ago. I have to get moving and contact some of them, to see if they might take all or some of my own zine collection.

Reality television: I got asked what reality shows I watch. I responded, "The news." "That's not what I meant. " "What's more real than the news?" So-called 'reality shows' are surreal.

[I've never watched a reality show, if only because I know there are a dozen crew behind the camera and everything is scripted.]

OPUNTIA #574: I think in a city like Calgary, street festivals are large, but not crowded. It certainly is street festival time here, but we don't go to them because the streets are jampacked with people, anything you might like to do or buy is just too expensive, and the pickpockets are out in force.

We went to a Ukrainian faire once, but when we asked questions, we were asked if we were Ukrainian, we weren't, and we were asked to leave. We did, and we've never been back. Strange, yes, it wasn't a response we were expecting.

[I'm astonished. I visit ethnic festivals all summer long and they are quite pleased to have white folk there.]

OPUNTIA #575: [Re: panic after Calgary lost 60% of its drinking water] The bottles of water from the Calgary Stage 4 water alert. We buy that water all the time. The tap water in Toronto is quite potable, but we live in an apartment building with lead pipes. So, we buy two bottles of spring water a week.

[Repairs to the Calgary water main were completed June 26. Then the line had to be flushed, the water tested, and the line gently re-pressurized, which took several days. Calgary's water supply was restored by Stampede time on July 5.]

Re the FANAC History Project. Garth Spencer is, I believe, still working on an updated list of APAs extant in this digital age. Might be an idea to ask him to present something that would complement the FANAC report.

[Heath Row has published BLUE MOON SPECIAL, a checklist of modern amateur press associations, available as a free pdf at efanzines.com/HR/index.htm]

SEEN IN THE LITERATURE

Astronomy.

Swiggum, C., et al (2024) **Most nearby young star clusters formed in three massive complexes.** NATURE 631:doi.org/10.1038/s41586-024-07496-9 (available as a free pdf)

Authors' abstract: *Recent studies using precise data from space astrometry missions have revealed nearby, newly formed star clusters with connected origins. Nonetheless, mapping young clusters across the entire sky back to their natal regions has been hindered by a lack of clusters with precise radial-velocity data.*

Here we show that 155 out of 272 (57%) high-quality young clusters within 1 kiloparsec of the Sun arise from three distinct spatial volumes. This conclusion is based on the analysis of data from the third Gaia release and other large-scale spectroscopic surveys.

At present, dispersed throughout the solar neighbourhood, their past positions more than 30 million years ago reveal that these families of clusters each formed in one of three compact, massive star-forming complexes. One of these families includes all of the young clusters near the Sun, the Taurus and Scorpius-Centaurus star-forming complexes.

We estimate that more than 200 supernovae were produced from these families and argue that these clustered supernovae produced both the Local Bubble and the largest nearby supershell GSH 238+00+09, both of which are clearly visible in modern three-dimensional dust maps.

We have used a recently published star cluster catalogue to create a sample of 254 high-quality, young (<70 megayears old) clusters within approximately 1 kpc of the Sun, supplemented with a further set of 18 young local associations, which are low-mass, co-moving associations of stars located within 200 parsec of the Sun.

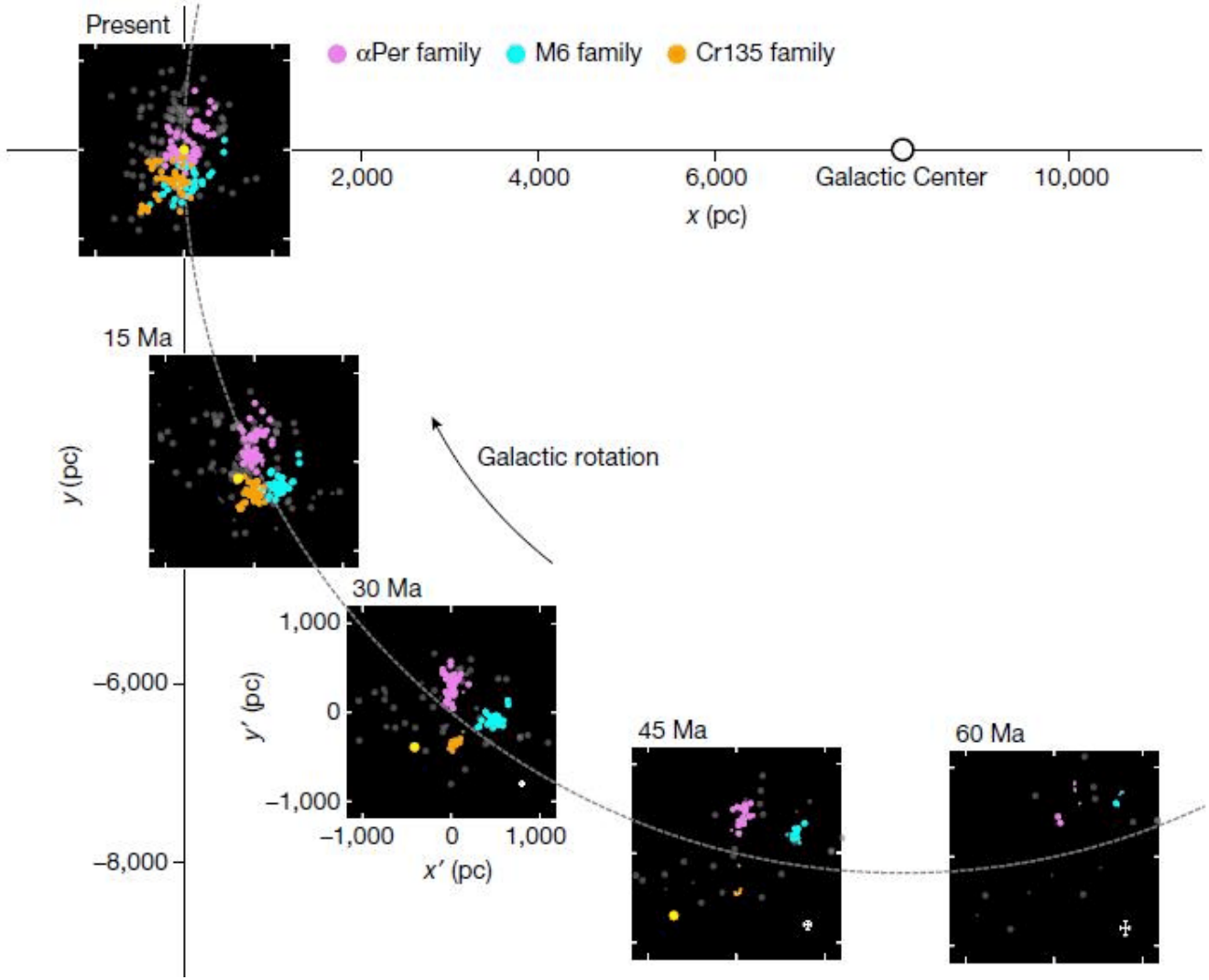
Here we refer to the members of both samples as 'clusters'. Using the current positions and three-dimensional space velocity of each cluster, we integrate the orbits of the clusters 60 Myr backwards in time assuming an axisymmetric galactic potential.

Going back 30 to 50 Myr, we find that nearly 60% of the trajectories of these clusters converge at three locations, indicating that a large fraction of clusters in the solar neighbourhood share common origins.

We designate the three cluster families as the Collinder 135 (Cr135), Messier 6 (M6) and Alpha Persei (aPer) families, named after the most notable old cluster in each grouping.

These families contain 39, 34 and 82 clusters respectively, accounting for 57% of the 272 clusters in our sample and 59% of the 48,514 stars in our sample.

[Chart is from this paper.]



Supernovas.

Shchepkin, A.A., et al (2024) **Sharp rise in cosmic ray irradiation of organisms on Earth caused by a nearby SN shockwave passage.** ASTROBIOLOGY 24:doi.org/10.1089/ast.2023.0126

Authors' abstract: *The work considers the modelling of nearby supernova (SN) effects on Earth's biosphere via cosmic rays (CRs) accelerated by shockwaves.*

The rise of the radiation background on Earth resulted from the external irradiation by CR high-energy particles and internal radiation in organisms by the decay of cosmogenic carbon is evaluated.

We have taken into account that the CR flux near Earth goes up steeply when the shockwave crosses the Solar System, while in previous works the CR transport was considered as purely diffusive.

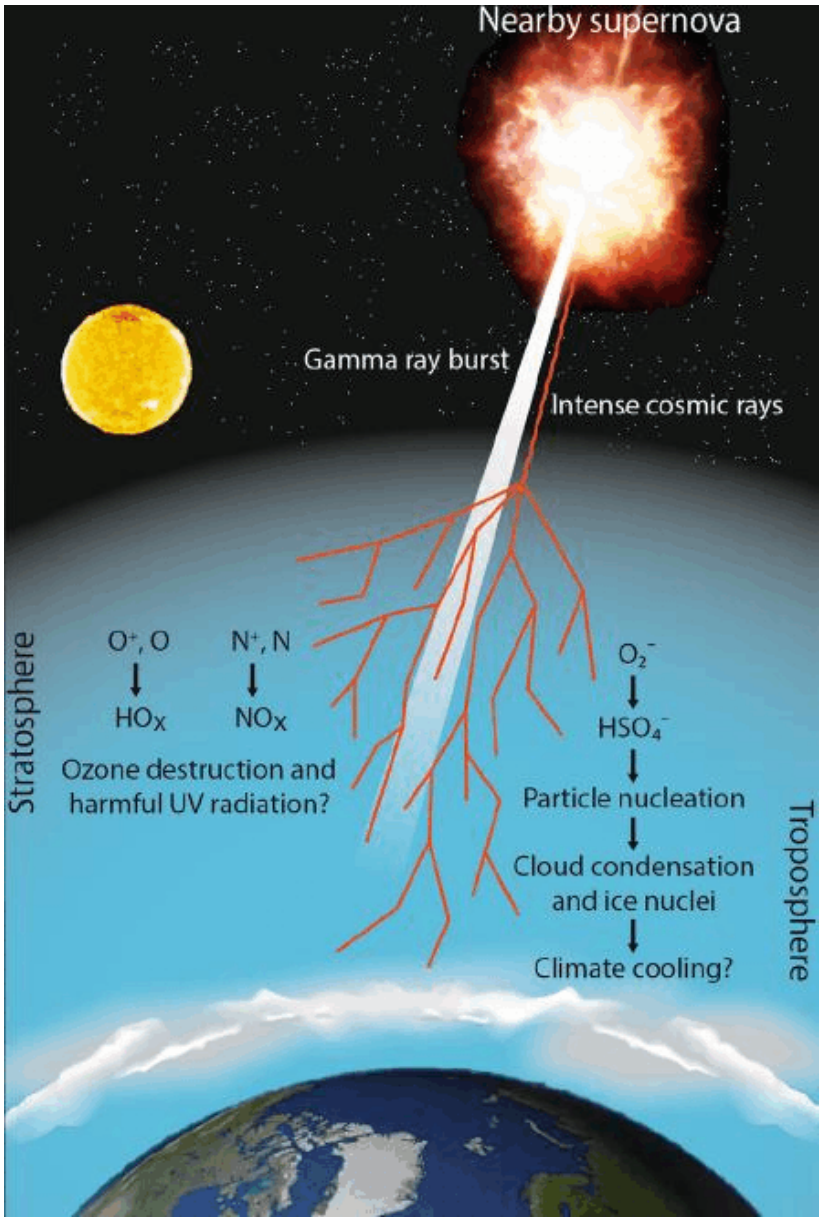
Our simulations demonstrate a high rise of the external ionization of the environments at Earth's surface by atmospheric cascade particles that penetrate the first 70 to 100 metres of water depth.

Also, the cosmogenic carbon decay is able to irradiate the entire biosphere and deep ocean organisms. We analyzed the probable increase in mutation rate and estimated the distance between Earth and an SN, where the lethal effects of irradiation are possible.

Our simulations demonstrate that for SN energy of around 10 erg the lethal distance could be ~18 parsecs.

Christoudias, T., et al (2024) **Earth's atmosphere protects the biosphere from nearby supernovae.** COMMUNICATIONS EARTH AND ENVIRONMENT 5:doi.org/10.1038/s43247-024-01490-9 (available as a free pdf)

Authors' abstract: *Geological evidence indicates that a supernova within 100 parsecs of Earth occurs around once per million years. Such nearby supernovas can produce an intense gamma-ray burst and a 100-fold increase of cosmic rays, lasting several centuries.*



We find that the effect of a short burst of gamma rays is small since they are strongly attenuated before reaching the lower stratosphere. Intense cosmic radiation affects stratospheric ozone but, due to compensating effects in catalytic chemical cycles, ozone depletion is moderate and comparable to that from current anthropogenic emissions.

This also holds for the low-oxygen atmosphere during early evolution of terrestrial life. We estimate the increase in aerosol and clouds from a 100-fold increase of cosmic rays exerts a radiative forcing comparable in magnitude but opposite in sign to current anthropogenic climate forcing. We conclude that Earth's atmosphere is effective at shielding the biosphere from nearby supernovae.

[Image is from this paper.]

Planets.

Daubar, I.J., et al (2024) **Seismically detected cratering on Mars: Enhanced recent impact flux?** SCIENCE ADVANCES 10:doi.org/10.1126/sciadv.adk7615 (available as a free pdf)

Authors' abstract: *Seismic observations of impacts on Mars indicate a higher impact flux than previously measured. Using six confirmed seismic impact detections near the NASA InSight lander and two distant large impacts, we calculate appropriate scalings to compare these rates with lunar-based chronology models.*

We also update the impact rate from orbital observations using the most recent catalog of new craters on Mars. The snapshot of the current impact rate at Mars recorded seismically is higher than that found using orbital detections alone. The measured rates differ between a factor of 2 and 10, depending on the diameter, although the sample size of seismically detected impacts is small.

The close timing of the two largest new impacts found on Mars in the past few decades indicates either a heightened impact rate or a low-probability temporal coincidence, perhaps representing recent fragmentation of a parent body. We conclude that seismic methods of detecting current impacts offer a more complete dataset than orbital imaging.

Goncalves, R., et al (2024) **Intercropping on Mars: A promising system to optimise fresh food production in future martian colonies.** PLOS ONE 19:doi.org/10.1371/journal.pone.0302149 (available as a free pdf)

Authors' abstract: *Future colonists on Mars will need to produce fresh food locally to acquire key nutrients lost in food dehydration, the primary technique for sending food to space.*

In this study we aimed to test the viability and prospect of applying an intercropping system as a method for soil-based food production in Martian colonies.

This novel approach to Martian agriculture adds valuable insight into how we can optimise resource use and enhance colony self-sustainability, since Martian colonies will operate under very limited space, energy, and Earth supplies.

A likely early Martian agricultural setting was simulated using small pots, a controlled greenhouse environment, and species compliant with space mission requirements.

Pea (Pisum sativum), carrot (Daucus carota) and tomato (Solanum lycopersicum) were grown in three soil types ("MMS-1" Mars regolith simulant, potting soil and sand), planted either mixed (intercropping) or separate (monocropping).

Rhizobia bacteria (Rhizobium leguminosarum) were added as the pea symbiont for nitrogen-fixing. Plant performance was measured as above-ground biomass (g), yield (g), harvest index (%), and Nitrogen/Phosphorus/Potassium content in yield (g/kg).

The overall intercropping system performance was calculated as total relative yield (RYT). Intercropping had clear effects on plant performance in Mars regolith, being beneficial for tomato but mostly detrimental for pea and carrot, ultimately giving an overall yield disadvantage compared to monocropping (RYT = 0.93).

This effect likely resulted from the observed absence of Rhizobia nodulation in Mars regolith, negating Nitrogen-fixation and preventing intercropped plants from leveraging their complementarity.

Adverse regolith conditions, high pH, elevated compactness and nutrient deficiencies, presumably restricted Rhizobia survival/nodulation.

In sand, where more favourable soil conditions promoted effective nodulation, intercropping significantly outperformed monocropping (RYT = 1.32).

Given this, we suggest that with simple regolith improvements, enhancing conditions for nodulation, intercropping shows promise as a method for optimising food production in Martian colonies.

Alien Life.

Schwieterman, E.W., et al (2024) **Artificial greenhouse gases as exoplanet technosignatures.** ASTROPHYSICAL JOURNAL 969:doi.org/10.3847/1538-4357/ad4ce8 (available as a free pdf)

Authors' abstract: *Atmospheric pollutants such as chlorofluorocarbons and NO_2 have been proposed as potential remotely detectable atmospheric technosignature gases. Here we investigate the potential for artificial greenhouse gases including CF_4, C_2F_6, C_3F_8, SF_6, and NF_3 to generate detectable atmospheric signatures.*

In contrast to passive incidental byproducts of industrial processes, artificial greenhouse gases would represent an intentional effort to change the climate of a planet with long-lived, low-toxicity gases and would possess low false positive potential.

An extraterrestrial civilization may be motivated to undertake such an effort to arrest a predicted snowball state on their home world or to terraform an otherwise uninhabitable terrestrial planet within their system.

Because artificial greenhouse gases strongly absorb in the thermal mid-infrared window of temperate atmospheres, a terraformed planet will logically possess strong absorption features from these gases at mid-infrared wavelengths, possibly accompanied by diagnostic features in the near-infrared.

As a proof of concept, we calculate the needed observation time to detect 1 [10](100) ppm of C_2F_6/C_3F_8/SF_6 on [the planet] *TRAPPIST-1 f with JWST MIRI's Low Resolution Spectrometer (LRS) and NIRSpec.*

We find that a combination of 1[10](100) ppm each of C_2F_6, C_3F_8, and SF_6 can be detected with a signal-to-noise ratio ?5 in as few as 25[10](5) transits with MIRI/LRS.

We further explore mid-infrared direct-imaging scenarios with the Large Interferometer for Exoplanets mission concept and find these gases are more detectable than standard biosignatures at these concentrations.

Consequently, artificial greenhouse gases can be readily detected (or excluded) during normal planetary characterization observations with no additional overhead.

Geology.

Mashayek, A., et al (2024) **On the role of seamounts in upwelling deep-ocean waters through turbulent mixing.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 121:doi.org/10.1073/pnas.2322163121

Authors' abstract: *Turbulent mixing in the ocean exerts an important control on the rate and structure of the overturning circulation. However, the balance of processes underpinning this mixing is subject to significant uncertainties, limiting our understanding of the overturning's deep upwelling limb.*

Here, we investigate the hitherto primarily neglected role of tens of thousands of seamounts in sustaining deep-ocean upwelling. Dynamical theory indicates that seamounts may stir and mix deep waters by generating lee waves and topographic wake vortices.

At low latitudes, stirring and mixing are predicted to be enhanced by a layered vortex regime in the wakes. Using three realistic regional simulations spanning equatorial to middle latitudes, we show that layered wake vortices and elevated mixing are widespread around seamounts.

We identify scalings that relate mixing rate within seamount wakes to topographic and hydrographic parameters. We then apply such scalings to a global seamount dataset and an ocean climatology to show that seamount-generated mixing makes an important contribution to the upwelling of deep waters.

Our work thus brings seamounts to the fore of the deep-ocean mixing problem and urges observational, theoretical, and modeling efforts toward incorporating the seamounts' mixing effects in conceptual and numerical ocean circulation models.

Paleobiology.

Wang, X., et al (2024) **A late-Ediacaran crown-group sponge animal.** NATURE 630:doi.org/10.1038/s41586-024-07520-y (available as a free pdf)

Authors' abstract: *Sponges are the most basal metazoan phylum and may have played important roles in modulating the redox architecture of Neoproterozoic oceans. Although molecular clocks predict that sponges diverged in the Neoproterozoic era, their fossils have not been unequivocally demonstrated before the Cambrian period, possibly because Precambrian sponges were aspiculate and non-biomineralized.*

Here we describe a late-Ediacaran fossil, Helicolocellus cantori gen. et sp. nov., from the Dengying Formation (around 551 to 539 million years ago) of South China.

This fossil is reconstructed as a large, stemmed benthic organism with a goblet-shaped body more than 0.4 metre in height, with a body wall consisting of at least three orders of nested grids defined by quadrate fields, resembling a Cantor dust fractal pattern.

The resulting lattice is interpreted as an organic skeleton comprising orthogonally arranged cruciform elements, architecturally similar to some hexactinellid sponges, although the latter are built with biomineralized spicules.

A Bayesian phylogenetic analysis resolves H. cantori as a crown-group sponge related to the Hexactinellida. H. cantori confirms that sponges diverged and existed in the Precambrian as non-biomineralizing animals with an organic skeleton.

Considering that siliceous biomineralization may have evolved independently among sponge classes, we question the validity of biomineralized spicules as a necessary criterion for the identification of Precambrian sponge fossils.

[Images are from this paper, showing a fossil and an artist's conception.]

Morais, L., et al (2024) **Dawn of diverse shelled and carbonaceous animal microfossils at ~571 Ma.** SCIENTIFIC REPORTS 14:doi.org/10.1038/s41598-024-65671-4 (available as a free pdf)

Authors' abstract: *The Ediacaran-Cambrian transition documents a critical stage in the diversification of animals.*

The global fossil record documents the appearance of cloudinomorphs and other shelled tubular organisms followed by non-biomineralized small carbonaceous fossils and by the highly diversified small shelly fossils between ~ 550 and 530 megayears ago.

Here, we report diverse microfossils in thin sections and hand samples from the Ediacaran Bocaina Formation, Brazil, separated into five descriptive categories: elongate solid structures (ES); elongate filled structures (EF); two types of equidimensional structures (EQ 1 and 2) and elongate hollow structures with coiled ends (CE).

These specimens, interpreted as diversified candidate metazoans, predate the latest Ediacaran biomineralized index macrofossils of the Cloudina-Corumbella-Namacalathus biozone in the overlying Tamengo Formation. Our new carbonate U-Pb ages for the Bocaina Formation, position this novel fossil record at 571 ± 9 Ma (weighted mean age).

Thus, our data point to diversification of metazoans, including biomineralized specimens reminiscent of sections of cloudinids, protoconodonts, anabaritids, and hyolithids, in addition to organo-phosphatic surficial coverings of animals, demonstrably earlier than the record of the earliest known skeletonized metazoan fossils.

El Albani, A., et al (2024) **Rapid volcanic ash entombment reveals the 3D anatomy of Cambrian trilobites.** SCIENCE 384:doi.org/10.1126/science.adl4540

Authors' abstract: *Knowledge of Cambrian animal anatomy is limited by preservational processes that result in compaction, size bias, and incompleteness. We documented pristine three-dimensional anatomy of trilobites fossilized through rapid ash burial from a pyroclastic flow entering a shallow marine environment.*

Cambrian ellipsocephaloid trilobites from Morocco are articulated and undistorted, revealing exquisite details of the appendages and digestive system. Previously unknown anatomy includes a soft-tissue labrum attached to the hypostome, a slit-like mouth, and distinctive cephalic feeding appendages.

Our findings resolve controversy over whether the trilobite hypostome is the labrum or incorporates it and establish crown-group euarthropod homologies in trilobites.

This occurrence of moldic fossils with 3D soft parts highlights volcanic ash deposits in marine settings as an underexplored source for exceptionally preserved organisms.

[Image is from this paper.]

Marsicano, C.A., et al (2024) **Giant stem tetrapod was apex predator in Gondwanan late Palaeozoic ice age.** NATURE 631:doi.org/10.1038/s41586-024-07572-0 (available as a free pdf)

[A salamander the size of a crocodile with fangs to match.]

Authors' abstract: C*urrent hypotheses of early tetrapod evolution posit close ecological and biogeographic ties to the extensive coal-producing wetlands of the Carboniferous palaeoequator with rapid replacement of archaic tetrapod groups by relatives of modern amniotes and lissamphibians in the late Carboniferous (about 307 million years ago).*

These hypotheses draw on a tetrapod fossil record that is almost entirely restricted to palaeoequatorial Pangea (Laurussia). Here we describe a new giant stem tetrapod, Gaiasia jennyae, from high-palaeolatitude (about 55° S) early Permian-aged (about 280 million years ago) deposits in Namibia that challenges this scenario.

Gaiasia is represented by several large, semi-articulated skeletons characterized by a weakly ossified skull with a loosely articulated palate dominated by a broad diamond-shaped parasphenoid, a posteriorly projecting occiput, and enlarged, interlocking dentary and coronoid fangs.

Phylogenetic analysis resolves Gaiasia within the tetrapod stem group as the sister taxon of the Carboniferous Colosteidae from Euramerica.

Gaiasia is larger than all previously described digited stem tetrapods and provides evidence that continental tetrapods were well established in the cold-temperate latitudes of Gondwana during the final phases of the Carboniferous-Permian deglaciation.

This points to a more global distribution of continental tetrapods during the Carboniferous-Permian transition and indicates that previous hypotheses of global tetrapod faunal turnover and dispersal at this time must be reconsidered.

The origin and early evolution of digit-bearing tetrapods is marked by two main phases of faunal change: emergence of amniote-dominated dryland faunas in the late Carboniferous and replacement of early amniote communities by therapsids in the middle Permian.

The fossil evidence for this comes almost exclusively from the densely sampled late Palaeozoic strata of North America and Europe up until the middle Permian, when the locus shifts to higher-latitude faunas in western Gondwana and the temperate latitudes of Laurussia.

Czernielewski, M., et al (2024) **Fossil caries in a Pliocene rodent with a plausible instance of in situ preservation of bacterial remains.** ACTA PALAEONTOLOGICA POLONICA 69:doi.org/10.4202/app.01125.2023 (available as a free pdf)

Authors' abstract: *An interesting case of a caries-affected area where bacterial remains were plausibly preserved in situ was found in an isolated tooth of the Plio-Pleistocene dormouse Glis sackdillingensis (Rodentia, Gliridae).*

The sample is 2.9 to 2.6 million years old, and may be the only described case of a dental pathological condition preserved in a fossil together with the microbial pathogen responsible for its development.

The tooth was investigated using various complementary techniques such as Scanning Electron Microscopy with Energy Dispersive Spectroscopy, Microtomography, and Light Microscopy. Available data on dietary habits and lifestyle of modern dormice are extrapolated to explain the origin of the infection.

Dental infections are thought to have been present in vertebrates since the Palaeozoic era (538.8 to 251.9 Mya), the earliest examples including cases of caries described in Devonian (419.2 to 358.9 Mya) lungfish.

In spite of that, relatively few pre-Holocene (older than ca. 12 kya) fossil specimens of bacteria-related tooth decay have been reported in scientific literature.

Examples regarding occurrences of caries found in fossil hominids may be considered an exception. The reason for that may be that hominid dental samples are studied more extensively with regard to caries due to their perceived immediate relevance to the topic of tooth decay in modern humans.

Zoology.

Zhu, C., et al (2024) **Firefly toxin lucibufagins evolved after the origin of bioluminescence.** PNAS NEXUS 3:doi.org/10.1093/pnasnexus/pgae215 (available as a free pdf)

Authors' abstract: *Fireflies were believed to originally evolve their novel bioluminescence as warning signals to advertise their toxicity to predators, which was later adopted in adult mating.*

Although the evolution of bioluminescence has been investigated extensively, the warning signal hypothesis of its origin has not been tested. In this study, we test this hypothesis by systematically determining the presence or absence of firefly toxin lucibufagins (LBGs) across firefly species and inferring the time of origin of LBGs.

We confirm the presence of LBGs in the subfamily Lampyrinae, but more importantly, we reveal the absence of LBGs in other lineages, including the subfamilies of Luciolinae, Ototretinae, and Psilocladinae, two incertae sedis lineages, and the Rhagophthalmidae family.

Ancestral state reconstructions for LBGs based on firefly phylogeny constructed using genomic data suggest that the presence of LBGs in the common ancestor of the Lampyrinae subfamily is highly supported but unsupported in more ancient nodes, including firefly common ancestors.

Our results suggest that firefly LBGs probably evolved much later than the evolution of bioluminescence. We thus conclude that firefly bioluminescence did not originally evolve as direct warning signals for toxic LBGs and advise that future studies should focus on other hypotheses.

Moreover, LBG toxins are known to directly target and inhibit the a subunit of Na+, K+-ATPase (ATPa). We further examine the effects of amino acid substitutions in firefly ATPa on its interactions with LBGs.

We find that ATPa in LBG- containing fireflies is relatively insensitive to LBGs, which suggests that target-site insensitivity contributes to LBG-containing fireflies' ability to deal with their own toxins.

Environmental Science.

Zhang, X., et al (2024) **Less than 4% of dryland areas are projected to desertify despite increased aridity under climate change.** COMMUNICATIONS EARTH AND ENVIRONMENT 5:doi.org/10.1038/s43247-024-01463-y

Authors' abstract: *Drylands have low biological productivity compared to non-drylands, making many human activities within them sensitive to long-term trends. Trends in the Aridity Index over several decades indicate increasing aridity in the drylands, which has been linked to increasing occurrence of desertification.*

Future projections show continued increases in aridity due to climate change, suggesting that drylands will expand. In contrast, satellite observations indicate an increase in vegetation productivity.

Given the past inconsistency between the Aridity Index changes and observed vegetation changes, the future evolution of vegetation productivity within the drylands remains an open question.

Here we used a data-driven approach to show that increasing aridity in drylands won't lead to a general loss of vegetation productivity. Most of the global drylands are projected to see an increase in vegetation productivity due to climate change through 2050. The aridity index will not be a good indicator of drylands in future climates.

We found a broad boost to dryland vegetation productivity due to the carbon dioxide fertilization effect that is negated by climate changes in at most 4% of global drylands to produce desertification. These regions include parts of north-east Brazil, Namibia, western Sahel, Horn of Africa and central Asia.

Human Prehistory.

Paige, J. and C. Perreault (2024) **3.3 million years of stone tool complexity suggests that cumulative culture began during the Middle Pleistocene.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 121:doi.org/10.1073/pnas.2319175121

Authors' abstract: *Cumulative culture, the accumulation of modifications, innovations, and improvements over generations through social learning, is a key determinant of the behavioral diversity across Homo sapiens populations and their ability to adapt to varied ecological habitats.*

Generations of improvements, modifications, and lucky errors allow humans to use technologies and know-how well beyond what a single naive individual could invent independently within their lifetime.

The human dependence on cumulative culture may have shaped the evolution of biological and behavioral traits in the hominin lineage, including brain size, body size, life history, sociality, subsistence, and ecological niche expansion.

Yet, we do not know when, in the human career, our ancestors began to depend on cumulative culture. Here, we show that hominins likely relied on a derived form of cumulative culture by at least ~600 kiloyears ago, a result in line with a growing body of existing evidence.

We analyzed the complexity of stone tool manufacturing sequences over the last 3.3 million years of the archaeological record. We then compare these to the achievable complexity without cumulative culture, which we estimate using nonhuman primate technologies and stone tool manufacturing experiments.

We find that archaeological technologies become significantly more complex than expected in the absence of cumulative culture only after ~600 kya.

Conde-Valverde, M., et al (2024) **The child who lived: Down syndrome among Neanderthals?** SCIENCE ADVANCES 10:doi.org/10.1126/sciadv.adn9310 (available as a free pdf)

Authors' abstract: *Caregiving for disabled individuals among Neanderthals has been known for a long time, and there is a debate about the implications of this behavior. Some authors believe that caregiving took place between individuals able to reciprocate the favor, while others argue that caregiving was produced by a feeling of compassion related to other highly adaptive prosocial behaviors.*

The study of children with severe pathologies is particularly interesting, as children have a very limited possibility to reciprocate the assistance. We present the case of a Neanderthal child who suffered from a congenital pathology of the inner ear, probably debilitating, and associated with Down syndrome. This child would have required care for at least 6 years, likely necessitating other group members to assist the mother in childcare.

Xia, H., et al (2024) **Middle and Late Pleistocene Denisovan subsistence at Baishiya Karst Cave.** NATURE 631:doi.org/10.1038/s41586-024-07612-9 (available as a free pdf)

[*Homo sapiens* had two cousin species, Neanderthals (which most people know about) and Denisovians (which lived in eastern Eurasia).]

Authors' abstract: *Genetic and fragmented palaeoanthropological data suggest that Denisovans were once widely distributed across eastern Eurasia. Despite limited archaeological evidence, this indicates that Denisovans were capable of adapting to a highly diverse range of environments.*

Here we integrate zooarchaeological and proteomic analyses of the late Middle to Late Pleistocene faunal assemblage from Baishiya Karst Cave on the Tibetan Plateau, where a Denisovan mandible and Denisovan sedimentary mitochondrial DNA were found.

Using zooarchaeology by mass spectrometry, we identify a new hominin rib specimen that dates to approximately 48 to 32 thousand years ago. Shotgun proteomic analysis taxonomically assigns this specimen to the Denisovan lineage, extending their presence at Baishiya Karst Cave well into the Late Pleistocene.

Throughout the stratigraphic sequence, the faunal assemblage is dominated by Caprinae, together with megaherbivores, carnivores, small mammals and birds. The high proportion of anthropogenic modifications on the bone surfaces suggests that Denisovans were the primary agent of faunal accumulation.

The chaîne opératoire of carcass processing indicates that animal taxa were exploited for their meat, marrow and hides, while bone was also used as raw material for the production of tools.

Our results shed light on the behaviour of Denisovans and their adaptations to the diverse and fluctuating environments of the late Middle and Late Pleistocene of eastern Eurasia.

Gilligan, I., et al (2024) **Paleolithic eyed needles and the evolution of dress.** SCIENCE ADVANCES 10:doi.org/10.1126/sciadv.adp2887 (available as a free pdf)

Authors' abstract: *Eyed needles are among the most iconic of Paleolithic artifacts, traditionally seen as rare indicators of prehistoric clothing, particularly tailoring. However, recent finds across Africa and Eurasia show that other technologies like bone awls also facilitated the creation of fitted garments.*

Nonetheless, the advent of delicate eyed needles suggests a demand for more refined, efficient sewing. This refinement may signify two major developments: the emergence of underwear in layered garment assemblages, and/or a transition in adornment from body modification to decorating clothes, as humans covered themselves more completely for thermal protection.

Archaeological evidence for underwear is limited, but the Upper Paleolithic saw an increase in personal ornaments, some sewn onto clothing. Eyed needles may mark a pivotal shift as clothes acquired the social functions of dress, decoupling clothing from climate and ensuring its enduring presence.

Davis, D.S., et al (2024) **Island-wide characterization of agricultural production challenges the demographic collapse hypothesis for Rapa Nui (Easter Island).** SCIENCE ADVANCES 10:doi.org/10.1126/sciadv.ado1459 (available as a free pdf)

Authors' abstract: *Rapa Nui (Easter Island) is often used as an example of how overexploitation of limited resources resulted in a catastrophic population collapse.*

A vital component of this narrative is that the rapid rise and fall of pre-contact Rapanui population growth rates was driven by the construction and overexploitation of once extensive rock gardens. However, the extent of island-wide rock gardening, while key for understanding food systems and demography, must be better understood.

Here, we use shortwave infrared satellite imagery and machine learning to generate an island-wide estimate of rock gardening and reevaluate previous population size models for Rapa Nui.

We show that the extent of this agricultural infrastructure is substantially less than previously claimed and likely could not have supported the large population sizes that have been assumed.

Rapa Nui is one of Earth's most remote human-populated locations. It is over 2,000 km from the nearest inhabited island (Pitcairn) and over 3,700 km from the South American mainland. The island is small (~164 km^2) and has relatively limited soil productivity and freshwater sources.

The physical constraints of the island limited opportunities for cultivation practices such as terraced irrigation systems found elsewhere in Polynesia. Instead, past Rapanui communities initially mitigated problems of the island's poor soil productivity by burning the native palm vegetation, a practice common in swidden cultivation.

Over time, however, local communities also began to increasingly engage in a cultivation strategy known as lithic mulching, a form of rock gardening. These rock gardens enhanced plant productivity by increasing available soil nutrients and maintaining soil moisture.

Overall, rock gardening increases productivity in a variety of ways. First, placing rocks on the surface can protect plants by generating more turbulent airflow over the garden surface.

In this way, rock gardening can reduce the highest daytime temperatures and increase the lowest nighttime temperatures. Adding a layer of rocks to a garden mediates temperature swings, producing a more stable environment for plant growth.

Second, the disrupted airflow also limits the wind, which can desiccate foliage while providing shade to reduce soil moisture evaporation. Third, by mediating the climate, rock gardening can contribute to the enhancement of nutrient-poor soils by reducing nutrient leaching.

Human Health.

Rauber, F., et al (2024) **Implications of food ultra-processing on cardiovascular risk considering plant origin foods: an analysis of the UK Biobank cohort.** THE LANCET 403:doi.org/10.1016/j.lanepe.2024.100948 (available as a free pdf)

[Fresh vegetables are good for you but plant-based meat substitutes (UPF) increase your risk of heart disease.]

Authors' abstract: *Every 10 percentage points increase in plant-sourced non-ultra-processed food consumption was associated with a 7% lower risk of cardiovascular disease and a 13% lower risk of CVD mortality.*

Conversely, plant-sourced UPF consumption was associated with a 5% increased risk and a 12% higher mortality. The contribution of all UPF was linked to higher CVD risk and mortality, and no evidence for an association between contribution of all plant-sourced foods and CVD incidence and mortality was observed.

Technology.

Woan, G., and J. Bayley (2024 July) **An improved calendar ring hole-count for the Antikythera mechanism.** HOROLOGICAL JOURNAL www.bhi.co.uk (available as a free pdf)

[The lunar calendar is 354 days, the solar calendar is 365 days.]

Authors' abstract: *The Antikythera Mechanism is a multi-component device recovered from a shipwreck close to the Greek island of Antikythera in 1901. It is believed to be the remains of a complex mechanical calculator of ancient origin, and has undergone considerable investigation and analysis to determine its true form and function.*

We present a new analysis of the positions of holes beneath the calendar ring of the Antikythera Mechanism, as measured by Budiselic et al. (2020). We significantly refine their estimate for the number of holes that were present in the full ring.

Our 68%-credible estimate for this number, taking account of all the data, is 355.24. If holes adjacent to fractures are removed from the analysis, our estimate becomes 354.08. A ring of 360 holes is strongly disfavoured, and one of 365 holes is not plausible, given our model assumptions.