



OPUNTIA 589

Early January 2025

Opuntia is published by Dale Speirs, Calgary, Alberta. It is posted on www.efanzines.com and www.fanac.org. There is also a 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.

OPUNTIA ABOUT TOWN

photos by Dale Speirs

Calgary had a brown Christmas and a white New Year's Eve. Most Cowtowners, myself included, preferred that the weather should have been the other way around.



The NYE fireworks were crimped by continuous snowfall which began on the morning of December 31 and carried on for two days. Nothing major, not more than 5 cm of snow, but the result was I didn't go to see the fireworks.

That left me in search of a cover photo. Looking about the extensive gardens of palatial Chez Opuntia, I decided to show how Alberta's two species of *Opuntia* look during winter. At the time I took the photos, the daytime temperature was -15°C, dropping down to -20°C at night.

Cacti dehydrate themselves in the autumn so that freezing water won't puncture their cells with ice crystals. The cover photo shows *Opuntia polyacantha* growing along the west wall of my house. This species has large flat pads creeping along the ground. The dessication doesn't show that well in the photo.

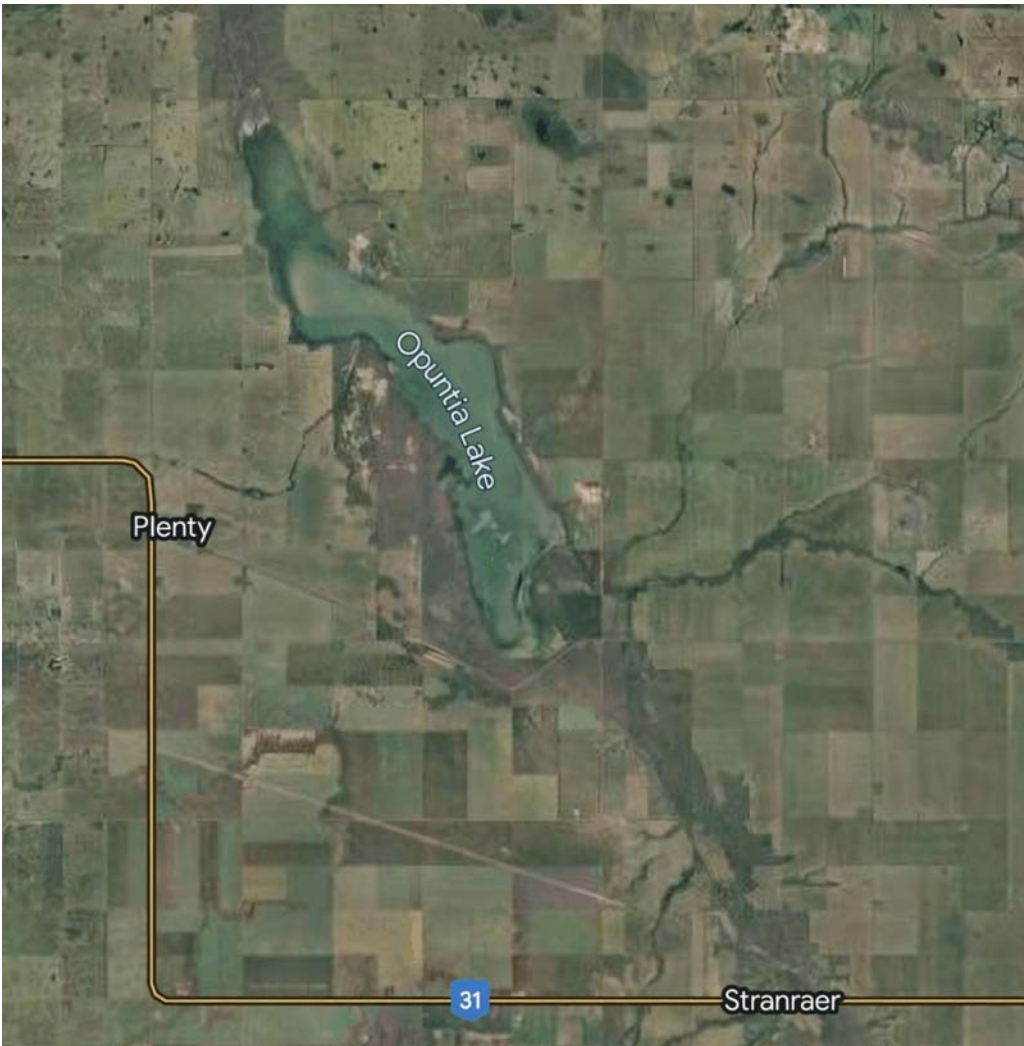
Not until after I viewed the photo on my computer did I spot a peanut stashed by a magpie underneath a pad. See if you can find it.

My custom is to keep a big bag of peanuts by the front door and scatter some on the front lawn every time I leave the house. The magpies and squirrels compete for them. This peanut had to have been stashed by a magpie with its beak. I don't think a squirrel would have hazarded the spines.

The other Alberta species is *Opuntia fragilis*, which I grow by my front porch. This is a small thumb-size cactus with oval pads, shown at left. You can see more easily how the pads dehydrated and shrivel up.

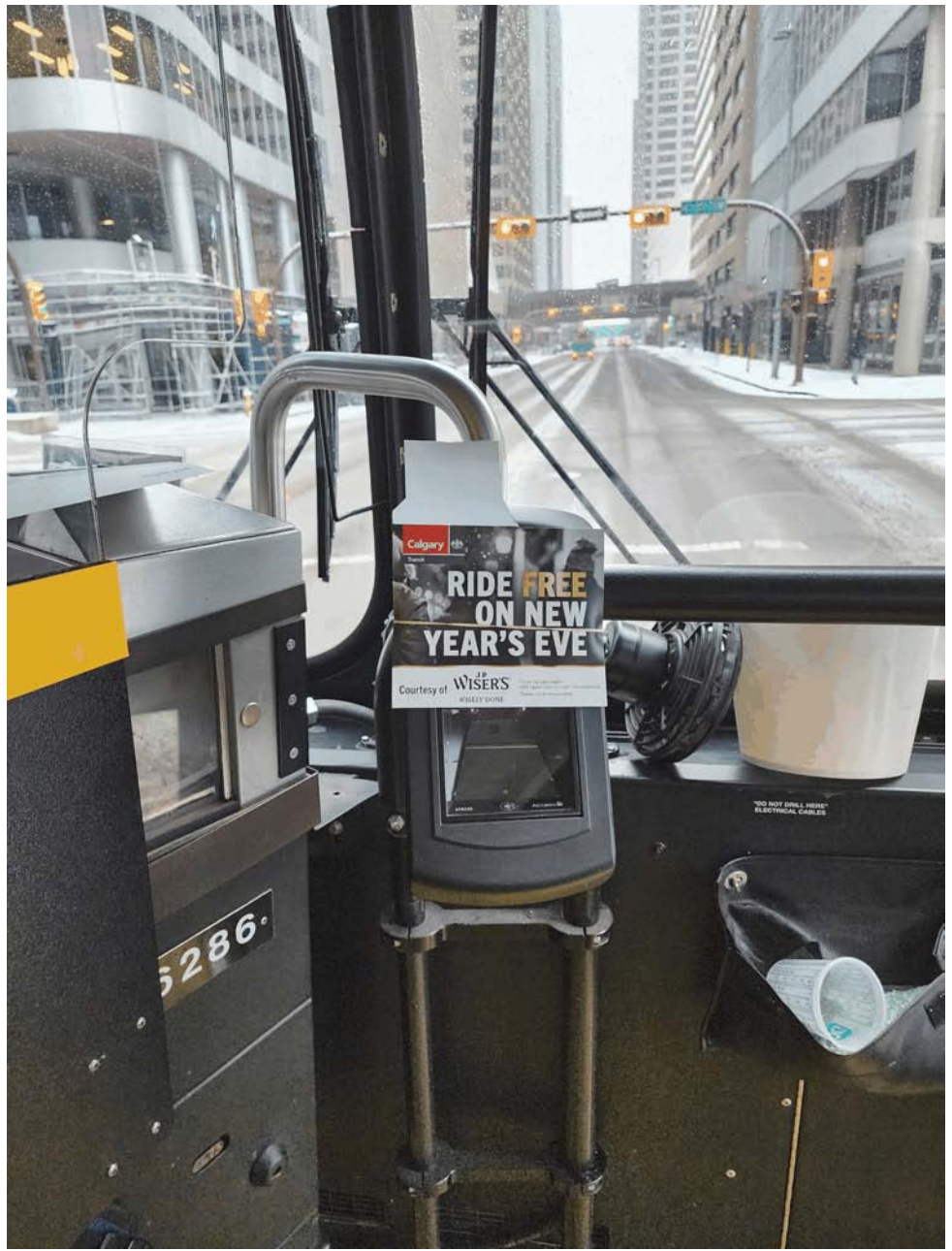
I was Googling on an unrelated matter regarding *Opuntia* species when I stumbled across a reference to Opuntia Lake in western Saskatchewan. Cacti grow there and across to Manitoba.

The lake and countryside are uninhabited. The nearest settlement is Plenty, a hamlet so named by optimistic homesteaders. Below is a Google Map view.



Cowtown Downtown.

I took the bus downtown on the morning of December 31 to check my mail at my post office box number. Calgary Transit offers free rides on New Year's Eve Day. I have an annual senior citizen pass, so that doesn't make any difference to me but the service might keep a few drunks off the road.



OLYMPIC BRICK
photos by Dale Speirs

As mentioned in the last issue of this zine, the City of Calgary provided an opportunity for citizens to retrieve bricks from the Olympic Plaza, now under demolition and rebuild for 2028. Those who paid \$19.88 for an engraved brick on the Plaza in the early 1980s, myself included, had an opportunity to retrieve their brick.

More than 5,000 people applied. The City said the bricks could only be picked up January 3 and 4, Friday and Saturday. I was rather worried because the City Hall lobby couldn't handle that many. On New Year's Day we got an email saying that the bricks could be picked up at the Agriculture Building at the Stampede grounds.

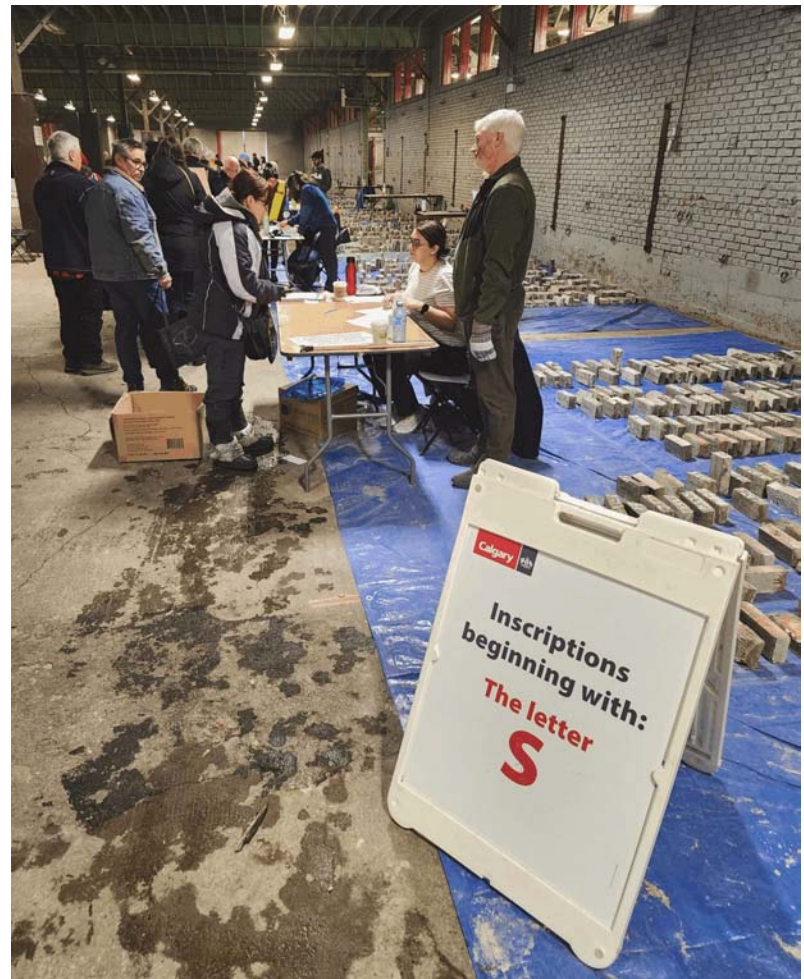
Much better, with lots of room and queuing space. The bricks were sorted alphabetically by inscription, not the name of the original buyer. This made sense because after 40 years there would be many heirs and assignments claiming bricks their parents or grandparents had bought.



I went to the Stampede grounds on Friday mid-morning, on the correct assumption that the crowds wouldn't be as big. Most brick owners probably worked the day, so the evening and Saturday would have heavier traffic. About 100 or so people there when I arrived. No problems, and I was in and out in ten minutes.

I took the photo below and didn't notice my reflection in the glass door until putting this image on my computer.





WINTER WONDERLANDS: PART 7

by Dale Speirs

[Parts 1 to 6 appeared in OPUNTIAAs #405, 437, 465, 490, 515, and 567.]

Cold Blooded Murder.

THE ICE HOTEL (2021) by Hania Allen was about Maggie Stewart, a Scot who with friends Liz Hallum and Harry Auchinleck were visiting Swedish Lapland. In winter, where the attraction was a hotel built of ice. Each guest room had walls of sculpted ice. Guests slept in sleeping bags on a raised block of ice covered with furs.

One of them slept forever, an American who had been drugged, then pulled out of his sleeping bag to freeze to death. Maggie got into the Marpleing business, assisting police detective Thomas Hallengren.

The deceased was Wilson Bibby, who had been indirectly funding Harry's academic career through his charitable foundation. Bibby announced his intention to change the remit of the foundation and cut off funding for scholarly research.

That would leave Harry high and dry, forcing him to go out and get a real job. The death toll rose, next at the adjacent Ice Chapel. Suspicion was thrown around like rock salt on an icy road.

Liz, a widowed mother of two children, blamed her husband's death on Harry. She explained all in an extended denouement over two chapters, including how she mistook Bibby for Harry.

That was the weakest part of the story, implausible enough to destroy any suspension of disbelief. The reader will find it difficult to believe that she could drug and then drag a man out of his sleeping bag without noticing that he didn't look anything like her intended victim Harry.

In the general run of cozies, Miss Marples shrug off murders like spilled milk. Maggie had continuing nightmares thereafter, something more believable. She resolved that her future vacations would be on tropical beaches.

Cozy Murder.

SNOW PLACE FOR MURDER (2023) by Diane Kelly was a novel in a cozy series about Misty Murphy of Beech Mountain, North Carolina. She operated a resort lodge when not Marpleing.

Twas the week before Christmas. Misty's two grown sons and her ex-husband were visiting for the holidays. Real estate developer Nigel Goodwin, with his wife Aileen, had booked the entire Mountaintop Lodge during the middle of the week, traditionally a slow time for the lodge.

Misty was grateful for the business. Goodwin was entertaining investors for his proposed mega-hotel nearby. Good for business but many locals were against the idea. They wanted the woods for themselves.

The novel got off to a slow start as all the family details were filled in, assorted supporting characters introduced, and potential suspects for the impending murder lurked. As the guests arrived, their biographies were detailed one by one.

Nigel hosted a seminar about the potential of his Blue Ridge resort. He mentioned that his other resorts were all profitable. One investor differed, saying "*The Alberta Adventure Resort has been a total disaster*".

Needless to say I sat up at that sentence. Nigel waved off the problems, saying there were permit delays but the project was continuing. Nigel's smooth-talking didn't get him past Chapter 9. His frozen body was found at the base of a ski slope. As the guests ate their breakfasts in the lodge, the police and paramedics dug Nigel's body out of the snow. The guests, including the widow, were unaware of the death.

Attending to the breakfast buffet, Misty was all ears as the guests talked. One of them knew the story about the Alberta resort and explained. Nigel had proposed locating his resort inside Banff National Park and was blockaded by environmentalists suing him.

Pause for digression. I live an hour's drive from the park. I don't ski but have hiked the ski resorts in summer. The proposal didn't seem right to me because no new ski resorts are allowed inside the national parks as a matter of federal government policy. However the author did get some details correct.

There are three ski resorts grandfathered into Banff National Park, namely Sunshine Village, Mount Norquay, and Lake Louise. The last is not actually on the lake but on the opposite side of the Bow River valley about a 15-minute drive away, assuming your vehicle has 4WD and snow tires.

The author correctly noted the three resorts keep competitors away by offering a single ski pass good for all three mountains. Each resort is owned by a separate family, not development corporations. Hotel rooms anywhere in the park start at \$500 per night, so most skiers are day-trippers from Calgary.

Meanwhile, back at the murder, the police notified the guests. The officers, and Misty, began their investigations. In keeping with time-honoured tradition, a blizzard blew in.

Suspicion was piled higher than the snow outside. Misty let her mind run riot to any number of silly probabilities and suspects. This is a traditional method of cozy authors to pad out the word count.

Firstly, Miss Marple thinks up all the possibilities in her own mind. Her interior dialogue is good for tens of pages. Then she explains and/or discusses her thoughts with a friend, doubling the word count. An experienced cozy reader learns to recognize and skim such text.

Miss Marple, pardon me, Misty noticed that one of the guests had a ski tag with a partial image of a sun. This led Misty to obsess about Sunshine Village. A real obsession, about two chapters worth. She even made a long-distance telephone call to Sunshine to fish for evidence.

But finally check-out time arrived at the lodge. With only three chapters left, the climax was nigh. The final, real, actual, honest-to-goodness murderers were identified.

The police gave chase but Misty did the same. She should have been put in the adjacent cell with the murderers. They were getting revenge for something that happened at Sunshine Village. The case was contaminated but fortunately the culprits made a confession.

The epilogue wrapped up all the loose endings except what would happen to Nigel's resort proposal in Alberta. I can only assume it was abandoned.

ON THE CUTTING EDGE OF TECHNOLOGY: PART 9

by Dale Speirs

[Parts 1 to 8 appeared in OPUNTIA's #258, 346, 360, 404, 456, 480, 543, and 554.]

Today we take for granted that we can have portable music anytime anywhere we want. When us Boomers were young, we had only transistor radios that played what the radio station DJs decided. Now we have mp3s and everywhere you walk in a city, a large proportion of pedestrians are tuned in to earplugs.

Vinyl.

THE ADVENTURES OF THE THIN MAN was a radio series from 1941 to 1950. The protagonists were Nick and Nora Charles, wealthy amateur sleuths. Available as free mp3s from www.otrr.org/OTRRLibrary

“Murder In The Record Shop” aired on radio in April 1944. This was a Nick and Nora Charles story hosted on MYSTERY PLAYHOUSE instead of THE THIN MAN. The intro and outro was done by Peter Lorre, who had no part in the actual drama. He was just picking up a few quick dollars for cameo appearances.

The sound quality was low and muddy on this mp3, so you'll have to crank up the volume to 11. Benjamin Bailey was the proprietor of a record shop favoured by Nora Charles. One of the other clients was a nerd named Oliver, who only listened to jazz and sneered at other music.

There was an extended monologue by a former member of the Sing Sing Philharmonic who mis-explained the history of classical music in woids, pardon me, words equally mis-pronounced.

In a listening booth, Nora found the body of a woman. Of course she would, since Nora was a murder magnet. Bailey wasn't too happy, but Nick told him the publicity would be great for business.

Nora was even less happy when the killer slugged her unconscious in the booth and stole some of the evidence. The murderer didn't get everything. The Charles used a letter found on the body to identify the deceased as Margaret and her husband as Martin.

Without waiting for the police, they went off to the woman's apartment to find her husband. The door was unlocked, which they considered an invitation to enter and snoop around.

They found a young woman named Pat in the bedroom. She had a gun but was a lousy shot so Nick easily disarmed her. The subsequent conversation revealed she didn't know Martin was married. She was expecting to be his bride.

She snatched her gun back, locked the Charles in the bedroom, and vamoosed. They quickly escaped and the chase was on. Hither and yon, various characters died the sudden way, and other alarms filled the time.

Martin was shot dead. Oliver made threats against Pat: *"If I can't have you, no one else will"*. The Charles intervened and accused Oliver of murder. He spouted another cliché: *"You'll never take me alive!"* and shot himself.

Back to the record shop where Nick explained away the loose ends to Nora and Bailey as they listened to a big-band record.

"The Tune In Dan's Café" was an episode of the television series NIGHT GALLERY which aired on 1972-01-05, based on a short story by Shamus Frazier. A married couple on the verge of divorce stopped for hamburgers at a roadside café with a haunted jukebox.

The back story was another couple who years ago had split. His business was armed robbery. Her name was Red and she was unfaithful. She betrayed him to police, who shot him dead in the café as the jukebox played a romantic song.

Thereafter the jukebox only played that song, no matter what record was selected. The short-order cook told the story as he flipped the hamburgers. He said the curse would only be lifted if Red returned to face the ghost haunting the jukebox.

As the couple left, they saw a red-haired woman drive up. They hastily departed as Red walked in. The jukebox played the song as her scream rent the air. Fade to black.

PURSUIT was a police procedural which aired on radio from 1949 until 1952. Scotland Yard Inspector Peter Black was the chief investigator, assisted by Sergeant Moffet.

The production history was complicated, including airing the show as a subtitled series within an anthology series called THEATER OF THE MIND. Available as free mp3s from www.otrr.org/OTRRLibrary.

"The Pursuit Of The Firebird" aired on 1950-03-07 and was written by Gil Doud and Antony Ellis. Inspector Black stepped into a record shop to buy a birthday gift for Sgt Moffat's wife. The shop also offered a service for people to record transcription disks to mail to friends. State of the art in 1950.

Black came away with a disk and stopped by the Moffats. On his way there he noticed he was followed by a private detective known to police as a sleazy operator. When the disk was played, it was discovered to be a transcription disk instead of music. The shop had mixed up the records.

The disk had been recorded elsewhere by someone who wanted evidence or blackmail material. Transcribed was a conversation between antagonists which ended in gunfire. The conversation sounded like a romantic triangle gone seriously awry. Two men and a woman arguing, then gunshots.

Black made his apologies to the Moffats and departed. A short distance down the sidewalk he saw the private detective's body, head bashed in. He knelt down to examine the deceased, was himself slugged from behind, and the transcription record stolen.

The investigation began at the record shop, tracking back the possible origin of the record. The names of staff and associates were checked for anomalies in their pasts. One path led to a married couple. Black interrogated them. She broke down and blubbered a confession. As Black said, they would soon be parted forever.

FOOD COZIES: PART 31

by Dale Speirs

[Parts 1 to 30 appeared in OPUNTIA's #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, 573, 576, 579, and 586.]

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

Pizzas.

SIX FEET DEEP DISH (2022) by Mindy Quigley was the first novel in a food cozy series about Delilah O'Leary of Geneva Bay, Wisconsin. She and her wealthy fiancé Sam Van Meter were opening a deep-dish pizzeria.

The restaurant was bankrolled by Sam's wealth but his part in running the business was sloppy. His lack of attention to detail caused problems for Delilah. Other crosses for her to bear were an elderly grandaunt Biz (from Elizabeth) and an overweight cat appropriately named Butterball.

The soft opening of the pizzeria was marred by finding her grandaunt over the body of caregiver Jeremy. Auntie Biz was in a wheelchair and drifting into senility. The gun that killed Jeremy was hers. Sam vanished from sight, which made him either a suspect or a victim since he wasn't using his credit cards or cellphone.

The Deppity Dawg was Calvin Capone and yes, he was a descendant of Al. The murder prevented the opening of the restaurant because it was a crime scene. Delilah cancelled food orders from her suppliers but still had to use up what she had before spoilage. She also had staff problems such as trying to retain dishwashers.

To use up the food, Delilah prepared for her staff some pissaladière, which was better than its name suggested. Sort of an onion tart with herbs and olives. The recipe was integrated into the text, so if you read this on an empty stomach you may be distracted from the plot.

Reality intruded when payday came round. Sam had control of the accounts, with no way for Delilah to access the money. She had to pawn her jewelry to pay her staff. Assorted alarms came and went. Suspicion was sprayed about like a driving rain.

Evidence revealed Jeremy may have been skimming prescriptions of Auntie Biz and selling the surplus. Some pain killers sold for \$25 a pill. She may not have been senile so much as addled from eleven different prescriptions to keep her quiet and allow Jeremy to get supplies.

Delilah was caught out by the police for lying but they held off on charges. Sam suddenly returned. He had gone off to a meditation retreat without telling anyone, a typical example of his casual attitude to those around them.

The sleuthing went on, both Delilah and the police. A list of suspects was accumulated, some of whom were arrested by the police on various charges. Jeremy was apparently into blackmail and gambling as well as prescription pill peddling.

The weeks passed and the pizzeria had its grand opening. Delilah separated from Sam because his lifestyle was too laid back to run a business. He did agree to provide some financial subsidies to help the pizzeria get going.

The police were satisfied they had the murderers but since 60 pages were left, the reader will anticipate a twist. The reader will not be disappointed because Delilah caught herself in not one but two confrontations with gun-wielding assailants.

The murderer pled justifiable homicide since Jeremy had been doping her granny. The ending more or less wimped out. From there to the recipes appendix.

A basic recipe for deep-dish pizza led off, followed by Emergencia Médica Cocktail (three types of Scotch with honey and ginger), Pissaladière, Orange Supremes Salad, and two types of pizza.

ASHES TO ASHES, CRUST TO CRUST (2023) was the sequel. Delilah O'Leary was competing in Geneva Bay's "Taste Of Wisconsin Cook-Off" culinary competition. First prize was \$10,000. Her entry was Pretzel Crust Deep Dish Bratwurst Pizza.

She had various problems. Restaurants require tremendous time, money, and energy, all of which she was running out of. Ex-fiancée Sam Van Meter had been bankrolling the place but that was gone, so Delilah was hoping for the prize money.

Delilah had to share custody of their cat Butterball, whose name was descriptive for good reason. That wasn't all she had to share. She visited her competition, Jordan Watts. She was not only Sam's new girlfriend but owned the Juice Revolution café, also entered in the Cook-Off.

A customer Ronnie Wong came and went in a few paragraphs, dying on the shop floor from a poisoned smoothie. An identification was made by Delilah of a hit man Cinco Frates who had been in the store.

Wong seemed to have been an inadvertent victim. A second poisoned smoothie almost killed Jordan. The question was why Jordan was targeted. Frates was seen lurking about for nefarious purposes.

What with the Marpleing, running a short-staffed pizzeria, and dealing with the contest judge Graham Ulrich, the day left Delilah frazzled. Ulrich was a celebrity chef who had a restaurant, a cooking show, and was plugging his latest cookbook. He had an super-sized ego.

He was next to depart this vale of tears. The killer stuffed him into a cardboard box. No one cared about Wong outside of the family, but Ulrich's death brought the mass media into the village. The Cook-Off found a replacement judge and the day was nigh.

In between Marpleing and all the alarums, Delilah had been fussing about her pizza. She wanted championship bratwurst deep-dish and was afraid she didn't have it.

The crisis was solved when one of her employees created bite-sized deep-dish pizzas, each with a separate topping. Bratwurst on one, extra cheese on another, etcetera, and serve on a tray.

At 02h00 on the day of the Cook-Off, Delilah checked her restaurant and found the door had been forced. Someone was inside. She almost dialed 9-1-1 but decided to investigate instead of calling police. Unfortunately natural selection doesn't always work and she would survive.

She went inside to find Frates searching the kitchen for gangster loot a previous owner of the building may have hidden there. Instead of shooting her immediately, he took the time to explain all the details to her. He denied the murders and said he just wanted the loot.

Butterball then saved her by knocking over some bowls and distracting Frates. Delilah grabbed a frying pan and knew how to use it, rendering Frates unconscious.

From there to the Cook-Off. Big excitement along the bay and Delilah was primed as she set up her booth. The poisonings still hadn't been solved but several plot twists at the food fair settled the matter.

Wong's poisoned smoothie had been meant for someone else. There had been a convoluted chain of events which were untangled after the murderer tried again by poisoning Delilah's pizzas. Didn't work that time. The killer didn't like the fact that her free-spending of the gangster loot had drawn attention to her.

The recipes appendix began with a smoothie called Anti-Tox Mocktail, sans poison. Then on to Bulgarian Cheese Pie, Eggplant Nduja Deep Dish, Bratwurst Deep Dish, a cocktail called Passion Fruit Mule, and Fresh Tomato Sandwich.

PUBLIC ANCHOVY #1 (2024) was the third novel in the series. The tourist season was over and winter was nigh. Delilah O'Leary was trying to keep her restaurant going with occasional catering contracts. She was currently supplying a charity ball.

Not an easy task, not so much from scarcity of contracts but problems such as a customer who wanted a "free-from" pizza. Said pizza to have no gluten, no dairy products, no meat, and no nightshade family products (tomato, eggplant, peppers, or potato). Delilah had to wonder if the customer understood the concept of pizza.

The second chapter (nobody died in the first, unusual for a cozy) was devoted to the preparation of food. Normally this would get my salivary glands going but most of the action involved roasting red beets. They are a vegetable I have always thought should be outlawed, along with celery, iceberg lettuce, and cucumbers. But I digress.

The next few chapters were filled with alarums and excursions. Not criminal ones but all the fussy details of catering to a large crowd of rich people in a 30-room mansion. Much panic in the kitchen but Delilah and company managed to present themselves calmly out front.

In the background there had been a power struggle at the library board of directors. At the party both factions were sniping at each other when one of the contenders took a dive down a staircase and landed dead at the bottom. Accidental, thought everyone, but the reader will know better.

“The party’s over”, said the hostess. No kidding. Lots of wasted food since the meal had only just started. Then a storm blew in and isolated the mansion. Yup, that time-honoured cliché. Oh, and Butterball the cat showed up, having stowed away in one of the boxes of supplies.

Delilah had free range to sleuth without those annoying people in uniforms. Her semi-boyfriend was a police detective and was there, mainly to admonish her about contaminating evidence. Just to spice things up, a lightning bolt knocked out the electricity. It was indeed a dark and stormy night.

Everyone sat down to dinner by candlelight so as not to waste the food. The table conversation was a mixture of speculation, interrogation, and insults. The rich folk were particularly annoyed that they had to eat together with the catering staff.

And so to bed. Plenty of rooms in the mansion. No rest for anyone though. One of them was murdered in bed and another nearly done in. Some of the food had been drugged. A killer was in their midst. The decision was made that everyone would shelter together in one room for mutual safety.

That allowed back stories to be exposed en masse. Everyone had something to hide. After several chapters of flinging dirty laundry about, Butterball and the hostess’ cat got into a fight and ran off. This allowed most of the characters to be idiots in their own idiot plots by wandering off into the dark mansion searching for the felines.

Finally to the denouement, brought on prematurely because Delilah couldn’t keep her mouth shut and gave away the game by blabbing vital details. There were two culprits, one who specialized in book forgeries and his somewhat girlfriend who needed the commissions on the book sales.

The murder victims had become suspicious and thus had to die. There was a struggle, the culprits blamed each other as they confessed, and the final alarms ensued.

One last chapter to explain away all the loose threads and then on to the recipes appendix. Italian Beef Crostini led off, followed by the notorious Free-From Deep Dish Pizza. Finishing up, there was a cocktail recipe, Tiramisu Cookie Bars, and Deep Dish Apple Pie. Finis.

The author pointed out that gluten-free dairy-free dough doesn’t taste as good, nor does the vegan cheese substitute, so be warned. The fake tomato sauce was made from a blend of squash, pumpkin, and beets. The fake cheese was from cashews and yeast. What, nuts in a free-from recipe?



Burger Bacon Brie slice from Pronto Pizza, downtown Calgary. Not free-from.

SLEEP IN HEAVENLY PIZZA (2024) was the fourth novel in the series. Geneva Bay was hosting a snow sculpting contest and the bunting was up everywhere. Since Delilah O'Leary was not only a pizza maker but a murder magnet, the reader can anticipate the usual.

Her pizzeria was catering an upscale party in a mansion for a combination Christmas-Hanukkah celebration. I'm not Jewish but I had to wonder if the deep-dish pizzas were kosher.

Daffi and Adrian Hoffman and their grown daughter Hadley were the hosts. There were several contretemps during the party which set the stage for coming events. One of Delilah's employees, nicknamed Rabbit, did a scarp for reasons unknown.

Delilah was plagued by the arrival of relatives for the holidays, including her estranged sister. The plot bogged down as all the back stories were established among her relatives, neighbours, and employees. Delilah herself was a neurotic mess.

The snow sculpture competition began. Contestants were to carve the blocks of compacted snow. The event came to a sudden stop when a contestant cut into a block and found a pair of human feet sticking out from the rest of the body.

The deceased was Natasha La Cotti, a friend of the Hoffmans. She had been at the party. Police found a security video showing her pushed off a second-floor balcony into the snow below. They couldn't make out the murderer's face.

The novel followed the standard Miss Marple routine to fill out the middle of the plot. Suspicion was deeper and wider than the snow. Delilah managed to concoct a story in her own mind for each person she met.

Pizza sells well in winter, so Delilah was tied down by the restaurant in the evenings, the peak period. The snow sculpture contest was occasionally mentioned.

The main focus was on the thorough mess Delilah was making of both her family life and her investigation. Everyone she spoke with lied about their whereabouts and past life. And to the police as well, who thought they had jurisdiction.

I'm an old cowhand from the Red Deer River, so I was tripped up in Chapter 18 when a character said she had been a farm girl who had to milk 90 heifers every morning.

I doubt a single person could handle that many by herself and still get to school on time, even with a 05h00 start as she said. More importantly, a heifer is a virgin female who can't give milk. When she has her first calf then she becomes a cow and begins producing milk. But I digress.

Delilah's missing employee Rabbit reappeared at the snow sculpture festival. He had an explanation for his sudden disappearance but went off again. Christmas Eve Day arrived. The pizzeria closed early and the festivities began. So did the denouement. Delilah managed a double exposé.

The Hoffmans had been running a crooked contractor agency but Hadley had been cheated by the victim in a college admissions scheme. She lost control and pushed La Cotti off the balcony. Hadley blabbed all and the rest was details.

And so to a hearty Christmas dinner of beef tenderloin, scalloped potatoes, and pitka bread. What, no pizza? The recipes appendix began with Tear-And-Share Pizza Bread. Then on to Safganiyot (Jewish jelly doughnuts), Latkes, and Coquitos (Puerto Rican eggnog).



My favourite frozen pizza. Available at fine Safeway stores everywhere.

Scream For Ice Cream.

THE ROCKY ROAD TO RUIN (2021) by Meri Allen was the first novel in a cozy series about Riley Rhodes of Pennimam, Connecticut. She was a travel blogger and CIA librarian who had returned to her hometown.

The initial reason was to attend the funeral of the mother of her good friend Caroline Spooner and the latter's brother Mike. Both siblings were adopted. The other reason was to visit Riley's father Nate, who owned a bookstore.

The Spooner estate consisted of an ice cream parlour and a farm, the former situated on the latter and which made a bigger profit. Caroline wanted to carry on but Mike wanted to sell to real estate developers.

Mike didn't survive past Chapter 5. Riley found him in the barn, shot dead. His girlfriend Angelica Miguel and her vintage Porsche were missing. Was she running or had she fallen to foul play? The APB went out.

As the police investigated, the daily delivery of milk and ice cream arrived for the shop, so Riley had to deal with that. Since the owner of the ice cream shop and her son were both dead, Riley found herself in charge of the shop. Caroline was in no condition to work.

Riley had two teenaged assistants to help, but the shop's record-keeping was appalling. She had to figure out what to get for stock and find out what special orders were due. Not an easy task when the previous owner kept it all in her head.

Business boomed as newshounds and rubberneckerers rushed the ice cream parlour. The flavours were all homemade, which added to the workload.

Salted into the plot was a passing mention of a cheerleader who had committed suicide decades ago. Shortly thereafter a local woman was killed by an unknown hit-and-run driver. An experienced cozy reader will recognize these as a set-up for a surprise ending.

Riley went jogging in the woods, along a seldom-used back road. She found the wrecked Porsche. Angelica was pinned inside, just barely alive after two days in the wreck. She remained unconscious in the hospital.

On a more cheerful note, Riley found a stray kitten which she adopted and named Rocky. The farm already had a Persian named Sprinkles. Following the standard Miss Marple procedures, Riley went about sleuthing, spreading suspicion on everyone, and withholding information from the police. The usual routine.

She was kept busy with the troubles of running an ice cream shop, over-promising to customers, short-staffed to do the work, and vital equipment breaking down. Plus, and this was worse, she was obsessive about Marpleing. She regularly abandoned her shop commitments to go off and interrogate someone who might have seen something.

Angelica regained consciousness and was moved to a hospice. She didn't remember much. Riley had troubles with an unknown transient using the back woods of the farm for camping.

The Sunflower Festival began, which boosted the tourist trade and kept the ice cream shop busy. Once the weekend was over, Riley took Monday off and went snooping again. More suspicion scattered about, with implications of big shady real estate deals.

The alarums became more serious. Someone torched a neighbour's house with him inside. The denouement was tangled with multiple offenders acting out from those past incidents. I've eaten plates of spaghetti that were neater. After all the forensic technicians departed, the recipes appendix wrapped up with two ice cream recipes, for Margarita and Sunflower flavours.

MINT CHOCOLATE MURDER (2022) was the sequel to ROCKY ROAD. Riley Rhodes was now firmly ensconced as manager of the ice cream parlour. The village of Penniman, Connecticut, had its own castle. This was a folly built in the Gilded Age by an eccentric millionaire, back when a million was real money.

In the present day the stately pile was an artist colony under the direction of Maud Monaco. The place was hosting a Fall Arts Festival whose featured guest of honour was photographer Adam Blasco. Maud hired Riley to cater an ice cream social for the event.

Adam was a gifted photographer, skirt-chaser, and an all-around boor. Not until Chapter 10 was it revealed that Maud was his ex-wife. Adam went missing in

the next chapter and his body was found in the following chapter. In the castle dungeon, that is.

Adam died of bee venom anaphylaxis. A dead bee was found near him, carefully placed for the police but it was a stingless drone. Maud kept bees on the side but the setup was so obvious that police considered the death as murder by someone else. How could a bee fly inside a windowless dungeon from a distant apiary?

Murder or not, the ice cream social went on. This gave Riley opportunity to sleuth a little but not much. The police had closed off part of the castle and Maud was annoying in not letting Riley roam about the rest. But the ice cream was a success.

So was the art gallery. Dead artists are worth more, so the stock quickly sold. The best and most valuable piece was stolen. No security cameras because they were too expensive. In the meantime both Riley and the police scattered suspicion far and wide, like sprinkles on an ice cream cone.

Anyone seen arguing with Adam or who had a grudge against him was suspect. That meant about 80% of the people in the village. The denouement revealed that Adam and Maud were both bigamists. The killer was an extra who blamed Adam for his sister's death years ago.

The real mystery came after the appendix, which had only one recipe, for Pumpkin Spice Ice Cream. That flavour was constantly mentioned throughout the novel and was the bestseller at the ice cream shop. Mint Chocolate ice cream played no part in events, which led me to wonder why the book used it for the title.

SPOON TO BE DEAD (2023) by Dana Mentink was the third novel in a food cozy series about Trinidad Jones of Upper Sprocket, Oregon, over yonder by Three Egg Lake. She operated a milkshake shop which did very well in summer. Winter had arrived, so the cash flow had shriveled to near nothing.

The plot began with a bang as her ex-husband Gabe Bigley confessed to a hit-and-run accident. Besides Trinidad, Gabe had two other ex-wives in the village plus a new fiancée. Since the shop wasn't doing much business, Trinidad had plenty of time to Marple.

She did have a small catering contract at Big Egg Lake (not to be confused with the other lakes). That gave her an opportunity to be out and about snooping. She also taught a few classes on how to mix ice cream.

Assorted alarums accumulated and the inevitable final confrontation occurred. The killer had framed Gabe for the dead man's supposed accident. She did this to cover up the murder. The deceased had done her wrong.

Trinidad went back to thinking of more ice cream novelties. That took the reader to the recipes appendix, beginning with Hot Cocoa Ice Cream. Following on were Hot Cocoa Bombs (a candy), Gingerbread Ice Cream, and surprisingly, Congri (black beans and rice).



Made from real moose. Just kidding. This was chocolate swirl and peanut butter cups. Available at fine Safeway stores everywhere.

SEEN IN THE LITERATURE

Planets.

Biewald, B., et al (2024) **Modeling the impact of tides and geothermal heat flux on the climate of early Earth.** PALEOCEANOGRAPHY AND PALEOCLIMATOLOGY 39:doi.org/10.1029/2024PA005016 (available as a free pdf)

Authors' abstract: *On early Earth increased rates of tidal energy dissipation are likely, but depend on the (unknown) distribution of continents. A stronger tidal heating could provide an additional energy source during times of substantially lower solar input.*

So far, the problem has been assessed in terms of the negligible contribution to Earth's global energy budget. Here we present a spatially resolved investigation of the impact of tidal heating, mixing, and geothermal heat on early Earth's climate.

Using a random landmass distribution, tidal heating is calculated for three different rotation periods (12, 18, 24 hours) and fed into a climate model. For each rotation rate, three climate states with different atmospheric CO₂ levels are simulated.

We find that, depending on the climate state, tidal heating can affect regional ocean dynamics and sea-ice cover. The impact is strongest when tidal heating alters sea-ice dynamics and meridional heat transport close to the sea-ice edge, but its global impact remains negligible with only small global mean changes in ice cover (0.3%) and temperature (<0.05°C).

Adding tidal mixing and geothermal heat, however, leads to significant reduction in sea-ice cover of ~11% and ~19%, respectively, and thus to larger global warming.

As we do not consider the dynamical effects of a higher rotation rate or different landmass distributions, this is only a first glimpse at the importance of tides for the climate of early Earth. Nevertheless, our results suggest that tides and geothermal heat are important for understanding regional climates and could have contributed to warming early Earth.

The drag introduced on Earth by the tides also forces Earth's spin to slow down, increasing day length, and causing the Moon to recede to conserve angular momentum of the system. Consequently, on early Earth the Moon was closer and the days much shorter.

The Archean Eon spans nearly one third of Earth's history, from 4,031 to 2,500 Ma (million years ago), and there is naturally uncertainty and a range of estimates of day length for the Eon, from as short as 13 hr at 3,200 Ma to 18 hr at the end of the Eon.

The tides are consequently the key controller of day length, which directly influence planetary habitability as well as the timing of the oxygenation of the atmosphere. An understanding of the evolution of tides and tidal drag through Earth's history is therefore key to understand other Earth system events.

The first order controller of tidal energetics is continental configuration, as for a fixed lunar distance, and hence tidal forcing, the tidal dissipation rates can vary up to three orders of magnitudes depending on continental configuration.

Consequently, even though the forcing was larger during the Archean, the tides may not have been more energetic. This is because the tides become resonant for specific basin geometries, for example, the present day North Atlantic, and that effect can lead to larger amplification of the tide than the increase in forcing alone can do.

Satellites.

Zillhardt, T.A.C., et al (2024) **The Dutch Apollo 11 Goodwill display contains genuine Moon rocks.** COMMUNICATIONS EARTH AND ENVIRONMENT 5:doi.org/10.1038/s43247-024-01961-z (available as a free pdf)

Authors' abstracts: *In this study, we used a combination of advanced X-ray analysis methods, including microtomography, tomosynthesis and hyperspectral chemical mapping to carry out a non-destructive forensic investigation of the Dutch Apollo 11 Goodwill sample, normally on display at the Boerhaave museum in the Netherlands.*

These powerful methods were uniquely able to non-destructively interrogate the samples encased in plastic without contact, providing 3D images of sample textures and compositional analysis, to assess whether the results agree with archive data on Apollo 11 coarse-grained soil sample number 10085, and to provide new insights on their origins.

Our forensic investigation asked the question: were the rocks in the Dutch display actually picked up on the surface of the moon by Neil Armstrong and Buzz Aldrin?

On the 21st of July 1969 at 02:56 UTC, Apollo 11 Commander Neil A. Armstrong set foot on the moon for the first time in the history of humankind. He was quickly followed by Eagle Module pilot Edwin E. “Buzz” Aldrin, and together they spent a few hours on the lunar surface.

Their main scientific objective was to scoop surface soil and to collect rock samples. A few weeks after returning to Earth on the 29th of September 1969, they embarked on a 38-day journey with Columbia Module pilot Michael Collins to visit 29 cities in 24 countries.

As part of this showcase of the American Space Program, 135 Apollo 11 Goodwill Lunar Sample Displays (GLSDs) were gifted to the nations of the World on behalf of US President Richard Nixon.

In the 1970’s, tracking of museum items was sub-optimal, and with time several of these GLSDs, which were presented to individuals rather than institutions, as well as other samples from the moon loaned to international partners, went missing.

As of the writing of this article, dozens of Apollo 11 GLSDs are still missing, including those of Cuba, Cyprus, Peru, Vietnam, and the United Nations.

Investigations led by museums, space artefact hunters, and lawyers managed to recover a number of displays and items, including all of those gifted to the 50 United States of America.

In 2009, a moon rock given to the former Dutch Prime Minister Willem Drees in 1969 by the US ambassador to the Netherlands, which headlined a national Rijksmuseum exhibit of its ‘oldest artefacts’, was found to be a piece of petrified wood most likely from Arizona.

The item, which had been insured for up to \$500,000, is one of many fake moon rocks or displays in circulation. Identification of this sample as a fake was trivial as the item was not embedded in plastic and was relatively large (>5 cm in diameter), and because testing only required optical and electron microscopy.

It is currently kept as a curiosity at the Rijksmuseum under object no. NG-1991-4-25. The same thing cannot be said of the many displays from the Apollo 11 and Apollo 17 missions that went missing, and it is not impossible that the rocks could have been swapped for a replica.

To date, none of the approximately 400 displays (including samples distributed to the nations of the world and US states after the Apollo 17 mission) have ever been analysed and no-one has ever managed to prove that the encapsulated rocks are in fact from the moon.

Asteroids.

Wade, B.S., and N.K.Y. Cheng (2024) **No paleoclimatic anomalies are associated with the late Eocene extraterrestrial impact events.** COMMUNICATIONS EARTH AND ENVIRONMENT 5:doi.org/10.1038/s43247-024-01874-x (available as a free pdf)

Authors’ abstract: Two distinct extraterrestrial impacts events struck the Earth less than 25,000 years apart in the late Eocene, approximately 35.65 million years ago. These resulted in the Popigai (northern Siberia) and Chesapeake Bay (eastern North America) impacts structures, the largest of the Cenozoic era.

To examine the paleoclimatic consequences attributed to the late Eocene Chesapeake and Popigai extraterrestrial impact events, we present multispecies planktonic and benthic foraminiferal oxygen ($d^{18}O$) and carbon ($d^{13}C$) isotope records.

Here we generate data from the Gulf of Mexico, Deep Sea Drilling Project Site 94 covering 35.85 to 35.49 million years ago. No isotopic anomalies or excursions were recorded across the impact horizons.

However, ~100,000 years before the impacts, a negative 0.75‰ $d^{18}O$ shift occurs in planktonic foraminifera, coincident with a 0.25‰ positive change in benthic foraminifera.

We interpret this as a warming of ~2°C in the surface ocean, accompanied by 1°C deep water cooling, but these modifications are before and not coeval with the impact horizons. Despite the close succession of two or more large extraterrestrial impact events within a short space of time (less than 25,000 years), our study from the Gulf of Mexico indicates no detectable paleoclimatic response.

The late Eocene was a period of climatic change, where the Earth's descent into an icehouse world was well-underway in the form of deep ocean cooling and ephemeral glaciations in Antarctica.

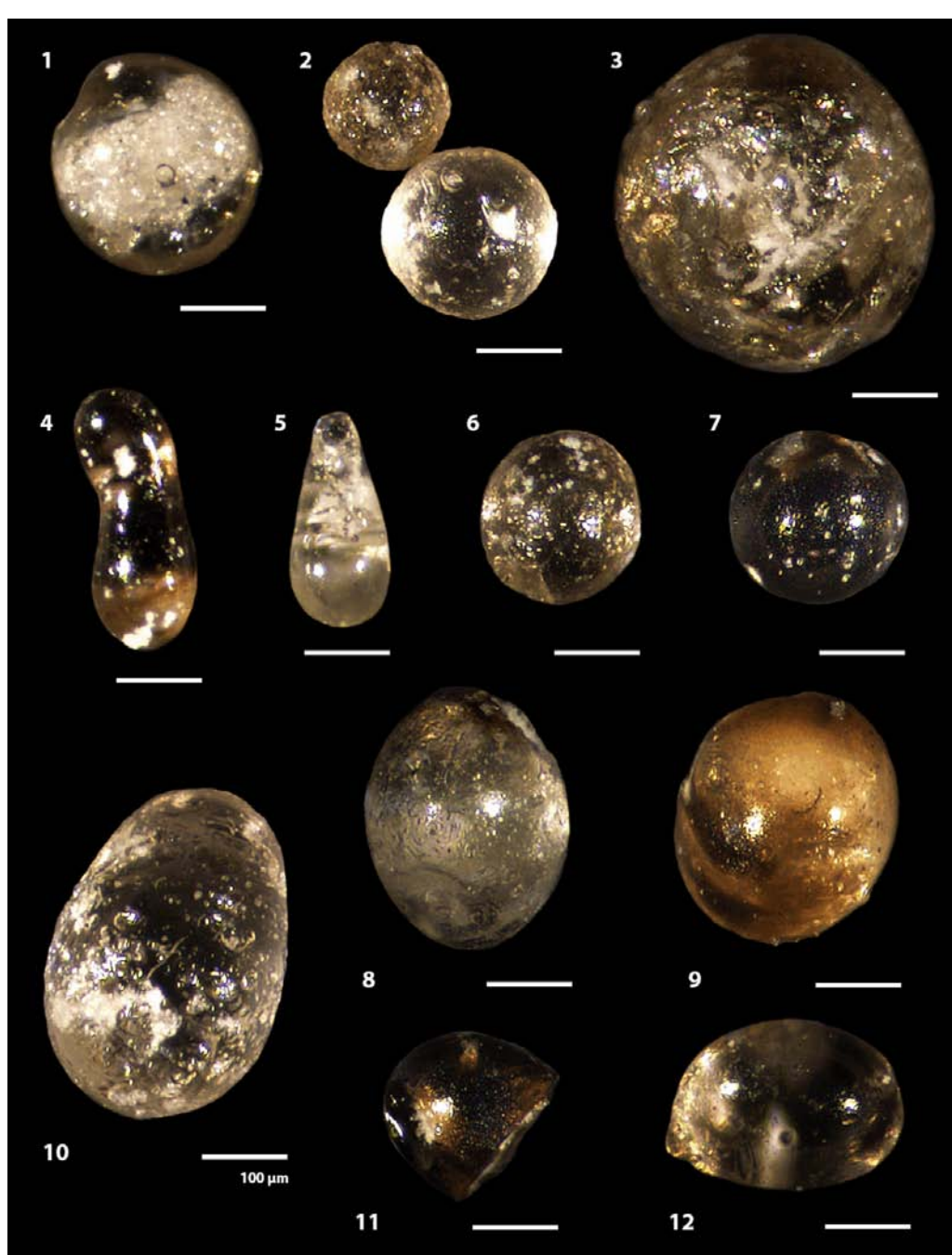
During the late Eocene, the Earth received heightened amounts of extraterrestrial matter as indicated by the discovery of numerous impact craters and an elevated helium-3 influx that lasted over 2 megayears. Marine and terrestrial sediments across multiple geographical locations worldwide bear the imprints of two distinct impact events of late Eocene age.

Geochemical and biostratigraphic data have associated the two horizons with the Popigai (northern Siberia) and the Chesapeake Bay (eastern North America) impact structures. These are the two largest known impact craters of the Cenozoic with diameters of ca. 100 and 40 to 85 km, respectively.

These two separate bolide events occurred within <25 kiloyears of each other and each event generated approximately 1 billion metric tons of silicate glass spherules that were deposited as distal impact ejecta material.

Geochemical evidence suggests that these impacts most likely had asteroidal origins. The impact event that produced the Chesapeake Bay crater has been identified as the source of the late Eocene North American (NA) tektite strewn field.

Silicate glass bodies devoid of crystalline structures known as tektites were produced from the melting and quenching of target rocks upon impact. NA microtektites and tektite fragments have been discovered in land sediments and in several deep-sea sediment cores.



A separate impact ejecta layer is characterised by the presence of crystallite-bearing spherules. As clinopyroxene is the major crystalline phase of these spherules, they are referred to as clinopyroxene-bearing spherules or cpx spherules.

High resolution stratigraphic analysis has made it clear that the cpx spherules belong to a separate impact ejecta layer that occurs at a stratigraphically older level (<25 kyr) compared to the NA microtektite impact horizon.

The cpx horizon has been associated with the Popigai impact structure and the cpx layer coincides with an Ir anomaly. The Ir anomaly is another distinguishing feature of the Popigai impact horizon, as there is no Ir peak at the NA microtektite horizon.

Cpx spherules have been observed in the northwest Atlantic Ocean, Caribbean Sea and Gulf of Mexico, where NA microtektites were also discovered. Cpx spherules have also been found in deep-sea sediment cores from the equatorial Pacific and Indian Oceans, as well as in the Atlantic sector of the Southern Ocean.

The widespread geographic distribution of cpx spherules suggests that the cpx strewn field may be global in extent. Further minor impact events also occurred during this time interval, though the age, size, extent, and correlation of othemicrospherule and microtektite horizons has been controversial.

[Images are from this paper and show tektites splashed from the impacts. The bars are 100 micrometres.]

Geology.

Micallef, A., et al (2024) **Land-to-sea indicators of the Zanclean megaflood.** COMMUNICATIONS EARTH AND ENVIRONMENT 5:doi.org/10.1038/s43247-024-01972-w (available as a free pdf)

[During the late Miocene period, the Gibraltar Strait was closed. From 5.96 to 5.33 megayears ago, the Mediterranean basin was a vast and extremely deep desert canyon with extremely thick salt layers on the bottomlands. This is known as the Messinian Salinity Crisis. At the end of Crisis, the Atlantic waters eroded through and flooded the Mediterranean, known as the Zanclean Flood.]

Author' abstract: *One debated scenario for the termination of the Messinian salinity crisis 5.33 million years ago is cataclysmic refilling of the Mediterranean Sea through the Zanclean megaflood.*

Here we present a clear line of onshore-to-offshore evidence for this megaflood spilling over a shallow-water marine corridor in south-east Sicily into the nearby subaqueous Noto Canyon:

- (i) >300 asymmetric and streamlined erosional ridges aligned with the megaflood direction,*
- (ii) poorly-sorted breccia deposited between the Messinian and Lower Zanclean Trubi Formations,*
- (iii) soft-sediment deformation structures and clastic injections in the breccia and underlying units, and*
- (iv) a 20 kilometre wide erosional shelf channel connecting the ridges with Noto Canyon.*

Numerical modelling results support the modulation of flow velocity and direction by the excavation of the channel and Noto Canyon. Our findings demonstrate that the Messinian salinity crisis was terminated through a cataclysmic flood, which implies pronounced Mediterranean sea-level drawdown prior to the flooding.

Bennington, N., et al (2024) **The progression of basaltic-rhyolitic melt storage at Yellowstone Caldera.** NATURE 637:doi.org/10.1038/s41586-024-08286-z (available as a free pdf)

[The Yellowstone supervolcano is one of the most intensely studied volcanoes in the world. If it were to erupt again at full strength, the USA between the Rockies and the Mississippi River would be obliterated, plus the Canadian prairies.]

[The good news, as mentioned in this paper, is that any future eruptions would be much smaller. Goodbye to Wyoming and Montana, but if the wind is blowing from the north, Canada would escape.]

Authors' abstract: *Yellowstone Caldera is one of the largest volcanic systems on Earth, hosting three major caldera-forming eruptions in the past two million years, interspersed with periods of less explosive, smaller-volume eruptions.*

Caldera-forming eruptions at Yellowstone are sourced by rhyolitic melts stored within the mid- to upper crust. Seismic tomography studies have suggested that a broad region of rhyolitic melt extends beneath Yellowstone Caldera, with an estimated melt volume that is one to four times greater than the eruptive volume

of the largest past caldera-forming eruption, and an estimated melt fraction of 6 to 28 per cent. Seismic velocity is strongly influenced by temperature, pressure and melt; however, magnetotelluric data are primarily sensitive to the presence of melt, making these data ideal for constraining volcanic systems.

Here we utilize magnetotelluric data to model the resistivity structure of Yellowstone Caldera's crustal magma reservoir and constrain the region's potential for producing major volcanic eruptions. We find that rhyolitic melts are stored in segregated regions beneath the caldera with low melt fractions, indicating that the reservoirs are not eruptible.

Typically, these regions have melt volumes equivalent to small-volume post-caldera Yellowstone eruptions. The largest region of rhyolitic melt storage, concentrated beneath northeast Yellowstone Caldera, has a storage volume similar to the eruptive volume of Yellowstone's smallest caldera forming eruption.

We identify regions of basalt migrating from the lower crust, merging with and supplying heat to the northeast region of rhyolitic melt storage. On the basis of our analysis, we suggest that the locus of future rhyolitic volcanism has shifted to northeast Yellowstone Caldera.

Yellowstone Caldera is one of the largest volcanic systems on Earth and has undergone three major caldera-forming eruptions in the past 2.1 Myr: the Huckleberry Ridge (2.1 million years ago (Ma)), Mesa Falls (1.3 Ma) and Lava Creek (0.64 Ma) eruptions. The Huckleberry Ridge eruption was the largest, with an approximately 2,450-km³ eruptive volume.

Each eruption was characterized by the production of large ash flows and caldera formation, followed by smaller post-caldera rhyolitic eruptions within the caldera complex and contemporaneous extra-caldera basaltic and rhyolitic eruptions.

For the Huckleberry Ridge and Mesa Falls events, this volcanic activity was followed by cooling and solidifying of the shallow rhyolitic storage region, which allowed underlying mafic magmas to ascend and erupt as basalts across Yellowstone Plateau.

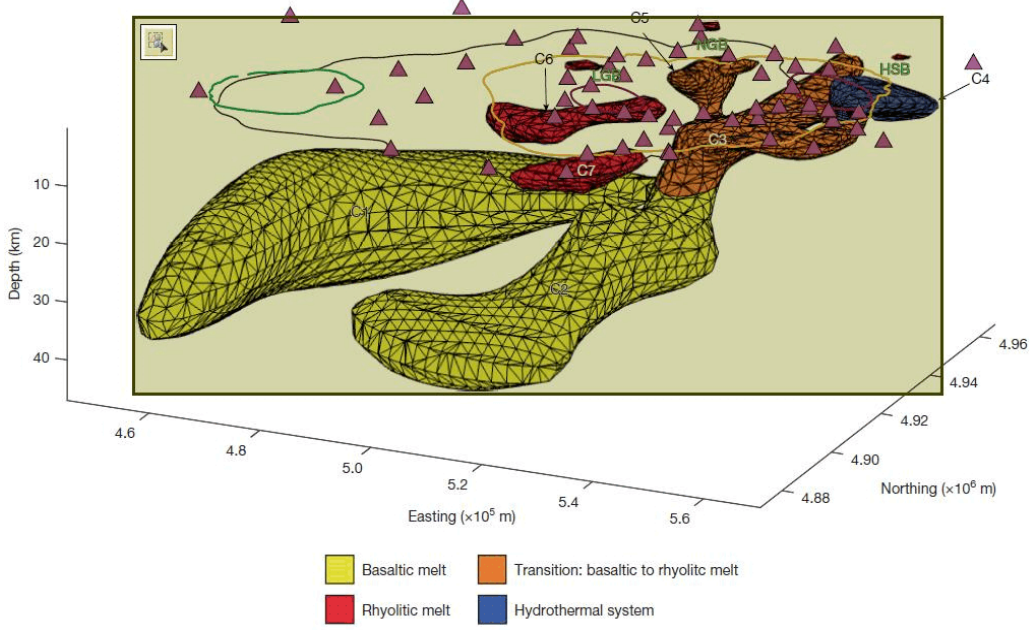
Similar cycles of volcanic activity have been identified in the eastern Snake River Plain where the locus of rhyolitic activity migrated northeastwards with

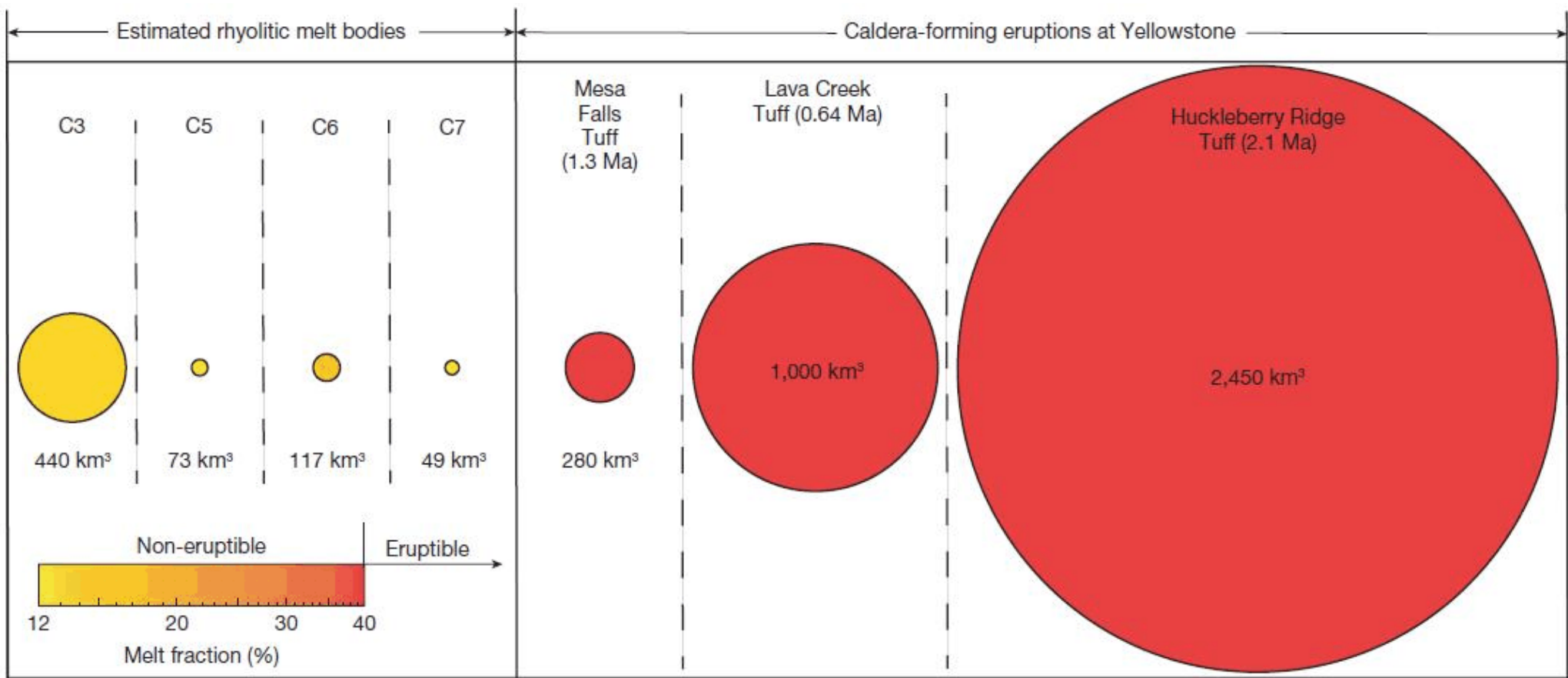
time, leaving basalts in its wake.

Notably, intra-caldera basaltic volcanism has not yet occurred in Yellowstone Caldera following the Lava Creek caldera-forming eruption, and the most recent post-caldera rhyolitic volcanism occurred more than 70 thousand years ago (ka).

Our investigation focuses on the potential for future rhyolitic volcanism at Yellowstone Caldera, the likelihood of intra-caldera basaltic activity, and whether the focus of shallow rhyolitic volcanism has shifted.

[Images are from this paper. Shown on this page is the 3-D shape of the underground melt reservoirs as determined by seismic surveys. The pie charts on the next page show the volume of ash from each eruption.]





[For comparison, the 1980 Mount Saint Helens eruption produced about 2 km³ of ashfall.]

Ford, S.E., et al (2024) **Deep terrestrial indigenous microbial community dominated by *Candidatus Frackibacter***. COMMUNICATIONS EARTH AND ENVIRONMENT 5:doi.org/10.1038/s43247-024-01966-8 (available as a free pdf)

Authors' abstract: *Characterizing deep subsurface microbial communities informs our understanding of Earth's biogeochemistry as well as the search for life beyond the Earth.*

Here we characterized microbial communities within the Kidd Creek Observatory subsurface fracture water system with mean residence times of hundreds of millions to over one billion years.

16S rRNA analysis revealed that biosamplers well isolated from the mine environment were dominated by a putatively anaerobic and halophilic bacterial species from the Halobacteroidaceae family, Candidatus Frackibacter.

Contrastingly, biosamplers and biofilms exposed to the mine environment contained aerobic Sphingomonas taxa. $\delta^{13}C$ values of phospholipid fatty acids and putative functional predictions derived from 16S rRNA gene profiles, imply Candidatus Frackibacter may use carbon derived from ancient carbon-rich layers common in these systems.

These results indicate that Candidatus Frackibacter is not unique to hydraulically fracked sedimentary basins but rather may be indigenous to a wide range of deep, saline groundwaters hosted in carbon-rich rocks.

The deep terrestrial subsurface of Earth is known to harbor microbial life at depths of up to several kilometers. Microorganisms that inhabit such isolated biomes do so under conditions that are commonly far removed from (near) surface conditions, including increased temperature, pressure, and salinity, pH extremes, and/or nutrient limitations.

Despite these challenges, many deep subsurface ecosystems contain a diverse array of microbial communities.

In other, often deeper, subsurface biomes, especially those located in ancient groundwater systems isolated from the surface on long time scales of millions to billions of years, the ecosystems have been shown to be dominated by only one or two phylotypes.

In some terrestrial analogue environments, chemolithotrophic subsurface biomes can exist independently of the photosphere and atmosphere and can be self-reliant for sources of organic carbon and energy.

Environmental Science.

Aziz Zanjani, F., et al (2024) **InSAR observations of construction-induced coastal subsidence on Miami's barrier islands, Florida**. EARTH AND SPACE SCIENCE 11:doi.org/10.1029/2024EA003852 (available as a free pdf)

Authors' abstract: *This study utilizes Interferometric Synthetic Aperture Radar (InSAR) to examine subsidence along the coastal strip of the Miami barrier islands from 2016 to 2023.*

Using Sentinel-1 data, we document vertical displacements ranging from 2 to 8 cm, affecting a total of 35 coastal buildings and their vicinity. About half of the subsiding structures are younger than 2014 and at the majority of them subsidence decays with time.

This correlation suggests that the subsidence is related to construction activities. In northern and central Sunny Isles Beach, where 23% of coastal structures were built during the last decade, nearly 70% are experiencing subsidence.

The majority of the older subsiding structures show sudden onset or sudden acceleration of subsidence, suggesting that this is due to construction activities in their vicinity. We have identified subsidence at distance of 200 metres, possibly up to 320 metres, from construction sites.

We attribute the observed subsidence to load-induced, prolonged creep deformation of the sandy layers within the limestone, which is accelerated, if not instigated, by construction activities. Distant subsidence from a construction site could indicate extended sandy deposits. Anthropogenic and natural groundwater movements could also be driving the creep deformation.

This study demonstrates that high-rise construction on karstic barrier islands can induce creep deformation in sandy layer within the limestone succession persisting for a decade or longer.

Nekola, J.C., et al (2024) **The ghost of ice ages past: Impact of Last Glacial Maximum landscapes on modern biodiversity.** iSCIENCE 27:doi.org/10.1016/j.isci.2024.111272 (available as a free pdf)

[Most people don't realize that we are still in an interglacial period. Many plant and animal species are adjusting to the end of continental glaciation, not to modern climate change.]

Authors' abstract: *Modeled modern and Last Glacial Maximum (LGM) climate ranges for 47 genetically confirmed small Holarctic land snails documented profound landscape dynamism over the last 21,000 years. Following deglaciation, range areas tended to increase by 50% while isolating barrier widths were cut in half.*

At the same time, the nature of isolating barriers underwent profound change, with the North American continental ice sheet becoming as important in the LGM as the Atlantic Ocean is today in separating Nearctic and Palearctic faunas.

Because appropriate modern climate occurs for these species throughout the Holarctic, with no clear barriers being present, especially for such efficient passive dispersers, the current >90% turnover observed between Eurasian and North American species pools appears at least in part related to the LGM landscape.

Understanding current and predicting potential future biodiversity patterns thus requires consideration of the landscape template across at least 15,000 years time scales.

[Images are from this paper.]

