

OPUNTIA 537



Remembrance Day 2022

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

THE CROSSES

photos by Dale Speirs

The trend this year for Remembrance Day displays in downtown buildings seemed to be clean and simple, without elaboration. The cover photo was taken in the Plus-15 pedestrian overpass system where it passes through the Stock Exchange building.

At right is one of the entrances to the Bow Valley Square complex of skyscrapers. Each entrance had such a cross. At the base is the poem "In Flanders Field". Below is how it appeared when first published in PUNCH magazine on 1915-12-08. The author Dr John McCrae died at the front in 1918, not in action but of dysentery, which killed as many as bullets.

IN FLANDERS FIELDS.

In Flanders fields the poppies blow
Between the crosses, row on row,
That mark our place ; and in the sky
The larks, still bravely singing, fly
Scarce heard amid the guns below.

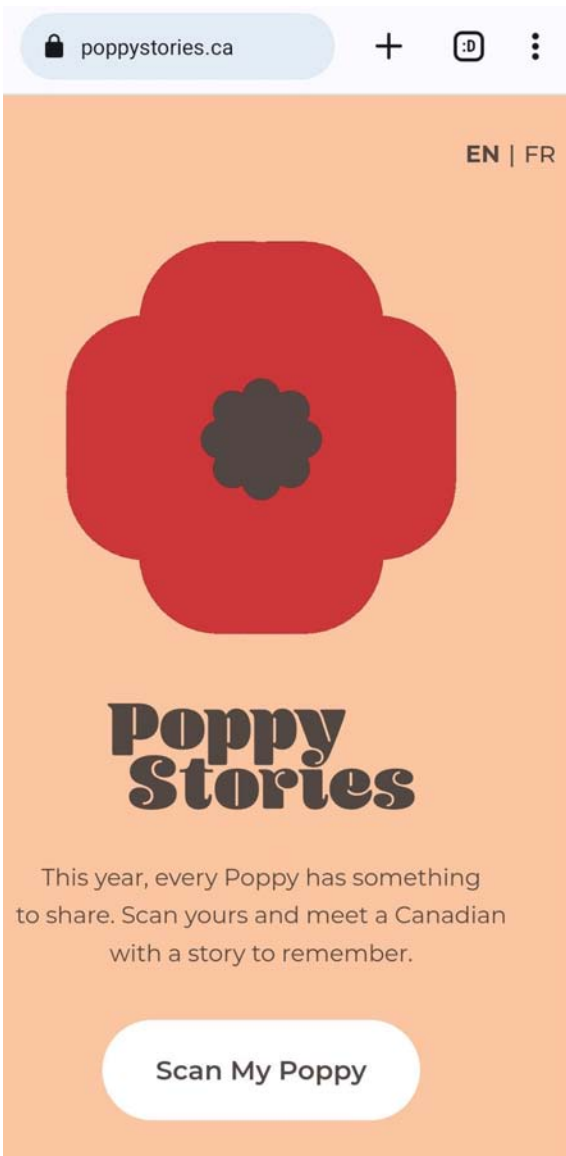
We are the Dead: Short days ago
We lived, felt dawn, saw sunset glow,
Loved and were loved, and now we lie
In Flanders fields.

Take up our quarrel with the foe:
To you from failing hands we throw
The torch ; be yours to hold it high.
If ye break faith with us who die
We shall not sleep, though poppies grow
In Flanders fields.





I saw an announcement that by scanning a lapel poppy with a smartphone, a story about an individual veteran killed in war would be sent. The poppies didn't have any embedded QR code but rather the computer recognized the colour and shape of the poppy. I scanned the poppy on my parka.

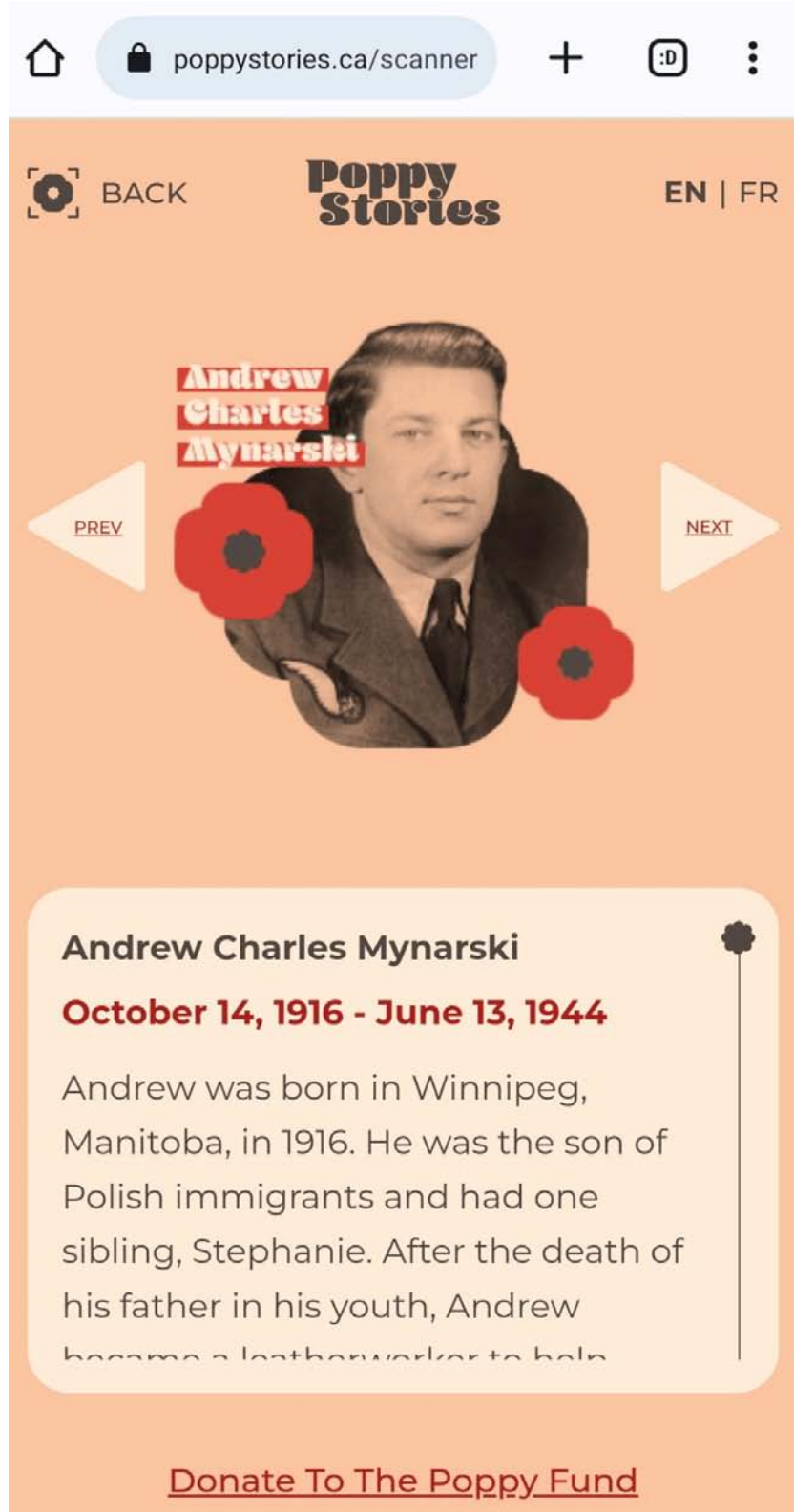


By incredible coincidence, I received a story about Andrew Mynarski, a name I recognized instantly.

I publish JOURNAL OF ALBERTA POSTAL HISTORY. Issue #19 had my history of the Penhold district of west-central Alberta.

From WW2 to the end of the Cold War, the village was the home of an RCAF base. In the postwar era, the local post office was named Mynarski Park.

All issues of JAPH are available as free pdfs from the Postal History Society of Canada at:
www.postalhistorycanada.net/php/StudyGroups/Alberta



THE CEREMONY
photos by Dale Speirs

There were dozens of Remembrance Day ceremonies across Calgary. Before the pandemic, I attended a different site each year. Now that public ceremonies have resumed, this year I visited the event at North Glenmore Park, on the north shore where the Elbow River flows into the Glenmore Reservoir.

During World War One, the Sarcee training camp was located a short distance upstream of the park. The military units that trained there mostly dissolved after the war. The King's Own Calgary Regiment, formerly the Queen's Own until Her Majesty's death, attended this location. Every ceremony across the city had a different unit in attendance.

The site was a reasonable walk from my house. The morning was sunny and brisk. For once no blizzards, which have been shuttling through Calgary weekly since late October. The temperature was mild, only -3°C, and the walk warmed me up.



The 137 Battalion was dissolved after WW1 but the King's Own Calgary have taken on the responsibility to remember them.



After the ceremony concluded, wreaths were laid.



It is the custom that after all else is done, the spectators come forward and lay their lapel poppies on the cenotaph.



NORTH GLENMORE RESERVOIR

photos by Dale Speirs

2022-11-11

After leaving the Remembrance Day ceremony, instead of short-cutting home, I took a leisurely walk along the scenic pathway of the north bank of Glenmore Reservoir.

This photo looks upstream from adjacent to the ceremonial site (out of photo to the right), showing the iced-over Elbow River in the valley below. The bush in the far distance was once the Sarcee training camp, now long abandoned.

The photo on the next page was taken from the same spot but looking in the opposite direction due east.





LLOYD PENNEY APPOINTED EDITOR AT AMAZING STORIES

www.amazingstories.com

2022-11-04



AMAZING STORIES publisher Kermit Woodall is pleased to announce the appointment of Lloyd Penney of Toronto, Ontario, Canada to the position of editor-in-chief. Lloyd succeeds fellow Canadian Ira Nayman in this position and Steve Davidson who operated as temporary editor.

Lloyd has been a member of science fiction fandom for 45 years and has enjoyed 30-year careers in both fanzine writing and convention management. He is

also an associate member of First Fandom. He'll be working on the website, magazine, and our line of books.

"I have been a proofreader and editor for most of my working life, with magazines, catalogs, and much more, but over the past four years, I have not only been the copy editor for Amazing Stories and Amazing Selects, but I have also worked with Scot Noel at Dreamforge Magazine, independent authors who need some fresh eyes for their novels, and also with a communications company in the east end of Toronto, working to edit their one paper magazine, and their two e-magazines."

"The editor-in-chief of Amazing Stories...this is a position I never would have dreamed of having, but now that I have it, I suspect the learning curve will be steep. Still, the best way to handle this curve is to start climbing it and see what is needed to tackle it."

"I will be reading as much as I can, relying on readers to look at the flood of submissions and choose what's the best of that submitted, and also to make a few judgments on what will go on the website. I am sure I will make mistakes, and forget some vital things, but I am willing to learn. I hope to help produce a magazine that all readers of SF&F will enjoy and appreciate, and maybe make a little history along the way."

WHEN WORDS COLLIDE 2023:

NOVEMBER NEWS AND OMINOUS ANNOUNCEMENT

www.whenwordscollide.org

WWC 2023.

Though the pandemic isn't quite over, we feel the advancement of vaccines along with masking (if still necessary next summer) will be at a stage to allow our 2023 festival to be in-person.

So it is official. WWC 2023 will be held in-person at the Delta Calgary Hotel on the weekend of August 4 to 6, 2023. Those who purchased festival passes or banquet tickets for in-person 2020 or 2021 which ended up being held online are already registered. And there are almost 700 of you!

Unfortunately, that leaves only 100 passes available for purchase. Online registration for the remaining 100 passes is open now at: www.whenwordscollide.org/Registration/#online

The banquet, unfortunately, is sold out, all tickets having been sold to 2020 pass holders. We are maintaining a waiting list for both passes and banquet tickets in the event of cancellations by passholders.

If you wish to join the waiting list, please email us stating the number of passes and banquet tickets you need at: info@whenwordscollide.org

The Final Chapter.

Our other announcement is that, along with reaching the end of online festivals, WWC 2023 will also be our last in-person festival. All good things must come to an end.

Our core organizers have been bringing you the festival since 2011. Additional wonderful people have come and gone along the way, but now, a dozen years later, we feel it is time to close the door.

Many of us are now in our late 60s and no longer have the energy or even the time, what with other aspects of our lives demanding our attention. It is our hope that someone will create an event to fill the void the closing of When Words Collide creates.

Time will tell. We do wish to thank everyone who has helped make the festival an amazing phenomenon throughout the years. Without you, the festival never would have happened.

What Will The 2023 Festival Look Like?

For those who attended our in-person festival prior to the pandemic, WWC 2023 will be much the same. We are returning to the Delta Calgary South Hotel and have once again booked all the event space for the weekend.

Everything we have done in the past we will do again: Presentations, Discussion panels, Blue Pencil Café, Pitch Sessions, Autograph Session, Banquet, Merchants Corner, Hospitality, and Master Classes. Even the Hidden Art Show is coming back. The only tangible change is that our regular weekend was unavailable, and the festival is being held one week early on August 4 to 6.

2023 Festival Guests.

In addition to a broad range of presenters, the festival has invited five guests for special appearances: Angela Ackerman, Nicole Baart, Tanya Huff, Tosca Lee, and Rights Factory agent Stacey Kondla.

**PEMMI-CON 2023: PROGRESS REPORT ZERO
(SPELLED WITH A “ZED” NOT A “ZEE”)**

by Robbie Bourget and Linda Ross-Mansfield, Co-Chairs
main.winnipeg2023.ca

15th North American Science Fiction Convention, 20 to 23 July, 2023, Delta Hotels Winnipeg and the RBC Convention Centre, Winnipeg, Manitoba

Thank you for entrusting us with the task of delivering a NASFiC to remember, the first hosted outside of the U.S. We are proud to welcome you to Canada’s heart. Pemmi-con is sponsored by Cansmof.

Winnipeg science fiction has always been a mosaic of styles and types: alternate history, mystery, future worlds, apocalyptic, fantastic, military, and Canada has always been a mosaic of peoples from many parts of the globe. Pemmi-con hopes to show you the mosaic that is First Nations, Metis and Canadian science fiction.

And, maybe, just maybe, we could do a programme on making pemmican: dried meat which would be traditionally bison but could be moose, caribou, deer and even beef, pounded and then mixed with an equal amount of melted fat, and various berries; how to keep your hunger at bay when on the hunt for new things.

The North American Science Fiction Convention (NASFiC) is held in years when the World Science Fiction Convention is held outside of North America. Because the 2023 Worldcon will be held in Chengdu, there will also be a NASFiC that year. The site for the 2023 NASFiC was selected by a vote of the members of the 2022 Worldcon, Chicon 8.

ACTION ADVENTURE ON THE AIR: PART 10

by Dale Speirs

[Parts 1 to 9 appeared in OPUNTIA's #426, 447, 476, 487, 494, 502, 518, 526, and 531.]

The old-time radio series mentioned below are available as free mp3s from the Old Time Radio Researchers at www.otrr.org/OTRRLibrary

Frankie Does Radio.

ROCKY FORTUNE aired for the 1953-54 season. The scripts were untitled, as a result of which many episodes circulate under multiple titles. Frank Sinatra played the hero Rocky Fortune, born Rocko Fortunato, as was specifically mentioned in the second episode. The character was an odd-job man, sent out by his employment agency to a different and strange job each week.

Sinatra's career had declined because the bobby-soxers were gone but his movie and nightclub career was only just beginning. He hit it big shortly after this series was transcribed and moved on to better things.

"Messenger For Death" aired on 1953-11-10, no writer credited. Rocky Fortune landed a job paying \$100 for an hour's work, good money even today. Laura Chandler called for a messenger and Fortune was the man from the agency. Upon arrival he first had to run the gauntlet of her secretary Eve Harrison.

Chandler handed him a key and gave him an address in a rough neighbourhood. He was to take a package to the room, enter using the key, place it on the table, and return with another package waiting there for him. She offered him a bonus of \$100.

Fortune snooped in her package en route and found it full of \$100 bills. The cabbie made some rude remarks about the cash and Fortune replied in kind. They did not part friends upon arrival at the address. Nonetheless Fortune made the exchange and as he left was rendered unconscious by someone with a blackjack.

Pause for digression. Time-honoured tradition in old-time radio was that the hero would be slugged unconscious once per episode, perhaps two or three times.

Another tradition was being shot in the shoulder and shrugging it off as a flesh wound. The shoulder is one of the worse places to be shot because it protects a major artery, anchors the muscles that keeps the head upright, and is where the arm joint operates.

But I digress. Fortune woke up with a pickpocket trying to get his wallet. An old acquaintance, as it turned out, and in the subsequent conversation Fortune learned that the culprit was a woman not unlike Chandler.

Exiting the building, Fortune was collared by his old nemesis Sgt Finger. The cabbie had complained to the police but Finger had no basis to lay a charge. Certainly Fortune did not have the cash on him, assuming that was an offence.

Returning to Chandler's place, Fortune found her quite calm upon learning about the theft of the package. He accused her of the whole rigmarole. She pulled out a pistol but obviously didn't know how to use the gun. Fortune saw the safety was still on and overpowered her.

He asked her for the story, which produced a long convoluted discourse about how she had been framed for murder. The blackmail demand of \$5,000 came the next morning. Fortune explained she had been the victim of a fake murder, a badger game staged in reverse. He took the opportunity to get some payment in kind, nudge, nudge, wink, wink.

Sgt Finger re-appeared the next day, explaining to Fortune that a woman's body had been found where Fortune had been. The badger game wasn't, and Chandler was hauled in for murder. Ultimately Harrison was accused.

She gave herself away as part of the blackmail game and tried to dive off the balcony. Finger caught her and hauled her away, leaving Fortune to comfort Chandler. Nudge, nudge, wink, wink.

"Some Cat's Killed The Canary" aired on 1953-11-17. Rocky Fortune was hired to fill in on bass fiddle for a jazz band called Bugsy Barton and His Five Barrels of Bock. The job paid \$15 plus vouchers.

The regular player Johnny Lament was under the influence of drugs in his hotel room after breaking up with Eadie Johnson. Fortune went up to the hotel room to borrow his fiddle and met Dolores Cain, who was Lament's latest girlfriend.

Returning to the bandstand, Fortune put in a shift with the band. Barton gave him a hotel room for the night. There was a knife murder across the hallway in Cain's room, with Johnson lying dead in the bed.

The hotel was a base of operations for drug pushers, and the events proceeded from there. The assorted alarums that followed were routine, although Fortune being captured and locked up in a bass fiddle case was novel. What a modern audience may not understand is that young Sinatra was a small skinny man, to the point where stand-up comedians of his time made jokes about his slight size.

Carlton E. Morse.

One of radio's most prolific writers was Carlton E. Morse, who wrote soap operas and action-adventure series. Insofar as the latter are concerned, he had several series that were basically continuous, changing their titles and character names if they changed networks but maintaining the same sort of plots. His action-adventure stories were basically soap operas with gunfire.

I LOVE A MYSTERY aired from 1939 to 1944, then was repeated in 1949-50 with the same scripts but new casts. ADVENTURES BY MORSE aired on radio during the 1944-45 season. I LOVE ADVENTURE aired in 1948. Morse's main activity was the soap opera ONE MAN'S FAMILY, which aired from 1932 to 1959.

From ADVENTURES BY MORSE was "You'll Be Dead In A Week", aired in 1944 September. Captain Bart Friday and his sidekick Skip Turner were in Maggie's Intimate Drinking Salon waiting to meet a client Eve Carson. Salon, not saloon, as Friday had to explain to Turner. The place was high class, with prices to match.

Turner was a loud-mouthed boor with a Texas accent thick enough to cut with a knife. He easily managed to affront the wait staff. Carson didn't show, but three men did, two goons with Berettas and a well-dressed dandy. Turner started a brawl with the owner, the gangster Blackie North, and rendered him unconscious.

Eve Carson arrived while Turner was still in the punch-up. She identified the dandy as her brother Wes. The other two men were North's torpedoes. She and Wes had inherited a fortune. He had a week to live. Three different doctors said as much.

Wes decided to run wild and enjoy himself. Eve was concerned and wanted Friday to watch him. She offered \$10,000 and expenses, with \$1,000 cash in advance. Another brawl cleared out the torpedoes and allowed Eve and Wes to chat.

Wes agreed to take on Friday and Turner, seeing as how they had just rendered unconscious North and his men. As part of his running amok, Wes had stolen diamonds from a Hollywood actress. Turner planted them on the unconscious North and made an anonymous telephone call to police.

They decamped out the back door as the police arrived and went to the Carson mansion. Wes decided his next escapade would be to rob a bank. Meanwhile North's men staked out the house. The police had driven past Maggie's to a different nightclub on a different call. When North woke up, he found he had some free diamonds in his pocket with no idea how they got there.

Friday convinced the Carson family's banker Mr Jordan to help stage a fake robbery. Eve guaranteed the cash stolen, \$200,000, from her personal chequing account. Call that \$2 million in today's currency, so you can see the Carsons were more than upper middle class.

The heist went well until their getaway car was hijacked by North and his men. "*A pretty good day's work for Blackie North*", said the announcer. No kidding. A pocketful of diamonds and \$200,000 in cash. Nice work if you can get it.

North and his men tied up Friday and company in the country, then left them to die. This was a common failing of villains. Three bullets would have sufficed. Instead the heroes escaped. A few more alarums followed to pad out the plot.

North and his men were not only brought to justice for what they had done, but Friday successfully framed them for the theft of the diamonds and the bank robbery. The good news was that when the gangsters beat up Wes, they inadvertently cured him.

The explanation, and here I am only repeating what Eve said, was that a nerve had been slowly strangling Wes' spinal cord. The blows he received dislodged everything and freed his spinal cord. Wes would live to get his old-age pension.

Bogie And Baby.

BOLD VENTURE was a syndicated old-time radio series that aired during the 1951-52 season and is available as free mp3s from www.otrr.org/OTRRLibrary. It was a star vehicle for Humphrey Bogart and his wife Lauren Bacall, with all episodes written by Morton Fine and David Friedkin. The series was transcribed and then marketed to independent radio stations.

The radio series was two steps removed from Ernest Hemingway's novel TO HAVE AND HAVE NOT via the 1944 movie version starring Bogart and Bacall. The radio series was vaguely similar to the book and somewhat similar to the movie, although it actually owed as much to CASABLANCA.

The setting was Havana, Cuba, long before the Communist takeover. Slate Shannon (played by Bogart) owned a boat called Bold Venture and did odd jobs with it to earn his living. His other business was a cheap hotel called Shannon's Place. His sort-of girlfriend was Sailor Duval (Bacall).

A calypso singer King Moses interpolated songs every so often. The dialogue was spoken more harshly in early episodes than it would be later in the series after the actors found their way. The plots were basic and often owed something to Hemingway.

"The Chaney Wedding" aired on 1951-07-16. Bill and Ruth Chaney were newlyweds staying at Shannon's Place. Their wedding party was interrupted by the discovery of a dead man in a far corner of the restaurant. He had been poisoned.

The next scene was after the place quieted down and the police had departed. The Chaney's were in their suite and discussed how they had not only killed that man but earlier another one back in Miami.

The first one had been killed as part of a life insurance fraud, and the second because he was a private detective following them. A third one, also a detective, soon joined the crowd at the morgue. Slate Shannon was immediately made the prime suspect by the police, as per usual.

The Chaney's insincerely offered their help to Sailor Duval. Shannon went on the lam to clear his name. The usual routine followed as everyone chased everyone else.

The Chaney's made a mistake by revealing information they shouldn't have known. Once exposed, they boasted about their murders before having a falling out and shooting each other dead. Evidently not much of a marriage, but their joint homicides saved the cost of a trial.

"The Tabard Of Pizarro" aired on 1951-12-17. The episode began with Slate Shannon and Sailor Duval on the beach watching Alice Marko turn cartwheels. She suddenly collapsed and died from a poison dart. Shannon and Duval tried to help but nothing could be done.

Marko had checked into Shannon's hotel for a few days. She had registered her home address as a hat shop owned by her father Jeffery. After her death, it was revealed she had the MacGuffin of the plot, a tabard that Pizarro once wore. (A tabard is a sleeveless jersey worn over armour plate, decorated with the soldier's crest or national emblem.)

The bad guy chasing after the tabard framed Shannon for the murder of Alice's killer. While that was going on, Duval and Jeffery were hunting the bad guy. Various excursions and alarms took the characters back and forth across Havana. Justice was served in the end.

The scriptwriters Morton Fine and David Friedkin seemed to like reworking elements such as poison darts. The rule was that if the stars got a dart, they would tough out the poison, but a supporting actor was done for.

Sharp Practice.

THE THIRD MAN aired on old-time radio for a season in 1951-52, with Orson Welles as Harry Lime. No writers were credited. The mp3s are often labeled with varied series titles using the name Harry Lime. The character came from Graham Greene's movie and later novel adaptation. Well worth downloading as free mp3s from www.otrr.org/OTRRLibrary.

Lime was a confidence man constantly traveling throughout Europe. He met a nasty end in the original movie. In the opening narration of the radio episodes, Welles told the audience that these stories were set before Lime was shot dead fleeing through the sewers of Vienna like a rat.

In the radio series, most of his schemes seemed to fall through, yet he always had money to live well and go gambling in casinos. Lime narrated all the

episodes as if he were a god speaking from Olympus, complacent in his superiority over the lumpenproletariat while oblivious of the fact that he lost more often than he won.

The most distinctive part of the radio series, and what set it apart from other radio shows, was the theme and incidental music, played on a zither by Anton Karas. Even today it would stand out on a television series.

As part of the radio episodes, the music could be considered as important as Welles' rich voice. The existing mp3s are somewhat distorted from old tape recordings but allowing for that they cannot fail to impress.

“Man Of Mystery” aired on 1952-04-11 and had an interesting afterlife. The script was not credited but was co-written by Orson Welles. He liked it so much that he subsequently expanded it into a movie MR ARKADIN, released in 1955. Because Welles did not own the rights to the Harry Lime character, he changed the name in the movie and made a few other alterations to avoid a lawsuit.

The radio episode began with a flashback sequence narrated by Harry Lime, about how puzzled French authorities were when they tracked an aircraft flying out to sea on a non-filed course. Chase planes observed it flying without any occupants, apparently on autopilot.

Then to the story. Lime was hired by a millionaire Gregory Arkadin, who said he had been suffering amnesia for 20 years and wanted Lime to find out his roots. Arkadin's daughter Raina provided the romantic interest. Lime used his contacts in the underworld to trace Arkadin's history, which was not a pleasant one. With a woman named Sophie, Arkadin had been involved in an international prostitution ring.

There was no amnesia. Arkadin was afraid Raina would learn of his past, so he tracked Lime's activity. As Lime located witnesses, they were murdered after he left them. Lime made contact with Sophie, a retired brothel madam, who assured him that she wouldn't say anything about the past.

A short while later, Lime read a newspaper report that her body had been found strangled, lying in a ditch. He realized what was going on and that he would be the final victim. He located Arkadin at an airport where the millionaire was about to take off in his own aircraft. Lime told him that Raina had been informed of his past.

She didn't believe Lime, but as he said to Arkadin, if something happened to him then she would know the story was true. Arkadin couldn't bear the thought of her knowing his past was true. He got in his airplane, flew out to sea, set the autopilot, and jumped. He preferred to die than face his daughter.

“Murder On The Riviera”, which aired on 1952-05-23, was atypical of this series. Almost all episodes were non-violent stories of fraud, attempted or successful, rather than murder mysteries.

Set in 1946, Harry Lime was smuggling a truckload of cigarettes into French Riviera without all those fussy details such as paying customs duties. En route to Nice he helped a damsel in distress on the roadside.

There was a man shot dead in her car. When he stopped, she released the hand brake and let the car roll off the cliff with the body in it. Kersplash into the sea. Nonplused, Lime gave her a ride into town. She was short on details.

Lime's other problem was his girlfriend Lily, who had been waiting for him in his rented rooms. She wasn't happy to see the other woman. The third problem was a police raid. So much for the truckload of cigarettes.

Getting back to the first problem, the body of the man had been found by swimmers. The deceased was identified as Victor Savage, which made the woman Madame Savage. She began to supply details, such as her late ex-husband having 50 million francs in cash which she now had.

Afflicted by various alarums, Lime decided on an excursion, specifically a train to Paris. Savage went along but wounded him with a gun, a good way for police to notice them in a train station. They grabbed him for smuggling and her for murder. And so to the zither music.

Litera Facinus.

THE BIG BOOK OF ADVENTURE STORIES (2011) is one of Otto Penzler's many doorstop anthologies. This book is 874 pages with 48 stories. The fiction covers the era before all the blanks had been filled in on the maps by explorers, a time when lost civilizations and dinosaur-infested jungles were still plausible.

By the 1930s, lost world stories had to be written as science fiction or fantasy, and by the end of the decade even the Antarctica could no longer hold volcano-

heated oases. The stories in this tome range from Rudyard Kipling to Robert E. Howard.

Mentioned in the foreword, the stories were often racist, misogynist, and unscientific. They were, however, written well enough to keep readers of the time enthralled by the derring-do and two-fisted action. As an historical record of what later gave rise to science fiction, they cannot be ignored.

“Leiningen Versus The Ants” (1938) by Carl Stephenson was about a Brazilian plantation owner who had been warned that a column of army ants was on the march toward his plantation. He was not worried.

He had prepared defenses, beginning with a 12-foot-wide moat around his land. The swarm filled the moat with their bodies, then crossed, but were shoveled back. Oil was sprayed on their ranks and ignited. Still the ants came on.

Actual army ants aren’t quite as bad, but this story, popular in its time, created the legend of voracious ant swarms. As late as 2008, in an Indiana Jones movie, the trope was still used for horror.

“The Sea Raiders” (1896) by H.G. Wells was about giant cephalopods who began picking off humans along the beaches of England. Alarums and confusions spread. Then the story simply dwindled away. The cephalopods went back out into the ocean and nary a tentacle was seen thereafter.

“The Golden Anaconda” (1916) by Elmer Brown Mason was about two zoologists who made their living very dangerously. Professor Ritchie McKee and his assistant Isaiah Smith trapped live anaconda snakes for zoos.

In the jungles of Columbia, they met up with an orchid hunter named Barlow. Much excitement hither and yon, as battles were fought with natives defending their homeland, Barlow trying to steal shrunken heads with rubies for eyes, and yes, a golden anaconda. Barlow was converted into a shrunken head but the other two survived.

CONVENTIONAL FICTION: PART 16
by Dale Speirs

[Parts 1 to 15 appeared in OPUNTIA #70.1A, 270, 285, 313, 364, 385, 398, 414, 421, 439, 459, 488, 495, 513, and 523.]

Now that the pandemic is over, conventions and other gatherings are reviving. COVID-19 will never go away any more than influenza did after the 1918 pandemic but the human race will adapt. We will get our annual vaccinations and those who don’t will gradually be eliminated from the gene pool. Those who aren’t will gather for conventions and parties, a basic instinct in humans.

Murder For Dinner.

One popular type of convening will be the murder mystery dinner theatre, where guests enjoy a hearty meal in the expectation that someone will not survive for the after-dinner mints. Unless, of course, the mints were poisoned. Actors play the parts and the guests have to figure out whodunit.

A QUESTION OF MURDER (2006) by Jessica Fletcher and Donald Bain was set in a Berkshires resort where a murder mystery party was staged. Jessica Fletcher was assisting the hosts, Lawrence and Melinda Savoy.

Melinda burred: “*A character will get killed during the play, Jessica*”, she said brightly. *Nothing you aren’t accustomed to.*” Lawrence later added: “*I had you written in, Jessica, as the one who solves the murder.*”

The usual plot coupons were scattered about. A blizzard isolated the big house. The victim was an actor in the play who was unpopular with all who knew him. He was murdered for real in the play. There was an evil twin brother.

Jessica did her sleuthing as the play went on, albeit with more realism than intended. The mansion was isolated by the blizzard and no one was leaving, including the murderer.

The play had to go on since the Savoyes were on the hook for the fees they collected and the actors would still have to be paid. The play distracted the guests and kept their minds off the murder. As Jessica noted, the play might catch the conscience of the killer.

The guests and cast all had pasts they would rather not have mentioned. No cliché was spared. There was a twist ending which solved not only the current murder but a previous one years ago in the village. The Savoy's decided they would not host any future mystery weekends.

DEATH IN CASTLE DARK (2021) by Veronica Bond (pseudonym of Julia Buckley) was the first novel in a cozy series about Nora Blake. She was a struggling actress in the Chicago area who signed on for dinner theatre at Castle Dark out in the country.

The place was indeed built like a castle by a long-gone millionaire. The brothers Derek and Paul Corby bought the mansion, hoping to make a living staging mystery plays. Nora was one of a troupe who would perform the plays, while the guests competed to deduce the murderer.

As the reader will not be surprised, there was a real murder. Garrett Perth was a retired drama teacher and now worked as an actor. Or did, until he was murdered during a dinner theatre. The guests were thrilled to have a real murder to solve but were annoyed when the police arrived and shooed them away.

Nora was kept busy nursing three kittens she adopted and sorting out the melodramas among everyone else. Lots of back stories and side excursions. Although Garrett had his share of sins from his past, none of them seemed worth killing him for.

Nora found the killer, who had never been affronted by Garrett but was acting for her husband, who had been affronted back in school days. Hardly worth seeking fatal revenge ten years later, but murderers have killed for less reason.

CASTLE DEADLY, CASTLE DEEP (2022) was the sequel, taking place a few months after the previous novel. Having recovered somewhat from the previous murder, the castle staff and actors were preparing a new play. There was a subplot about hidden treasure in the castle.

Part of the performance involved the cast and guests trooping down into the basement, redone as ancient catacombs. That was where the murder took place, one of the actors whom everyone liked and who apparently hadn't an enemy in the world.

Late in the novel Nora Blake realized the victim had been mistaken in the dark for someone else. The intended victim was involved in romantic affairs. After a confrontation with the murderer, Nora survived but as there were several chapters left, more had to come. A treasure hunter had found the gold and Nora was in the way. She survived, of course.

Even in the early part of the novel, the villagers and police were wondering why the castle should suddenly be having multiple murders within a few months. There had not been any in decades, but the arrival of Nora Blake meant the village population would be thinned down quite a lot over the next few years.

Mystery Conventions.

GIN AND DAGGERS (1989) by Jessica Fletcher and Donald Bain took the old dear to London, England. Fletcher was the keynote speaker at the convention of the International Society of Mystery Writers.

Her friend Marjorie Ainsworth invited Fletcher to her estate for a book launch party. Alas, poor Marjorie. She should have known better but as she was the murder victim, it was too late. The moving finger writes, etcetera.

Fletcher was a prime suspect, given her status as the world's greatest murder magnet. The convention went on and so did the murders. Fletcher and the police were in open competition to solve the ruckus. She was also up against a showboating private investigator.

Chapter 15 was the reading of Ainsworth's will, which had some amusing bequests and revenge from beyond the grave. She left to her publishers the royalties they stole from her during her lifetime.

The dead can't be sued for libel, so she said in great detail what she really thought of some other writers. That chapter alone was worth the price of the book.

The convention carried on with panels such as the best methods of raising fingerprints from crime scenes. Meanwhile, a second murder victim was eventually revealed as the ghostwriter for Ainsworth's most recent novel.

Several more twists took place as the plot zigzagged like a drunk driver trying to stay in his lane. We never get conventions like that in Calgary.

Hobby Conventions.

THE PROOF IS IN THE POISON (2022) by Diane Kelly was the second novel in a cozy series about Hattie Hayes of Chattanooga, Tennessee. She operated a liquor store specializing in moonshine and Marpleing. The former is apparently legal nowadays.

The Chattanooga Choo-Choo Model Train Convention was in town. Hattie’s shop was just down the street, so she promoted her homebrew at the convention.

An attendee died after drinking some of her moonshine, which got her sleuthing to protect her name. Fortunately no one else who drank the stuff was sickened, so the evidence pointed to a targeted murder by poison.

As specifically mentioned in the first chapter, the fact that she caught a killer in the first novel had actually boosted her business. As Hattie remarked, *“I’ll take all the free publicity I could get.”* And so to the convention.

Glenn Miller’s famous song about the train played continuously over the public-address system. The venue was packed with model train displays up for judging. Categories included diesel, steam, and People’s Choice.

There were seminars on “Computer Controlled Signaling” and “Choosing The Right Scale For Your Models”, as well as history displays. The dealer bourse needed no explanation.

The murder victim was Bert Gebhardt, a competitor and all-around boor. He managed to survive to Chapter 7, a remarkable feat considering how many people he offended in the first six chapters. Not the least were other competitors and the judges, none of whom mourned him.

Nor was it surprising that the news media made a beeline for Hattie’s store. She was, however, at the convention hotel, busily Marpleing. Given the crowded convention floor, spotting the person who spiked Gebhardt’s drink with poison was difficult, even with security cameras everywhere.

There was no shortage of suspects but Hattie managed to find the murderer. The encounter was on the train tracks. A real train outside, not a convention model.

FELINE COZIES: PART 1

by Dale Speirs

I’ve accumulated enough reviews of cozy mysteries about cats that I’ve decided to begin yet another thematic review column. Previous cat cozy reviews appeared in OPUNTIA’s #398, 443, and 482 in the general Cozy Mysteries columns.

When I was a boy back on the ranch, we had all kinds of barn cats but none of them ever investigated crimes. The only time they meowed at us was when their food dishes were empty, not to draw attention to clues. Mostly they just ate, slept, or went out hunting mice in the fields.

Midnight Louie: The Original Series.

Carole Nelson Douglas (1944-2021) was a prolific novelist with several book series. The best known was the Midnight Louie cat cozies. There were 26 novels in alphabetical order plus two volumes that bookended the series.

Midnight Louie roamed about the Strip in Las Vegas but deigned to consider Miss Temple Barr’s apartment as his home base. She was a freelance publicist and murder magnet. Her name will be an in-joke for lawyers.

Midnight Louie was a fat cat, feral in his upbringing but becoming more domesticated as the series evolved. In the later books he came across another feral cat who told him she was his daughter Midnight Louise.

Midnight Louie narrated his own adventures from a cat’s point of view down on ground level. With his daughter, the two felines snooped about the hotels along the Strip.

CAT IN AN ORANGE TWIST (2004) had Temple Barr busy planning for the grand opening of Maylords, a trendy furniture showroom. Her main job was to babysit famous interior decorator Amelia Wong, famous in her own mind at least.

Wong received death threats, so she added a couple of bodyguards to her entourage. She wasn’t just acting out. At the buffet party in the store, a gunman outside sprayed the place with machine gun bullets. Fortunately no one died but the drive-by intensified her fears.

At the halfway mark of the book, there was a murder. A Maylords designer Simon Foster suddenly departed this world. The grand opening week continued with some adjustments. After the second murder, another staff member, Midnight Louie thought: “*At the rate people are dying in Maylords, customers will have to schedule séances to consult the staff.*”

The motive behind the troubles was drug smuggling, using furniture shipped in from Hong Kong. Midnight Louie sniffed out the cocaine. When a big ugly guy made a move on Barr in the denouement, the fat cat leaped on his back all claws fully extended and terminated the incident.

CAT IN A QUICKSILVER CAPER (2006) had Temple Barr hired as publicity agent for the New Millennium Hotel. The place was hosting an exhibition of jewels and artifacts of the Russian czars in the centre of the casino. Directly above the display was an aerial magic act. Only in Las Vegas.

Performers began dying one by one. A jeweled sceptre was stolen from the exhibit. The culprits could have been international art thieves, Russian mafia, or Chechan freedom fighters. Even worse, the hotel management feared what their insurance premiums would become. The police weren’t happy either.

Midnight Louis managed to get himself involved in daredevil acrobatics up near the ceiling with other cats. The prime suspect was one of the acrobats, but then she fell to her death, so Kathleen reluctantly had to eliminate her. Throw in an international conspiracy and the plot was fully in motion.

Lots of loose threads were left at the end of this novel to continue the series. A head fake was the apparent death of one of the main characters which, in the next novel, would prove to be broken bones and amnesia to extend the storyline.

Midnight Louie: Redux.

When Temple Barr married, Midnight Louie shifted his allegiance to Delilah Street to start a new series of books. The first novel was ABSINTHE WITHOUT LEAVE (2018). Alas, Douglas died before subsequent volumes were published. One wonders if the series will be passed on to another author.

The book at hand, like its progenitor series, was set in Las Vegas, where Midnight Louie was accustomed to roam. The introduction of the cat to his new mistress, if I may use that word, and to the readers, set the stage and not just

figuratively. This series, as Douglas stated before her death, was intended to veer into the paranormal rather than just repeat the setting of the first series.

Street was pursued by werewolf bikers in the opening sequence. While escaping them, she stumbled into a magician’s act on stage, while his assistant vanished permanently. That set off alarums and excursions around Las Vegas, narrated at intervals by Midnight Louie, by now an experienced feline investigator.

The missing stage assistant was mixed up in military intelligence matters. Spies lurked about the underground service tunnels of the hotels. The victim liked to drink absinthe, a green liqueur. She was murdered when someone spiked her drink with ethylene glycol, better known as antifreeze, and like absinthe a clear green liquid.

The details were summarized in the denouement. The paranormals inhabiting Las Vegas were obviously going to be there for the long run, if there is one.

Rural Cat Cozies.

PURR M FOR MURDER (2107) by T.C. LoTempio was the first novel in a cozy series about Sydney McCall, late of New York City and now resident in Deer Park, North Carolina. She left behind an unfaithful fiancé and began working part-time at an animal shelter run by her sister Katherine, known as Kat.

A friend of the sisters operated a coffee shop. She was interested in a plan to operate a cat café, where patrons could play with shelter cats, a method to encourage adoptions. The landlord Trowbridge Littleton objected but was silenced by a person unknown.

The sisters were prime suspects in the eyes of the Deppity Dawgs, so Sydney took up Marpleing, assisted by an orange tabby named Toby. There were lots of back stories and old family feuds to uncover, assisted by occasional meows from Toby.

One hilarious example was in Chapter 21 where Sydney was navigating rural roads: “*If it hadn’t been for Toby’s sharp meow, I surely would have missed the turnoff.*” Who needs a GPS when you have a cat sitting on the dashboard?

The denouement was the standard cozy finish where Sydney got herself trapped with the killers. Littleton had been murdered because he raised the rent on the the murderers' illegal business. Toby got in the last purr.

DEATH BY A WHISKER (2018) was the sequel. Sydney McCall was settling down in Deer Park. Her sister Kat and animal shelter administrator Maggie Shayne were staging a fundraiser.

The guest of honour was Ulla Townsend, a shopping channel queen. She was rude and nasty, until someone solved that problem during the fundraiser. Maggie was a suspect in the murder, so Sydney and her cat Toby went sleuthing.

Ulla had quite a past, so suspicion was scattered about like road salt. The Deppity Dawgs were not happy about a Miss Marple snooping about, not to mention finding cat hairs on the evidence. Ulla had been involved in a million-dollar tell-all book and movie deal.

Toby spent most of his time sleeping but occasionally deigned to supply a clue by meowing at something or pointing with a paw. The book deal was a feint. The killer was seeking revenge for her sister, left a vegetable after Ulla spiked her drink back in high school.

Sydney was rescued by her police detective boyfriend. Toby didn't need rescuing. Cats are smarter than that.

T.C. LoTempio has several different cat cozy series running concurrently. From a different publisher was her Purr N Bark Pet Shop series. THE TIME FOR MURDER IS MEOW (2019) was the first volume.

Crishell McMillan had been an actress for ten years in a television series. When the show was cancelled, she headed home to Fox Hollow, Connecticut. Her aunt Tillie had died about the same time, so Crishell took over her pet store. With a Siamese cat Kahlua and Tillie's Persian cat Purrrday, Crishell was all set for the Marpleing business.

Which began when she had a public argument with Amelia Witherspoon, a local museum trustee who soon departed this world under suspicious circumstances. Crishell's ex-boyfriend and an ex-co-star Gary (two different men) both arrived from Hollywood to stir things up.

The Marpleing commenced with Gary and the cats trying to help. Witherspoon had been a blackmailer and no one mourned for her. The death toll climbed. Crishell spent little time in the pet store.

The cats were the best investigators, finding an important clue that broke open the case. One of them worked a smartphone to summon help. No, seriously. Lassie always had to run home and bark that Timmy fell down the well, but these cats had modern technology to help.

The killer had been fiddling with museum funds and hoped to blame others for the murders. No such luck when going against cats.

Feline Jessicas.

NO ESCAPE CLAWS (2019) was written by Sofie Ryan, pseudonym of Darlene Ryan. See also further on under the Magical Moggies section of this review column.

This was the sixth novel in a cozy series about Sarah Grayson of North Harbor, Maine. She operated a secondhand shop in the village. She also substituted for Jessica Fletcher, who was too busy further along the Maine coast. Assisting Sarah was her cat Elvis and a group of busybody seniors.

The case at hand was a man sent to prison for criminal negligence, whose son asked Sarah for help in clearing his father's name. Sarah drove about the village sniffing out clues. Elvis rode with her in the car, sniffing out other clues and acting as a backseat driver. *"He looked over his shoulder when I backed up and checked traffic in both directions at every stop sign."*

On the Speirs ranch, our cats never rode inside a pickup. Maine cats do things differently. Sometimes I saw one of our cats sitting on top of a parked tractor surveying its kingdom but I feel safe in saying they didn't give a damn about our driving.

But I digress. The death was resolved as murder arising from an illicit romance. The novel concluded with Sarah's own romantic moment with her boyfriend, while her cat munched on pepperoni pizza.

WHAT THE CAT DRAGGED IN (2021) by Miranda James (pseudonym of Dean James) was a novel in a cozy series about librarian Charlie Harris and his

cat Diesel, both normally resident in Athena, Mississippi. This time around he inherited a farm with a skeleton in the closet, and not just figuratively.

Diesel was the one who sniffed out human bones in the old house. While the search was on to identify the bones, the tenant's grandson tried to claim the property, but he didn't survive past Chapter 7.

Being a librarian, Charlie was able to research the history of the farm. Not everything was written down though, so he had to talk to local families for oral history. Not all of them were communicative, as sometimes the past must be left unknown.

Except when the past manifests itself as bones. The police investigated, Charlie investigated, all sorts of characters appeared, and suspects multiplied. Diesel helped the plot along at intervals by finding clues, then meowing at Charlie to draw attention to them.

The tomato surprise was that a neighbour had been using the house for a moonshine still in the basement. After the standard held-at-gunpoint ending, the loose threads were tied up.

The series was a library cozy but this installment was more of a cat cozy. Too many murders in the library, so Charlie and Diesel had to go roving to spread out the death toll.

Magical Moggies.

Sofie Kelly (pseudonym of Darlene Ryan) wrote a cozy series about librarian Kathleen Paulson of Mayville Heights, Minnesota. She was the resident Miss Marple, assisted by her two cats Owen and Hercules, who had magical powers to sniff out clues.

SLEIGHT OF PAW (2011) took place during Winterfest. The victim was Agatha Shepard, who had been hit by a drunk driver while walking along a street. The driver stopped and dragged her body into an alley where it was later found. Kathleen Paulson and her cats began Marpleing.

Between the Winterfest, her day job as a librarian, and sleuthing, Kathleen was a busy woman. The latter task was made easier by the cats pointing out clues whenever the plot threatened to stall. Sometimes just a little too much so.

For example (page 286, mass market paperback), Kathleen lamented that she had accidentally thrown away a clue, a tourist brochure that might identify the campsite where a suspect was staying. In the very next paragraph, she turned around to see one of the cats holding the brochure in his mouth, having just fished it out of a recycle bin.

From there to a standard type of finale, trapped in a basement with the killer. Since she was booked for the series, there was no suspense about her surviving. The Winterfest wound up and so did the case. The drunk driver was identified for negligence on the first death and attempted murder of Kathleen.

CAT TRICK (2013) began with local businesses trying to entice Legacy Tours to sell a vacation package for Mayville Heights. The tour liaison was Mike Glazer, a local boy who had made good in the city. Not long after he returned to the village, someone made him dead.

Kathleen and the cats were on the case. As mentioned on page 13 (mass market paperback): “*It helped that there hadn't been a major crime in Mayville Heights in a while.*” Indeed. The cats paid no attention to the crime scene tape and pointed out clues to grumpy police officers who were embarrassed they had missed them.

The killer and Glazer had been disputing some nasty business. There was even an evil identical twin brother involved. The resolution was a surprise in the sense that Kathleen wasn't trapped by the murderer, nor did her cats have to rescue her. That would come later.

PAWS AND EFFECT (2016) began with Kathleen's boyfriend Marcus Gordon being framed for murder. She and the cats went to work, although she was hampered by having to earn a living as a librarian. Committee meetings, restacking, and endless paperwork.

Searching out the victim's past history led Kathleen into a confrontation out in the woods with the killer. The cats rode about with her and saw the murderer grab her. They went for help and led the rescuers to the well where the killer had stashed her.

Shades of Lassie and Timmy down the well. The murderer was a sharp-practice man who preferred his past history to remain in the past.

A TALE OF TWO KITTIES (2017) was the next novel in the series. This time Kathleen was digging deep into the past history of two brothers. Les and Victor Jones had been estranged but recently reconciled. Except one of the brothers was murdered.

The police settled on Leo's son as a suspect since there was quite the back history in that family. The cats were underfoot but when Kathleen got herself trapped with the murderer, again as usual although this time not down a well, Owen came to the rescue.

He launched himself off a bookcase and landed on the killer's back, digging in with all four sets of claws. That would distract anyone, and allowed Kathleen to flee to safety. The rest was details.

Two Cats And A Miss Marple To Be Named Later.

Rebecca M. Hale had a series set in San Francisco about an unnamed Miss Marple who inherited an antiques shop and several cats from her missing Uncle Oscar. He wasn't dead, just in hiding because of assorted conspiracies.

The novels were narrated in first person singular without mentioning her name. As a matter of convenience, I will call her Rebecca, to avoid having to use circumlocutions such as "the protagonist" or "the narrator". She had two cats, siblings Rupert and Isabella, helping her.

Uncle Oscar was a treasure hunter and a conspiracy theorist, the two of which blended quite well. His shop had a network of tunnels connecting to the more unsavory parts of the city, which led to a fair amount of traffic of ne'er-do-wells. Rebecca was caught up in events as they transpired.

HOW TO TAIL A CAT (2012) began with the escape of an albino alligator named Clive from the Steinhart Aquarium. While the citizenry were in a tizzy about him, Rebecca and her cats were tracking down one of Oscar's treasures.

There was also Spider Jones, a young intern from the outgoing mayor's office. He was snooping about into the lives and business of almost everyone. The story switched back and forth between characters, sometimes with a sudden jerk.

The departure of the previous mayor for higher office in Sacramento created a vacancy that was filled by Monty Carmichael. He was a village idiot, if San

Francisco can be called a village, and operated an art store next door to the antiques shop.

Monty wanted to gain credibility with the citizenry by capturing Clive bare-handed. The albino alligator roaming the streets was a robot, but the real one was lurking in a park pond. Meanwhile, Rebecca and the cats searched hither and yon for the treasure. They were eventually successful and found the loot, a pure gold seahorse.

Next up was HOW TO PAINT A CAT (2014) which picked up the loose threads from the previous novel. This time Rebecca, Rupert, and Isabella were checking out New Deal murals for clues, with Uncle Oscar lurking in the background.

Monty Carmichael was unnerved by Spider Jones' murder, still unsolved. Spider's ghost kept trying to nudge Rebecca to learn the secret of one landscape mural in the Coit Tower museum.

The cats didn't do much but they were put off by Rebecca feeding them diet kibbles. In any event, the murderer was identified once Rebecca decoded the mural. The cats went back to what they did best, sleeping and eating.

HOW TO CATCH A CAT (2015) was the search for the murderer, now labeled by the news media as the Knitting Needle Ninja because of her favourite murder weapon. She was a serial killer who had killed dozens of interns at City Hall. Since they came and went on a monthly basis, no one noticed.

Rebecca and the cats were distracted by the America's Cup regatta. The harbour bustled and the cats prowled. Isabella did help by leaping onto the Ninja's back as she tried to kill Mayor Monty. The Ninja stumbled, as anyone would with all those claws in their back, fell into the water, and drowned. Finis.

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
Etobicoke, Ontario

2022-11-01

Now that the candy-filled Halloween is over, we can all recover, lose some weight, and get back to our regularly scheduled diet, in preparations for all the December pig-outs we expect will happen.

[I only gained a kilo on Halloween candy.]

OPUNTIA #534: [Re: Calgary C-Train car turned into art centre] There has been the idea here of old TTC subway cars being transformed into affordable housing.

It hasn't been realized yet, for there is almost a passive resistance to affordable housing on the part of the provincial and municipal governments. They think it's a good idea, but are loathe to do anything about it. Also, their idea of affordable housing is still too expensive for the people who truly need it.

Old buses should be turned into mobile convenience stores to travel about in areas where small malls with needed stores are torn down to build the ubiquitous condos.

[There is one high-end supermarket in Calgary that has a ex-transit bus converted into a mobile store, but they only sell \$5 apples and \$25 fresh pasta packs to Millennials in the better neighbourhoods.]

I have seen proposed images of King Charles III on coins and stamps and bills. There have been rumours that any stamps or currency with Queen Elizabeth's image on it will instantly lose their value, but every so often, I do get in my change something with King George VI on it, which instantly goes into the collection.

[When the Queen died, there was a lot of nonsense about stamps and coins. Canada Post accepts all decimal currency stamps issued by it since 1851. Likewise all decimal coins issued by the Royal Canadian Mint are still valid.]

[The problem was that very few people are alive who were old enough to remember that when the Queen came to the throne in 1952, stamps and coins of her father still remained valid. Coins and stamps of King Charles III will soon be appearing from the RCM and Canada Post. There will be a gradual transition, just as with every previous monarch.]

[I talked to local stamp dealers who told me there was a mad rush to buy stamps issued during the Queen's reign by ignorant fools who thought they would suddenly be valuable "because they aren't making them any more".]

[In actual fact, most QE2 stamps are common and will never be worth anything. She was, after all, on the throne for 70 years, which means billions of stamps were printed during her reign and will never be scarce. Her death provided a wonderful opportunity for stamp dealers to unload their stagnant stock.]

[Re: Canada personalized stamp of Lloyd's mother-in-law dressed as the Queen] A real surprise on page 16! I'd forgotten about the stamps with mother-in-law Gabrielle Klein-Robert as the Queen. We should copy this and relay it to the perpetrator of this little hoax, Rick Mili, who is Yvonne's brother-in-law.

My previous letter: We did get to our fifth show of the season, a one-day event called CompassCon in Richmond Hill, north of Toronto. We broke our string of good sales, only \$15 of merchandise sold, but we did win some gas gift cards, so it wasn't a total loss. Our next one is in west Toronto, a church craft show, later this month, so we have higher hopes for this one.

Cockatoos opening garbage bins in Sydney? Australia, I will presume here... Toronto should help out by sending along all ideas we've had to keep the raccoons out of our garbage bins. Some of them have even worked.

[No raccoons in Calgary, but some neighbourhoods are in a tizzy about black bears coming in from the adjacent mountains and rummaging through bins.]

OPUNTIA #535: I didn't know about any Canadian space programme outside of the Canada Space Agency. I suspect some of the province's universities are in charge of what's been going up.

[Yes. Even so, I was startled to learn that AlbertaSat 1 is orbiting Earth.]

Glad you enjoyed the issues of [the steampunk zine] GATEHOUSE GAZETTE. I responded to each issue to editor Nick Ottens, and even got some letters published here and there.

[Visit www.neverwas.com to download free pdfs of this zine.]

I had thought that issue 21 was the last one, but thanks to your mention of an issue 22, I have downloaded it. It looks like the Gatehouse aspect of the website has carried on, but without much of the steampunk. Hilde Heyvaert was definitely right about summer being too hot for the often heavy steampunk costumes.

Very much like the steampunk coins from the Cook Islands.

SEEN IN THE LITERATURE

Astronomy.

Rix, H.W., et al (2022) **The poor old heart of the Milky Way.** arXiv:2209.02722v1 [astro-ph.GA] www.arxiv.org (available as a free pdf)

Authors’ abstract: *Massive disk galaxies like our Milky Way should host an ancient, metal-poor, and centrally concentrated stellar population. This population reflects the star formation and enrichment in the few most massive progenitor components that coalesced at high redshift to form the proto-Galaxy.*

While metal-poor stars are known to reside in the inner few kiloparsecs of our Galaxy, current data do not yet provide a comprehensive picture of such a metal-poor “heart” of the Milky Way. We use information from Gaia DR3, especially the XP spectra, to construct a sample of 2 million bright ($GBP < 15.5$ mag) giant stars within 30° of the Galactic Center with robust estimates.

For most sample members we can calculate orbits based on Gaia RVS velocities and astrometry. This sample reveals an extensive, ancient, and metal-poor population that includes about 18,000 stars. ... These central, metal-poor stars most likely predate the oldest part of the disk (age about 12.5 Gyrs), which implies that they formed at $z > 5$, forging the proto-Milky Way.

Romano, D. (2022) **The evolution of CNO elements in galaxies.** ASTRONOMY AND ASTROPHYSICS REVIEW 30:doi.org/10.1007/s00159-022-00144-z (available as a free pdf)

Author’s abstract: *After hydrogen and helium, oxygen, carbon, and nitrogen, hereinafter the CNO elements, are the most abundant species in the universe. They are observed in all kinds of astrophysical environments, from the smallest to the largest scales, and are at the basis of all known forms of life, hence, the constituents of any biomarker.*

As such, their study proves crucial in several areas of contemporary astrophysics, extending to astrobiology. In this review, I will summarize current knowledge about CNO element evolution in galaxies, starting from our home, the Milky Way.

The aim being to review studies of carbon, nitrogen, and oxygen (CNO) evolution in galaxies, it will suffice to recall that:

- (i) virtually all ^{14}N observed in the universe originates in hydrostatic hydrogen burning in stars;*
- (ii) the synthesis of ^{13}C , ^{15}N , and ^{17}O is a consequence of hydrogen burning in stars via both the cold and the hot CNO cycles;*
- (iii) ^{12}C , ^{16}O , and ^{18}O have their origin in helium-burning phases.*

Different isotopes are produced in different amounts and on different time scales by stars of various initial masses and chemical compositions.

Planets.

Crossfield, I.J.M., et al (2022) GJ 1252b: **A hot terrestrial super-earth with no atmosphere.** ASTROPHYSICAL JOURNAL LETTERS 937:doi.org/10.3847/2041-8213/ac886b (available as a free pdf)

Authors’ abstract: *Here, we report the detection of the secondary eclipse of the terrestrial exoplanet GJ 1252b, obtained via 10 eclipse observations using the Spitzer Space Telescope’s IRAC2 $4.5\ \mu\text{m}$ channel.*

We measure an eclipse depth of 149 ppm, corresponding to a dayside brightness temperature of 1,410 K. This measurement is consistent with the prediction for a bare rock surface.

Comparing the eclipse measurement to a large suite of simulated planetary spectra indicates that GJ 1252b has a surface pressure of <10 bar, i.e., substantially thinner than the atmosphere of Venus.

Assuming energy-limited escape, even a 100 bar atmosphere would be lost in <1 Myr, far shorter than our gyrochronological age estimate of 3.9 ± 0.4 Gyr.

The expected mass loss could be overcome by mantle outgassing, but only if the mantle's carbon content were >7% by mass, over two orders of magnitude greater than that found in Earth. We therefore conclude that GJ 1252b has no significant atmosphere.

Cardenas, B.T., and M.P. Lamb (2022) **Paleogeographic reconstructions of an ocean margin on Mars based on deltaic sedimentology at Aeolis Dorsa.** JOURNAL OF GEOPHYSICAL RESEARCH: PLANETS 127:doi.org/10.1029/2022JE007390

[Martian geochronology is divided into the Noachian from 4,100 to 3,700 megayears ago, Hesperian from 3,700 to 3,000 megayears ago, and Amazonian from 3,000 megayears to date.]

Authors' abstract: *The evidence for an ancient ocean in Mars' northern hemispheric basin during the Noachian/Hesperian is contentious. Much of the work is based on the modern topography by assuming that erosion has not significantly reshaped the Martian surface over the last 3.5 billion years, despite evidence to the contrary.*

Here, we provide new evidence for a northern ocean or large sea based on stratigraphic analysis of sedimentary basin fill exposed at Aeolis Dorsa.

We mapped over 6,500 km of fluvial ridges, grouped them into 20 systems, and present evidence that they are the eroded remnants of river deltas or submarine-channel belts, together defining the stratigraphy of an ancient ocean margin.

We used Context Camera stereo-pair elevation models to measure the stratigraphic positions of each system and used branching directions to determine paleoflow directions.

By grouping landforms based on stratigraphic position and paleoflow directions, we reconstructed the paleogeography at Aeolis Dorsa over 5 time steps; all cases differ from the modern topography. We tracked the initial regression and later transgression of a shoreline during at least 900 m of sea-level rise, a scale consistent with a northern ocean on a warm and wet early Mars.

Bolides.

Bolin, B.T., et al (2022) **The discovery and characterization of (594913) 'Aylo'chaxnim, a kilometre sized asteroid inside the orbit of Venus.** MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 517:doi.org/10.1093/mnras/rlac089 (available as a free pdf)

Authors' abstract: *Near-Earth asteroid population models predict the existence of bodies located inside the orbit of Venus. Despite searches up to the end of 2019, none had been found.*

We report discovery and follow-up observations of (594913) 'Aylo'chaxnim, an asteroid with an orbit entirely interior to Venus. (594913) 'Aylo'chaxnim has an aphelion distance of ~ 0.65 AU, is ~ 2 km in diameter and is red in colour.

The detection of such a large asteroid inside the orbit of Venus is surprising given their rarity according to near-Earth asteroid population models.

As the first officially numbered and named asteroid located entirely within the orbit of Venus, we propose that the class of interior to Venus asteroids be referred to as 'Aylo'chaxnim asteroids.

Sheppard, S.S., et al (2022) **A deep and wide twilight survey for asteroids interior to Earth and Venus.** ASTRONOMICAL JOURNAL 164:doi.org/10.3847/1538-3881/ac8cff (available as a free pdf)

Authors' abstract: *We are conducting a survey using twilight time on the Dark Energy Camera with the Blanco 4-metre telescope in Chile to look for objects interior to Earth's and Venus' orbits. To date we have discovered two rare Atira/Apohele asteroids, 2021 LJ4 and 2021 PH27, which have orbits completely interior to Earth's orbit.*

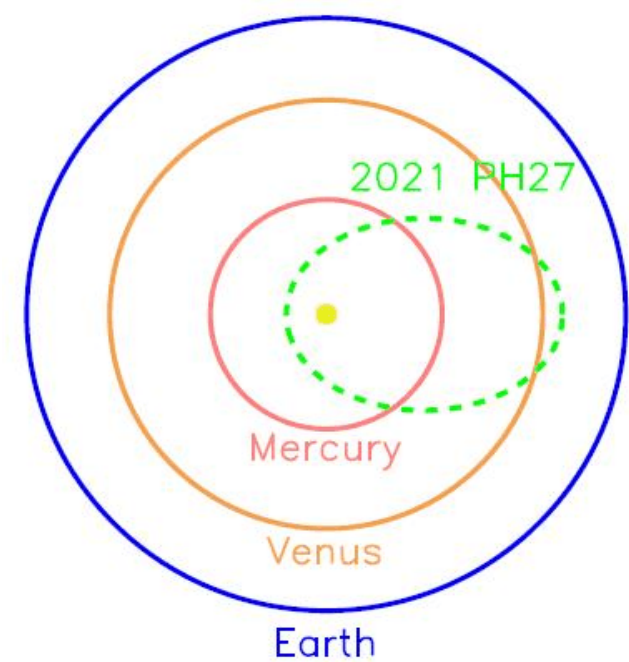
We also discovered one new Apollo-type Near Earth Object (NEO) that crosses Earth's orbit, 2022 AP7. Two of the discoveries have diameters ≥ 1 km. 2022 AP7 is likely the largest Potentially Hazardous Asteroid (PHA) discovered in about eight years.

To date we have covered 624 square degrees of sky near to and interior to the orbit of Venus. The average images go to 21.3 mag in the r band, with the best images near 22nd mag. Our new discovery 2021 PH27 has the smallest semimajor axis known for an asteroid, 0.4617 AU, and the largest general relativistic effects (53 arcsec/century) known for any body in the solar system.

The survey has detected $\sim 15\%$ of all known Atira NEOs. We put strong constraints on any stable population of Venus co-orbital resonance objects existing, as well as the Atira and Vatira asteroid classes.

These interior asteroid populations are important to complete the census of asteroids near Earth, including some of the most likely Earth impactors that cannot easily be discovered in other surveys.

Comparing the actual population of asteroids found interior to Earth and Venus with those predicted to exist by extrapolating from the known population exterior to Earth is important to better understand the origin, composition, and structure of the NEO population.



[The image is from this paper and shows the orbit of asteroid 2021 PH27.]

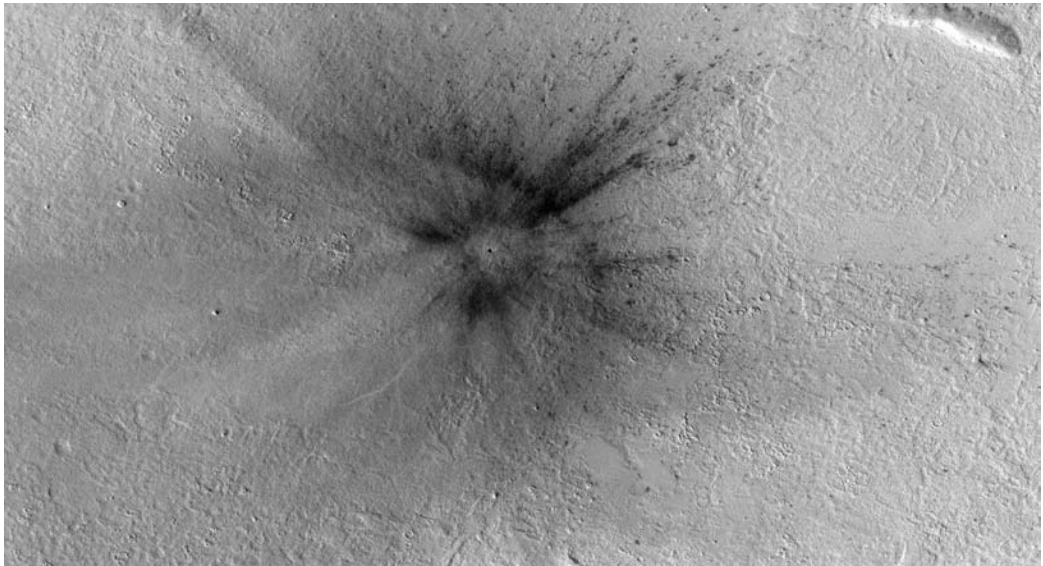
Posiolova, L.V., et al (2022) **Largest recent impact craters on Mars: Orbital imaging and surface seismic co-investigation.** SCIENCE 378:doi.org/10.1126/science.abq7704 (available as a free pdf)

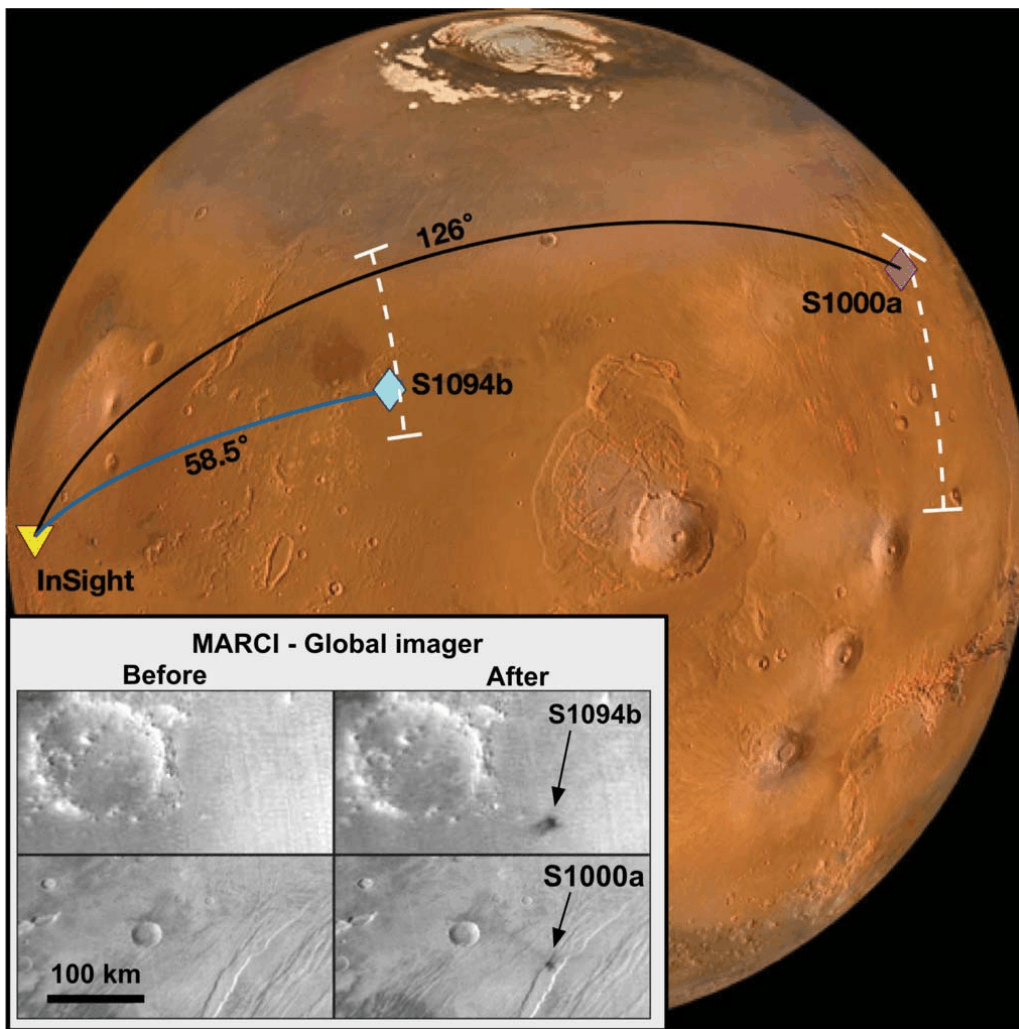
Authors' abstract: *Two >130 -meter-diameter impact craters formed on Mars during the later half of 2021. These are the two largest fresh impact craters discovered by the Mars Reconnaissance Orbiter since operations started 16 years ago. The impacts created two of the largest seismic events (magnitudes greater than 4) recorded by InSight during its 3-year mission.*

The combination of orbital imagery and seismic ground motion enables the investigation of subsurface and atmospheric energy partitioning of the impact process on a planet with a thin atmosphere and the first direct test of martian deep-interior seismic models with known event distances.

The impact at 35°N excavated blocks of water ice, which is the lowest latitude at which ice has been directly observed on Mars.

[Images are from this paper.]





In terms of cumulative effects, we calculate that ETIs are likely to be astrophysically driven extinct on timescales of roughly once every 100 million years.

In terms of comparative effects, large bolide impactors represent the most significant type of astrophysical contribution to the galaxy-wide debilitation of hypothesized ETI civilizations.

Nonetheless, we conclude that astrophysical existential threats, whether taken singly or in combination, are likely insufficient alone to explain the Fermi Paradox. Astrophysical catastrophes, while both deadly and ubiquitous, do not appear to be frequent enough to wipe out every species in the Galaxy before they can attain or utilize spacefaring status.

Szocik, K., and R. Abylkasymova (2022) **If extraterrestrial intelligence exists, it is unable to recognize humans as intelligent beings.** INTERNATIONAL JOURNAL OF ASTROBIOLOGY 21:doi.org/10.1017/S1473550422000179 (available as a free pdf)

Authors' abstract: *Assuming that the existence of an extraterrestrial intelligence (ETI) is reasonably likely, the paper considers the possibility of an ETI that is unable to recognize humans as intelligent beings. The paper presents the rationale for such an assumption. It also discusses the possible consequences for humanity of such a scenario.*

In this paper, we argue why the scenario under discussion is actually more positive for humanity than a scenario in which ETI would be capable of recognizing humanity as an intelligent species. W

e also point to feminist approaches to SETI issues exposing the role played by the specific evolutionary and developmental context of potential ETI.

Carl Sagan's Copernican principle assumes that the Earth, as well as our Solar System, is a typical rather than an unusual part of the Universe. According to this principle, the existence of other living organisms including intelligent beings is more likely than not.

A common mistake of thought in SETI is the belief that human-type intelligence is the primary model of intelligence in the Universe, and that one natural

Aliens.

Burns, N., and W. T. Parsons (2022) **Astrophysical existential threats: a comparative analysis.** INTERNATIONAL JOURNAL OF ASTROBIOLOGY 21:doi.org/10.1017/S1473550422000167

Authors' abstract: *Using a simple, coarse-grained Poisson process model, we calculate, for seven types of astrophysical catastrophe, both their individual and combined threat to complex life forms (extraterrestrial intelligences (ETIs)) throughout the Milky Way Galaxy.*

manifestation of this intelligence is technological intelligence culminating in a technological civilization.

However, it is worth remembering, as German philosophers and anthropologists already pointed out in the 19th century, that humans, unlike other animal species, are born defenceless and without any tools or adaptations. Intelligence is what is necessary for them, it is the compensation for the missing adaptations, weapons and defensive tools.

Paleobiology.

Lidsky, P.V., and R. Andino (2022) **Could aging evolve as a pathogen control strategy?** TRENDS IN ECOLOGY AND EVOLUTION 37:doi.org/10.1016/j.tree.2022.08.003

Authors’ abstract: *The evolutionary origins and the mechanisms of aging are unclear. Most researchers believe aging is an entropic process or a detrimental side effect of some beneficial traits but not an adaptive program. A limited lifespan might provide benefits by preventing epidemics of infectious diseases.*

We propose that pathogen-host interactions are the primary reason for the evolution of adaptive programmed aging. Knowledge of the evolutionary origins of aging may instruct strategies to decipher its mechanisms and develop anti-aging interventions.

Aging is often attributed to the detrimental side effects of beneficial traits but not a programmed adaptive process. Alternatively, the pathogen control hypothesis posits that defense against infectious diseases may provide a strong selection force for restriction of lifespan.

Aging might have evolved to remove older individuals who carry chronic diseases that may transmit to their younger kin. Thus, selection for shorter lifespans may benefit kin’s fitness.

The pathogen control hypothesis addresses arguments typically raised against adaptive aging concepts: it explains the benefit of shorter lifespan and the absence of mutant variants that do not age.

Mikhailov, K.V., et al (2022) **Genomic analysis reveals cryptic diversity in aphelids and sheds light on the emergence of fungi.** CURRENT BIOLOGY 32:doi.org/10.1016/j.cub.2022.08.071 (available as a free pdf)

[Aphelids are on the border between amoebas and fungi. Amoebas swallow prey whole, while fungi penetrate prey with tentacles known as hyphae.]

Authors’ abstract: *Over the past decade, molecular phylogenetics has reshaped our understanding of the fungal tree of life by unraveling a hitherto elusive diversity of the protistan relatives of Fungi.*

Aphelida constitutes one of these novel deep branches that precede the emergence of osmotrophic fungal lifestyle and hold particular significance as the pathogens of algae.

Here, we obtain and analyze the genomes of aphelid species Amoeboaphelidium protococcarum and Amoeboaphelidium occidentale. Genomic data unmask the vast divergence between these species, hidden behind their morphological similarity, and reveal hybrid genomes with a complex evolutionary history in two strains of A. protococcarum.

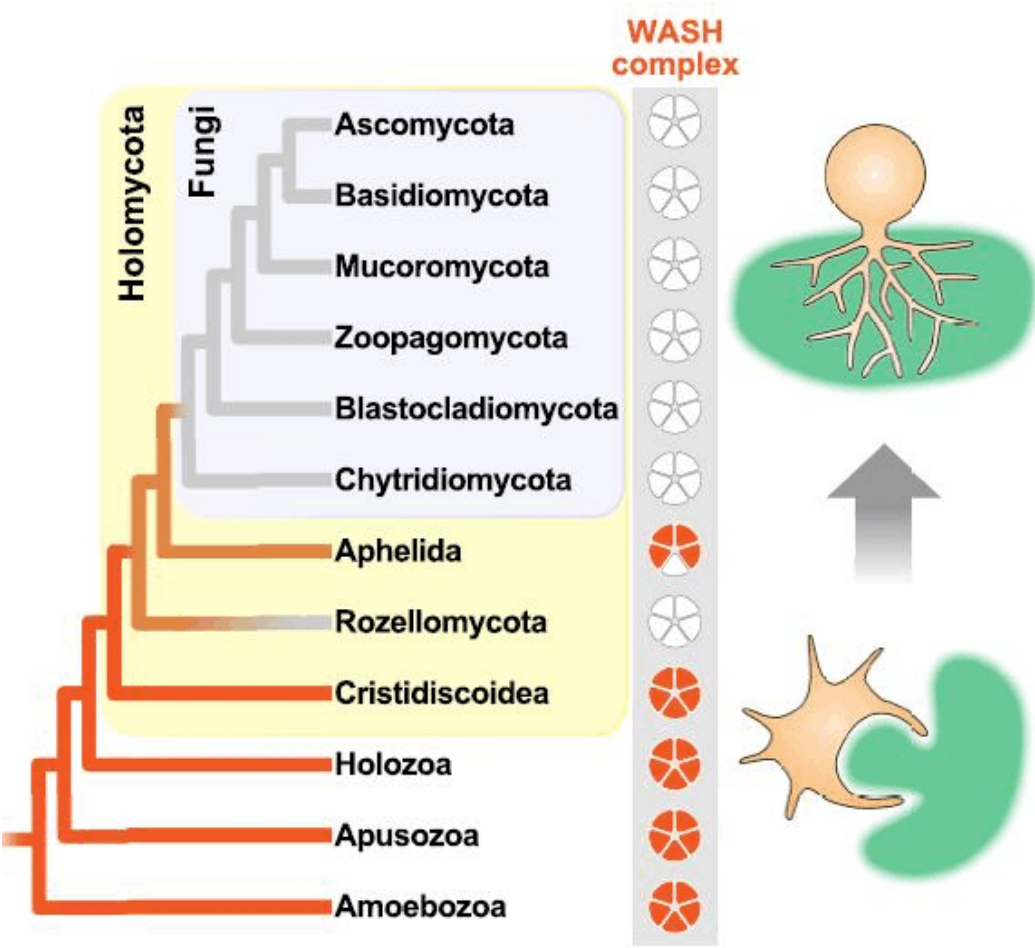
We confirm the proposed sister relationship between Aphelida and Fungi using phylogenomic analysis and chart the reduction of characteristic proteins involved in phagocytic activity in the evolution of Holomycota.

Annotation of aphelid genomes demonstrates the retention of actin nucleation-promoting complexes associated with phagocytosis and amoeboid motility and also reveals a conspicuous expansion of receptor-like protein kinases, uncharacteristic of fungal lineages.

We find that aphelids possess multiple carbohydrate-processing enzymes that are involved in fungal cell wall synthesis but do not display rich complements of algal cell-wall-processing enzymes, suggesting an independent origin of fungal plant-degrading capabilities.

Aphelid genomes show that the emergence of Fungi from phagotrophic ancestors relied on a common cell wall synthetic machinery but required a different set of proteins for digestion and interaction with the environment.

[Chart is from this paper, showing the evolutionary separation of amoebas and fungi.]



Harris, B.J., et al (2022) **Divergent evolutionary trajectories of bryophytes and tracheophytes from a complex common ancestor of land plants.** NATURE ECOLOGY AND EVOLUTION 6:doi.org/10.1038/s41559-022-01885-x (available as a free pdf)

[Tracheophytes are land plants with vascular systems, such as flowering plants, ferns, and conifers. Bryophytes are non-vascular plants such as mosses.]

Authors' abstract; *The origin of plants and their colonization of land fundamentally transformed the terrestrial environment. Here we elucidate the basis of this formative episode in Earth history through patterns of lineage, gene and genome evolution. ...*

Distinct rooting strategies resolve tracheophytes (vascular plants) and bryophytes (non-vascular plants) as monophyletic sister groups that diverged during the Cambrian, 515 to 494 million years ago.

The embryophyte stem is characterized by a burst of gene innovation, while bryophytes subsequently experienced an equally dramatic episode of reductive genome evolution in which they lost genes associated with the elaboration of vasculature and the stomatal complex.

Overall, our analyses reveal that extant tracheophytes and bryophytes are both highly derived from a more complex ancestral land plant. The origin and early evolution of land plants (embryophytes) constituted a formative episode in Earth history, transforming the terrestrial landscape, the atmosphere and the carbon cycle.

Along with bacteria, algae, lichens and fungi, land plants were fundamental to the creation of the earliest terrestrial ecosystems, and their subsequent diversification has resulted in more than 370,000 extant species.

Embryophytes form a monophyletic group nested within freshwater streptophyte algae and their move to land, while providing a new ecological niche, presented new challenges that required adaptation to water loss and growth against gravity.

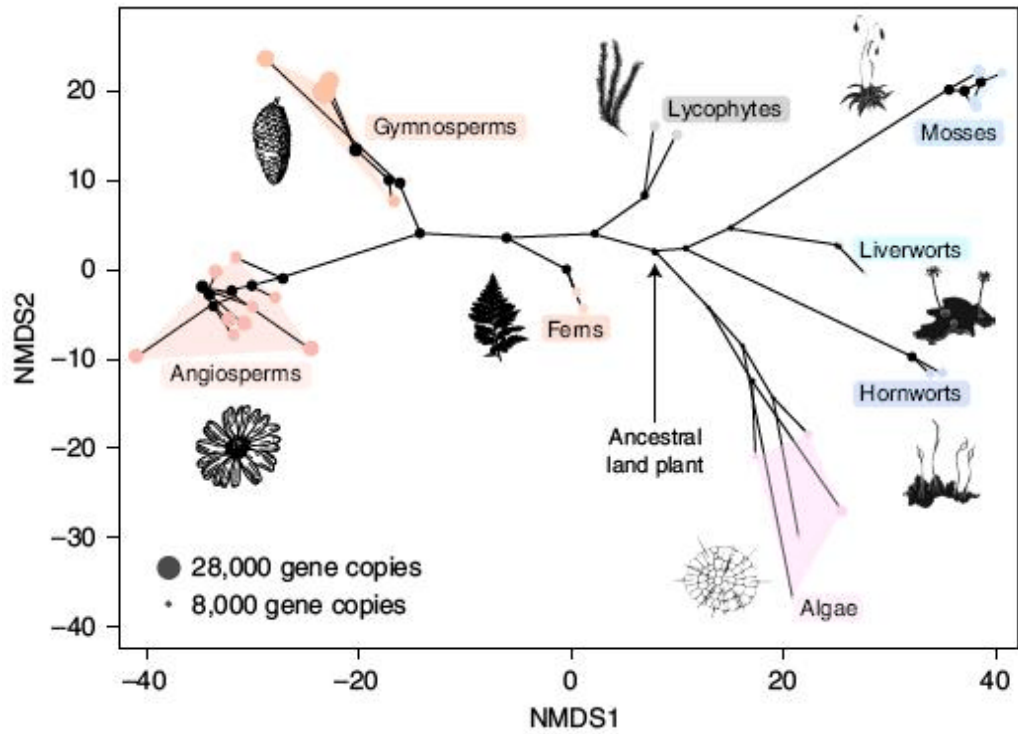
Early innovations that evolved in response to these challenges include a thick waxy cuticle, stomata, and a means of transporting water from the roots up vertically growing stems.

The evolutionary origins of many gene families, including those of key transcription factors, have been shown to predate the colonization of land. However, studies of gene family evolution within land plants have typically been restricted to individual gene families or sets of genes that encode single traits.

A lack of genome-scale data from non-flowering plants has also hindered efforts to reconstruct patterns of genome and gene content evolution more

broadly across land plants, although this challenge has been mitigated by the publication of large transcriptomic datasets.

[Chart is from this article. It demonstrates that one group of plants did not evolve into another but rather they evolved in different directions from a common ancestor.]



Guo, J., et al (2022) **A Cambrian tommotiid preserving soft tissues reveals the metameric ancestry of lophophorates.** CURRENT BIOLOGY 32:doi.org/10.1016/j.cub.2022.09.011 (available as a free pdf)

[Shelled animals evolved from worms. This new fossil species suggests how that happened.]

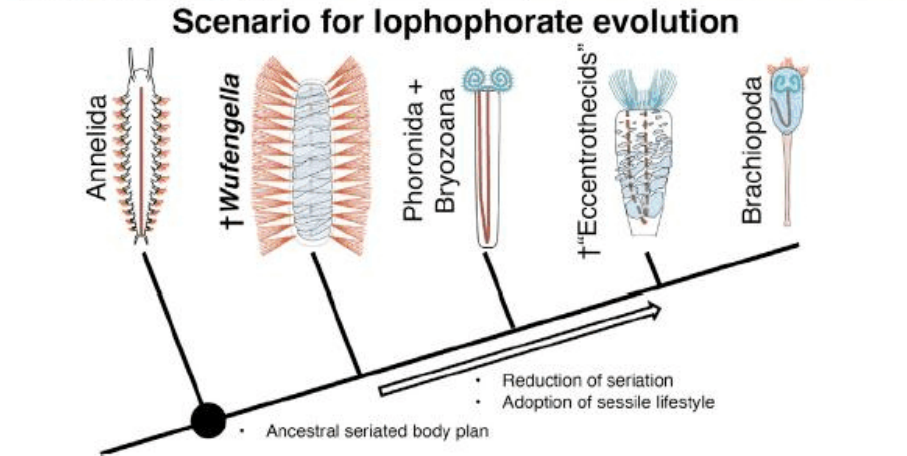
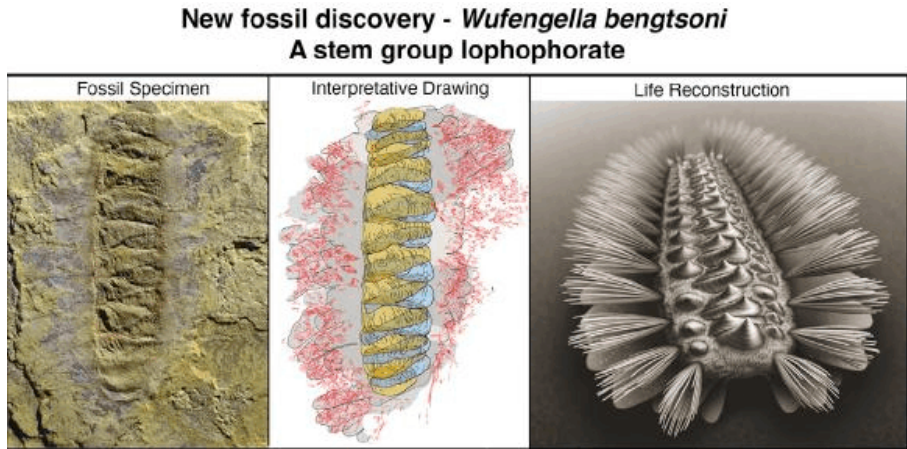
Authors’ abstract: *Among extant animals, Lophotrochozoa accounts for the majority of phyla. This bilaterian clade radiated rapidly during the Cambrian explosion, obfuscating its phylogenetic relationships and rendering many aspects of its early evolution uncertain.*

Many early lophotrochozoans are known only from isolated skeletal microfossils, “small shelly fossils,” often derived from larger animals with complex multi-element skeletons.

The discovery of articulated fossils has revealed surprising insights into the animals from which these skeletal pieces were derived, such as paired shells in the mollusc Halkieria.

Tommotiids are a key group of phosphatic early skeletal fossils that first appear in the late early Cambrian. Although their affinities were previously obscure, discoveries of partial scleritomes and investigations of growth and microstructure6 provide links with Brachiopoda and Phoronida, two of the lophophorate phyla.

By contrast, the body plan of camenellan tommotiids remains a palaeontological mystery, with hypothetical reconstructions representing motile, benthic, dorsally armored worms.



Here, we describe an articulated camenellan (Wufengella bengtsoni gen. et sp. nov.) from the Cambrian Chengjiang Biota, China, revealing the morphology of the scleritome and the first soft tissues from an adult tommotiid.

Wufengella carries two dorsal rows of sclerites in a highly asymmetric arrangement, flanked by smaller, cap-shaped sclerites. The scleritome was fringed by iterated fascicles of chaetae and two layers of flattened lobes.

Phylogenetic analysis confirms that camenellans occupy a deep branch in lophophorate phylogeny, prior to the acquisition of a sessile lifestyle.

Wufengella reveals direct evidence for a metameric body plan reminiscent of annelids early in the evolutionary history of lophophorates.

Goswami, A., et al (2022) **Attenuated evolution of mammals through the Cenozoic.** SCIENCE 378:doi.org/10.1126/science.abm7525

Authors’ abstract: The Cenozoic diversification of placental mammals is the archetypal adaptive radiation. Yet, discrepancies between molecular divergence estimates and the fossil record fuel ongoing debate around the timing, tempo, and drivers of this radiation.

Analysis of a three-dimensional skull dataset for living and extinct placental mammals demonstrates that evolutionary rates peak early and attenuate quickly. This long-term decline in tempo is punctuated by bursts of innovation that decreased in amplitude over the past 66 million years.

Social, precocial, aquatic, and herbivorous species evolve fastest, especially whales, elephants, sirenians, and extinct ungulates. Slow rates in rodents and bats indicate dissociation of taxonomic and morphological diversification.

Frustratingly, highly similar ancestral shape estimates for placental mammal superorders suggest that their earliest representatives may continue to elude unequivocal identification.

Botany.

Bouda, M., et al (2022) **Hydraulic failure as a primary driver of xylem network evolution in early vascular plants.** SCIENCE 378:doi.org/10.1126/science.add2910

[Vascular plants are land plants. Instead of veins and arteries, plants have xylem to carry water and phloem to carry sap.]

[Embolisms are air bubbles in xylem (or veins in animals) that block the flow of liquids. Cavitation is a vacuum caused by turbulence that cuts off the pressure differential in the xylem required to suck water upward to the leaves.]

Authors’ abstract: Since plants colonized land, they have developed increasingly complex vessel architectures to carry water from their roots to their highest leaves. Vascular plants now display a diversity of xylem strand shapes in cross section, from elliptical to linear to many lobed.

We investigated whether selection from drought, which causes vessel cavitation and embolism, drove the complexity of xylem strand shape as plants inhabited drier climates.

By simulating embolism spread between vessels across varying shape and complexity, including those seen in extant lycophytes and ferns and extinct plant fossils, the authors found that evolutionary changes in xylem strand shape have reduced embolism spread and made plants less vulnerable to drought.

The earliest vascular plants had stems with a central cylindrical strand of water-conducting xylem, which rapidly diversified into more complex shapes. This diversification is understood to coincide with increases in plant body size and branching; however, no selection pressure favoring xylem strand-shape complexity is known.

We show that incremental changes in xylem network organization that diverge from the cylindrical ancestral form lead to progressively greater drought resistance by reducing the risk of hydraulic failure.

As xylem strand complexity increases, independent pathways for embolism spread become fewer and increasingly concentrated in more centrally located conduits, thus limiting the systemic spread of embolism during drought.

Selection by drought may thus explain observed trajectories of xylem strand evolution in the fossil record and the diversity of extant forms.

Wang, W., et al (2022) **Sparkling a sulfur war between plants and pathogens.** TRENDS IN PLANT SCIENCE 27:doi.org/10.1016/j.tplants.2022.07.007 (available as a free pdf)

Authors' abstract: Genome analysis has revealed surprising diversity in mechanisms through which pathogens obtain sulfur (S) from their hosts during infection, and transcriptomics has uncovered variation in the modes of S uptake and metabolism during pathogen infection cycles.

Functional genomics of pathogen virulence proteins points toward mechanisms through which the pathogen is directly manipulating a plant S transport gene.

In turn, this gene has been engineered to resist pathogen manipulation and provide disease resistance. Mounting evidence indicates that plants can interpret S deficiency as a signal of pathogen invasion and can withhold S from pathogens as a component of the immune response.

This aspect of 'competition' is emerging for other nutrients and represents a major area of growth in our understanding of the interrelated nature of pathogen virulence and plant immunity.

The importance of S in plant-biotic interactions has been studied since 1802, when William Forsyth recommended elemental S as an effective fungicide.

The importance of S in plant immunity and resistance against diverse pathogens was further underscored in the 1980s, when legislation was mandated in Europe to reduce S emissions from industry.

The resultant reduction in atmospheric S, although beneficial overall, had unintended consequences on agricultural productivity because some high-S-demanding crops became more susceptible to disease.

This susceptibility was mitigated by the application of S fertilizer, leading to the concept of 'S-induced resistance' that has been investigated further in laboratory studies.

S is an essential element for all organisms due to its biochemical versatility. S resides directly below oxygen in the periodic table, but S can maintain a much wider range of oxidation states owing to its electronic configuration with 3p electrons and empty 3d orbitals.

Thus, S stably shares electrons and presents reducing power. The reducing power of S was a key component during the evolution of life in anaerobic environments, and the evolution of S-containing antioxidant compounds has been proposed as a key innovation enabling the expansion of life during the great oxidation event around 2 billion years ago.

For example, S atoms comprise a key component of antioxidant compounds that are essential for detoxification of reactive oxygen species that are generated from electron transport chains (e.g., through oxidative phosphorylation).

S is present in the proteogenic amino acids cysteine and methionine, and is found in vitamins, prosthetic groups, and secondary metabolites that collectively impact every aspect of growth, development, and responses to the environment

Ray, P.M., and M.S. Bret-Harte (2022) **Cryocampsis: a biophysical freeze-bending response of shrubs and trees under snow loads.** PNAS NEXUS 1:doi.org/10.1093/pnasnexus/pgac131 (available as a free pdf)

Authors' abstract: We report a biophysical mechanism, termed cryocampsis (Greek cryo-, cold, + campsis, bending), that helps northern shrubs bend downward under a snow load.

Subfreezing temperatures substantially increase the downward bending of cantilever-loaded branches of these shrubs, while allowing them to recover their summer elevation after thawing and becoming unloaded.

This is counterintuitive, because biological materials (including branches that show cryocampsis) generally become stiffer when frozen, so should flex less, rather than more, under a given bending load. Cryocampsis involves straining of the cell walls of a branch's xylem (wood), and depends upon the branch being hydrated.

Among woody species tested, cryocampsis occurs in almost all Arctic, some boreal, only a few temperate and Mediterranean, and no tropical woody species that we have tested.

It helps cold-winter climate shrubs reversibly get, and stay, below the snow surface, sheltering them from winter weather and predation hazards. This should be advantageous, because Arctic shrub bud winter mortality significantly increases if their shoots are forcibly kept above the snow surface.

Our observations reveal a physically surprising behavior of biological materials at subfreezing temperatures, and a previously unrecognized mechanism of woody plant adaptation to cold-winter climates.

We suggest that cryocampsis’ mechanism involves the movement of water between cell wall matrix polymers and cell lumens during freezing, analogous to that of frost-heave in soils or rocks.

Zoology.

Giurfa, M., et al (2022) **An insect brain organizes numbers on a left-to-right mental number line.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 119:doi.org/10.1073/pnas.2203584119 (available as a free pdf)

Authors’ abstract: *The ability to judge numbers exists in various vertebrate species but also in honey bees, thus raising the question of the phylogenetic origins of numerosity systems.*

Here, we studied if bees, like humans, organize numbers spatially from left to right according to their magnitude. As the cultural vs. biological origins of this mental number line (MNL) are a subject of debate, our study provides an important perspective for this discussion.

We show that bees order numbers from left to right according to their magnitude and that the location of a number on that line varies with the reference number previously trained. Thus, the MNL is a biological numeric representation that is common to the nervous system with distant evolutionary origins.

The “mental number line” (MNL) is a form of spatial numeric representation that associates small and large numbers with the left and right spaces, respectively. This spationumeric organization can be found in adult humans and has been related to cultural factors such as writing and reading habits.

Yet, both human newborns and birds order numbers consistently with an MNL, thus raising the question of whether culture is a main explanation for MNL. Here, we explored the numeric sense of honey bees and show that after being trained to associate numbers with a sucrose reward, they order numbers not previously experienced from left to right according to their magnitude.

Importantly, the location of a number on that scale varies with the reference number previously trained and does not depend on low-level cues present on numeric stimuli.

We provide a series of neural explanations for this effect based on the extensive knowledge accumulated on the neural underpinnings of visual processing in honey bees and conclude that the MNL is a form of numeric representation that is evolutionarily conserved across nervous systems endowed with a sense of number, irrespective of their neural complexity.

Ecology.

Al-Shayeb, B., et al (2022) **Borgs are giant genetic elements with potential to expand metabolic capacity.** NATURE 610:doi.org/10.1038/s41586-022-05256-1 (available as a free pdf)

Authors’ abstract: *Anaerobic methane oxidation exerts a key control on greenhouse gas emissions, yet factors that modulate the activity of microorganisms performing this function remain poorly understood.*

Here we discovered extraordinarily large, diverse DNA sequences that primarily encode hypothetical proteins through studying groundwater, sediments and wetland soil where methane production and oxidation occur.

Four curated, complete genomes are linear, up to approximately 1 Mb in length and share genome organization, including replicore structure, long inverted terminal repeats and genome-wide unique perfect tandem direct repeats that are intergenic or generate amino acid repeats.

We infer that these are highly divergent archaeal extrachromosomal elements with a distinct evolutionary origin. Gene sequence similarity, phylogeny and local divergence of sequence composition indicate that many of their genes were assimilated from methane-oxidizing Methanoperedens archaea. We refer to these elements as ‘Borgs’.

We identified at least 19 different Borg types coexisting with Methanoperedens spp. in four distinct ecosystems. Borgs provide methane-oxidizing Methanoperedens archaea access to genes encoding proteins involved in redox reactions and energy conservation.

These data suggest that Borgs might have previously unrecognized roles in the metabolism of this group of archaea, which are known to modulate greenhouse gas emissions, but further studies are now needed to establish their functional relevance.

Of all of the biogeochemical cycles on Earth, the methane cycle may be most tightly linked to climate. Methane (CH₄) is a greenhouse gas roughly 30 times more potent than carbon dioxide (CO₂), and approximately 1 gigatonne is produced annually by methanogenic (methane-producing) archaea that inhabit anoxic environments.

The efflux of methane into the atmosphere is mitigated by methane-oxidizing microorganisms (methanotrophs). In oxic environments, CH₄ is consumed by aerobic bacteria that use methane monooxygenase (MMO) and O₂ as a terminal electron acceptor, whereas in anoxic environments, anaerobic methanotrophic archaea (ANME) use a reverse methanogenesis pathway to oxidize CH₄, the key enzyme of which is methyl-CoM reductase (MCR).

Here we report the discovery of novel extrachromosomal elements (ECEs) that are inferred to replicate within Methanoperedens spp.

Their numerous and diverse metabolism-relevant genes, huge size and distinctive genomic architecture distinguish these archaeal ECEs from all previously reported elements associated with archaea and from bacteriophages, which typically have one or a few biogeochemically relevant genes.

We hypothesize that these novel ECEs may substantially impact the capacity of Methanoperedens spp. to oxidize methane.

Environmental Science.

Cook, B.I., et al (2022) **Megadroughts in the Common Era and the Anthropocene.** NATURE REVIEWS EARTH AND ENVIRONMENT 3:741-757

Authors’ abstract: *Exceptional drought events, known as megadroughts, have occurred on every continent outside Antarctica over the past ~2,000 years, causing major ecological and societal disturbances.*

Decadal variations in sea surface temperatures are the primary driver of megadroughts, with secondary contributions from radiative forcing and land-atmosphere interactions. Anthropogenic climate change has intensified ongoing megadroughts in south-western North America and across Chile and Argentina.

Future megadroughts will be substantially warmer than past events, with this warming driving projected increases in megadrought risk and severity across many regions, including western North America, Central America, Europe and the Mediterranean, extra-tropical South America, and Australia.

However, several knowledge gaps currently undermine confidence in understanding past and future megadroughts.

These gaps include a paucity of high-resolution palaeoclimate information over Africa, tropical South America, and other regions; incomplete representations of internal variability and land surface processes in climate models; and the undetermined capacity of water-resource management systems to mitigate megadrought impacts.

Geyman, E.C., et al (2022) **The origin of carbonate mud and implications for global climate.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 119:doi.org/10.1073/pnas.2210617119

Authors’ abstract: *The Bahama Banks produce huge volumes of carbonate mud. These sediments represent a major sink in the modern carbon cycle, and likely an even larger sink in the ancient carbon cycle. Yet, it is still debated where and how carbonate mud is formed.*

We use geochemical fingerprinting to show that mud cannot be derived from the breakdown and mixing of any combination of known carbonate grains or skeletal sources. Rather, mud represents a distinct seawater precipitate.

We use ancient sedimentary and modern oceanographic evidence to show that high seawater alkalinity is required to produce carbonate mud. Finally, we illustrate how the size and strength of the shallow carbonate factory plays a first-order control in setting global pCO_2 and climate.

Carbonate mud represents one of the most important geochemical archives for reconstructing ancient climatic, environmental, and evolutionary change from the rock record.

Mud also represents a major sink in the global carbon cycle. Yet, there remains no consensus about how and where carbonate mud is formed. Here, we present stable isotope and trace-element data from carbonate constituents in the Bahamas, including ooids, corals, foraminifera, and algae.

We use geochemical fingerprinting to demonstrate that carbonate mud cannot be sourced from the abrasion and mixture of any combination of these macroscopic grains. Instead, an inverse Bayesian mixing model requires the presence of an additional aragonite source. We posit that this source represents a direct seawater precipitate.

We use geological and geochemical data to show that “whittings” are unlikely to be the dominant source of this precipitate and, instead, present a model for mud precipitation on the bank margins that can explain the geographical distribution, clumped-isotope thermometry, and stable isotope signature of carbonate mud.

Next, we address the enigma of why mud and ooids are so abundant in the Bahamas, yet so rare in the rest of the world. Mediterranean outflow feeds the Bahamas with the most alkaline waters in the modern ocean.

Such high alkalinity appears to be a prerequisite for the nonskeletal carbonate factory because, when Mediterranean outflow was reduced in the Miocene, Bahamian carbonate export ceased for 3 million years.

Finally, we show how shutting off and turning on the shallow carbonate factory can send ripples through the global climate system.

Hillis, D., et al (2022) **A palaeothermometer of ancient indigenous fisheries reveals increases in mean temperature of the catch over five millennia.** ENVIRONMENTAL BIOLOGY OF FISHES 105:doi.org/10.1007/s10641-022-01243-7 (available as a free pdf)

Authors’ abstract: *Here, we develop a method for estimating the ‘ancient Mean Temperature of the Catch’ (aMTC) using Indigenous fisheries catch records from two archaeological sites in the northeast Pacific.*

Despite different catch compositions, we observe an increase in aMTC over a 5,000-year period at two contemporaneously occupied archaeological sites in southwestern British Columbia, Canada.

We document cooler catches from 5,000 to 3,000 calendar years Before Present and comparatively warmer catches from 1,800 to 250 cal yr BP. These warmer temperatures are broadly consistent with palaeoceanographic sea surface temperature proxies from British Columbia and Alaska.

Because this method requires converting measures of fish bones into estimates of fish size structure, abundance, biomass, and finally aMTC, opportunities exist to account for both variation and uncertainty at every step.

Nevertheless, given that preindustrial fisheries data are ubiquitous in coastal archaeological sites, this method has the potential to be applied globally to broaden the temporal and geographic scale of ocean temperature baselines.

Groves, P., et al (2022) **Prehistoric perspectives can help interpret the present: 14,000 years of moose (*Alces alces*) in the Western Arctic.** CANADIAN JOURNAL OF ZOOLOGY 100:doi.org/10.1139/cjz-2022-0079 (available as a free pdf)

Authors’ abstract: *Here, we assembled historical, archaeological, and paleontological records of moose (*Alces alces*) from the western Arctic and subarctic.*

The results showed that rather than having recently invaded tundra regions in response to post Little Ice Age warming, moose have inhabited river corridors several hundred kilometres north of the closed, boreal forest since they first colonized North America across the Bering Land Bridge ca. 14,000 years ago.

The combination of high mobility, fluctuation prone metapopulations, and reliance on early successional vegetation makes changes in the northern range limits of moose undependable bellwethers for other biotic responses to changing climate.

The history of moose at high latitudes illustrates how understanding what happened in prehistory is useful for correctly assigning significance and cause to present-day ecological changes.

Caspi, T., et al (2022) **Behavioral plasticity can facilitate evolution in urban environments.** TRENDS IN ECOLOGY AND EVOLUTION 37:doi.org/10.1016/j.tree.2022.08.002 (available as a free pdf)

Authors' abstract: *Plasticity-led evolution is central to evolutionary theory. Although challenging to study in nature, this process may be particularly apparent in novel environments such as cities.*

We document abundant evidence of plastic behavioral changes in urban animals, including learning, contextual, developmental, and transgenerational plasticities.

Using behavioral drive as a conceptual framework, our analysis of notable case studies suggests that plastic behaviors, such as altered habitat use, migration, diurnal and seasonal activity, and courtship, can have facilitatory and cascading effects on urban evolution via spatial, temporal, and mate-choice mechanisms.

Urbanization elicits diverse plastic behavioral responses in animals, which may lead to rapid evolutionary changes. Behavioral shifts in city-living animals can drive evolutionary divergence in populations at different scales through several spatial, temporal, and mate-choice mechanisms.

Animal populations in cities exhibit some of the highest rates of phenotypic change. Globally, urbanization entails dramatic and rapid environmental change that exposes organisms to unprecedented challenges including habitat change, invasive species, and widespread pollution.

Such stressors may rapidly cause extirpation, sometimes driven by maladaptation or adaptive evolution and potentially speciation. Novel phenotypes result from plasticity, evolution, or both, although most studies have

yet to disentangle their relative contributions to urban phenotypic change. Plasticity could be a prerequisite for entry into urbanized landscapes, promote population persistence by 'buying time' for founder populations to evolve, and provide new phenotypic variation on which selection could act.

Shuert, C.R., et al (2022) **Decadal migration phenology of a long-lived Arctic icon keeps pace with climate change.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 119:doi.org/10.1073/pnas.2121092119

Authors' abstract: *As narwhal and other Arctic cetaceans can live over 100 years with long generation times, the demonstrated delays in migration phenology suggest that species previously considered inflexible can and are behaviorally responding to the changing dynamics of climate within a single lifetime.*

Behavioral plasticity would appear to be an important factor driving the observed response to environmental change as many long-lived species are unlikely to exhibit evolutionary responses at the rate necessary to keep pace with climate.

Given the longevity of many large-bodied predators, these responses could result in increasing trade-offs and risks for life in the new Arctic.

Animals migrate in response to seasonal environments, to reproduce, to benefit from resource pulses, or to avoid fluctuating hazards. Although climate change is predicted to modify migration, only a few studies to date have demonstrated phenological shifts in marine mammals.

In the Arctic, marine mammals are considered among the most sensitive to ongoing climate change due to their narrow habitat preferences and long life spans. Longevity may prove an obstacle for species to evolutionarily respond.

For species that exhibit high site fidelity and strong associations with migration routes, adjusting the timing of migration is one of the few recourses available to respond to a changing climate.

Here, we demonstrate evidence of significant delays in the timing of narwhal autumn migrations with satellite tracking data spanning 21 years from the Canadian Arctic.

Measures of migration phenology varied annually and were explained by sex and climate drivers associated with ice conditions, suggesting that narwhals are adopting strategic migration tactics.

Male narwhals were found to lead the migration out of the summering areas, while females, potentially with dependent young, departed later. Narwhals are remaining longer in their summer areas at a rate of 10 days per decade, a similar rate to that observed for climate-driven sea ice loss across the region.

The consequences of altered space use and timing have yet to be evaluated but will expose individuals to increasing natural changes and anthropogenic activities on the summering areas.

Human Prehistory.

Frank, J.A., et al (2022) **Evolution and antiviral activity of a human protein of retroviral origin.** SCIENCE 378:doi.org/10.1126/science.abq7871

Authors’ abstract: Endogenous retroviruses are abundant components of mammalian genomes descended from ancient germline infections. In several mammals, the envelope proteins encoded by these elements protect against exogenous viruses, but this activity has not been documented with endogenously expressed envelopes in humans.

We report that the human genome harbors a large pool of envelope-derived sequences with the potential to restrict retroviral infection. To test this, we characterized an envelope-derived protein, Suppressyn. We found that Suppressyn is expressed in human pre-implantation embryos and developing placenta using its ancestral retroviral promoter.

Cell culture assays showed that Suppressyn, and its hominoid orthologs, could restrict infection by extant mammalian type D retroviruses. Our data support a generalizable model of retroviral envelope co-option for host immunity and genome defense.

Vidal-Cordasco, M., et al (2022) **Ecosystem productivity affected the spatiotemporal disappearance of Neanderthals in Iberia.** NATURE ECOLOGY AND EVOLUTION 6:doi.org/10.1038/s41559-022-01861-5 (available as a free pdf)

Authors’ abstract: What role did fluctuations play in biomass availability for secondary consumers in the disappearance of Neanderthals and the survival of modern humans? To answer this, we quantify the effects of stadial and interstadial conditions on ecosystem productivity and human spatiotemporal distribution patterns during the Middle to Upper Palaeolithic transition (50,000 to 30,000 calibrated years before the present) in Iberia.

First, we used summed probability distribution, optimal linear estimation and Bayesian age modelling to reconstruct an updated timescale for the transition. Next, we executed a generalized dynamic vegetation model to estimate the net primary productivity. Finally, we developed a macroecological model validated with present-day observations to calculate herbivore abundance.

The results indicate that, in the Eurosiberian region, the disappearance of Neanderthal groups was contemporaneous with a significant decrease in the available biomass for secondary consumers, and the arrival of the first Homo sapiens populations coincided with an increase in herbivore carrying capacity.

During stadials, the Mediterranean region had the most stable conditions and the highest biomass of medium and medium-large herbivores. These outcomes support an ecological cause for the hiatus between the Mousterian and Aurignacian technocomplexes in Northern Iberia and the longer persistence of Neanderthals in southern latitudes.

The replacement of Homo neanderthalensis populations by anatomical modern humans (AMHs) is a turning point in human evolution and one of the most debated issues in Palaeolithic research.

Despite the difficulties of disentangling the driving forces in such population turnover, an increasing amount of research points out that the abrupt climatic shifts during Marine Isotope Stage 3 (MIS 3; ~60 to 30 kyr BP) played a key role in the Middle to Upper Palaeolithic transition (MUPT) in Europe.

Iberia is divided into two large biogeographical units: the Eurosiberian region in the north and west and the Mediterranean region in the south and east. In

the Eurosiberian region, the Mousterian disappeared a few millennia earlier than in the Mediterranean region and overlapped neither with the Châtelperronian nor the Aurignacian technocomplexes.

Stable isotopes, pollen, and micro-mammal analyses suggest that towards the end of MIS 3 there was a cooling trend that led to more open landscapes, with some aridity episodes.

Some authors have associated these environmental changes with the Neanderthals' decline and the resultant demographic vacuum before the early arrival of AMHs. Likewise, in central areas of Iberia, the disappearance of the Mousterian and the delayed colonization by AMHs have been connected with climatic deterioration and worsening environmental conditions.

Conversely, the longer Mousterian persistence in southern latitudes has been linked to more stable climatic conditions, although their ecosystems productivity was lower than in the Eurosiberian region.

One of the biotic factors most affected by climate changes is net primary productivity (NPP). NPP is the biomass of all plant species, representing the base of the food chain for the world terrestrial ecosystems. Fluctuations in NPP generate bottom-up effects that propagate through trophic levels, affecting the abundance of both primary and secondary consumers.

Different studies have demonstrated the significance of NPP for hunter-gatherer demographics and the relevance of the herbivore biomass for human evolution throughout the Pleistocene. Consequently, ecosystems' carrying capacity should be considered in the debate of the demise of Neanderthal populations.

Vaknin, Y., et al (2022) **Reconstructing Biblical military campaigns using geomagnetic field data.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 119:doi.org/10.1073/pnas.2209117119 (available as a free pdf)

Authors' abstract: *The Hebrew Bible and other ancient Near Eastern texts describe Egyptian, Aramean, Assyrian, and Babylonian military campaigns to the Southern Levant during the 10th to sixth centuries BCE.*

Indeed, many destruction layers dated to this period have been unearthed in archaeological excavations. Several of these layers are securely linked to specific campaigns and are widely accepted as chronological anchors.

However, the dating of many other destruction layers is often debated, challenging the ability to accurately reconstruct the different military campaigns and raising questions regarding the historicity of the biblical narrative.

Here, we present a synchronization of the historically dated chronological anchors and other destruction layers and artifacts using the direction and/or intensity of the ancient geomagnetic field recorded in mud bricks from 20 burnt destruction layers and in two ceramic assemblages.

During the period in question, the geomagnetic field in this region was extremely anomalous with rapid changes and high intensity values, including spikes of more than twice the intensity of today's field.

The data are useful in the effort to pinpoint these short-term variations on the timescale, and they resolve chronological debates regarding the campaigns against the kingdoms of Israel and Judah, the relationship between the two kingdoms, and their administrations.

Modern Humans.

Raichlen, D.A., and Daniel Lieberman (2022) **The evolution of human step counts and its association with the risk of chronic disease.** CURRENT BIOLOGY 32:doi.org/10.1016/j.cub.2022.09.030

Authors' abstract: *Walking, humans' most fundamental form of moderate intensity physical activity, is associated with reduced risks of morbidity and mortality. Evolutionary perspectives have contributed much to understanding the effects of walking and other physical activities on health.*

However, we know comparatively little about how step counts (steps taken per day) changed over the course of human evolution, potentially affecting how selection operated on physiological responses to moderate intensity physical activity that influence morbidity and mortality.

Here, we compare step counts across humans and our closest living relatives, the great apes. Compiling data from epidemiology and comparative physiology, we show how step counts more than tripled during human evolution, potentially linking higher levels of moderate intensity physical activity with reduced morbidity and mortality.

We highlight how recent decreases in step counts are an evolutionary mismatch. We raise the hypothesis that the dose-response relationship between moderate intensity physical activity and health was shifted in humans to require more steps per day to promote extended healthspan and lifespan.

Cameron, D.J., et al (2022) **Undetectable very low frequency sound increases dancing at a live concert.** CURRENT BIOLOGY 32:R1201-R1225 (available as a free pdf)

Authors’ extracts: *Music that makes people want to move tends to have more low frequency sound, and bass instruments typically provide the musical pulse that people dance to.*

Low pitches confer advantages in perception and movement timing, and elicit stronger neural responses for timing compared to high pitches, suggesting superior sensorimotor communication. Low frequency sound is processed via vibrotactile and vestibular (in addition to auditory) pathways.

Stimulation of these non-auditory modalities in the context of music can increase ratings of groove (the pleasurable urge to move to music), and modulate musical rhythm perception.

Technology.

Bracci, A., et al (2022) **Macroscopic properties of buyer-seller networks in online marketplaces.** PNAS NEXUS 1:doi.org/10.1093/pnasnexus/pgac201 (available as a free pdf)

Authors’ abstract: *Online marketplaces are the main engines of legal and illegal e-commerce, yet their empirical properties are poorly understood due to the absence of large-scale data.*

We analyze two comprehensive datasets containing 245,000,000 transactions (US\$ 16,000,000,000) that took place on online marketplaces between 2010 and 2021, covering 28 dark web marketplaces, i.e. unregulated markets whose main currency is Bitcoin, and 144 product markets of one popular regulated e-commerce platform.

We show that transactions in online marketplaces exhibit strikingly similar patterns despite significant differences in language, lifetimes, products, regulation, and technology.

Specifically, we find remarkable regularities in the distributions of transaction amounts, number of transactions, interevent times, and time between first and last transactions.

We show that buyer behavior is affected by the memory of past interactions and use this insight to propose a model of network formation reproducing our main empirical observations.

Lasser, J., et al (2022) **Social media sharing of low-quality news sources by political elites.** PNAS NEXUS 1:doi.org/10.1093/pnasnexus/pgac186 (available as a free pdf)

Authors’ abstract: *Increased sharing of untrustworthy information on social media platforms is one of the main challenges of our modern information society. Because information disseminated by political elites is known to shape citizen and media discourse, it is particularly important to examine the quality of information shared by politicians.*

Here, we show that from 2016 onward, members of the Republican Party in the US Congress have been increasingly sharing links to untrustworthy sources.

The proportion of untrustworthy information posted by Republicans versus Democrats is diverging at an accelerating rate, and this divergence has worsened since President Biden was elected.

This divergence between parties seems to be unique to the United States as it cannot be observed in other western democracies such as Germany and the United Kingdom, where left-right disparities are smaller and have remained largely constant.

It is widely acknowledged that what politicians share on social media helps shape public perceptions and views. Although there has been an explosion of research on the effects of misinformation and how it might best be corrected, the behavior of politicians in disseminating false or untrustworthy information has thus far largely escaped research attention.

This study analyses 3.4 million tweets from U.S. American, British and German politicians made between 2016 to 2022. Conservative politicians share information of lower quality than their liberal counterparts and Republican members of the U.S. Congress are increasingly circulating news from dubious sources over the last four years. These results highlight the contribution of political elites in polluting our online environments.

LIFE AT CHEZ OPUNTIA

photo by Dale Speirs

Only to fill the space, this snowshoe hare was resting under the porch at my house on October 25, just after a blizzard.

