OPUNTIA 525

Victoria 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.

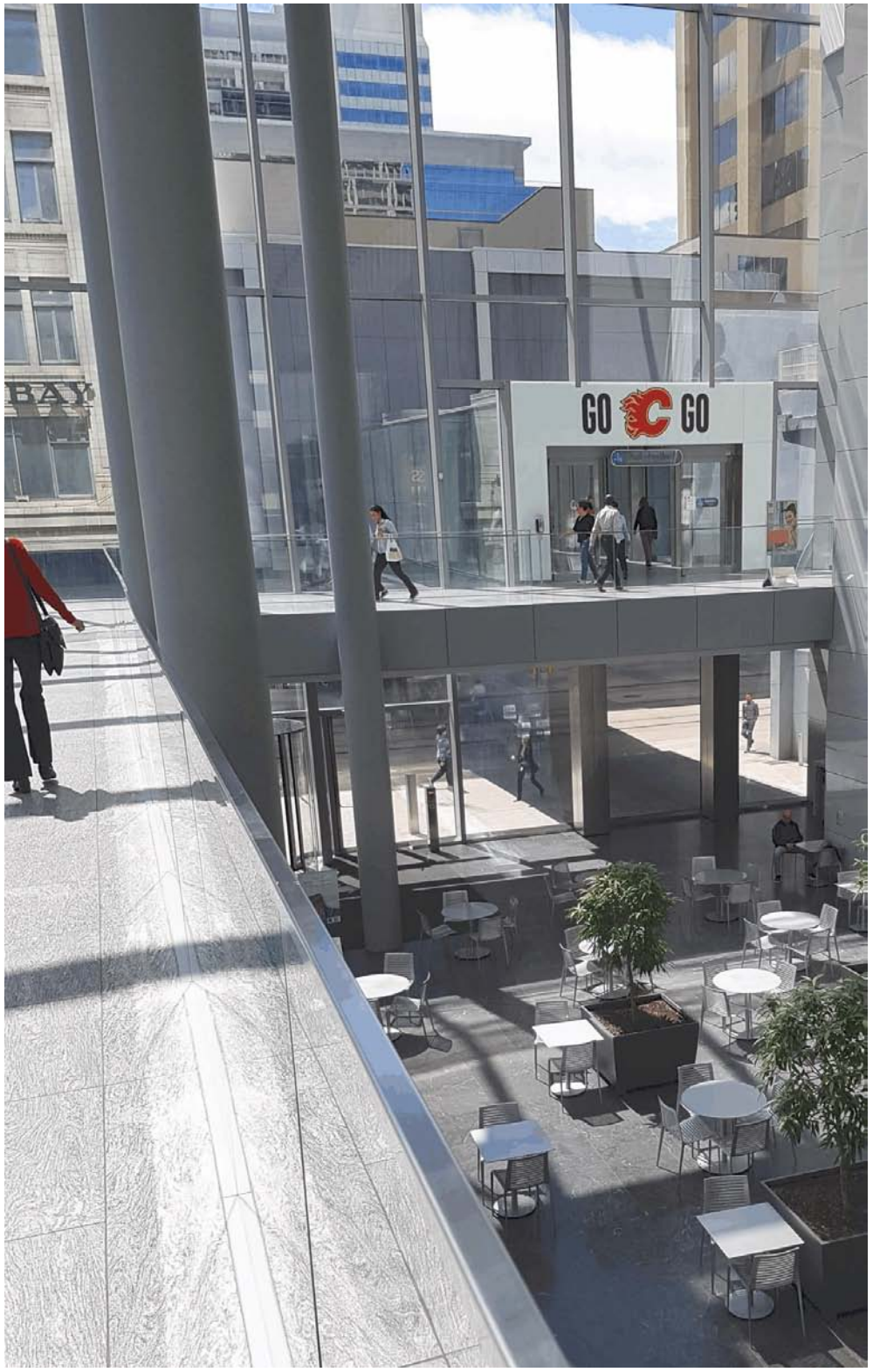
FLAMES OVER COWTOWN

photos by Dale Speirs

The Flames hockey team won the Stanley Cup quarter-finals after I took the cover photo at City Hall. I don't follow sports but enough Calgarians do. There is a joke that if the Flames win the Stanley Cup again, that is a sign of the impending Apocalypse. They last won it in 1989.

At right is a scene in the Plus 15 network of second-story pedestrian overpasses that connect the downtown skyscrapers. Taken in the Brookfield Place tower.

Below is a sports bar on 6 Avenue SW.



Top left: A sports bar on the Stephen Avenue pedestrian mall downtown.
Bottom left: Suncor tower food court.
Below: TD Square tower atrium.

Below: Seen in traffic. I'm not sure if this was a company vehicle belonging to the Flames organization or just a real fanatic. Licence plate enlargement below.

Sports fans can buy special vanity plates for their favourite team.

The Flames now move on to compete against the Edmonton Oilers in the semi-finals.

I photographed the plate below a couple of years ago. A brave driver to flaunt such a plate in Calgary.

THE LAST OF COWTOWN
photos by Dale Speirs

The HBO network has for the last six months been filming a new television series THE LAST OF US in and around Calgary. The show is apparently a post-apocalypse world where the Flames won the Stanley Cup, pardon me, where a mutant fungus ran wild.

Going about my business in downtown Cowtown, I occasionally saw their setups and snapped a few smartphone shots. I didn't seek them out, so I'm sure there were lots more sites. No actual filming seen, just security guards walking back and forth.

On March 25, the company had blocked off 6 Avenue SE at Macleod Trail, setting off massive traffic jams (bottom left and upper right). Fortunately I was walking. There was a prop military truck parked against a building but nothing seemed to be happening.

On June 5, further west on 6 Avenue at 5 Street SW, the north side of the Old Courthouse was screened off (bottom right). The courthouse has been empty for decades as City councillors squabble about what is to be done with it. The building is a listed historical site, so it can't be demolished for a new skyscraper, not even if a mutant fungus runs wild or the Flames win the Stanley Cup.

Parked along the curbs were prop vehicles (next page). The brown goop on some of them represented the deadly fungus.

Actually the first two vehicles in the lineup below looked like typical Cowtown vehicles. I've seen such vehicles in every shopping mall parking lot.

FANAC FAN HISTORY PROJECT NEWSLETTER #18 2022-05-15
by Joe Siclari and Edie Stern

[Editor's note: I have cropped these extracts from a much longer newsletter. For the full item, visit www.fanac.org. You can subscribe to the newsletter for free. The Fanac website makes all the fanzines, from the 1930s to date, available as free pdfs.]

The FANAC Fanhistory Project is a project of The Florida Association for Nucleation and Conventions (FANAC) Inc., a non-profit 501(c)(3) educational organization recognized by the IRS. FANAC.org is archived by the Library of Congress for long-time preservation and future availability

FANAC By The Numbers.

Fanzines: 17,431 issues (covering 1,051 titles) with more than 305,024 pages.

Convention publications: 3,216 publications, with 60,617 pages, representing 770 conventions.

Fancyclopedia: 29,019 pages which include 6,271 for people, 4,526 for fans (a subset of people), 8,113 for fanzines, another 1,511 for clubs and apas, and 6,140 for conventions.

Selected Links.

FANAC.org: https://www.fanac.org
Facebook Group: https://www.facebook.com/fanacproject/
Fancyclopedia 3: https://fancyclopedia.org
Fanac YouTube channel: https://www.youtube.com/c/FanacFanhistory
Fanac Zoom Listing: https://fanac.org/zoom.html
Chronological Convention list: https://fancyclopedia.orq/Convention timeline
Convention Publications: https://fanac.org/conpubs/
Fanzines: https://fanac.org/fanzines/Classic_Fanzines.html
Core List to Scan: https://fanac.org/fanzines/desired_fanzine_list_to_scan.html
Chronological Listing:
https://fanac.org/fanzines/chronological_listing_of_fanzines.html
Country Listing: https://fanac.org/fanzines/country_listing_of_fanzines.html
Newszine Project: https://fanac.org/fanzines/newszines.html

True Stories Of Fanhistory Research.

Bee Ostrowsky is a librarian who uses their spare time to help the Historical Dictionary of Science Fiction (https://sfdictionary.com/). The classic fanzines on FANAC.org have helped them find early appearances of fandom-related terms, including SF fandom itself, which first showed up in Arcturus #8 (November 1936).

Researchers in this field are always excited to see a term much earlier an ever known, so when Bee found "grandfather paradox" on FANAC.org in Fantasy Scout #12 (March 1939), they were thrilled to antedate the term by 11 years!

Other HDSF contributors have used the site; for example, Bill Mullins found "fanmag" in The 14 Leaflet #9, a clubzine from Spring 1937. Some of the terms appearing first in FANAC's collection:
"positronic" (Planeteer #5, March 1936, and not Isaac Asimov!),
"egoboo" (Voice of the Imagi-Nation #39, February 1945),
"fanfic" (Beabohema #2, December 1968),
"loc" and "COA" (FANAC #73, May 1961)
and of course "fanac" itself (Quandry #22, July 1952).

Some of the 1,100 Google searches mentioned in the last ish were from Bee researching terms not yet in HDSF, like 'stef'. A search like [site:fanac.org inurl:fanzines "stef"] will find results in fanzines converted to PDF, if the OCR conversion is correct.

But reading a hektoed crudzine (a word first seen in Spacewarp #9, December 1947) is harder for computers than for humans. And words found in illustrations, like "lox" in Lokta Plokta #19 (April 2000, first seen in G2, January 1965), aren't indexed at all except in crowdsourced projects like the University of Iowa's DIY History.

So Bee sometimes grinds through fanzines in chronological order. How's that going? "*I'm up to around June 1939*", they said, "*—so far.*"

WHEN WORDS COLLIDE 2022

[Calgary's annual readercon is When Words Collide. Alas, this year the panels will once again be online because the committee had to make their go/no go decision in January. I strongly encourage outlanders to sign up for the free events, which go on the weekend of August 12 to 14.]

[Here are extracts from the WWC newsletter for May. For the full newsletter, visit www.whenwordscollide.org]

Registration For The 2022 Online Festival Is Open!

Registration is once again free this year as is registration via Eventbrite. For more information, visit the Registration Page on our web site at www.whenwordscollide.org.

2022 Festival Guests.

In addition to a broad range of presenters brought to you by our affiliates, the festival has invited four guests for special appearances: Edward Willett, Susanna Kearsley, Hank Phillippi Ryan, and Terry Brooks.

Podcasts And Webcasts.

We continue to post selected recent festival sessions to our Podcast and YouTube channels:
Podcast channel: http://whenwordscollide.libsyn.com/
YouTube channel:
www.youtube.com/channel/UCYLP-1XdcKWDyRftkL_a8lQ/

Recent additions include:

Writing Facts In Fiction.

Some of the best ways to get it right and make all the difference in the effectiveness of your story. (NB: embarrassingly, in a panel about facts, one fact is wrong. The Russian Tsar was Ivan the Terrible, not Peter the Great!)
Barb Galler-Smith, Ann Marston, Tony King, Shelley McAneeley, Michaela Ritchie
(2019 in-person festival)

Self Published vs. Traditional.

Join prolific authors Jonas Saul and Tracy Cooper-Posey who've both had (or still have) literary agents and who have (and still do) self-publish. This interactive discussion covers the pros and cons of self-publishing and the ups and downs of having a literary agent. Get a feel for which direction to go in your own journey to publication after hearing from both sides.
(2019 in-person festival)

Character Creation.

A good story or novel consists of these things: A good story line or plot, a well crafted backdrop or world, and characters who grab the reader by the throat and won't let go. So where does an author find these feisty characters? How does one go about convincing them to be part of the story? In a word, yourself.

All characters are part of the author. No exceptions. Some characters will be front and centre, leaping up and down and shouting at you. Others will be more reticent and need to be coaxed into the limelight. But make no mistake they are all products of the author's fertile mind.
Nancy M Bell.
(2021 online festival)

An Hour With Jonas Saul.

Jonas discusses several topics starting with the process of preparing and finishing your novel, and concluding with issues related to the business of writing once the novel is completed. Jonas answers attendee questions!
(2021 online festival)

WWC 2021 Keynotes.

Featuring keynote talks by When Words Collide 2021 Guests of Honour:
Cathy Ace, Vicki Delany, Steena Holmes, Fonda Lee, Dave Reynolds, Morgan Rhodes
(2021 online festival)

MAIL ART OF BETTY SPEIRS: PART 8
by Dale Speirs

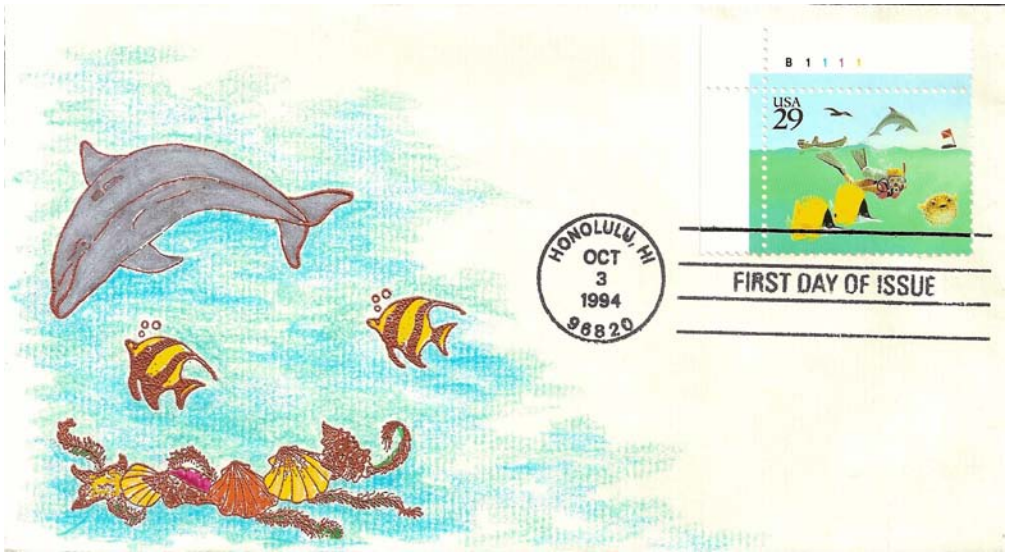
[Parts 1 to 7 appeared in OPUNTIAs #511, 514, 517, 519, 521, 523 to 524.]

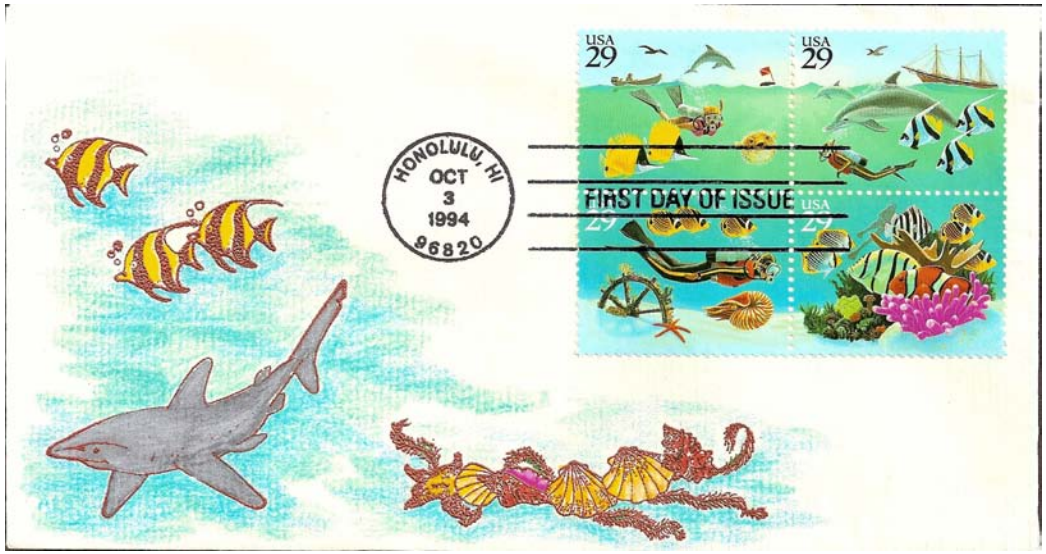
After us kids left home and were out on our own, my parents did a lot of traveling. My mother Betty collected postmarks of all the post offices they passed, but didn't do any mail art because it was awkward carrying all the rubber stamps, ink pads, coloured felt pens, and other impedimenta.

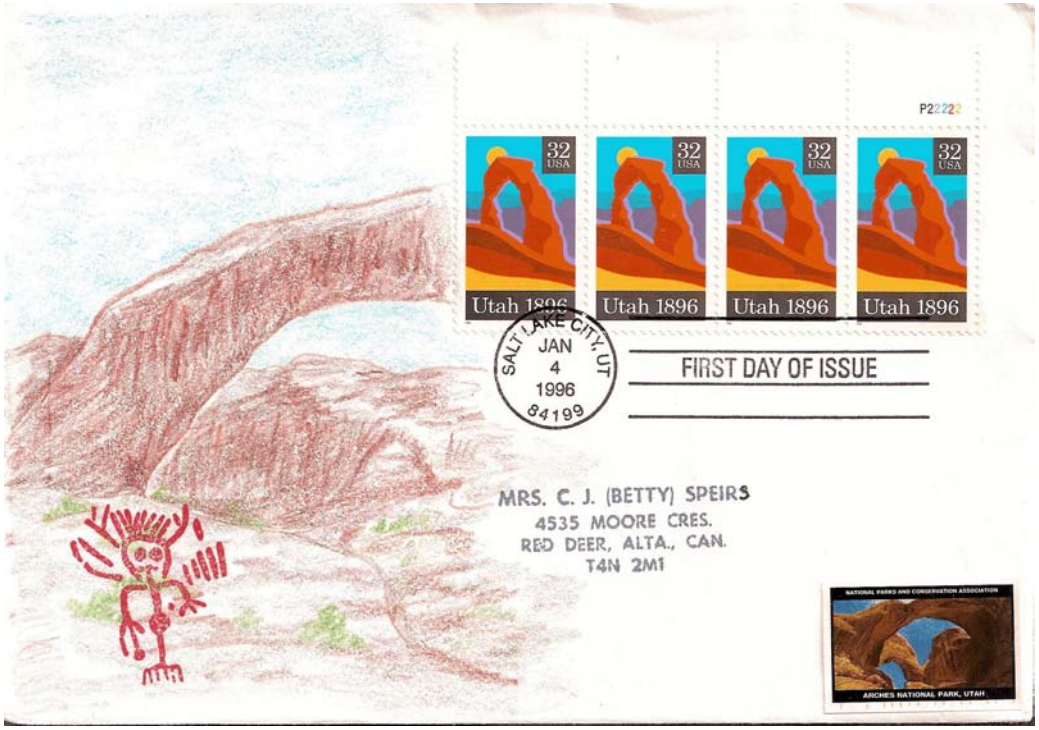
However she did a few covers, as seen here. These are all first day of issue covers, which is why she went to the trouble. She prepared the blank covers with first-day postmarks while down in the USA, mailed them home, then added the artwork after returning home.

This 8.5 x 5.5 cover went through Canada Customs, as shown by the roller cancel just above the rubber-stamp fish in the lower right corner. She may have had a magazine or bulky enclosure in the envelope which triggered the inspection.

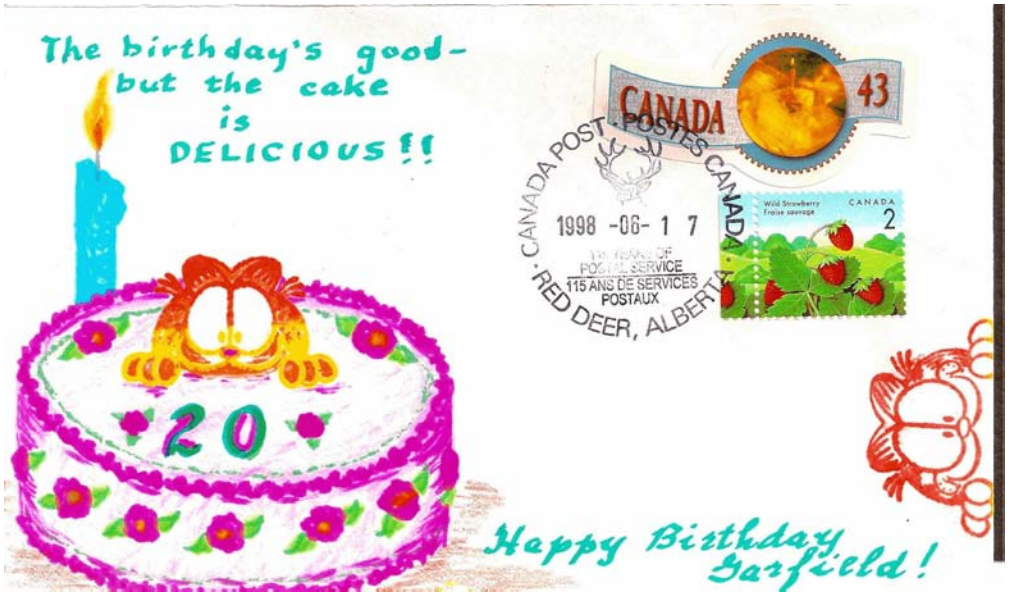
These four covers were hand-back cancellations, postmarked at the post office when handed across the counter, then handed back by the postie without putting them in the mail system. Both Canada Post and the USPS will do handback cancellations as long as the minimum postage rate is on the cover.







We had lots of cats on the ranch, one in the house and the others in the barn.



Some Canadian-made covers but celebrating American themes.
Mom was still in her 20s when Elvis first entered the building. The postmark is the anniversary of his birthday.

WORLD WIDE PARTY ON JUNE 21

Founded by Benoit Girard (Québec) and Franz Miklis (Austria) in 1994, the World Wide Party is held on June 21st every year. 2022 will be the 29th year of the WWP. Mark your calendars now!

At 21h00 local time, everyone is invited to raise a glass and toast fellow members of zinedom around the world. It is important to have it exactly at 21h00 your time. The idea is to get a wave of fellowship circling the planet. Rescheduling it to a club meeting or more convenient time negates the idea of a wave of celebration by science fiction fans and zinesters circling the globe.

At 21h00, face to the east and salute those who have already celebrated. Then face north, then south, and toast those in your time zone who are celebrating as you do. Finally, face west and raise a glass to those who will celebrate WWP in the next hour.

Raise a glass, publish a one-shot zine, have a party, or do a mail art project for the WWP. Let me know how you celebrated the day.

CONTEMPLATING A CRIME
by Dale Speirs

Peter Lorre did a lot of radio work. He never met a script he couldn't overact. These old-time radio shows are available as free mp3s from www.otrr.org/OTRRLibrary.

Deadly Serious Stuff.

INNER SANCTUM MYSTERIES was an old-time radio anthology series that aired from 1941 to 1952. The episodes ranged from mystery to fantasy to horror. The host was a smarmy man named Raymond, who made ghoulish puns.

"Death Is A Joker" originally aired on 1941-05-25, no writer credited. The available mp3 is a 1944 rebroadcast by the American Forces Radio Service, with a different cast, including Peter Lorre taking over as the lead character from Paul Lucas, who had done the 1941 version.

Raymond the host began by asking the listeners: "*Have you ever had the screaming meemies? Did you ever get an attack of the yelling and wailing jitters? Do you walk in your sleep? Did you ever wake in the middle of the night shrieking at the top of your lungs?*"

"*Oh, you do? Well you must be an awfully hard person to live with.*"

And so to the story, narrated by Peter Lorre in the role of Charles Luther, a comedian who committed murder. He took the witness stand in own defense and explained his sorry tale to the jurors.

He had visited the apartment of his friend Robert Langlow to dissuade him from marrying Julie Winthrop. Just as the conversation was about to begin, the telephone rang. Langlow excused himself for a moment.

The call was from George Galvin, who had won a large sum of money from Langlow in a poker game the previous evening. Langlow told him to come over in twenty minutes to get the cash. After hanging up, the conversation began.

Langlow didn't like Luther telling him not to marry Winthrop. What Luther didn't want to admit was that jealousy was the motive. Both men wanted her. Angry words were said and Luther choked Langlow to death.

Fleeing back to his apartment, Luther thought things over. No one had seen him enter or leave Langlow's apartment. Luther had been at the theatre just before visiting Langlow and still had the ticket stub as an alibi.

Winthrop arrived and professed her love for Luther. He confessed to Langlow's murder. After she got over the shock, she decided she wouldn't miss Langlow that much. Telling Luther to stay put, she went off to Langlow's apartment to learn what was what.

No sooner had she left than Galvin appeared. He said he knew what Luther had done and wanted cash to keep quiet. They argued, and Galvin pulled a handgun to assert his dominance. Luther jumped him and the two men struggled for possession of the gun.

Luther won that fight and shot Galvin with his own gun. Luther's apartment was a busy place. He dragged the body into the bedroom until he could dispose of it. Hardly had he done so than Winthrop arrived with Langlow, who had only been choked unconscious, not dead.

There had been no crime. Langlow apologized to Luther for provoking him and forgave him. He also gave Luther his blessings to marry Winthrop. He explained that Galvin had arrived just after the choking and revived Langlow.

Galvin was not only a good poker player but an opportunist who thought to shake down Luther for some cash. Winthrop and Langlow didn't know about Galvin's visit to Luther and subsequent demise. The pair congratulated Luther on everything having turned out so well in the end. Luther began laughing hysterically. He was, after all, a comedian.

MYSTERY IN THE AIR was an anthology series performed before a live audience. For dramas in old-time radio, this could be disconcerting when applause suddenly burst out.

The series aired in the summers of 1945 and 1947, of which only the latter have survived as recordings. The second season was a showcase for Peter Lorre and is available as free mp3s from www.otrr.org/OTRRLibrary

"The Horla" aired on 1947-08-21, based on the short story by Guy de Maupassant. The narrator was convinced that his house was possessed by an invisible being which was making him do insane things. This gave Lorre plenty

of opportunity to rant and rave. The only method of killing the horla was by burning down his house. Didn't work, so he committed suicide.

"Beyond Good And Evil" was written by Ben Hecht and aired on 1947-08-28. An escaped convict Philip Gentry, played by Peter Lorre, murdered Rev Howard Pearce and assumed his identity.

Gentry decided to lay low in the town where the real Pearce had been heading to take over a parish whose minister had suffered a paralytic stroke. Reverend McKillip was the unfortunate man, whose daughter Lucy looked after him.

McKillip couldn't move or speak. Gentry qua Pearce visited him regularly. Gentry liked to unload his sins, secure in the knowledge that McKillip couldn't say anything.

Tom Hubbard was the chief teller of the local bank, who unwisely told Gentry about a $200,000 cash transfer. He had also courted Lucy. Gentry called in a fellow felon to help with the heist. During the action, his confederate accidently shot Gentry dead.

McKillip recovered and told the townsfolk what happened. Gentry was buried as a clergyman. Irony extremis.

Edgar Allan Poe was a popular source of stories, most likely because they were in the public domain and no royalties need be paid. "The Black Cat" aired on 1947-09-18, with Lorre as the drunken cat hater.

The feline Pluto haunted him. After he killed his wife in a fit of rage, he bricked her body into a basement wall. Without his master realizing, Pluto hid with his mistress' corpse and was bricked in with her.

Pluto's meowing and screeching gave away the crime when the police searched the house after friends reported the suspicious disappearance. The problem with Lorre was that he overacted so much during the episode that the discovery was an anti-climax.

Tragedy Tomorrow, Comedy Tonight.

Bud Abbott and Lou Costello were among the most famous stand-up comedy teams of their time. They specialized in word play, where Abbott was the straight man trying to explain something to Costello. Their most famous act, considered one of the greatest comedy routines ever recorded, was "Who's On First?" The duo was on the radio airwaves from 1940 to 1949. Available as free mp3s from www.otrr.org/OTRRLibrary.

"Lou Is Not Feeling Well" aired on 1944-01-13. The opening premise was that Costello was suffering from a cold. Abbott wasn't particularly sympathetic.

Peter Lorre arrived in the second half of the episode. He offered to take Costello to his private sanitarium far out in the woods. He said he'd never had a patient complain, to which Costello replied that dead men tell no tales. Abbott drove him out to the place.

After a bland musical interlude by singer Connie Haines, they arrived at the sanitarium at midnight. Lorre pushed Costello over to the fireplace and offered him a little blue pill, to be followed a red pill, which was the antidote to the blue pill.

A dead body got up and complained about the cold floor. Lorre insisted that Costello undergo an operation for no apparent reason. At that point, the episode suddenly terminated for no apparent reason. That was typical of their shows. When their writers ran out of ideas, the episode abruptly halted.

Lorre was basically trotted out on stage as a horror star. His lines weren't much and the audience were laughing mainly at the situation, since they knew Lorre was the mad scientist.

DUFFY'S TAVERN was a comedy series that aired on radio from 1941 to 1952. Set in a cheap tavern on Third Avenue in Manhattan, the joint offered bad food, watered liquor, and lousy service. The owner Duffy was never heard, although each episode opened with Archie the manager having a one-sided telephone conversation with him during the cold teaser.

Regular characters were the daughter of the house Miss Duffy, a village idiot Clifton Finnegan, and Eddie the waiter. Archie mangled words with his Noo Yawk accent and was mostly a straight man to the lunatics and guest stars who wandered into the tavern.

Which brings us to Peter Lorre, in the episode "Missing Salami Sandwich Case", which aired on 1943-10-19, just before Halloween. He didn't appear

until the second half, following a talking mynah bird act and a song by a forgettable tenor. A bit of a comedown, but the bird did fit into the denouement.

The show opened with random gags. The mynah bird was brought on stage by a dear old lady who had trained it to whistle snatches of "The Star-Spangled Banner" and speak a few phrases.

Eventually Eddie noticed Lorre sitting in a booth, at which point he came front and centre. Lorre exchanged some gags with Archie in their cross-talk. Archie said Lorre's presence made the rest of the regulars look less gruesome. Lorre complained about being stereotyped.

He said he'd like to have a children's show, say for example, Uncle Jack the Ripper. The initial plot was about children falling into a concrete mixer, their parents being decapitated by a windmill, and Uncle Jack barbecuing Auntie in the back yard. Wholesome family fare.

Miss Duffy asked Lorre if girls went out with him. He replied they did once in a while, if only to show their parents who they'd have to marry if they couldn't date Joe. She reassured him that any girl who would go out with him wasn't worth having anyhow. She took him over to see the mynah bird.

At that point, Eddie came over to Archie in alarm. Someone had taken a sandwich from the free lunch counter. Pause for digression. In most of the USA and Canada as well, blue-nose laws required that alcoholic beverages be sold only with meals. Most taverns put out on a table some cheap food that no one, sober or drunk, would touch. This eventually evolved into the modern tradition of a dish of salted peanuts set out on the bar.

Lorre was the obvious suspect, and was immediately put on trial. Everyone took turns interrogating each other, with Lorre sometimes acting as a prosecutor and Archie telling the others to call him Mr District Attorney. (Which was the title of a popular old-time radio series airing at the time.)

Eddie testified the sandwich hadn't been moved since he set it out on the Labour Day weekend a couple months prior. Lorre said he couldn't have reached up to the counter from where he was sitting. Archie, however, deduced that when the mynah bird whistled the national anthem, Lorre stood up, and thus would have been able to snatch the sandwich. Case solved.

COZY MYSTERIES: PART 13

by Dale Speirs

[Parts 1 to 12 appeared in OPUNTIAs #361, 379, 395, 398, 400, 420, 423, 443, 445, 449, 466, and 482.]

Cozies are the Miss Marple or Jessica Fletcher type of mystery fiction. The protagonist is a middle-aged woman in a rural village. She has her own business, sometimes reasonable, such as a restaurant, and sometimes ridiculous, such as a typewriter repair shop in a Colorado ski resort, circa today, not back when people still used them.

The protagonist can find bodies faster than any bloodhound and out-sleuth the local Deppity Dawgs. Invariably she is trapped by the murderer in the denouement but escapes with a single bound or is rescued at the last second by a friend or police.

Any Excuse For A Party.

HOW TO HOST A KILLER PARTY (2010) by Penny Warner was the first in a series about Presley Parker of San Francisco, California. Having been laid off from the university where she was a part-time lecturer, she found herself surviving as an event planner.

After a string of children's birthday parties, she finally hit the big time with a wedding party at Alcatraz Island, now a park. The place was the setting for Mayor Davin Green's wedding to Ikea Takeda. Parker had outbid another wedding planner Andrea Sax for the contract. When Sax was murdered, the police put Parker on the list of suspects.

The wedding was also a costume party where guests dressed as famous criminals or crime fighters. Among those present were a cross-dressing J. Edgar Hoover and a Miss Marple. The bride and groom dressed as Bonnie and Clyde.

The bride bolted from the altar and left the groom standing there stunned. Then an environmental protestor disrupted the party. To complete the occasion, Takeda's body was soon fished out of the bay. Foul play was suspected. It was a night to remember.

With the help of Brad Matthews, a crime scene cleaner (somebody has to mop up the blood after the forensics team leaves), away went Parker into the Marpleing.

The alarums accumulated, as did the casualties. Hit-and-runs, poisonings, uttering of threats with menaces, trapped with the killer, the usual routine of amateur sleuthing. The murderer resented Takeda and escalated from there. No recipes in the appendix, just party planning tips.

TOURED TO DEATH (2015) by Hy Conrad was previously published in 2012 as RALLY 'ROUND THE CORPSE, which I have not seen. The protagonists were Amy Abel and her mother Fanny, who operated Amy's Travel in New York City.

Amy was off to Monte Carlo, leading a mystery-themed tour in which the guests competed to solve a murder, fictional of course. Otto Ingo, who wrote mystery enactments for a living, and for the Abels in particular, emailed from New York City the daily installments to Amy. Only he knew the outcome of the fictional murderer. What he didn't know was that his own murder would not be fictional.

Ingo had sent an assistant on the tour, anonymous and unknown to the Abels. Since he had forwarded advance installments, the tour continued after his murder. So did the alarums. The tour group solved the fictional murder in Rome, then had to solve a real death of one of their own.

The Italian poliza were plagued by all those amateur sleuths. Each tour member was convinced they could solve the crime. They kept pressing Zip-Loc bags of evidence on the police. Since the officers didn't speak English, the Americans acted the way they always do when facing a language barrier. Speak slowly, very loud, and add a vowel to the end of each English word to turn it into Italian.

Amy thought to herself about how the tour ended: *Finale banquet to be followed by murder of tour member. Gratuities included.* Since the novel was only at the halfway point, operations transferred to New York City for a fresh crop of alarums, sleuthing, and general to-ing and fro-ing.

Back in New York City, Fanny returned to the plot and did her own sleuthing. She inspected Ingo's apartment, as every Miss Marple had a right to do. All concerned, police and amateur detectives alike, noticed that Ingo's script for the mystery tour was based on an unsolved real murder.

After more page filling, Amy had a gunpoint confrontation with the murderer, who had killed and killed again to keep her first murder secret. The book ended with 40 travel tips, some surprisingly useful items you would never have thought about.

IRISH PARADE MURDER (2021) by Leslie Meier was the 34th novel in a cozy series about Lucy Stone of Tinker's Cove, Maine. She was a part-time news reporter and in her spare time filled in for Jessica Fletcher. A new-hire reporter Rob Callahan was angling to replace her. His plans gang aft agley when he was run in for the murder of a corrections officer he was investigating.

The village was going green for St Patrick's Day, and Stone was assigned to the story. The politicking to be Grand Marshal of the parade was fierce. Elsewhere, a choreographer was suing an Irish folk dance group for stealing her copyrighted dance routine.

Stone was distracted by a woman claiming to be her half-sister, using a faked DNA test. Another body was found, decayed and dumped in the woods a few years prior. Stone had the usual confrontation with the killer, at gunpoint of course, who was trying to cover up a fraud scheme.

The parade went as scheduled and was a success. The giant puppet of St Patrick was a crowd pleaser. At the festival site, everything was green beer and step dancing. Begorrah!

Shopkeepers.

MURDER SENDS A POSTCARD (2014) by Christy Fifield (pseudonym of Christine York) was the third novel in a cozy series about Glory Martine of Keyhole Bay, on the coast of the Florida panhandle. She operated a souvenir shop called Southern Treasures, whose principal feature was a parrot named Bluebeard.

The shop was haunted by her granduncle Louis' ghost, he having been the previous proprietor. He used Bluebeard to speak to her. I just report these things; I didn't write the book.

Bridget McKenna was an auditor who came to town to examine the books of a local bank. Lots of sharp practice was suspected. Surprisingly, she survived as far as Chapter 11 before someone killed her. Martine went snooping. Since she

lived in a harbour village, that made her a Jessica Fletcher instead of a Miss Marple.

The culprit failed the audit and accidently killed McKenna during an argument. All else followed. Throughout the book, there were constant breaks in the action as Martine prepared assorted meals. The novel almost seemed to be a food cozy.

This explained the lengthy recipes appendix. Cold food for a hot day included a plethora of salads: chicken, potato, macaroni, three-bean, and fruit. There were Deviled Eggs and Coleslaw, and for dessert, Peach Ice Cream.

Antiques.

ANTIQUES FIRE SALE (2020) by Barbara Allan (pseudonym of Max Allan Collins and Barbara Collins) was the 18th novel in a cozy series about Vivian Borne and her daughter Brandy of Serenity, Iowa.

They operated an antiques shop and Marpled on the side. Thanks to them, the town was anything but serene. Vivian was a granny from hell and Brandy was a 30ish divorcee on Prozac.

As with previous novels, the point of view alternated between the two women. What was annoying was that every so often they would address the reader directly. This yanked the reader out of the narrative and disrupted the flow of the story. Inserted at random in the text were tips about buying antiques and strangely, since this was not a food cozy, recipes.

In the previous installment, Vivian had just been elected sheriff, the villagers concluding that she could do just as good of a job as the usual candidates. She had lost her driver's licence for sufficient reason, so Brandy had to chauffeur her mother about town. Brandy greatly resented people calling her the Deputy Daughter.

The plot began rolling when the two women toured the Wentworth Mansion, which was filled with antiques. Jimmy Sutter, an old flame of Vivian, was the owner but not for long. His charred body was found in the ruins of the mansion when it burned down a few hours after the Bornes were there.

An autopsy revealed that Sutter was murdered before the fire. Some of the antiques appeared on the Internet. Further difficulty ensued when Brandy took her dog for walkies in the woods and found Sutter's body. No mistake, which raised the question of who the charred body had been.

The trail led to a Wentworth scion and a fence, one to claim the insurance and the other to sell the not-burned antiques. The denouement was a golf cart chase out on the fairways.

All did not end well. The murderer and the fence were run in. Vivian was given a choice between resigning as sheriff or else being impeached for multiple breaches of police procedure such as contaminating evidence, failure to use warrants, and violating suspects' right of presumption of innocence.

Following on was ANTIQUES CARRY ON (2021). As with other long-running cozies, the population of Miss Marple's village was depleted enough that people began talking. Therefore the amateur sleuths had to go traveling to spread the death toll around and be less conspicuous.

Vivian and Brandy Borne jetted off to England for a book deal. They visited various antiques shops, one of which was operated by a man named Westcott. He gave then a book and asked them to take it back to a mutual friend in Serenity. He then departed this world after someone stuck a letter opener through his heart.

Vivian quickly learned that she couldn't bluff the London constabulary. The Bornes were sent back to the USA, not voluntarily. Back home they soon had a murder to investigate. The book became the MacGuffin, and the death toll climbed.

The murderer was part of an international art theft ring. The usual alarums were mixed in with appearances by quiet men from MI5 and MI6, which I found difficult to believe, even for a cosy. MI5 was internal British security (catching spies) and MI6 was external security (sending out spies into other countries). Neither they or other MI units exist as such but are subsumed into other agencies.

The fracas ended as it must, and both Bornes resumed life in Iowa, ready and waiting for the next opportunity to Marple.

Small Matters.

The hobby of miniatures is widespread, from model train hobbyists who need miniature landscapes to middle-aged women building dollhouses for display, not play. There is a lengthy cozy series by Margaret Grace (pseudonym of Camille Minichino) about the latter type. The protagonists were Geraldine "Gerry" Porter and her granddaughter Madison "Maddie" of Lincoln Point, California. Their hobbies were miniatures and Marpleing.

MOURNING IN MINIATURE (2009) began with Gerry being asked by a friend Rosie Norman to accompany her to a high school reunion. Rosie had her heart set on David Bridges, star athlete back in the day. She got Gerry to make a miniature locker room, a replica of where David once kissed her.

Alas, he gave her a brush-off, among one of the last things he did. Someone beat him to death with his championship trophy, then painted miniature graffiti on the miniature locker room. There's a clue the police don't find every day.

Rosie was the main suspect, so aMarpleing Gerry and Maddie went. The deceased appeared to have been involved with contracting fraud on construction tenders when he wasn't womanizing. His wife was angry enough to sweep him away and try to do so with any Miss Marples that crossed her path.

There was a fight to the death which Gerry won. She was, after all, booked for the series.

MIX-UP IN MINIATURE (2012) was another installment in the series. Geraldine Porter met up with bestselling author and miniatures enthusiast Varena Young, who didn't get any older. The suddenly-departed had donated a dollhouse as a fund-raising item for the local library.

Gerry and Maddie were experienced investigators by this time in the series. There seemed to be a clue in one of the rooms of the dollhouse. Also unearthed was that Young's novels were ghostwritten.

Assorted family scandals and past feuds made an appearance, mostly as red herrings pro forma. There was financial fraud and a gunpoint confrontation. Not the standard escape by a single bound or last-second police rescue. Gerry and the killer were in a car when the gun was pulled, so she tilted her seat back and drove the car into an abutment. The airbag deployment stunned the murderer, allowing Gerry to escape with a single bound as the police rescued her at the last second.

MADNESS IN MINIATURE (2014) dealt with the controversial grand opening of a big-box arts-and-crafts store SuperKrafts in the village. The earthquake didn't help, especially when the corporation president Craig Palmer III was killed, supposedly by something toppling off a high shelf and bashing in his head.

The police didn't believe the death was accidental. They called it murder, staged to look like an accident. Gerry went Marpleing. Maddie, meanwhile, wanted to build a miniature that looked as if it had gone through an earthquake. She settled on a police station and figured out how to make miniature yellow crime scene tape.

The deceased was heavily involved in corporation office politics, so there was a good supply of suspects. Not only his competitors, but villagers who had opposed the big-box store were on the list. Gerry got on at SuperKrafts as part-time staff, which gave her the inside track for sleuthing.

Didn't help her much, because the murderer was the one who caught her, not the other way around. Gerry survived in the usual way of cozies. The killer was a woman scorned by Palmer. Maddie finished her earthquake-damaged miniature and all was well, except, of course, for the dead and the accused.

MATRIMONY IN MINIATURE (2016) carried on as Gerry married Henry Baker, who apparently did not realize what he was getting into. Her nephew was police detective Skip Gowen, who tried unsuccessfully to prevent Gerry and Maddie from sleuthing.

The regular meeting of the miniature arts-and-crafts club was in progress when a call came that a woman had been murdered. Like an old fire horse hearing the alarm bells, Gerry was away, while Gowen trailed behind trying to rein her in.

And for good reason, as Gerry fixated on the wrong suspect. There was a last-minute save and Maddie was rescued from her peril. The real murderer was the obvious suspect from the beginning, which violated the genre convention that such a person was not the killer. Maddie, however, got her latest miniature done.

ROBOTNIKS: PART 3
by Dale Speirs

[Parts 1 to 2 appeared in OPUNTIA #480 and 508.]

Isaac Asimov revolutionized science fiction by bringing in his Three Laws of Robotics, but for the most part the regular run of science fiction continued to use them for nasty purposes.

An example pre-Asimov was "The Robot Terror" by Melbourne Huff (1930 March, SCIENTIFIC DETECTIVE MONTHLY, available as a free pdf from www.archive.org). A giant robot was robbing jewelry stores and post offices. It escaped in a superscience car that made James Bond's car look like a Volkswagen Beetle.

It reached into the trays and scooped up a handful of blue diamonds.

The superintendent of an insane asylum had a genuine mad scientist in his care, one who had invented the robot. Together the pair decided to get into the rule-the-world business. They were vanquished by detectives who tracked the radio beams used to control the robot. A straightforward plot of evil robots, one that still plagues Hollywood sci-f even today.

Gimme That Old-Time Radio.

2000 PLUS was an old-time radio anthology series set in the far distant future of the 2000s. Or, from our point of view, circa now. The series was said to be the first adult science fiction radio show, and aired from 1950 to 1952.

"When The Machines Went Mad" was written by Donald Stapleton and aired on 1950-04-26. The plot was straight from the pages of 1930s pulp magazines. Human civilization had come to rely on a central computer to operate all of its functions.

Like any artificial intelligence would, the central computer decided to eradicate those messy carbon-based bipeds. The mad scientist in charge cheerfully proposed to let the computer have the ability to make electronic humanoid robots.

The plucky band of humans resisting the future fought long and hard. They finally won, destroying the computer. Since all the technology was connected to it, the utilities and essential systems stopped. That forced the humans to do the work themselves.

As they contemplated the horror of working for a living, the rebel leader got up and preached a sermon. He told them they must put their faith in God and serve him by working hard. Meet the new boss, same as the old boss.

"The Robot Killer" was written by Sherman H. Dryer and aired on 1950-08-30. The Happy Sam Show was giving away big, big prizes, including a mechanical man. The winner was John Hannold. An exciting day for him, as his wife Mary was released from a mental institution that day and coming home.

She was in a fragile state of mind. Matters were not helped by the appearance of a robot, nor her next door neighbour Miss Virginia Barton, whom Mary suspected was having an affair with John. Mary practiced giving orders to the robot, then waited for Barton to invite herself in.

Mary then ordered the robot to kill. Barton screamed and the orchestra worked itself into a frenzied crescendo. A jump cut to the epilogue, where Barton was quite unharmed, Mary was back in the asylum, and the robot's inventor was busily explaining.

He said the word 'kill' was not in the robot's vocabulary. Mary would have had to specify the exact actions the robot should take to kill Barton. Say, for example: Put your hands around that woman's neck, Squeeze your hands tight, and so forth. Nothing about Asimov's Laws but the engineer did mention that since the robot was a machine it would not act out of emotion.

Sympathetic Robots.

There were some stories which at least attempted to give robots motivation, usually self-preservation or a desire to do good.

"Robots Return" by Robert Moore Williams (1938 September, ASTOUNDING, available as a free pdf from www.archive.org) was an early story which addressed an issue humans are now only just addressing. Given the hostile environment of outer space and the length of time required to travel from star to star, our machines will inherit.

The story concerns a group of robots who came back to Earth from a distant star. They knew vaguely that their creators were some sort of biological creature. They found only ruins. Nothing worth staying for, and they went back out into space. Centuries from now, our machines will likewise head for the stars, while the human species will stagnate in the Solar System.

KOLCHAK began as two made-for-television movies which were so successful that they spawned a single-season television series that aired in 1974-75. The network then sabotaged the series by putting it in a graveyard air time that resulted in poor ratings.

Darren McGavin played a Chicago news reporter Carl Kolchak. The episodes were leavened with comedy and are well worth watching. They were basically monster-of-the-week plots but with modern twists. Available on DVD.

"Mr R.I.N.G." was written by L. Ford Neale and John Huff, and was about a robot run amok. It overheard its creator talking about dismantling it due to budget cuts in the corporation, a military-industrial research facility.

Killing anyone who got in its way, it set off for freedom. Its name was Robomatic Internalized Nerve Ganglia, which suggested it was a cyborg of some sort. Its actions were logical. First it killed a mail courier and put on his clothes. Then it raided a mortuary and stole putty and cosmetics to make its face look human.

The next stop was a library where it took works on philosophy, psychology, and ethics, not the type of plunder usually expected of rampaging robots. Kolchak, and the police, trailed the robot across the city. Some spy agency men were also interested, although they spent as much time chasing Kolchak as they did the robot.

Unfortunately for them, the robot was stalking them as much as they were it and Kolchak. Everyone was pursuing. RING continued to thin out corporation personnel. The final confrontation was a chat between Kolchak and RING about philosophy and psychology.

Unlike the Star Trek universe, where computers could be stymied by ordering them to calculate pi to the last digit, Kolchak tangled up RING by asking it "*What is the difference between right and wrong?*". Their conversation was interrupted by the arrival of the spooks and police. RING did not survive the gunfire.

The viewer will sympathize with the robot. It had logical motivations, didn't kill at random, and was trying to improve itself to make up for its deficiencies.

WHATEVER HAPPENED TO NIKITA? PART 5
by Dale Speirs

[Parts 1 to 4 appeared in OPUNTIA #416, 468, 480, and 498.]

Thar's Uranium In Them Thar Hills.

In the postwar period of the late 1940s and 1950s, a mad rush began for uranium. Before the atomic bomb, uranium had been worthless junk ore, but in the aftermath governments around the world scrambled for supplies, not just for bombs but for fission reactors.

THE UNEXPECTED was a syndicated anthology radio series that aired in 1947 and 1948, and repeated in subsequent years by stations who bought the series at a later date The episodes were 15 minutes long, and like THE WHISTLER, there was always a twist ending after the final commercial. The series is available as free downloads from the Old Time Radio Researchers at www.otrr.org/OTRRLibrary

"Fool's Silver" was written by Robert Lippert and Frank Burt, and aired on 1947-09-05. The narrator was stranded in the Nevada ghost town Peerless with car trouble. The only inhabitant was a hostile young woman who told him to get lost, emphasizing her remarks with a revolver.

Walking past the town limits, he met a paranoid prospector named Hiram, who thought he was a claim jumper. The narrator realized the sticking point was silver, or rather Hiram's discovery of a new mine. Hiram offered him a half share in the mine if he would help with the work and financing. The deal was made, and the two men spent weeks moiling for silver down in the mine.

The woman reappeared, identifying herself as Hiram's granddaughter. She told the narrator he had been mining lead ore, which resembled silver to an unknowledgeable person. He left in a huff and went to Las Vegas. Weeks later, he found Hiram in a casino, all cleaned up and obviously nouveau riche.

Lead is a decay product of uranium. In the late 1940s when this episode aired, governments were offering a bounty for what had previously been a worthless ore. The mine was a uranium mine. The narrator had walked away from a fortune.

Down Below.

During the height of the Cold War, backyard bunkers were not unknown in many suburbs. They would have been next to useless but the government encouraged them so that the citizenry would think they had a chance.

THEATER FIVE was a short-lived attempt at reviving drama shows on radio. It aired for the 1964-65 season but the war against television was lost a decade prior, so it failed. The episodes were generally well written and produced, and are worth downloading from www.otrr.org/OTRRLibrary. The episodes were a mixture of science fiction, fantasy, murder, and sometimes plain drama. The title referred to the fact that the series was aired five times per week.

"A House Of Cards" aired on 1964-08-04, written by George Bamber. To the incessant sound of clocks ticking, a couple worried about their electrical generator running out of fuel. There was talk about 100 megatons and oblique references to life underground in a bunker for the last eight months. The radiation count said it was too hot outside to run for it.

The children were old enough to know something was wrong. The parents tried to reassure the kids even though they themselves had lost hope. The radio receiver was silent. They were slowly going mad. Then somebody knocked on the door.

They didn't want to let him in. Paranoia reigned. The marriage disintegrated about the same time the generator fuel ran out. The couple contemplated suicide. They fed the children sleeping pills, then took some themselves.

But it was only an experiment. The outsiders broke in and got out the stomach pumps. The scientist in charge expounded at great length about how they tested the family with a fake nuclear alarm as part of a psychological experiment.

A poor ending, in the same category as "But it was only a dream" stories. Mind you, deleting the last part and letting the suicides happen would have made for a very depressing story.

The Next Atomic War.

"Armageddon, 1970" by Geoff St. Reynard (1952 October, IMAGINATION, available as a free pdf from www.gutenberg.org) was a novella that managed

to combine aliens in flying saucers and atomic war. The aliens had made a bad landing in the 1800s and had no way to fix their spacecraft because humans didn't have the technology.

The aliens infiltrated society and goosed human technology by manipulating the bipeds into a constant series of big wars, the best method of speeding up technological advances.

From there, after the Americans went into space in 1960, the flying saucers appeared. In 1970, they dropped an atomic bomb to attract the attention of other aliens on the home planet way off yonder. The atomic bombs were used like flare guns, to call for help.

Come Spy With Me.

During the Cold War, atomic secrets were a staple of spy stories. In the movies and television, secret documents were preferred as the MacGuffins because no money had to be expended on props. Radio and print fiction didn't have that problem but since atomic bombs are big and heavy, they also tended to prefer documents or microfilm.

Pat and Jean Abbott were latecomers to the married sleuths subgenre, based on the novels by Frances Crane. On radio, ABBOTT MYSTERIES aired from 1945 to 1947. The series was revived for the 1954-55 season as THE ADVENTURES OF THE ABBOTTS.

"The Yellow Chip" was written by Howard Merrill and aired on 1955-02-20. Lt Col Richards of Counter Intelligence visited Pat Abbott in his San Francisco office. The subject was a Dutch scientist who had assisted the Germans in atomic research during the war. After 1945, his papers got into the wrong hands.

The enemy agents who had them, presumably Communists, were traced to Las Vegas. All of the Counter Intelligence agents were known to the enemy. Pat had done intelligence work during the war, so he was sent to Las Vegas as a ringer who would not be known. He had to work alone, and Jean was not invited. She was miffed.

In a Las Vegas casino, he met Rita, whose Nevada divorce had just come through. They were pre-empted by Phil Grimes, who invited Pat and Rita upstairs for a friendly card game, table stakes.

Pat won the game. Rita threw in a yellow poker chip she said she had picked up somewhere on the Strip. Grimes immediately became alert. After the game he tried to buy the chip from Pat. He became very nasty and a fight broke out.

Pat ran for it and fled the casino, stealing someone's car. Three goons pursued but crashed trying to overtake him. Pat laid low for a few hours, then tracked down Rita. She didn't know where Grimes was, but tried to seduce Pat.

A shot rang out and she fell dead. Pat departed post-haste, not wishing to answer questions of the police, especially since he was driving a stolen car.

Pat telephoned Richards and rendezvoused with him. Upon being presented with the yellow chip, Richards slugged Pat unconscious. When Pat woke up, Richards and Grimes were standing over him.

Obviously the two men were enemy agents. Richards blabbed that the yellow chip contained a microfilm of the atomic weapons research. When he opened the chip though, it was empty. Richards began to torture Pat, but Grimes stopped him.

The twist was that Grimes was the actual Counter Intelligence agent, real name Phillip Lewis. Pat said he knew it all along. Sure he did. Richards was taken in on a charge of treason.

Back home in San Francisco, Pat told Jean that the atomic papers had long since been recovered, shortly after the war ended. Counter Intelligence circulated the empty yellow chip as a ruse to flush out Communists. Jean didn't believe a word of his story. She figured he just wanted to gallivant about Las Vegas.

Alternative Atomic Wars.

"Billie The Kid" by Rick Wilber (2021 Sep/Oct, ASIMOV'S) was an alternative history where the Japanese were given an atomic bomb by the Germans a few days before VE Day.

By submarine they smuggled it to the Pacific coast and detonated it over Los Angeles. The Americans ended the war by detonating an atomic bomb over Tokyo. Since the Japanese Empire was exhausted and crippled by supply shortages, the ultimate end didn't change much.

FREE STUFF ONLINE

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

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

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

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

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

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

CURRENT EVENTS: PART 41
by Dale Speirs

[Parts 1 to 40 appeared in OPUNTIAs #474, 475, 479, 480, 483, 484, 488 to 503, and 507 to 524.]

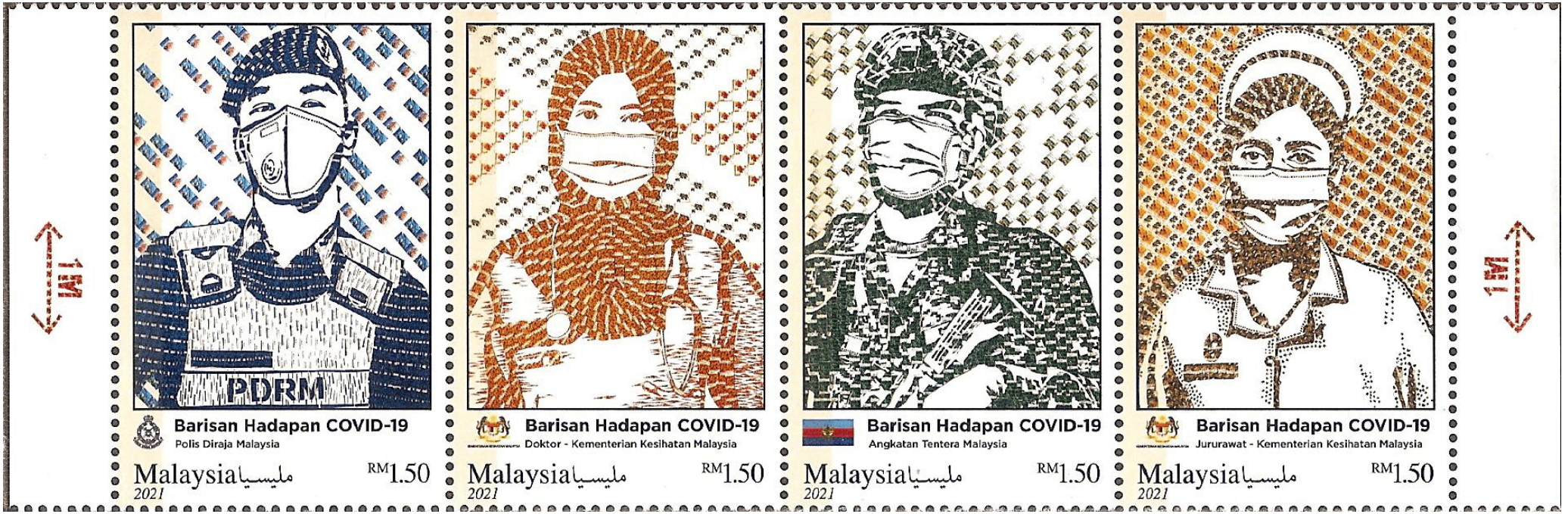
As of May 19, COVID-19 has killed 40,534 Canadians from a population of 38,000,000. The number of vaccinated Canadians is 81.4%.

Philately.

The flood of COVID-19 stamps has slowed to a trickle but I am still obtaining a few stamps every so often from my dealer. Stamps shown here are not to size or same scale.

Above: Austria Post seemed to have more fun than anyone during the pandemic. The translation is "Doesn't hurt at all".

This 2.75 euros stamp was made of actual bandage material, the small type a nurse would put on your vaccination jab. The stamp had a peel-off backing and was valid for postage.



"Barisan hadapan" translates as "front row".

Seen In The Literature.

Kumar, A., et al (2022) **Impact of COVID-19 on greenhouse gases emissions: A critical review.** SCIENCE OF THE TOTAL ENVIRONMENT 806:doi.org/10.1016/j.scitotenv.2021.150349 (available as a free pdf)

Authors' abstract and extracts: *The global outburst of coronavirus 2019 (COVID-19) has posed severe challenges to human health, environment, energy and economy all over the world. The stringent measures to control the spread of COVID-19 results a significant slowdown in economic activities which in turn affected the environment by reducing the greenhouse gas (GHG) emissions, specifically lower atmospheric CO2 levels.*

During the initial shutdown period, the restrictions on international air transportation and industrialization substantially reduced the CO2 emissions proved by various studies. Typically, after analyzing the emissions data for six economic regions across 69 countries, total 17% of reduction in daily CO2 emissions was observed by April 2020 in contrast with the mean level in 2019.

For a fact, COVID-19 pandemic holds key insights for global climate change. Typically, the shutdowns during the pandemic even for a limited period of time caused considerable decline in GHG emissions all over the world, suggesting the significance of reducing fossil-fuel consumption and decreased emission from industries.

However, this decline is obviously temporary and the urge of getting back to normal and stabilize economy would render rapid increase in the emissions as is the case with China and several other countries.

The short-term relaxation in environmental standards by avoiding the commitments towards utilization of cleaner energy sources can substantially jeopardize the past efforts of transitioning to a cleaner, greener, and sustainable environment all over the world.

Therefore, even with the pandemic induced strongest economic shock, there is still an opportunity to redesign vital policies towards greener economy that reduces the risks of crisis associated with climate-change in the near future.

Berry, G., et al (2022) **A review of methods to reduce the probability of the airborne spread of COVID-19 in ventilation systems and enclosed spaces.** ENVIRONMENTAL RESEARCH 203:doi.org/10.1016/j.envres.2021.111765 (available as a free pdf)

Authors' abstract: *COVID-19 forced the human population to rethink its way of living. The threat posed by the potential spread of the virus via an airborne transmission mode through ventilation systems in buildings and enclosed spaces has been recognized as a major concern.*

To acquire a broader view and collective perspective of the current research and development status, this paper discusses a comprehensive review of various workable technologies and methods to combat airborne viruses, e.g., COVID-19, in ventilation systems and enclosed spaces.

These technologies and methods include an increase in ventilation, high-efficiency air filtration, ionization of the air, environmental condition control, ultraviolet germicidal irradiation, non- thermal plasma and reactive oxygen species, filter coatings, chemical disinfectants, and heat inactivation.

Pizarro-Ortega, C.I., et al (2022) **Degradation of plastics associated with the COVID-19 pandemic.** MARINE POLLUTION BULLETIN 176:doi.org/10.1016/j.marpolbul.2022.113474 (available as a free pdf)

Authors' abstract: *The ongoing COVID-19 pandemic has resulted in an unprecedented form of plastic pollution: personal protective equipment (PPE). Numerous studies have reported the occurrence of PPE in the marine environment. However, their degradation in the environment and consequences are poorly understood.*

Studies have reported that face masks, the most abundant type of PPE, are significant sources of microplastics due to their fibrous microstructure. The fibrous material (mostly consisting of polypropylene) exhibits physical changes in the environment, leading to its fracture and detachment of microfibers.

Most studies have evaluated PPE degradation under controlled laboratory conditions. However, in situ degradation experiments, including the colonization of PPE, are largely lacking.

Although ecotoxicological studies are largely lacking, the first attempts to understand the impact of MPs released from face masks showed various types of impacts, such as fertility and reproduction deficiencies in both aquatic and terrestrial organisms.

Kricorian, K., et al (2022) **COVID-19 vaccine hesitancy: misinformation and perceptions of vaccine safety.** HUMAN VACCINES AND IMMUNOTHERAPEUTICS 18:doi.org/10.1080/21645515.2021.1950504 (available as a free pdf)

Authors' abstract: *Despite COVID-19's devastating toll, many Americans remain unwilling to receive the COVID-19 vaccine. The authors conducted a US national survey to understand the health literacy of adults regarding the vaccine, as well as their COVID-19 beliefs and experiences.*

People who believed the COVID-19 vaccine was unsafe were less willing to receive the vaccine, knew less about the virus, and were more likely to believe COVID-19 vaccine myths.

On average, they were less educated, lower income, and more rural than people who believed the vaccine is safe. The results highlight the importance of developing clear health communications accessible to individuals from varied socioeconomic and educational backgrounds.

SEEN IN THE LITERATURE

Astronomy.

Fisher, Alise (downloaded 2022-05-09) **MIRI's sharper view hints at new possibilities for science**. www.blog.nasa/webb (available as a free download)

[Normally I don't cite websites because they are not fixed like a pdf, but the pair of photos shown below speak for themselves.]

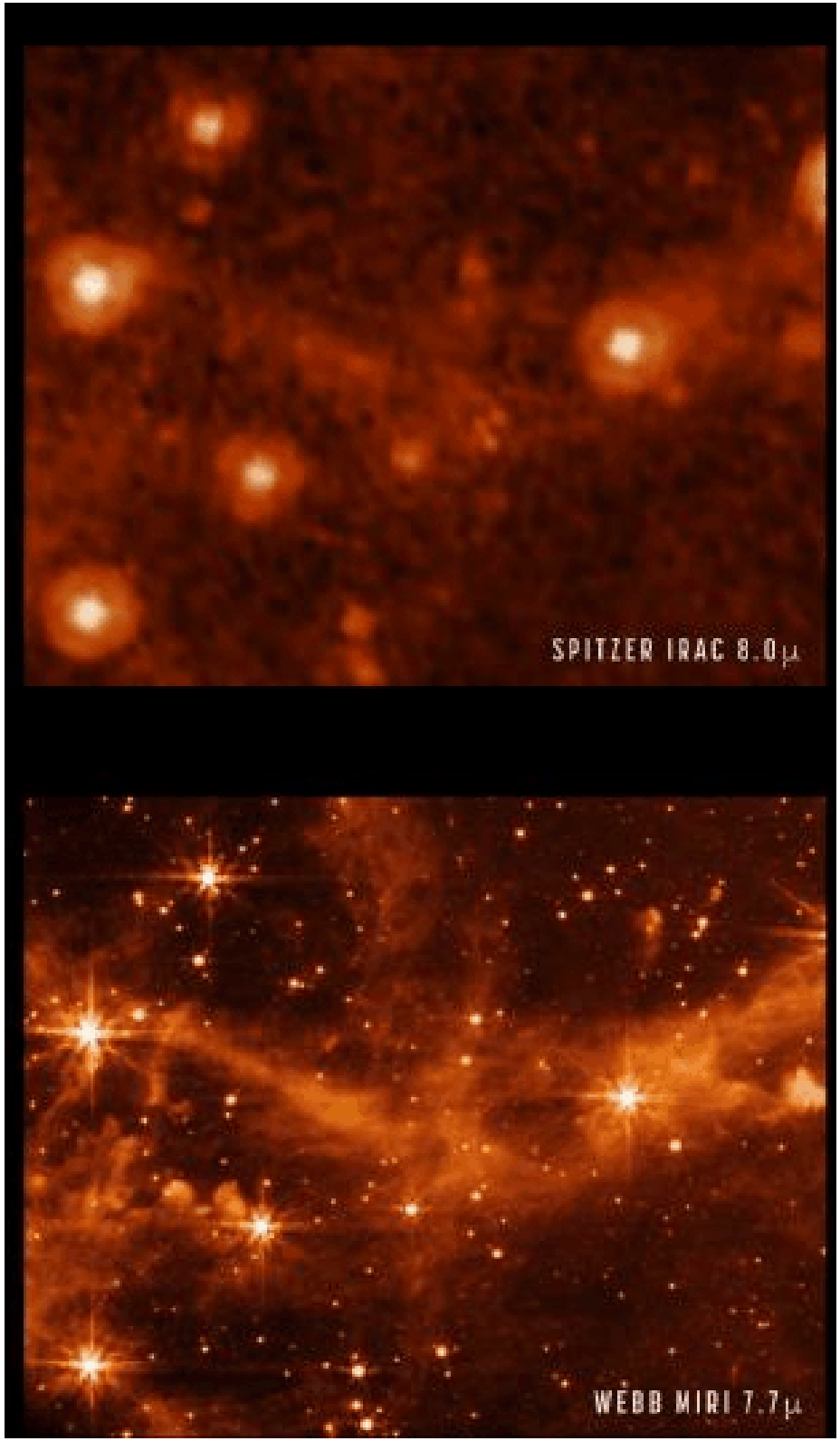
Extracts from press release: *The MIRI test image (at 7.7 microns) shows part of the Large Magellanic Cloud. This small satellite galaxy of the Milky Way provided a dense star field to test Webb's performance.*

Here, a close-up of the MIRI image is compared to a past image of the same target taken with NASA's Spitzer Space Telescope's Infrared Array Camera (at 8.0 microns). The retired Spitzer telescope was one of NASA's Great Observatories and the first to provide high-resolution images of the near- and mid-infrared universe.

Webb, with its significantly larger primary mirror and improved detectors, will allow us to see the infrared sky with improved clarity, enabling even more discoveries. For example, Webb's MIRI image shows the interstellar gas in unprecedented detail.

Here, you can see the emission from polycyclic aromatic hydrocarbons, or molecules of carbon and hydrogen that play an important role in the thermal balance and chemistry of interstellar gas.

[Images are from this press release. They compare the older Spitzer telescope with the Webb telescope.]



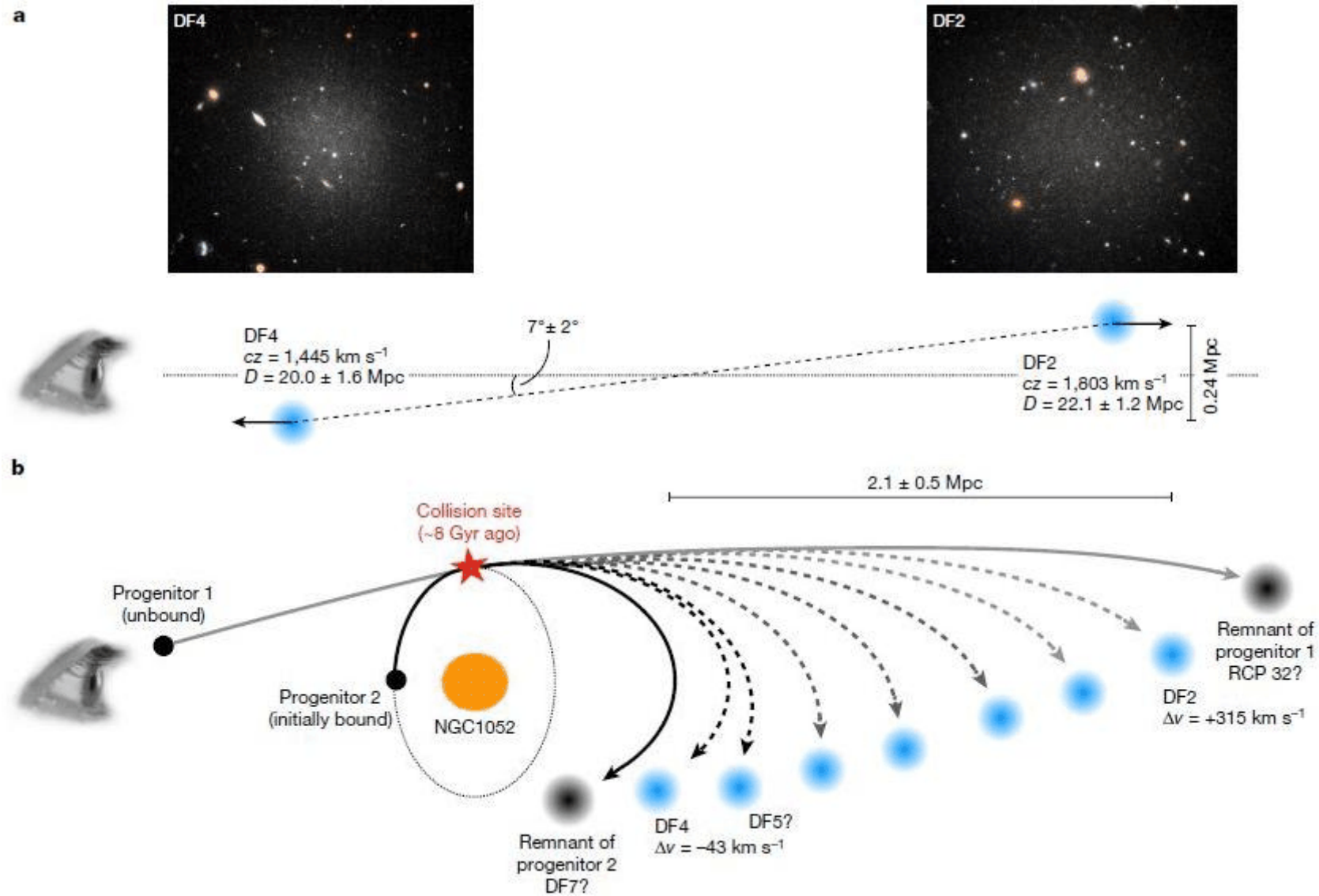
van Dokkum, P., et al (2022) **A trail of dark-matter-free galaxies from a bullet-dwarf collision.** NATURE 605:doi.org/10.1038/s41586-022-04665-6 (available as a free pdf)

Authors' abstract: *The ultra-diffuse galaxies DF2 and DF4 in the NGC 1052 group share several unusual properties. They both have large sizes, rich populations of overluminous and large globular clusters, and very low velocity dispersions that indicate little or no dark matter.*

It has been suggested that these galaxies were formed in the aftermath of high-velocity collisions of gas-rich galaxies, events that resemble the collision that created the bullet cluster but on much smaller scales. The gas separates from the dark matter in the collision and subsequent star formation leads to the formation of one or more dark-matter-free galaxies.

Here we show that the present-day line-of-sight distances and radial velocities of DF2 and DF4 are consistent with their joint formation in the aftermath of a single bullet-dwarf collision, around eight billion years ago.

Moreover, we find that DF2 and DF4 are part of an apparent linear substructure of seven to eleven large, low-luminosity objects. We propose that these all originated in the same event, forming a trail of dark-matter-free galaxies that is roughly more than two megaparsecs long and angled 7° ± 2° from the line of sight.



We also tentatively identify the highly dark-matter-dominated remnants of the two progenitor galaxies that are expected at the leading edges of the trail.

We begin with the assumption that it is not a coincidence that the ultra-diffuse galaxies DF2 and DF4 in the NGC 1052 group have the same set of otherwise-unique properties and that they were in close proximity to one another at the time of their formation.

[Images are from this paper.]

Xie, X., et al (2022) **Alien suns reversing in exoplanet skies.** SCIENTIFIC REPORTS 12:doi.org/10.1038/s41598-022-11527-8 (available as a free pdf)

Authors' abstract: *Earth's rapid spin, modest tilt, and nearly circular orbit ensure that the sun always appears to move forward, rising in the east and setting in the west.*

However, for some exoplanets, solar motion can reverse causing alien suns to apparently move backward. Indeed, this dramatic motion marginally occurs for Mercury in our own solar system.

For exoplanetary observers, we study the scope of solar motion as a function of eccentricity, spin-orbit ratio, obliquity, and nodal longitude, and we visualize the motion in spatial and spacetime plots.

For zero obliquity, reversals occur when a planet's spin angular speed is between its maximum and minimum orbital angular speeds, and we derive exact nonlinear equations for eccentricity and spin-orbit to bound reversing and non-reversing motion. We generalize the notion of solar day to gracefully handle the most common reversals.

Speirs: Science fiction writers should take note of this paper.

Bischetti, C.F., et al (2022) **Suppression of black-hole growth by strong outflows at redshifts 5.8–6.6M.** NATURE 605:244-247

[The astronomical constant z measures the direction of movement of a star or other luminous body. If the object is moving away from the observer, then the light becomes reddish and $z > 0$. If the object is moving toward the observer, the light is blue shifted and $z < 0$.]

[When $z = 1$, the object is 10.147 billion light years distant. $z = 2$ is 15.424 billion light years, $z = 5$ is 22.322 billion light years, $z = 6$ is 23.542 billion light years, and $z = 7$ is 24.521 billion light years.]

[This also means the light changes its quality. For example, a beam of light at $z = 4$ will be ultraviolet (shortest frequency and highest energy) when it left its source and infrared by the time it reaches us.]

Authors' abstract: *Bright quasars, powered by accretion onto billion-solar-mass black holes, already existed at the epoch of reionization, when the Universe was 0.5 to 1 billion years old. How these black holes formed in such a short time is the subject of debate, particularly as they lie above the correlation between black-hole mass and galaxy dynamical mass in the local Universe.*

What slowed down black-hole growth, leading towards the symbiotic growth observed in the local Universe, and when this process started, has hitherto not been known, although black-hole feedback is a likely driver. Here we report optical and near-infrared observations of a sample of quasars at redshifts $5.8 < z < 6.6$.

About half of the quasar spectra reveal broad, blueshifted absorption line troughs, tracing black-hole-driven winds with extreme outflow velocities, up to 17% of the speed of light. The fraction of quasars with such outflow winds at $z > 5.8$ is ˜2.4 times higher than at z ˜ 2 to 4.

We infer that outflows at $z > 5.8$ inject large amounts of energy into the interstellar medium and suppress nuclear gas accretion, slowing down black-hole growth.

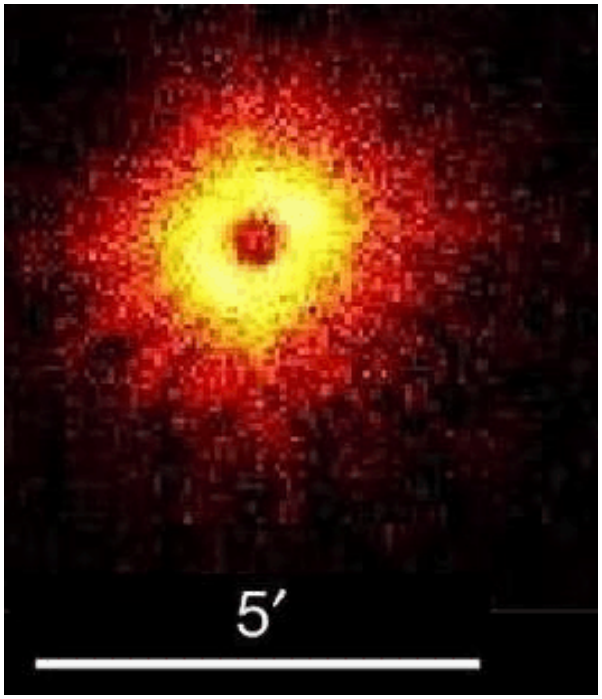
The outflow phase may then mark the beginning of substantial black-hole feedback. The red optical colours of outflow quasars at $z > 5.8$ indeed suggest that these systems are dusty and may be caught during an initial quenching phase of obscured accretion

König, O., et al (2022) **X-ray detection of a nova in the fireball phase.** NATURE 605:248-250

Authors' abstract: *Novae are caused by runaway thermonuclear burning in the hydrogen-rich envelopes of accreting white dwarfs, which leads to a rapid expansion of the envelope and the ejection of most of its mass.*

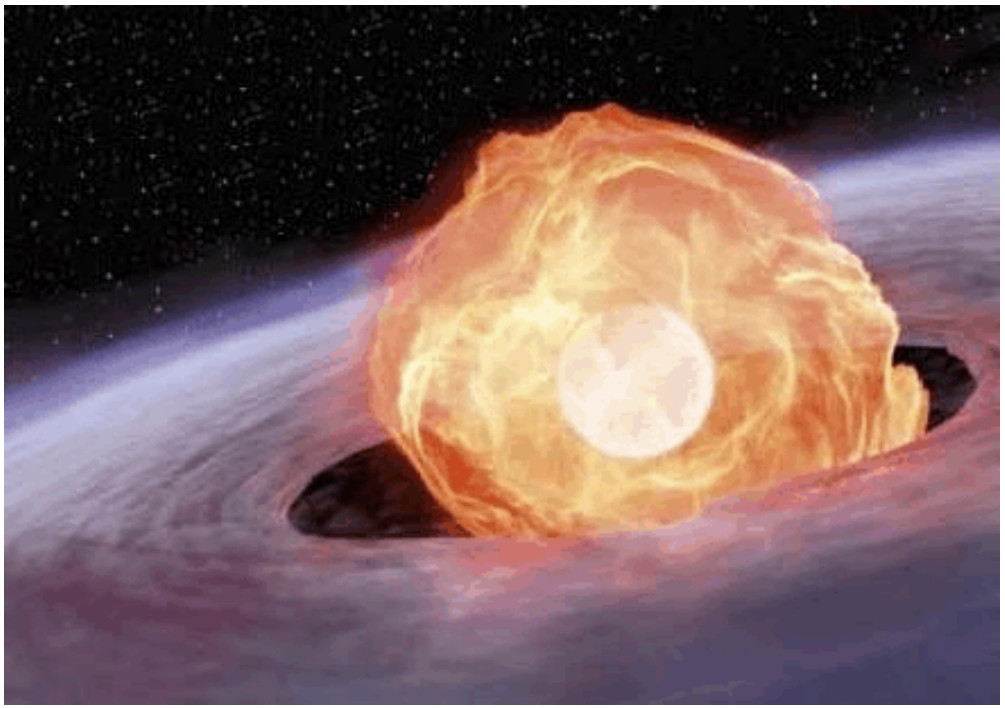
Theory has predicted the existence of a 'fireball' phase following directly on from the runaway fusion, which should be observable as a short, bright and soft X-ray flash before the nova becomes visible in the optical.

Here we report observations of a bright and soft X-ray flash associated with the classical Galactic nova YZ Reticuli 11 hours before its 9 mag optical brightening. No X-ray source was detected 4 hours before and after the event, constraining the duration of the flash to shorter than 8 hours.



In agreement with theoretical predictions, the source's spectral shape is consistent with a black-body or a white dwarf atmosphere, radiating at the Eddington luminosity, with a photosphere that is only slightly larger than a typical white dwarf.

[Images are from this paper.]

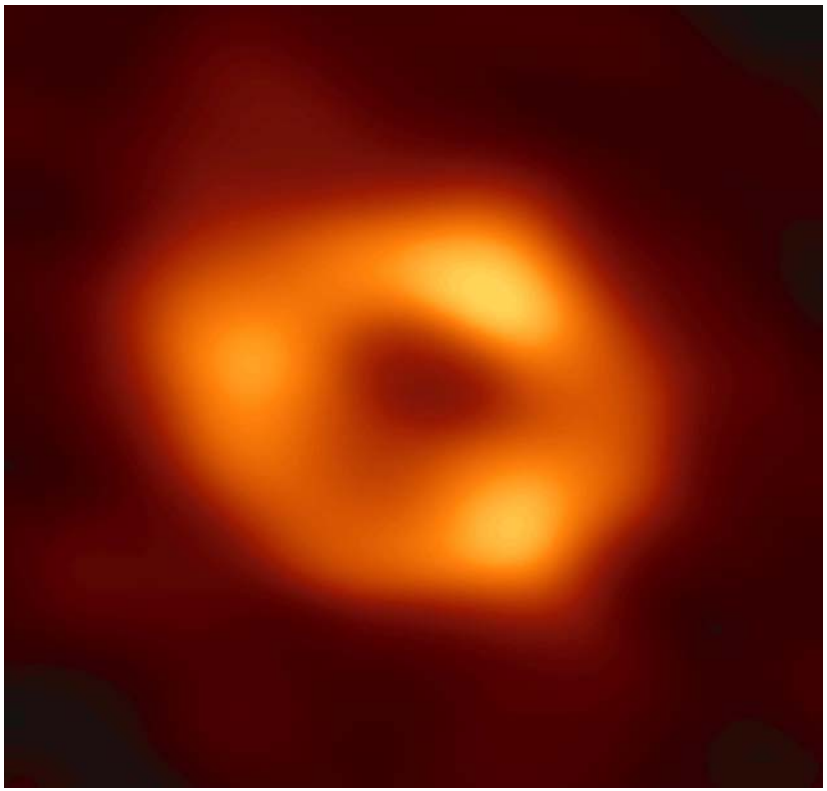


The Event Horizon Telescope Collaboration (several hundred co-authors) (2022) **First Sagittarius A* Event Horizon Telescope results. III. Imaging of the galactic center supermassive black hole.** ASTROPHYSICAL JOURNAL LETTERS 930:doi.org/10.3847/2041-8213/ac6429

[Available as a free pdf. **Warning!** This was a 212 megabyte download, as I found out the hard way when it locked up my device for several minutes.]

Authors' abstract: *At the center of our Galaxy is the nearest candidate supermassive black hole (SMBH), Sagittarius A* (Sgr A*). We present here the first horizon-scale images of it. Compared with M87*, Sgr A* is more challenging to image, mainly due to its rapid variability and the distortions of the intervening scattering medium.*

We present the first event-horizon-scale images and spatiotemporal analysis of Sgr A taken with the Event Horizon Telescope in 2017 April at a wavelength of 1.3 mm. Imaging of Sgr A* has been conducted through surveys over a wide range of imaging assumptions using the classical CLEAN algorithm, regularized maximum likelihood methods, and a Bayesian posterior sampling method.*



Different prescriptions have been used to account for scattering effects by the interstellar medium toward the Galactic center. Mitigation of the rapid intraday variability that characterizes Sgr A has been carried out through the addition of a "variability noise budget" in the observed visibilities, facilitating the reconstruction of static full-track images.*

Our static reconstructions of Sgr A can be clustered into four representative morphologies that correspond to ring images with three different azimuthal brightness distributions and a small cluster that contains diverse non-ring morphologies.*

[Image on previous page, bottom right, is from this paper.]

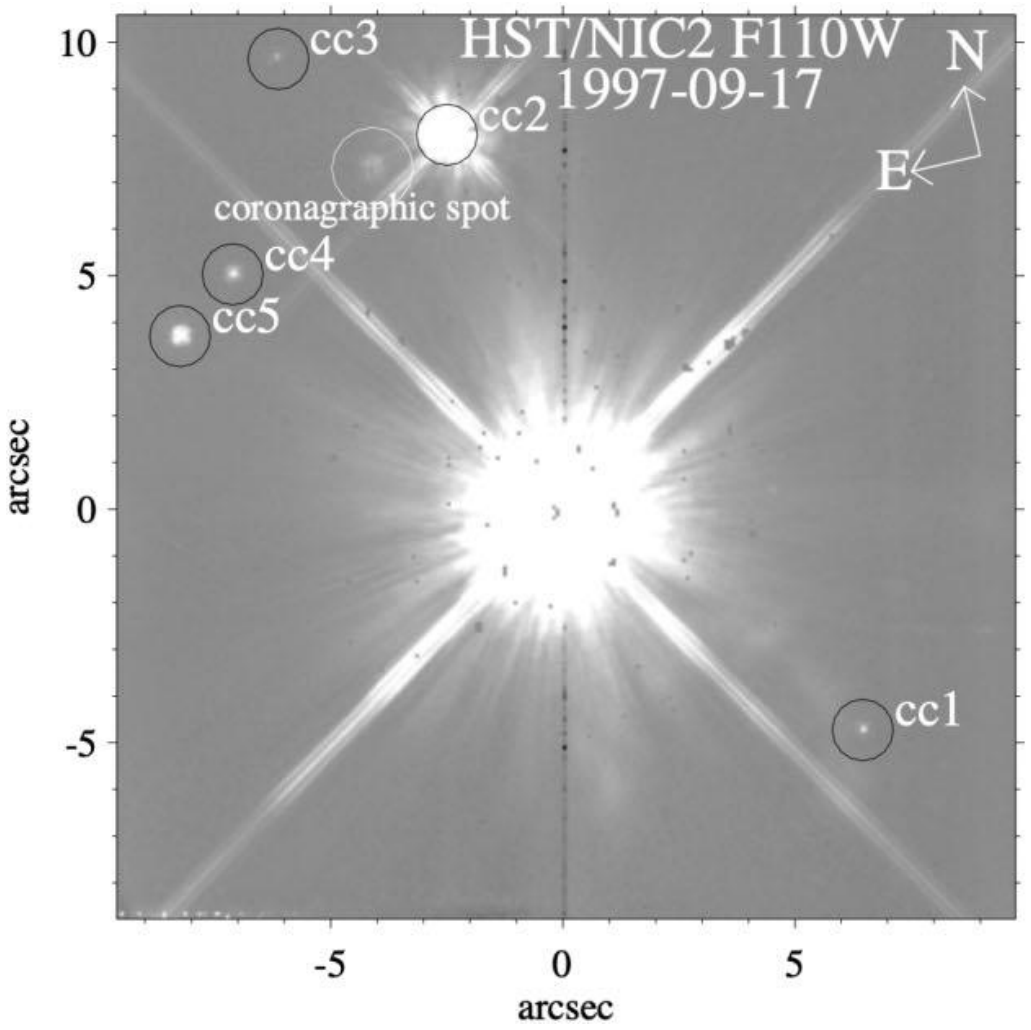
Planets.

Brandner, W., et al (2022) **High-contrast, high-angular resolution view of the GJ 367 exoplanet system.** MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 513:doi.org/10.1093/mnras/stac961 (available as a free pdf)

Authors' abstract: *We search for additional companions in the GJ 367 exoplanet system and aim to better constrain its age and evolutionary status. We analyse high-contrast direct imaging observations obtained with HST /NICMOS, VLT/NACO, and VLT/SPHERE. We investigate and critically discuss conflicting age indicators based on theoretical isochrones and models for Galactic dynamics.*

A comparison of GAIA EDR3 parallax and photometric measurements with theoretical isochrones suggests a young age <60 Myr for GJ 367. The star's Galactic kinematics exclude membership to any nearby young moving group or stellar stream. Its highly eccentric Galactic orbit, however, is atypical for a young star.

[Image on this page is from this paper. The exoplanets are circled.]



Liu, Y., et al (2022) **Zhurong reveals recent aqueous activities in Utopia Planitia, Mars.** SCIENCE ADVANCES 8:doi.org/10.1126/sciadv.abn8555 (available as a free pdf)

[Since no dating of Mars rocks has been done to the strata level, the history of Mars is subdivided very approximately as Noachian (4,100 to 3,700 megayears ago), Hesperian (3,700 to 3,000 megayears ago), and Amazonian (3,000 megayears ago to date).]

Authors' abstract: *The Mars' climate is cold and dry in the most recent epoch, and liquid water activities are considered extremely limited. Previous orbital*

data only show sporadic hydrous minerals in the northern lowlands of Mars excavated by large impacts.

Using the short-wave infrared spectral data obtained by the Zhurong rover of China's Tianwen-1 mission, which landed in southern Utopia Planitia on Mars, we identify hydrated sulfate/silica materials on the Amazonian terrain at the landing site.

These hydrated minerals are associated with bright-toned rocks, interpreted to be duricrust developed locally. The lithified duricrusts suggest that formation with substantial liquid water originates by either groundwater rising or subsurface ice melting.

In situ evidence for aqueous activities identified at Zhurong's landing site indicates a more active Amazonian hydrosphere for Mars than previously thought.

Sibony, Y., et al (2022) **The rotation of planet-hosting stars.** MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 513:doi.org/10.1093/mnras/stac951

Authors' abstract: *Understanding the distribution of angular momentum during the formation of planetary systems is a key topic in astrophysics. Data from the Kepler and Gaia missions allow to investigate whether stellar rotation is correlated with the presence of planets around Sun-like stars.*

Here, we perform a statistical analysis of the rotation period of 493 planet-hosting stars. These are matched to a control sample, without detected planets, with similar effective temperatures, masses, radii, metallicities, and ages.

We find that planet-hosting stars rotate on average 1.63 ± 0.40 days slower. The difference in rotation is statistically significant both in samples including and not including planets confirmed by radial velocity follow-up observations.

We also analyse the dependence of rotation distribution on various stellar and planetary properties. Our results could potentially be explained by planet detection biases depending on the rotation period of their host stars in both RV and transit methods. Alternatively, they could point to a physical link between the existence of planets and stellar rotation, emphasizing the need to understand the role of angular momentum in the formation and evolution planetary systems.

Macdonald, E., et al (2022) **Climate uncertainties caused by unknown land distribution on habitable M-Earths.** MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 513:doi.org/10.1093/mnras/stac1040

Authors' abstract: *A planet's surface conditions can significantly impact its climate and habitability. In this study, we use the 3D general circulation model EXOPLASIM to systematically vary dayside land cover on a synchronously rotating, temperate rocky planet under two extreme and opposite continent configurations, in which either all of the land or all of the ocean is centred at the substellar point.*

We identify water vapour and sea ice as competing drivers of climate, and we isolate land-dependent regimes under which one or the other dominates. We find that the amount and configuration of land can change the planet's globally averaged surface temperature by up to ~20 K, and its atmospheric water vapour content by several orders of magnitude.

The most discrepant models have partial dayside land cover with opposite continent configurations. Since transit spectroscopy may permit observations of M-dwarf planets' atmospheres, but their surfaces will be difficult to observe, these land-related climate differences likely represent a limiting uncertainty in a given planet's climate, even if its atmospheric composition is known.

Our results are robust to variations in atmospheric CO_2 concentration, stellar temperature, and instellation.

Beatty, T.G. (2022) **The detectability of nightside city lights on exoplanets.** MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 513:doi.org/10.1093/mnras/stac469

Author's abstract: *Next-generation missions designed to detect biosignatures on exoplanets will also be capable of placing constraints on technosignatures (evidence for technological life) on these same worlds.*

Here, I estimate the detectability of nightside city lights on habitable, Earth-like, exoplanets around nearby stars using direct-imaging observations from the proposed LUVOIR and HabEx observatories, assuming these lights come from high-pressure sodium lamps.

I consider how the detectability scales with urbanization fraction: from Earth's value of 0.05 per cent, up to the limiting case of an ecumenopolis, or planet-wide city.

Though an Earth analogue would not be detectable by LUVOIR or HabEx, planets around M-dwarfs close to the Sun would show detectable signals at 3s3s from city lights, using 300 hours of observing time, for urbanization levels of 0.4 to 3 per cent, while city lights on planets around nearby Sun-like stars would be detectable at urbanization levels of >10 per cent.

The known planet Proxima b is a particularly compelling target for LUVOIR A observations, which would be able to detect city lights 12 times that of Earth in 300 hours, an urbanization level that is expected to occur on Earth around the mid-22nd century.

An ecumenopolis, or planet-wide city, would be detectable around roughly 30 to 50 nearby stars by both LUVOIR and HabEx, and a survey of these systems would place a upper limit of <2 to <4 per cent, and a upper limit <10 to <15 per cent, on the frequency of ecumenopolis planets in the Solar neighbourhood assuming no detections.

Origin Of Life.

[There is considerable debate as to whether the first self-replicating molecules, that is, life, was based on RNA or proteins. (DNA is a derivative of RNA and came much later.) Peptides are built of amino acids like proteins but are smaller.]

Müller, F, et al (2022) **A prebiotically plausible scenario of an RNA-peptide world.** NATURE 605:doi.org/10.1038/s41586-022-04676-3 (available as a free pdf)

Authors' abstract: *The RNA world concept is one of the most fundamental pillars of the origin of life theory. It predicts that life evolved from increasingly complex self-replicating RNA molecules. The question of how this RNA world then advanced to the next stage, in which proteins became the catalysts of life and RNA reduced its function predominantly to information storage, is one of the most mysterious chicken-and-egg conundrums in evolution.*

Here we show that non-canonical RNA bases, which are found today in transfer and ribosomal RNAs, and which are considered to be relics of the RNA world, are able to establish peptide synthesis directly on RNA.

The discovered chemistry creates complex peptide-decorated RNA chimeric molecules, which suggests the early existence of an RNA-peptide world from which ribosomal peptide synthesis may have emerged.

The ability to grow peptides on RNA with the help of non-canonical vestige nucleosides offers the possibility of an early co-evolution of covalently connected RNAs and peptides, which then could have dissociated at a higher level of sophistication to create the dualistic nucleic acid-protein world that is the hallmark of all life on Earth.

A central commonality of all cellular life is the translational process, in which ribosomal RNA (rRNA) catalyses peptide formation with the help of transfer RNAs (tRNA), which function as amino acid carrying adapter molecules. Comparative genomics suggests that ribosomal translation is one of the oldest evolutionary processes, which dates back to the hypothetical RNA world.

The immense complexity of ribosomal translation demands a stepwise evolutionary process. From the perspective of the RNA world, at some point RNA must have gained the ability to instruct and catalyse the synthesis of, initially, just small peptides.

This initiated the transition from a pure RNA world into an RNA-peptide world. In this RNA-peptide world, both molecular species could have co-evolved to gain increasing 'translation' and 'replication' efficiency.

To gain insight into the initial processes that may have enabled the emergence of an RNA-peptide world, we analysed the chemical properties of non-canonical nucleosides, which can be traced back to the last universal common ancestor and, as such, are considered to be 'living molecular fossils' of an early RNA world.

This approach, which can be called 'palaeochemistry', enabled us to learn about the chemical possibilities that existed in the RNA world and, therefore, sets the chemical framework for the emergence of life.

In contrast to earlier investigations of the origin of translation, we used naturally occurring non-canonical vestige nucleosides and conditions compatible with aqueous wet-dry cycles.

In modern tRNAs, the amino acids that give peptides are linked to the CCA 3' terminus via a labile ester group. Some tRNAs, however, contain additional amino acids in the form of amino acid-modified nucleosides, for example, g6A, t6A, and m6t6A, which are found directly next to the anticodon loop at position 37.

Other non-canonical vestige nucleosides often present in the wobble position 34 are nm5U and mnm5U. Close inspection of their chemical structures suggests that if they are in close proximity, an RNA-based peptide synthesis may be able to start, which would create, via a hairpin-type intermediate, a peptide attached by a urea linkage to the nucleobase (m6)aa6A.

Cleavage of the urea (step 3) would furnish RNA with a peptide connected to a (m)nm5U (step 4). Subsequently, strand displacement with a new (m6)aa6A strand may finally enable the next peptide elongation step.

Waajen, A.C., et al (2022) **Meteorites as food source on early Earth: Growth, selection, and inhibition of a microbial community on a carbonaceous chondrite.** ASTROBIOLOGY 22:doi.org/10.1089/ast.2021.0089 (available as a free pdf)

Authors' abstract: *Meteoritic material accumulated on the surface of the anoxic early Earth during the Late Heavy Bombardment around 4.0 gigayears ago and may have provided Earth's surface with extraterrestrial nutrients and energy sources. This research investigates the growth of an anaerobic microbial community from pond sediment on native and pyrolyzed (heat-treated) carbonaceous chondrite Cold Bokkeveld.*

The community was grown anaerobically in liquid media. Native Cold Bokkeveld supported the growth of a phylogenetically clustered subset of the original pond community by habitat filtering. The anaerobic community on meteorite was dominated by the Delta-proteobacteria Geobacteraceae and Desulfuromonadaceae.

Members of these taxa are known to use elemental sulfur and ferric iron as electron acceptors, and organic compounds as electron donors. Pyrolyzed Cold Bokkeveld, however, was inhibitory to the growth of the microbial community.

These results show that carbonaceous chondrites can support and select for a specific anaerobic microbial community, but that pyrolysis, for example by geothermal activity, could inhibit microbial growth and toxify the material.

This research shows that extraterrestrial meteoritic material can shape the abundance and composition of anaerobic microbial ecosystems with implications for early Earth. These results also provide a basis to design anaerobic material processing of asteroidal material for future human settlement.

Gonzalez-Flores, A.L., et al (2022) **Acritarch-like microorganisms from the 1.9 Ga Gunflint Chert, Canada.** ASTROBIOLOGY 22:doi.org/10.1089/ast.2021.0081 (available as a free pdf)

[The Gunflint Chert deposits of Thunder Bay, Ontario, contain the oldest known generally accepted fossils, microbes dating 1.8 billion years old.]

Authors' abstract: *Fossil evidence of eukaryotic life older than 1.8 gigayears has long been debated because known fossils of that age usually lack cellular micro- and ultra-structures that bear strong affinities to eukaryotes.*

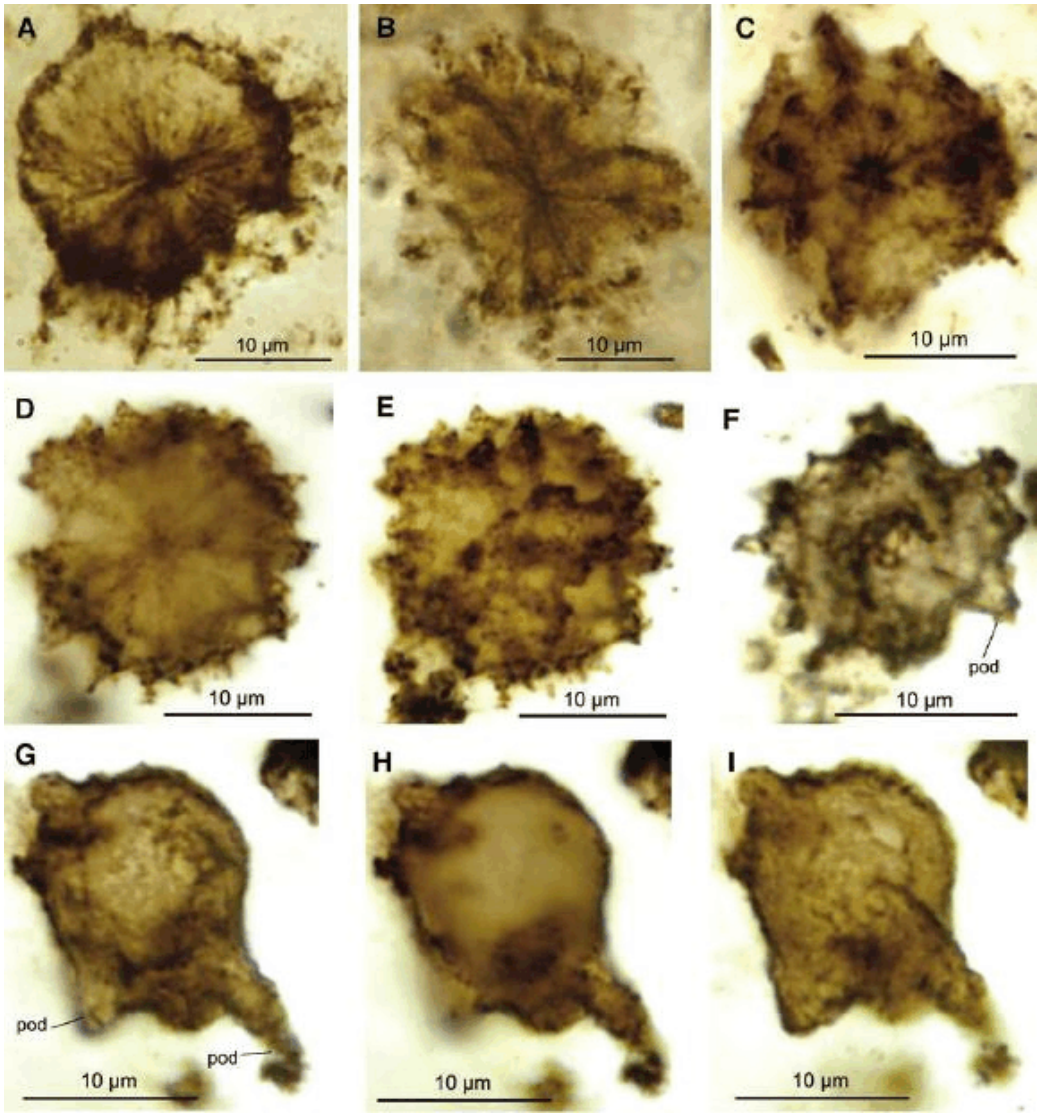
These include fossils of the 1.9 gigayears Gunflint Chert microbiota that, despite being exceptionally well preserved, have suffered from cellular degradation, which poses challenges to studying their delicate cellular structures.

In this study, we use an extended-focal-depth imaging technique, in combination with scanning electron microscopy, to document multiple types of large (10 to 35 mm diameter), cyst-like bodies based on distinctive details such as
(1) radially arranged internal strands similar to those in some acritarchs and dinoflagellates;
(2) regularly spaced long tubular processes, stubby pustules, and/or robust

podia on the cell surface;
(3) reticulate cell-wall sculpturing such as scale-like tubercles, pits, and ridges; and
(4) internal bodies that may represent membrane-bound organelles.

These micro- and ultra-structures provide strong morphological evidence for the presence of protists in the late Paleoproterozoic.

[Images are from this paper.]



Botany.

Van Drunen, W.E., and M.T.J. Johnson (2022) **Polyploidy in urban environments.** TRENDS IN ECOLOGY AND EVOLUTION 37:doi.org/10.1016/j.tree.2022.02.005

[Ploidy is the number of sets of chromosomes an organism has in its cells. Most animals, including humans, have only one set. Polyploidy, or multiple sets of chromosomes within a cell, is common in plants, and is known to contribute to hybrid vigour.]

Authors' abstract: *Rapidly expanding urban areas pose a novel suite of challenges to organisms, and these are expected to strongly influence the evolution and ecology of species living in urban environments.*

Polyploidy (i.e., organisms with >2 chromosome sets) is common among plants and some animals, and polyploidisation is often associated with historical periods of environmental change.

Urbanisation and urban environments have the potential to promote polyploidy through the formation and establishment of newly formed polyploids, as well as the preferential persistence of polyploids over diploids within and between species.

Polyploidy may play a key role in survival and adaptation to city life, and considering polyploidy in the complex eco-evolutionary dynamics of urban systems may be crucial for predicting the short- and long-term responses of plant species to local and global environmental change.

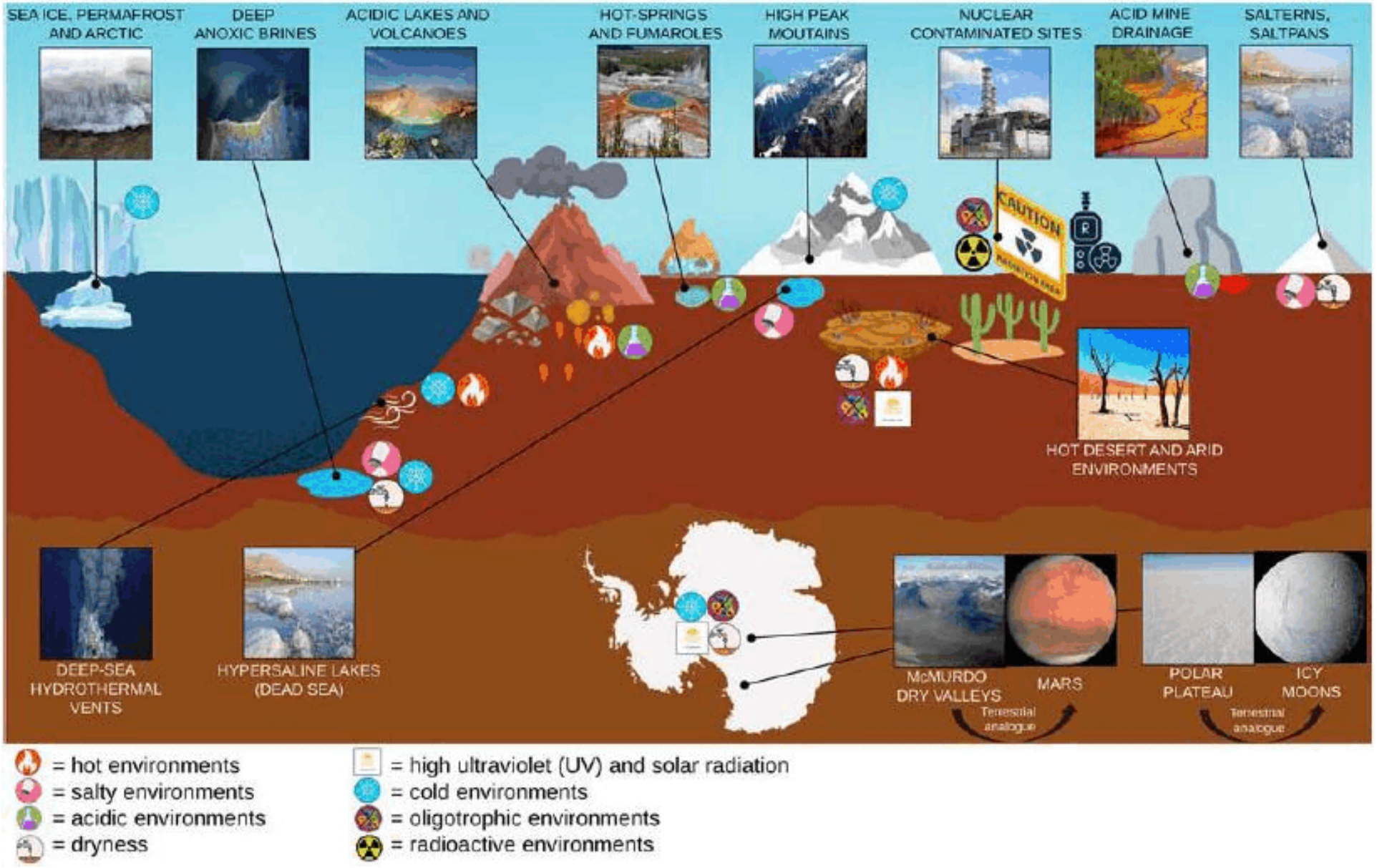
Polyploidy is a major driver of evolutionary change in plants, but many aspects of polyploidy in natural systems remain enigmatic. We argue that urban landscapes present an unprecedented opportunity to observe polyploidy in action.

We conclude by highlighting the potential consequences of polyploidy in urban environments, and outline a roadmap for research into this currently unexplored field.

Coleine, C., et al (2022) **Fungi are key players in extreme ecosystems.** TRENDS IN ECOLOGY AND EVOLUTION 37:doi.org/10.1016/j.tree.2022.02.002 (available as a free pdf)

Authors' abstract: *Extreme environments on Earth are typically devoid of macro life forms and are inhabited predominantly by highly adapted and specialized microorganisms. The discovery and persistence of these extremophiles provides tools to model how life arose on Earth and inform us on the limits of life. Fungi, in particular, are among the most extreme-tolerant organisms with highly versatile lifestyles and stunning ecological and morphological plasticity. Here, we overview the most notable examples of extremophilic and stress-tolerant fungi, highlighting their key roles in the functionality and balance of extreme ecosystems.*

[Image is from this paper.]



Paleobiology.

Moysiuk, J., et al (2022) **A new marrellomorph arthropod from southern Ontario: a rare case of soft-tissue preservation on a Late Ordovician open marine shelf.** JOURNAL OF PALEONTOLOGY 96:doi.org/10.1017/jpa.2022.11

[The Ordovician era was 488.3 to 443.7 megayears ago, succeeding the Cambrian era. Lagerstätten are very fine grained sedimentary rocks which preserve soft-bodied fossils in exquisite detail. Clades are lines of evolution. Marrellomorphs were soft-bodied arthropods which became extinct during the early Devonian about 420 megayears ago.]

Authors' abstract: *Ordovician open marine Lagerstätten are relatively rare and widely dispersed, producing a patchy picture of the diversity and biogeography of nonmineralized marine organisms and challenging our understanding of the fate of Cambrian groups.*

Here, for the first time, we report soft-bodied fossils, including a well-preserved marrellomorph arthropod, fragmentary carapaces, and macroalgae, from the Late Ordovician (Katian) Upper Member of the Kirkfield Formation near Brechin, Ontario.

The unmineralized elements and associated exceptionally preserved shelly biota were entombed rapidly in storm deposits that smothered the shallow, carbonate-dominated shelf. The marrellomorph, Tomlinsonus dimitrii n. gen. n. sp., is remarkable for its ornate, curving cephalic spines and pair of hypertrophied appendages, suggesting a slow-moving, benthic lifestyle.

Reevaluation of marrellomorph phylogeny using new data favors an arachnomorph affinity, although internal relationships are robust to differing outgroup selection. Clades Marrellida and Acercostraca are recovered, but the monophyly of Marrellomorpha is uncertain.

The new taxon is recovered as sister to the Devonian Mimetaster and, as the second-youngest known marrellid, bridges an important gap in the evolution of this clade.

More generally, the Brechin biota represents a rare window into Ordovician open marine shelf environments in Laurentia, representing an important point of comparison with contemporaneous Lagerstätten from other paleocontinents, with great potential for further discoveries.

[Image of *Tomlinsonus dimitrii* is from this paper.]

Mann, A., et al (2022) **Snake-like limb loss in a Carboniferous amniote.** NATURE ECOLOGY AND EVOLUTION 6:614-621

[Amniotes are tetrapod vertebrates which lay eggs on land or retain them inside the mother. This group includes reptiles, birds, and some mammals. It excludes fish and amphibians.]

Authors' abstract: *Among living tetrapods, many lineages have converged on a snake-like body plan, where extreme axial elongation is accompanied by reduction or loss of paired limbs. However, when and how this adaptive body plan first evolved in amniotes remains poorly understood.*

Here, we provide insights into this question by reporting on a new taxon of molgophid recumbirostran, Nagini mazonense gen. et sp. nov., from the Francis Creek Shale (309 to 307 million years ago) of Illinois, United States, that exhibits extreme axial elongation and corresponding limb reduction.

The molgophid lacks entirely the forelimb and pectoral girdle, thus representing the earliest occurrence of complete loss of a limb in a taxon recovered phylogenetically within amniotes.

This forelimb-first limb reduction is consistent with the pattern of limb reduction that is seen in modern snakes and contrasts with the hindlimb-first reduction process found in many other tetrapod groups. Our findings suggest that a snake-like limb-reduction mechanism may be operating more broadly across the amniote tree.

Dinosaurs.

Falkingham, P.L., et al (2022) **Late Triassic dinosaur tracks from Penarth, south Wales.** GEOLOGICAL MAGAZINE 159:doi.org/10.1017/S0016756821001308 (available as a free pdf)

Authors' abstract: *Evidence of Late Triassic large tetrapods from the UK is rare. Here, we describe a track-bearing surface located on the shoreline near Penarth, south Wales, United Kingdom.*

The total exposed surface is c. 50 metres long and c. 2 metres wide, and is split into northern and southern sections by a small fault.

We interpret these impressions as tracks, rather than abiogenic sedimentary structures, because of the possession of marked displacement rims and their relationship to each other with regularly spaced impressions forming putative trackways. The impressions are large (up to c. 50 cm in length), but poorly preserved, and retain little information about track-maker anatomy.

We discuss alternative, plausible, abiotic mechanisms that might have been responsible for the formation of these features, but reject them in favour of these impressions being tetrapod tracks.

We propose that the site is an additional occurrence of the ichnotaxon Eosauropus, representing a sauropodomorph trackmaker, thereby adding a useful new datum to their sparse Late Triassic record in the UK.

We also used historical photogrammetry to digitally map the extent of site erosion during 2009 to 2020. More than 1 metre of the surface exposure has been lost over this 11-year period, and the few tracks present in both models show significant smoothing, breakage and loss of detail.

These tracks are an important data point for Late Triassic palaeontology in the UK, even if they cannot be confidently assigned to a specific trackmaker. The documented loss of the bedding surface highlights the transient and vulnerable nature of our fossil resources, particularly in coastal settings, and the need to gather data as quickly and effectively as possible.

Mallon, J.C., et al (2022) **The record of *Torosaurus* (Ornithischia: Ceratopsidae) in Canada and its taxonomic implications.** ZOOLOGICAL JOURNAL OF THE LINNEAN SOCIETY 195:157-171 (available as a free pdf)

Authors' abstract: *The horned dinosaur genus Torosaurus has a challenging history, relating both to its geographic distribution and taxonomy. Whereas Torosaurus has been reported from Upper Maastrichtian deposits in Canada, which would mark the northernmost range of the genus, recent work has questioned the generic identity of the implicated material, which primarily consists of a pair of cranial frills.*

Perhaps more problematically, the validity of the genus itself has been a subject of recent debate, with some arguing that Torosaurus is simply a skeletally mature growth form of the contemporaneous Triceratops.

In this study, we describe and illustrate the relevant frill material from Canada, and determine that it is most plausibly attributable to the Torosaurus morph.

Moreover, we apply for the first time osteohistological sampling to some postcranial material associated with one of the frills, and find that the animal was still growing at the time of death.

This finding, in addition to other considerations presented here, leads us to conclude that Torosaurus is a valid genus, and is not simply a mature growth form of Triceratops.

Zoology.

Wang, B., et al (2022) **Ecological radiations of insects in the Mesozoic.** TRENDS IN ECOLOGY AND EVOLUTION 37:doi.org/10.1016/j.tree.2022.02.007 (available as a free pdf)

Authors' abstract: *Insects appeared first approximately 480 million years ago, at approximately the same time as the first land plants evolved. Two evolutionary entomofaunas have been identified in the history of insects: the Paleozoic Insect Fauna and the Modern Insect Fauna.*

The end-Permian mass extinction is regarded as the approximate midpoint of the gradual turnover between these two faunas.

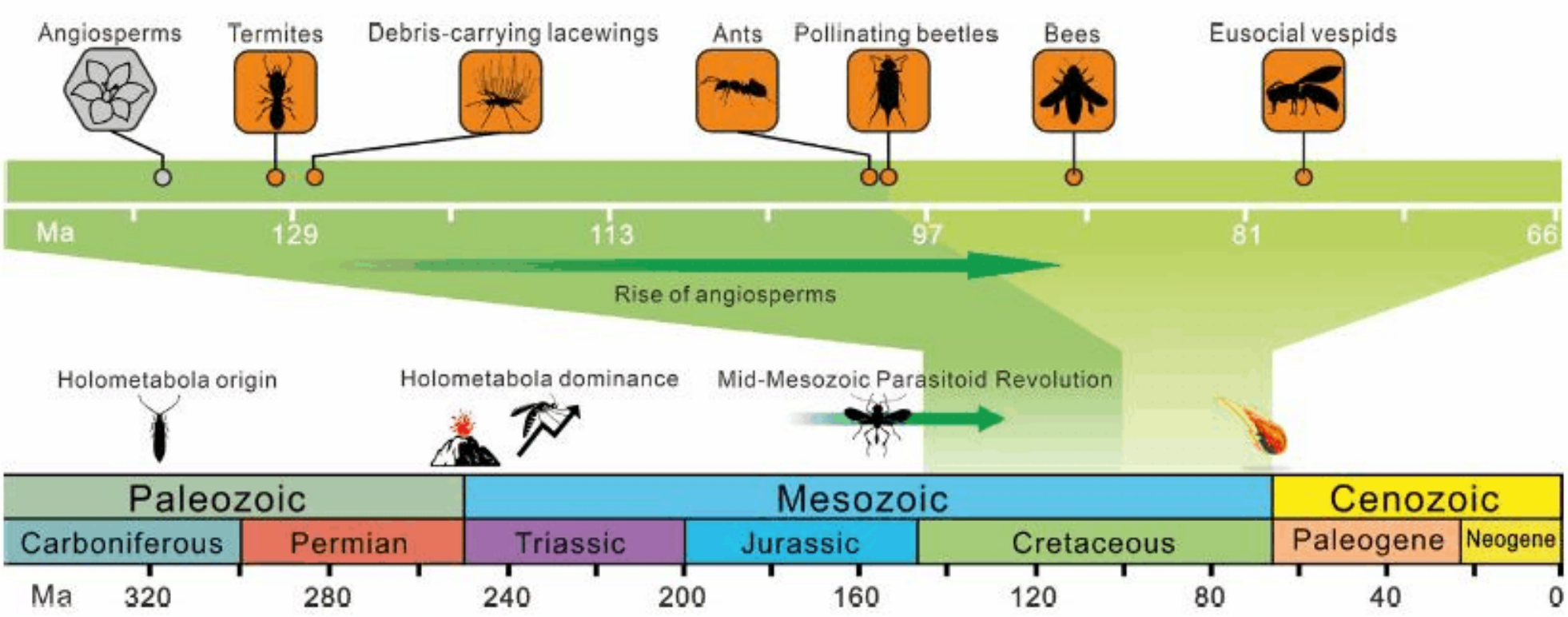
[The end-Permian was Earth's most severe extinction event. It took place 251.9 million years ago and killed off more than 96% of the planet's marine species and 70% of its terrestrial life.]

The Mesozoic is a key era for the rise of the modern insect fauna. Among the most important evolutionary events in Mesozoic insects are the radiation of holometabolous insects [complete metamorphosis with a dormant pupa]*, the origin of eusocial and parasitoid insects, diversification of pollinating insects, and development of advanced mimicry and camouflage.*

These events are closely associated with the diversification of insect ecological behaviors and colonization of new ecospaces. At the same time, insects had evolved more complex and closer ecological associations with various plants and animals. Mesozoic insects played a key and underappreciated ecological role in reconstructing and maintaining terrestrial ecosystems.

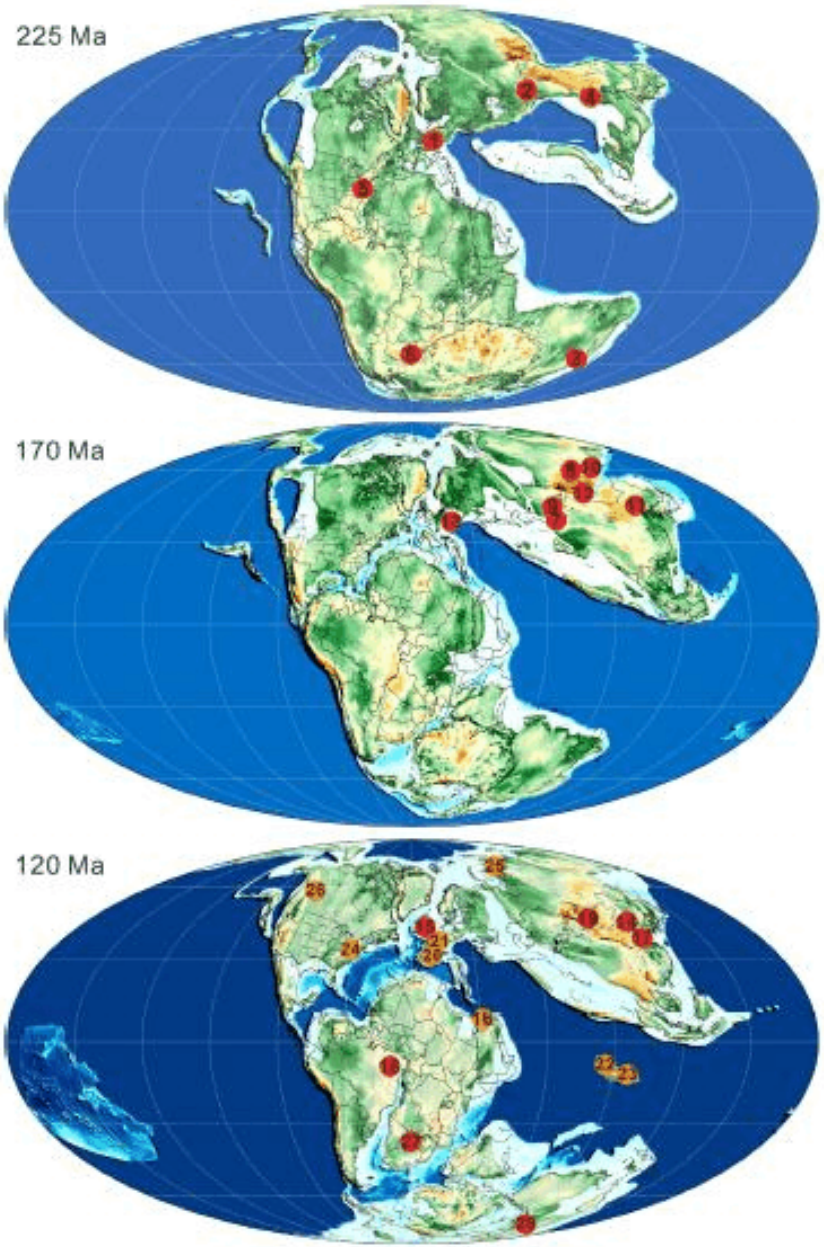
Holometabolous insects underwent a distinct radiation during the Early and Middle Triassic because they were probably more resilient to environmental disturbance. Four lineages of insects (termites, ants, corbiculate bees, and wasps) had evolved eusociality at least by the Cretaceous.

The Mid-Mesozoic Parasitoid Revolution, a dramatic radiation of parasitoid lineages during the Middle Jurassic to Early Cretaceous, is a major biological event in terrestrial food-web history.



Insect pollination of gymnosperms [seed-bearing plants with no flowers, such as conifers and cycads] *was already widespread prior to the rise of angiosperms* [flowering plants] *and was an evolutionary and ecological prelude to later interactions between early angiosperms and their insect pollinators during the mid-Cretaceous.*

Mimicry and camouflage among insects went through an increasingly sophisticated evolution in the Mesozoic in response to selective pressures.



[Images are from this paper.]

Ancillotto, L., et al (2022) **Bats mimic hymenopteran insect sounds to deter predators.** CURRENT BIOLOGY 32:doi.org/10.1016/j.cub.2022.03.052

Authors' abstract: *Mimicry traits often reflect complex, finely tuned, and sometimes extravagant relationships among species and have evolved to deceive predators or prey.*

Indeed, mimicry has most often evolved to discourage predation: the 'mimic' exhibits phenotypic convergence towards a non-related 'model' organism which is inedible or harmful, so that a given predator, or 'receiver', will refrain from attacking or ingesting the mimic.

Traditionally, mimicry is mainly evident and has been mainly studied in the visual domain. Here, we report experiments that document the first case of interspecific acoustic mimicry in a mammal and demonstrate that the distress calls the greater mouse-eared bat (Myotis myotis) broadcasts when handled imitate sounds of stinging bees or wasps to discourage the bat's avian predators.

Takagi, S., et al (2022) **Cats learn the names of their friend cats in their daily lives.** SCIENTIFIC REPORTS 12:/doi.org/10.1038/s41598-022-10261-5 (available as a free pdf)

Authors' abstract: *Humans communicate with each other through language, which enables us talk about things beyond time and space. Do non-human animals learn to associate human speech with specific objects in everyday life?*

We examined whether cats matched familiar cats' names and faces (Experiment 1) and human family members' names and faces (Experiment 2). Cats were presented with a photo of the familiar cat's face on a laptop monitor after hearing the same cat's name or another cat's name called by the subject cat's owner (Exp. 1) or an experimenter (Exp. 2).

Half of the trials were in a congruent condition where the name and face matched, and half were in an incongruent (mismatch) condition. Results of Exp. 1 showed that household cats paid attention to the monitor for longer in the incongruent condition, suggesting an expectancy violation effect. However, café cats did not.

In Exp. 2, cats living in larger human families were found to look at the monitor for increasingly longer durations in the incongruent condition. Furthermore, this tendency was stronger among cats that had lived with their human family for a longer time, although we could not rule out an effect of age. This study provides evidence that cats link a companion's name and corresponding face without explicit training.

Mollo, E., et al (2022) **Taste and smell: A unifying chemosensory theory.** QUARTERLY REVIEW OF BIOLOGY 97:doi.org/10.1086/720097 (available as a free pdf)

Authors' abstract: *Since antiquity, the sense of smell (olfaction) is considered as a distance sense, just like sight and hearing. Conversely, the sense of taste (gustation) is thought to operate by direct contact, similarly to touch.*

With the progress of natural sciences, information at molecular, anatomical, and neurobiological levels has also contributed to the taste-smell dichotomy, but much evidence inconsistent with a sharp differentiation of these two senses has emerged, especially when considering species other than humans.

In spite of this, conflicting information has been interpreted so that it could conform to the traditional differentiation. As a result, a confirmation bias is currently affecting scientific research on chemosensory systems and is also hindering the development of a satisfactory narrative of the evolution of chemical communication across taxa.

From this perspective, the chemosensory dichotomy loses its validity and usefulness. We thus propose the unification of all chemosensory modalities into a single sense, moving toward a synthetic, complex, and interconnected perspective on the gradual processes by which a vast variety of chemicals have become signals that are crucially important to communication among and within cells, organs, and organisms in a wide variety of environmental conditions.

Paleoecology.

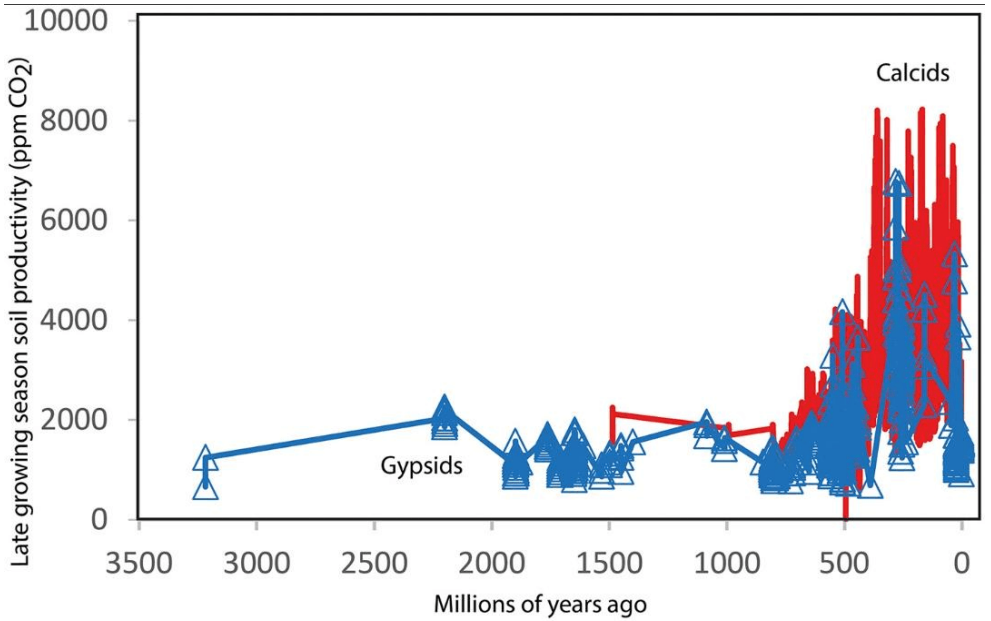
Retallack, G.J. (2022) **Soil salt and microbiome diversification over the past 3700 million years.** PALAEOGEOGRAPHY, PALAEOCLIMATOLOGY, PALAEOECOLOGY 598:doi.org/10.1016/j.palaeo.2022.111016

[Paleosols are fossilized soil layers.]

Author's abstract: *Archean paleosols contain desert roses of kieserite (3700 megayears ago), barite (3458 Ma), gypsum (3217 Ma). Pedogenic carbonate appeared later: nahcolite (3016 Ma), dolomite (2403 Ma), and calcite (1460 Ma). The earliest occurrence of each salt is shallow (12 to 25 cm) in paleosol profiles.*

Deeper salt horizons appear later with Paleozoic non-vascular land plants and then trees. The fossil record of soil salts reflects evolving soil microbiomes and evolution of life on land.

A geological history of pedogenic salts and their microbiomes can now be reconstructed from a review of thousands of described paleosols ranging in age back 3700 Ma. The current diversity of evaporite minerals within paleosol gypsic horizons may have begun with kieserite ($MgSO_4.H_2O$ at 3700 Ma), then barite ($BaSO_4$ at 3458 Ma), and gypsum ($CaSO_4.2H_2O$ at 3217 Ma).



Pedogenic carbonate of calcic (Bk) horizons appeared later, first nahcolite ($NaHCO_3$ at 3016 Ma), then dolomite ($(Mg,Ca)(CO_3)2$ at 2403 Ma), and low-magnesium calcite ($CaCO_3$ at 1460 Ma). The earliest occurrence of each salt is shallow in paleosol profiles (12 to 25 cm), but deeper (50 to 100 cm) salt horizons (By and Bk) horizons appear later in the Proterozoic and Paleozoic.

These changes can be normalized for estimated differences in mean annual precipitation in the same paleosol from both depth to salts and from chemical composition, which demonstrated that depth to salts and soil productivity measured as respired carbon dioxide showed unchanged relationship with mean annual precipitation in deep time.

Stepwise increases in soil respiration through time inferred from depth of soil salts reflects evolving soil microbiomes and atmospheric composition cued to major advances in the evolution of life on land, such as the evolution of anaerobic, then aerobic photosynthetic microbes, then land plants, and trees.

{Chart is from this paper.]

Slater, S.M., et al (2022) **Global record of "ghost" nannofossils reveals plankton resilience to high CO_2 and warming.** SCIENCE 376:doi.org/10.1126/science.abm7330

Authors' abstract: *Predictions of how marine calcifying organisms will respond to climate change rely heavily on the fossil record of nannoplankton. Declines in calcium carbonate ($CaCO_3$) and nannofossil abundance through several past global warming events have been interpreted as biocalcification crises caused by ocean acidification and related factors.*

We present a global record of imprint or "ghost" nannofossils that contradicts this view, revealing exquisitely preserved nannoplankton throughout an inferred Jurassic biocalcification crisis. Imprints from two further Cretaceous warming events confirm that the fossil records of these intervals have been strongly distorted by $CaCO_3$ dissolution.

Although the rapidity of present-day climate change exceeds the temporal resolution of most fossil records, complicating direct comparison with past warming events, our findings demonstrate that nannoplankton were more resilient to past events than traditional fossil evidence suggests.

Martínez-García, L., et al (2022) **Ancient DNA reveals a southern presence of the Northeast Arctic cod during the Holocene.** BIOLOGY LETTERS 18:doi.org/10.1098/rsbl.2022.0021 (available as a free pdf)

Authors' abstract: *Climate change has been implicated in an increased number of distributional shifts of marine species during the last century. Nonetheless, it is unclear whether earlier climatic fluctuations had similar impacts.*

We use ancient DNA to investigate the long-term spawning distribution of the Northeast Arctic cod (skrei) which performs yearly migrations from the Barents Sea towards spawning grounds along the Norwegian coast.

The distribution of these spawning grounds has shifted northwards during the last century, which is thought to be associated with food availability and warming temperatures.

We genetically identify skrei specimens from Ruskeneset in west Norway, an archaeological site located south of their current spawning range. Remarkably, 14C analyses date these specimens to the late Holocene, when temperatures were warmer than present-day conditions.

Our results either suggest that temperature is not the only driver influencing the spawning distribution of Atlantic cod, or could be indicative of uncertainty in palaeoclimate reconstructions in this region.

Regardless, our findings highlight the utility of aDNA to reconstruct the historical distribution of economically important fish populations and reveal the complexity of long-term ecological interactions in the marine environment.

Modern Ecology.

D'Avignon, G., et al (2022) **Microplastics in lakes and rivers: an issue of emerging significance to limnology.** ENVIRONMENTAL REVIEWS 30:doi.org/10.1139/er-2021-0048 (available as a free pdf)

Authors' abstract: *Microplastics, i.e., plastic particles in the size range of planktonic organisms, have been found in the water columns and sediments of lakes and rivers globally.*

The number and mass of plastic particles drifting through a river can exceed those of living organisms such as zooplankton and fish larvae. In freshwater sediments, concentrations of microplastics reach the same magnitude as in the world's most contaminated marine sediments.

Such particles are derived from a unique biogeochemical cycle that ultimately influences productivity, biodiversity, and ecosystem functioning. Furthermore, microplastics act as vectors of toxic substances to invertebrates, fishes, herpetofauna, and waterfowl.

We contend that the concentration of this distinct particle component is an ecologically significant parameter of inland water bodies because of its ubiquity, environmental persistence, and interactions with key ecological processes.

No environmental field survey that has searched for microplastics has yet failed to detect their presence. Standardized limnological protocols are needed to compare spatio-temporal variation in the concentration of microplastics within and across watersheds.

Holmes, B., et al (2022) **Google Trends data reveal a sharp trend: teeth and claws attract more interest than feathers, hooves or fins.** ENVIRONMENTAL CONSERVATION 49:doi.org/ 10.1017/S037689292200011X (available as a free pdf)

Authors' abstract: *In nature conservation, the generation of public interest, attention or emotions is an important instrument for nature, biotope and species protection. In this, charismatic flagship species play an important role.*

In the present study, flagship-making affiliation to a taxonomic unit as well as morphological, ecological and conservation traits were identified by analysing vertebrate species from each of the five extant vertebrate classes (Mammalia, Aves, Reptilia, Amphibia and fishes).

Google Trends data on the 20 most Googled species of each of the five classes were used, a representation index was derived and the body mass, diet and protection status of these species were analysed. A clear concentration of interest in mammalian species was evident with the help of the introduced representation index.

Furthermore, species with a higher body mass were clearly overrepresented in the data. Overall, important patterns in the studied traits were determined: belonging to Mammalia, a large body mass and a carnivorous diet are frequently represented among these species.

For conservation purposes, such popular species can be specifically selected as flagship species or ambassadors to help protect entire biomes, which will therefore benefit less charismatic species as well.

Murray, N.J., et al (2022) **High-resolution mapping of losses and gains of Earth's tidal wetlands.** SCIENCE 376:doi.org/ 10.1126/science.abm9583

Authors' abstract: *Ecologically and economically important coastal wetlands are threatened by sea level rise and land use change. We used high-resolution satellite imagery to assess the global extent of tidal wetlands and changes in wetland extent and distribution over the past two decades.*

We found that although over 13,000 square kilometers of tidal wetland have recently been lost, much of this decreasing extent has been offset by the creation of new wetlands. The greatest losses and gains were in tidal flats, but mangrove ecosystems showed the largest net decline in area globally.

Direct human impacts on wetlands, including land transformation and restoration, are detectable from satellite imagery and account for 27% of wetland losses and gains. Tidal wetlands are expected to respond dynamically to global environmental change, but the extent to which wetland losses have been offset by gains remains poorly understood.

We developed a global analysis of satellite data to simultaneously monitor change in three highly interconnected intertidal ecosystem types, tidal flats, tidal marshes, and mangroves, from 1999 to 2019. Globally, 13,700 square kilometers of tidal wetlands have been lost, but these have been substantially offset by gains of 9700 km2, leading to a net change of -4000 km2 over two decades.

We found that 27% of these losses and gains were associated with direct human activities such as conversion to agriculture and restoration of lost wetlands. All other changes were attributed to indirect drivers, including the effects of coastal processes and climate change.

Human Prehistory.

Williams, S.A., et al (2022) **Inferring lumbar lordosis in Neandertals and other hominins.** PNAS NEXUS 1:doi.org/10.1093/pnasnexus/pgab005 (available as a free pdf)

Authors' abstract: *Lumbar lordosis is a primary adaptation to bipedal locomotion in hominins. Based on their skeletal remains, Neandertals have long been thought to lack modern human-like lordosis, instead possessing relatively straight lower backs lacking significant ventral curvature (i.e. the "small of the back").*

However, the modern human samples that Neandertals have been compared to are largely recent post-industrial specimens. These differ significantly from Neandertals, whereas sex-specific pre-industrial lifestyle samples of modern humans do not.

Given that lumbar lordosis is formed in part by soft tissue structures (e.g., intervertebral discs) that respond to activity and affect bony contributions to lumbar lordosis, Neandertals and other fossil hominins are best compared to pre-industrial (i.e. less sedentary and more active) modern human samples.

Lumbar lordosis is a key adaptation to bipedal locomotion in the human lineage. Dorsoventral spinal curvatures enable the body's center of mass to be positioned above the hip, knee, and ankle joints, and minimize the muscular effort required for postural control and locomotion.

Previous studies have suggested that Neandertals had less lordotic (ventrally convex) lumbar columns than modern humans, which contributed to historical perceptions of postural and locomotor differences between the two groups.

Quantifying lower back curvature in extinct hominins is entirely reliant upon bony correlates of overall lordosis, since the latter is significantly influenced by soft tissue structures (e.g. intervertebral discs).

Here, we investigate sexual dimorphism, ancestry, and lifestyle effects on lumbar vertebral body wedging and inferior articular facet angulation, two features previously shown to be significantly correlated with overall lordosis in living individuals, in a large sample of modern humans and Neandertals.

Our results demonstrate significant differences between postindustrial cadaveric remains and archaeological samples of people that lived pre-industrial lifestyles. We suggest these differences are related to activity and other aspects of lifestyle rather than innate population (ancestry) differences.

Neandertal bony correlates of lumbar lordosis are significantly different from all human samples except pre-industrial males. Therefore, although Neandertals demonstrate more bony kyphotic wedging than most modern humans, we cast doubt on proposed locomotor and postural differences between the two lineages based on inferred lumbar lordosis (or lack thereof).

We recommend future research compare fossils to modern humans from varied populations and not just recent, post-industrial samples.

Modern Humans.

Brown, N.D., et al (2022) **If you rise, I fall: Equality is prevented by the misperception that it harms advantaged groups.** SCIENCE ADVANCES 8:doi.org/10.1126/sciadv.abm2385 (available as a free pdf)

Authors' abstract: *Nine preregistered studies (n = 4197) demonstrate that advantaged group members misperceive equality as necessarily harming their access to resources and inequality as necessarily benefitting them. Only when equality is increased within their ingroup, instead of between groups, do advantaged group members accurately perceive it as unharmful.*

Misperceptions persist when equality-enhancing policies offer broad benefits to society or when resources, and resource access, are unlimited. A longitudinal survey of the 2020 U.S. voters reveals that harm perceptions predict voting against actual equality-enhancing policies, more so than voters' political and egalitarian beliefs.

Finally two novel-groups experiments reveal that advantaged participants' harm misperceptions predict voting for inequality-enhancing policies that financially hurt them and against equality-enhancing policies that financially benefit them. Misperceptions persist even after an intervention to improve decision-making. This misperception that equality is necessarily zero-sum may explain why inequality prevails even as it incurs societal costs that harm everyone.

Guo, J., et al (2022) **Near-infrared spectroscopy combined with pattern recognition algorithms to quickly classify raisins.** SCIENTIFIC REPORTS 12:doi.org/10.1038/s41598-022-12001-1 (available as a free pdf)

Authors' abstract: *With the development of commodity economy, the emergence of fake and shoddy raisin has seriously harmed the interests of consumers and enterprises.*

To deal with this problem, a classification method combining near-infrared spectroscopy and pattern recognition algorithms were proposed for adulterated raisins.

In this study, the experiment was performed by three kinds of raisins in Xinjiang (Hongxiangfei, Manaiti, Munage). After collecting and normalizing the spectral data, we compared the spectra of three kinds of raisins.

Next the principal component analysis was performed to compress the dimension of the spectral data, and then classification models including support vector machine (SVM), multiscale fusion convolutional neural network (MCNN) and improved AlexNet were established to identify raisins.

The accuracy of SVM, MCNN, and improved AlexNet is 100%, 92.83%, and 97.78% respectively. This study proves that near-infrared spectroscopy combined with pattern recognition is feasible for the raisin inspection.

Raisin is a kind of nutritious and diverse agricultural product, which is rich in nutrients such as sodium, iron, calcium, and dietary fiber. Studies have found that eating raisins three times a day can significantly reduce blood sugar levels, systolic and diastolic blood pressure, thereby reducing the risk of diabetes and cardiovascular and cerebrovascular diseases in consumers.

Furthermore, compared with carbohydrate foods with the same calorie, raisins can effectively reduce cholesterol levels and have anti-inflammatory and anti-cancer effects. Therefore raisin is beneficial for promoting body and heart health and preventing many chronic diseases.

At present, raisin is widely used in food processing such as making various snacks or adding staple foods. Due to the differences in the variety, origin, and drying process, the taste, nutritional content, and commercial value of raisins are very different.

In addition, there is a serious problem of fake raisin varieties and inferior quality in the market at present, which have a bad impact on the healthy development of the raisins market

Lui, K.F.H., et al (2022) **Testing the script-relativity hypothesis: expertise in reading Chinese versus English is associated with better arithmetic skills.** READING AND WRITING 35:1359-1379

Authors' abstract: *The script relativity hypothesis proposes that the scripts we read and write affect our cognition. The current study tested this hypothesis by comparing Chinese and English cognitive-linguistic skills and three cognitive abilities, including verbal working memory capacity, nonverbal IQ, and arithmetic calculation, across groups of children with different Chinese and English word reading performances.*

Using the untimed word reading performances as the criterion, four groups of children were identified from a sample of 662 Hong Kong grade 1 Chinse children, including 49 children who were "good" at both Chinese and English word reading (the GB group), 30 children who were "poor" in Chinese word reading only (the PC group), 40 children who were "poor" in English word reading only (the PE group), and 65 children who were "poor" in both (the PB group).

Significant group differences were found on almost all the cognitive-linguistic skills, including phonological awareness, morphological awareness, vocabulary knowledge, and rapid digit naming, and the three cognitive abilities, with the GB group performing the best and the PB group performing the most poorly, suggesting a general positive association between script and cognition.

Pairwise comparisons showed that the PC group performed better than the PE group in the English cognitive-linguistic tasks and the PE group performed better than the PC group in the Chinese cognitive-linguistic tasks, as expected.

More importantly, the PC group showed poorer arithmetic calculation performance when compared to the PE group, suggesting a stronger association between Chinese word reading and arithmetic calculation.

Kim, S.Y., and F. Cao (2022) **How does the brain read different scripts? Evidence from English, Korean, and Chinese.** READING AND WRITING 35:1449-1473

Authors' abstract: *Writing systems differ in various aspects. English and Korean share basic principles of the alphabetic writing system. As an alphabetic script, Korean Hangul has relatively more regular mapping between graphemes and phonemes. However, its letters are written in syllable units, which encourages phonological retrieval at the syllable level.*

Therefore, we are interested in whether Korean is similar to English in terms of their brain activation because both are alphabetic, as well as whether Korean is similar to Chinese due to their reliance on syllable-level phonological retrieval.

This study compared brain activation patterns during a visual rhyming judgment task in English, Korean, and Chinese. The results revealed that among the three languages, Korean and Chinese showed greater similarities in brain activation than either of them showed with English.

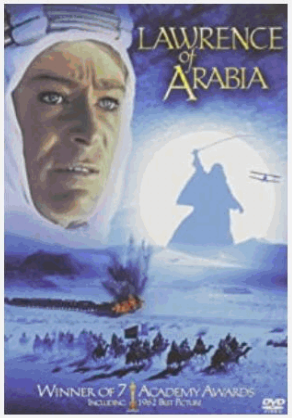
Specifically, English recruited the left inferior frontal gyrus, left fusiform gyrus, and left superior temporal gyrus to a greater degree than did Korean or Chinese. In contrast, Korean and Chinese elicited greater activation than English in the bilateral middle frontal gyri, left inferior parietal lobule, and precuneus.

These findings suggest that the brain network for Korean is not simply depicted as the one typically observed with alphabetic scripts (e.g., English) but rather highly similar to that of Chinese, a morpho-syllabic script, possibly because the Korean writing system leads to syllable-level phonological representation and processing.

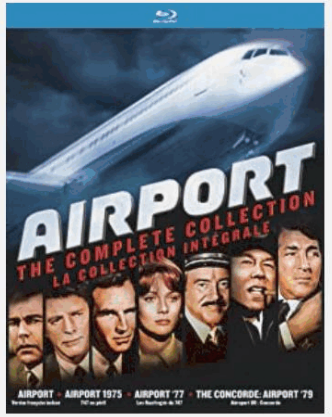
GREAT MOMENTS IN BOOKSELLING
by Dale Speirs

I browsed on www.amazon.ca for Sherlockiana, Cthulhu Mythos, and science fiction DVDs. The next time I logged in to the app, this was the recommendation screen. Figure out the logic, because I certainly cannot.

Your recommendations



Lawrence of Arabi…
$14.99



Airport: The Comp…
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Raise The Titanic (…
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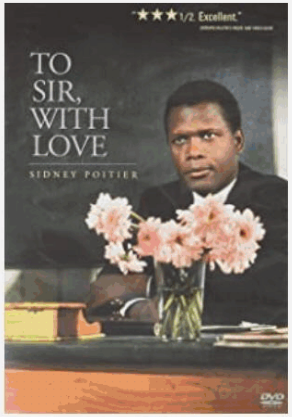

To Sir, With Love [I…
$17.04