

OPUNTIA 551



Summer Solstice 2023

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.

COWTOWN FLOWERS

photos by Dale Speirs

Every summer we have forest fire smoke from northern Alberta or British Columbia for several weeks at a time, on and off throughout the season (see OPUNTIA #389). The kind that made Noo Yawkers hysterical on June 7 is routine local news out west in both Alberta and California.

Everyone hollers “climate change!” but the real truth is that we are reaping the benefits of a century of Smokey the Bear fire suppression. Accordingly, what once was local patchworks of deciduous trees, grassland, and clumps of spruce, where fires were small and local, is now solid blankets of spruce trees.

Calgary had a very warm May, as a result of which the flowering season is two weeks ahead of schedule. We had smoke for a couple of weeks, then it cleared, then it came back in June 11. The rainy season began on June 14 and scrubbed the skies.

In the meantime, Chez Opuntia was a blanket of flowers. Normally my yard has a steady progression of blooms from one species to the next over June and July. This year they are busting out all over at once.

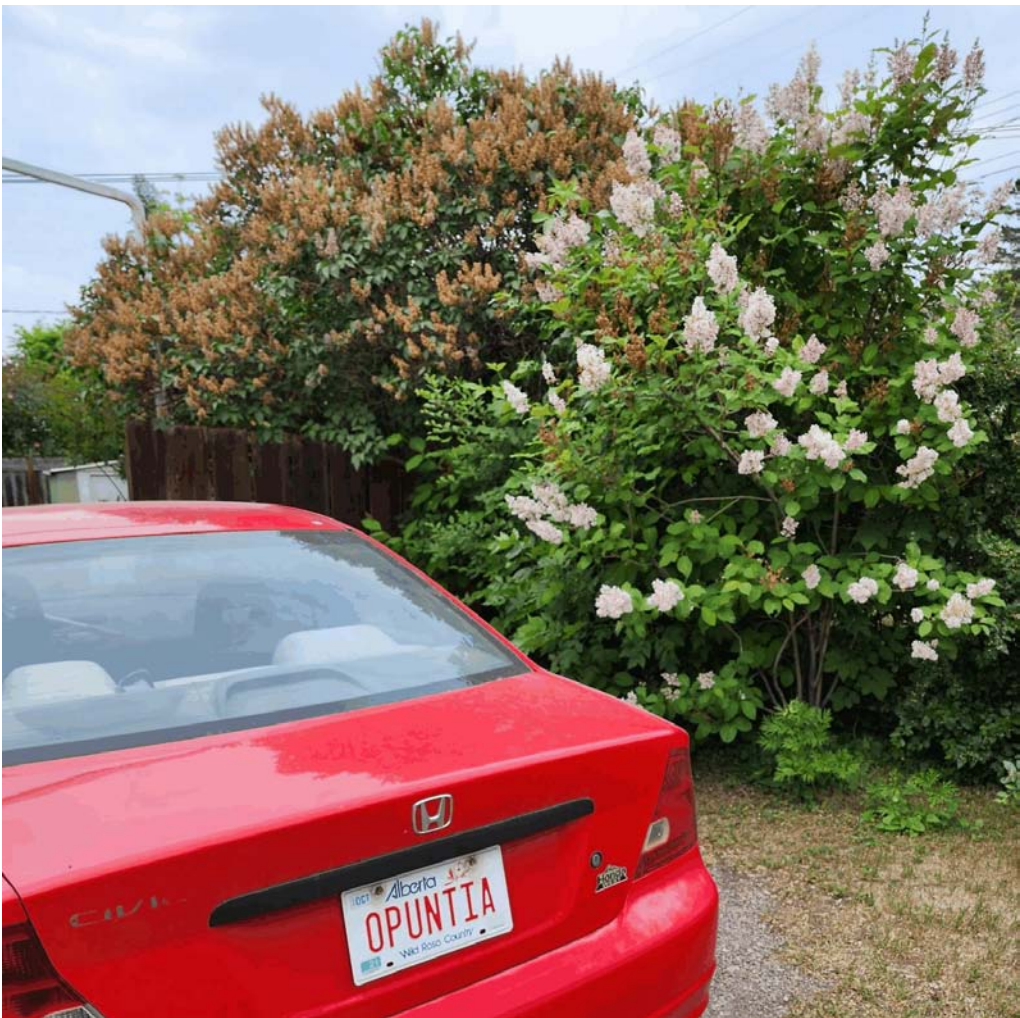
I bought my house in 1982 and found several perennials and shrubs that almost certainly date back to 1955, when the bungalow was completed. Always reliable is a patch of rhubarb along the backyard fence, which I suspect is about 60 years old. Photos on the cover and at right.



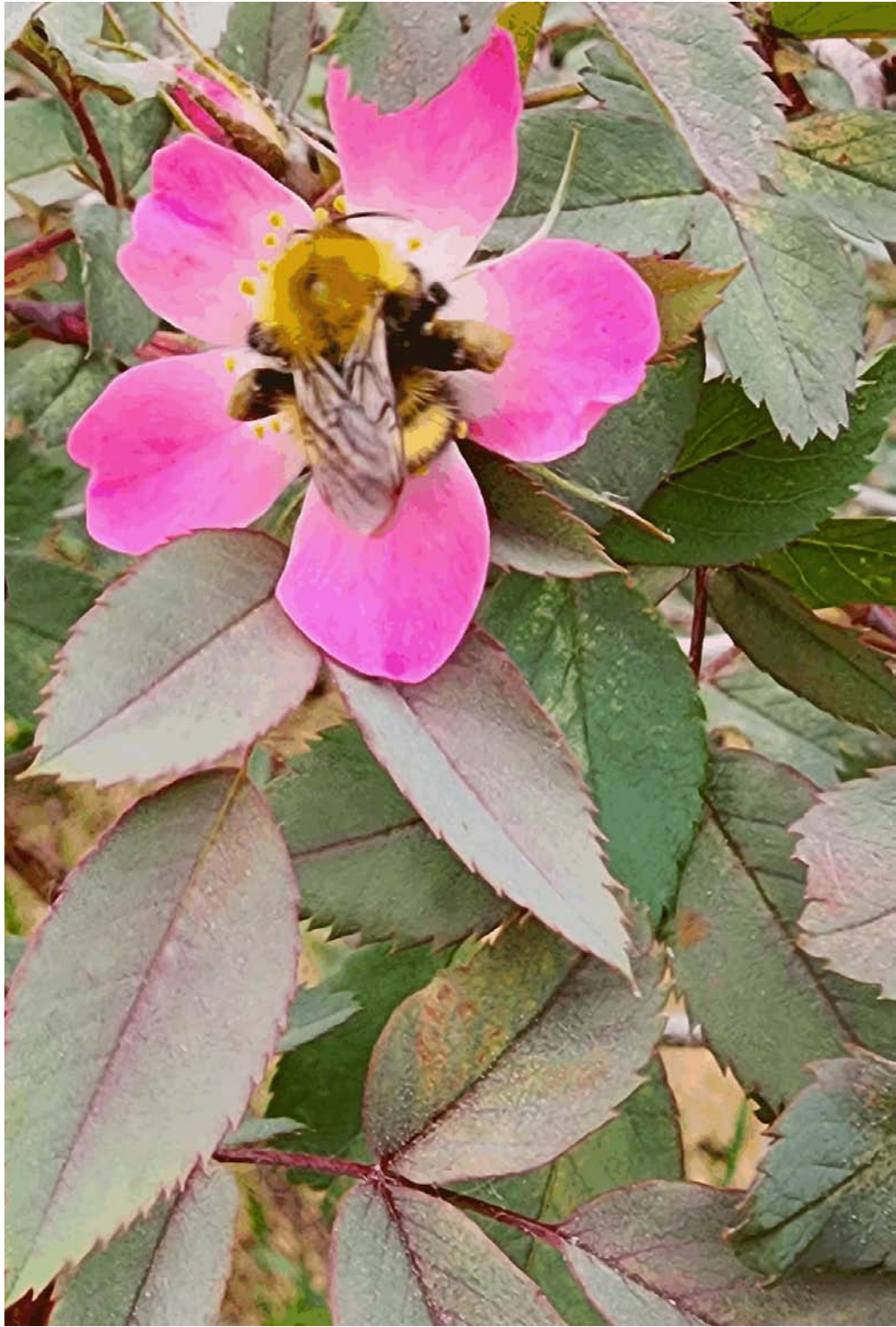
This peony came with the house and almost certainly is a 1950s cultivar.



There are two distinct lilac cultivars, also circa 1950s. The one at back finished flowering in the last week of May and the nearer one was just coming into full bloom.



Rosa rubrifolia, which I planted several decades ago. Not native to Alberta.



Rosa acicularis, the Alberta wild rose and our floral emblem. I grow it as a hedge along the front sidewalk.



Gaillardia aristata is a native wildflower I seeded into my lawn years ago.



There are two species of *Opuntia* native to Alberta. I have both of them growing along the west foundation of the house where they get lots of sun.

Top: *Opuntia fragilis*

Bottom: *Opuntia polyacantha*



A cluster of wildflowers by the front sidewalk.

At bottom: Close-up of *Astragalus agrestis*

At right: Close-up of *Galium boreale*



LITERA SCRIPTA CALGARY
photos by Dale Speirs

As I strolled out one day through the New Central Library in downtown Calgary, I spotted this display of the Bow Valley Calligraphy Guild. (Calgary was founded at the junction of the Bow and Elbow rivers.)

The photos speak for themselves but I apologize for some of them being distorted. All the items were behind glass, and it was a nightmare trying to photograph them without reflections.





this
land
of
canyons and
waterfalls.





SERIES DETECTIVES: PART 17

by Dale Speirs

[Parts 1 to 16 appeared in OPUNTIA's #402, 406, 425, 448, 459, 467, 472, 477, 485, 491, 497, 500, 509, 517, 528, and 541.]

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

The Shadow: Introduction.

THE SHADOW, as the opening blurb put it, was in reality Lamont Cranston, wealthy young man about town. He had traveled to Tibet where he learned how to cloud minds so that people could not see him, only hear him.

His voice also changed when he became invisible, courtesy of switching to a crystal microphone. He always announced himself as The Shadow with maniacal laughter, the original bwah-ha!-ha!.

The radio series had a complicated genealogy that began in 1930 and didn't evolve the familiar version of The Shadow until 1933. Several dozen episodes are available free from www.otrr.org/OTRRLibrary The series lasted until 1954.

Lamont Cranston and The Shadow both dealt with Police Commissioner Weston but not simultaneously of course. Weston was usually the arresting officer and frequently worked without any uniformed officers present. Not tenable in a genuine police department, where a real commissioner is a desk-bound bureaucrat and does not involve himself in individual cases.

The lovely Margo Lane was the only one who knew his real identity. Her main functions were to scream every time she saw a corpse, be frequently kidnapped or trapped with a killer, and to have the loose threads explained to her in the denouement.

What was interesting for those days was that she and Cranston were supposedly single and living in different apartments, but they commonly had scenes where they ate breakfast or stayed in hotels together. The network executives and sponsors of those times weren't as prudish as often thought, or else never noticed.

The Shadow began as a narrator on a radio show. He then became a character in his own right and spawned a monthly magazine, followed by books and movies.

There was no continuity between his appearances in different media. In the movies, for example, he was a middle-aged radio reporter who used The Shadow name as the title of his show but was known to his coworkers by his real name.

Like the print stories, credit was seldom given to writers. Sometimes a house name was credited, but usually nothing was said in the closing credits about who the writer was. In the late 1940s, credits were often given, but rarely before or after. Never expect logical plots.

The opening musical theme for the episodes was "Le Rouet d'Omphale" ("Omphale's Spinning Wheel"), composed in 1871 by Camille Saint-Saens. It was beautifully played on the organ and provided an ominous note, in both senses of that word, to introduce the show.

The Shadow: The 1940s.

"Murder In The Death House" aired on 1940-01-07. Margo Lane had joined a political reform committee to eliminate graft and corruption by a ganglord known only as The Brain. The committee, financed by Wilson Tuttle, was running penitentiary warden Richard Cooper as their candidate for clean government.

Lamont Cranston was somewhat skeptical. The couple listened to a radio speech by Cooper. He mentioned that tonight the prisoner Goran would be executed. Goran was quite confident that he wouldn't fry. The Brain would rescue him.

Someone rewired the switch so that the executioner was electrocuted when he threw the contact while Goran was unharmed. Cranston talked Weston into letting him view the second attempt. As a phony guard, Cranston gained the confidence of Goran. Or thought he did, for Goran recognized him. Goran taunted him and said there would be a prison break.

The Shadow visited Cooper, but just then the jail break occurred. Singlehandedly The Shadow stopped the break but Goran escaped in the confusion. Jump to Lane talking to Tuttle at his home. He was nervous about

her presence but she wouldn't take a hint and leave. As the listener will suspect about five minutes before the actual revelation, Tuttle was The Brain.

Goran arrived. Lane was about to be shot dead when The Shadow arrived. Not even sixty seconds later Tuttle and Goran were done for.

“The Precipice Called Death” aired on 1940-01-21. A madman hypnotized a big ugly guy to do his bidding. Specifically to kill targeted individuals. John Reynolds was one of them, or rather his wife Carolyn was the target.

Commissioner Weston wasn't sympathetic to Reynolds story about a big ugly guy and sent him off. Rumour mongering in the streets and all that. The listeners, not for the first time, will wonder how Weston ever made it past foot patrol. Lamont Cranston and Margo Lane were there, hanging out in Weston's office as they usually did.

Sometime later in the Reynolds mansion, John was sitting late at night when The Shadow arrived. While they were talking, Carolyn was murdered in her room. Weston accused John of killing her and arrested him, but The Shadow convinced the commissioner otherwise.

Back to the mansion, with Shrevie driving Cranston in his taxicab and Lane following in her car. Alarums followed and revealed that John's former business partner Tom Vitor was seeking revenge. Carolyn had spurned Vitor and married John. Vitor had been frozen out of the business. Now he wanted everything.

Vitor brought along the big ugly guy, whom he called Giant. When The Shadow arrived, Vitor set Giant against him. The premise was that because Giant was already hypnotized he was immune to a second hypnotization. He could therefore see The Shadow.

For once Lane made herself useful. She had a gun and shot Vitor dead. That somehow broke the hypnotic spell on Giant and halted the big guy from strangling The Shadow. Something like Svengali, but a doubtful supposition.

The Avenger.

THE AVENGER was a carbon-copy of The Shadow, produced by the same people. The market for such heroes was saturated and the show never succeeded. The first series aired during the 1941-42 season and has since vanished into the

mists of time. The network did not transcribe the series and no air checks are known.

The second version aired during the 1945-46 season, written by Ruth and Gill Braun. This series was syndicated on transcribed disks and thus survived. Those disks were later converted to mp3s. They are now available free from the Old Time Radio Researchers website at www.otrr.org/OTRRLibrary

Jim Brandon was the alter-ego of The Avenger or perhaps vice versa. His lovely companion was Fern Collier, who was the only person who knew the true identity of The Avenger.

Brandon didn't learn any strange and mysterious powers in the Orient but instead relied on superscience devices. His two main gizmos were the Telepathic Indicator, a mind-reading device, and the Secret Diffusion Capsule, which made him invisible. The capsule was always heralded by a popping sound followed by the hissing of gas.

“The Coins Of Death” aired on 1945-07-06. The episode opened with a man named Casper Hobson asking a gypsy woman for a consultation. He handed her a silver coin which she flung away. She told him he had no future and would soon die.

He left in a car driven by a friend named Tom. They discussed Hobson's revolutionary machine that would put hundreds of competitors out of business. Their car went over a cliff moments later during a rainstorm.

Elsewhere, Brandon's Telepathic Indicator went berserk, indicating someone had died. The device also picked up gypsy music. Police Inspector White dropped in at that moment for dinner with Jim and Fern. The telephone rang, a call for the Inspector to attend the accident scene. All three went out.

Jumping ahead the next day, Jim and Fern discussed the accident, which had been the second fatality in recent weeks at that location. They drove around the site, past the farm of Phillip Peters and onward to the gypsy caravan.

The gypsy fortune teller was uncooperative, probably because of Jim's Gestapo manner. He tried to force her to come with them to the police. Even in 1945 that wasn't legal.

Jim turned his attention to the Peters farm, traveling there as The Avenger. A popping sound followed by a whoosh indicated a Secret Diffusion Capsule had been deployed. Peters couldn't see The Avenger, only hear him.

Peters said Dr Mylish was the real farm owner, although he lived elsewhere. On Mylish's instructions, Peters allowed the gypsies to camp on the farm. Off went Jim and Fern to Mylish, who was a psychiatrist for wealthy clients.

The Avenger eavesdropped on a consultation Mylish had with a wealthy young woman named Helen Dresden. Mylish told her to visit the gypsies. Cutting-edge psychiatry?

The thunder and rain began. Jim and Fern blocked the road with their car and told Dresden to swap with them. She had been given a silver coin by Mylish to give to the gypsy fortune teller. The coin of death, said Jim. He sent Dresden in his car to get the police.

Fern went in Dresden's place. The gypsy fortune teller went into the you-have-no-future routine. On the way back, as Jim and Fern approached the site where the other cars went off the cliff, they jumped out. They were driving Dresden's car, so that was her problem with the insurance company.

The car went over. They saw Dr Mylish retracting a nail board used to blow out car tires. There was a fistfight but of course Jim won. In the epilogue, the explanation was that Mylish was paid as a hitman.

Hobson's competitors paid to have him killed and stop his machine from ruining their businesses. Dresden was about to inherit a very large legacy, which a cousin next in line wanted to come to him.

The gypsies had nothing to do with the murders. They were used as an excuse to have the victims drive out on the road, hit the spike board, and go over the cliff. The coins were copies of tetradrachms, the thirty pieces of silver received by Judas. To the gypsies, they were coins of death.

"The Crypt Of Thoth" aired on 1945-07-27. The Telepathic Indicator had alerted Jim Brandon that trouble was afoot, somehow connected with hieroglyphics someone was reading.

Professor Wilks had been trying to decipher the markings on an Egyptian crypt in a local museum. They apparently told where jewels were hidden inside the crypt. Wilks had two assistants Joe Clark and Amara Makeela who conspired against him because he cut them out from a share of the rewards.

Clark sealed Wilks inside the crypt, which had only five minutes of air. He and Amara told the police the Professor's death was accidental, he having accidentally locked himself inside. Brandon and Fern Collier barged into the investigation.

The twist was the Professor died from a broken neck, not suffocation. While the police were busy questioning museum staff, Brandon and Collier snuck over to Wilks' house next door and searched, illegally of course, for notes or documents.

They found the notes had been torn into small fragments and took them back to their laboratory to piece them back together. Elsewhere, Clark met with museum security guard Timothy Sills, who wanted a piece of the jewels.

Sills had eavesdropped on Clark and Wilks, and figured he was in a good position for blackmail. Like most blackmailers, Sills' life was shortened by his intended victim. Clark shoved him into the airtight crypt.

The police had no evidence to prove in court that Clark had killed Wilks and Sills. Meanwhile, Clark and Amara had a falling out. He believed she had figured out where the jewels were hidden while typing up the Professor's notes. She edited Clark out of the episode with a handgun.

Meanwhile, in no time at all, Brandon and Collier had reassembled the jigsaw note fragments. He then translated the hieroglyphics in the crypt, went inside, and got the jewels.

Think about that for a moment. Wilks had spent decades of his life trying to understand the hieroglyphics. Brandon translated them in minutes. Not only that, he figured out the booby trap set by the ancient Egyptians to protect the jewels by snapping thieves' necks.

Brandon removed the jewels from the crypt and set them on a table as bait. The Avenger then took care of Amara.

Gregory Hood.

THE CASEBOOK OF GREGORY HOOD was a radio series that aired from 1946 to 1949. It began as a summer replacement for the Sherlock Holmes series but carried on longer than expected after the Holmes series changed networks that autumn. The episodes were written by Denis Green and Anthony Boucher.

The series was set in San Francisco, where Gregory Hood operated an import business and did amateur sleuthing on the side. His sidekick Sanderson Taylor was a lawyer and a respectable family man.

The part of Hood was played by Gale Gordon. He later became a character actor specializing in pompous blowhards, particularly with Lucille Ball in her many radio and television series.

“Gregory Hood, Suspect” aired on 1946-09-30. The mp3 is widely circulated under the false title “The Delphine Bloggs Case”, but the correct title was given during the intro. The announcer suggested peaches in Petri Muscatel for a delicious dessert.

Daphne Bloggs (not Delphine) was an ex-girlfriend who met up again with Gregory Hood. Her sad demeanor led Hood to ask what ailed her.

Blackmail, she said. She had dallied with a married friend. The blackmailer Jethro Bronson said he would tell her father, a puritanical tyrant. Not a good position for an heiress to be in.

Hood consulted with Sanderson Taylor about the legal aspects, but notwithstanding that, visited Bronson in his lair on the ninth floor of an office building.

Bronson wanted \$1,000. There was a scuffle but Hood went to get the cash. Upon his return, he met a senator leaving Bronson’s office. The secretary Miss Carter went in to tell her boss and found him dead.

The evidence pointed to Hood in the eyes of the police. Both the secretary and the senator were suspects in the eyes of Hood and Taylor. They were probably being blackmailed by Bronson as well.

There was only one door to the office. Hood concluded that a window cleaner had been doped and the killer used the scaffold to enter and leave Bronson’s office unnoticed. After some more to-ing and fro-ing, he revised the timetable of events to incriminate Carter.

At a J’accuse! meeting, she pulled a gun, telling Hood and Taylor that two more murders wouldn’t make any difference. The police detective came up the fire escape and through the window just in time to sandbag her.

An elaborate and unwieldy plot. The main sticking point was how Carter could have drugged the window cleaner. A secretary would not be carrying narcotics and be able to use them on a man during a random event. Even the final commercial about Petri Signature Wine couldn’t wash the bad taste away.

“The Double Diamond” aired in 1946. Gregory Hood and Sanderson Taylor were at the San Francisco airport waiting for a flight to New York. Sitting in the bar, Hood found a crumpled napkin with a cryptic message written in lipstick “*Watch the colonel*”.

Looking about the room, they spotted an obvious honorary colonel. He said he was from Virginia but had a phony southern accent. He was traveling on the same flight. Hood assumed the message writer was doing the same and had to only look for a woman wearing the same shade of lipstick.

Hood found her but she pretended not to know what he was talking about. She was wearing a pendant with a large diamond, which was later stolen on the flight. She asked Hood for help but denied having written the message on the napkin.

A diamond was recovered but not the stolen gem. On arrival at the airport the colonel snatched the woman’s bag and disappeared into the crowd. Hood and Taylor tracked him by his method of operation.

The woman had faked the theft on the plane, hiding her diamond, and set up the colonel to take the fall. She knew he was carrying a stolen diamond. Her idea was that his gem would be returned to her on the assumption it was hers, thereby doubling her collection.

Hood let her go with a warning, being a sentimental fool, and bought her a glass of Petri wine.

Nick Carter.

This detective first appeared in print in 1886, predating Sherlock Holmes, and often appeared on stage and in movies. Nick Carter appeared in his own pulp magazines and dime novels, written by house authors. Some of the pulp magazines are available on www.gutenberg.org.

NICK CARTER, MASTER DETECTIVE aired on old-time radio from 1943 to 1955. Episodes are available as free mp3s from www.otrr.org/OTRRLibrary. In this incarnation, he had boundless confidence in his ability and came across as arrogant to all, including his secretary/girlfriend Patsy Bowen. He had his own laboratory, a huge library, and kept better files than the FBI.

I suspect the radio series was why Nick Carter faded away. The stories are not entirely extinct, but his know-it-all attitude on radio would have grated on not a few nerves and made him a harsher version of Sherlock Holmes.

“The Case Of The Unwritten Letter” aired on 1945-07-29. The case began with a psychic claiming she was haunted by a ghost. Nick Carter, Patsy Bowen, and a police detective investigated.

As they entered the apartment building, they heard gunshots and found a dead man on the staircase. The deceased was later identified as sharpy Joe Caine.

Found on the body were an envelope with a blank sheet of paper inside and a tout sheet for a non-existent race track in upstate New York. There were three tenants, all with suspicious backgrounds. The janitor Olsen said he saw nobody.

After some to-ing and fro-ing, Olsen was found dead by gunshot, supposedly a suicide. His fingerprints were identified as the gunsel who killed Caine.

Carter set up an elaborate J'accuse! meeting in the medium's apartment, which an actor dressed as Caine barged into the place. The play's the thing and so forth. The culprit Trask panicked.

Caine had been operating a printing press in his apartment, the noise of which sounded like a ghost thumping about the building. He printed fake tout sheets for rural towns no Noo Yawker would ever visit. He then sold them to bettors and handled their bets to his profit.

Olsen and Trask tried to move in on his business. They didn't know what Caine looked like, so Trask addressed an envelope, put a blank sheet of paper inside, and then put it in Caine's mailbox. They hid up the stairs and when Caine entered and took the envelope they knew they had their man.

Trask shot Caine dead but he and Olsen were surprised to see the front door open just as the shots were fired. Trask ran upstairs and hid in Caine's apartment. Olsen grabbed a broom from the hallway closet and pretended to be the janitor.

Later Trask decided he'd better eliminate any witnesses, since eventually police would discover Olsen wasn't the janitor. The rest was already explained. Carter gloatingly told Trask that the electric chair awaited.

“The Case Of The Crystal Prophecy” aired on 1947-03-23 and was written by Charles Stubblefield. In the office of Nick Carter, his secretary Patsy Bowen was looking at a recent flurry of deaths of rich widows and heiresses, supposedly accidents or suicides.

Carter didn't think there was a connection but Bowen persisted. All of the women had visited a mystic Rashid al Bey, who made accurate predictions that each would meet a handsome man named Robert Winter. They did.

al Bey then told each woman that she would die soon unless she provided \$100,000 for his preventative measures. (\$1 million in today's depreciated currency) The women who refused then died horrible deaths which al Bey used to encourage the others to cough up the cash.

Carter found inconsistencies in the deaths which pointed to murder. Winter and al Bey were never seen together, which made sense since al Bey was Winter in disguise. The rest of their, or rather his, scheme was soon unveiled.

Barrie Craig.

BARRIE CRAIG, CONFIDENTIAL INVESTIGATOR was probably the only private detective series whose star had actually been a private detective in real life. William Gargan had worked in an investigator's office as a young man. He professed amusement at how script writers depicted private detectives, at variance with the real ones he knew and had been.

This series aired from 1951 to 1955. Craig narrated most of each episode. The plots often tangled up, but there were several summations during each episode so the listener wouldn't get lost. The episodes are worth listening to, and the series grows on the listener.

A regular character was Jake the elevator operator. He was from a Vermont farm. In each episode he gave Craig a different reason why he left the farm and moved to New York City. My favourite was "*Too close to New Hampshire*".

"The Moving Target" was written by John Roeburt and aired on 1955-02-16. Barrie Craig's client was Bertram Fenlay, who worked for a land corporation which kept sending him to remote sites around the world.

Supposedly they wanted him to survey potential development sites. Dangerous places, but Fenlay always survived. Good pay, unlimited expense account, but they didn't seem to want him to ever return to the home office.

He became suspicious, sneaked back home, and hired Craig to help him. They rendezvoused on a waterfront street. As they concluded their meeting, the occupants of a big black car machine-gunned Fenlay but he had the luck of angels and wasn't touched.

Craig's next step was to visit the skyscraper where the corporation was located. He found the place almost deserted except for one slob snoozing at a desk. He didn't get much information but it became obvious that the corporation was a front for something.

Talking to Fenlay produced his back story. He had been operating a rooming house in Buxton Falls, Ohio. In what was a setup obvious to everyone except Fenlay, he was lured away to New York City. Craig tracked an address Fenlay had been taken to and discovered another empty suite of offices, this time with a blond woman snoozing.

Her name was Margie and she was more amenable. She told Craig that her boss was Adrian Borislav, who specialized in vanity publishing. She hadn't seen him for a week. Craig didn't believe her. She left in a huff.

Returning to Fenlay, the man told Craig he had been offered a substantial sum to go to Borneo, this time in the company of Margie. They were to be married. Craig couldn't figure the gimmick.

Fenlay decided to go back to Buxton Falls but the NYPD decided differently. Fenlay was framed on a fraudulent charge, undoubtedly by the mysterious criminals. Craig posted bail for Fenlay.

At a newsagent specializing in out-of-town newspapers, they managed to find a Buxton Falls newspaper. The front page news was about a payroll robber on trial, who claimed he had never been to Buxton Falls.

Fenlay recognized the photo, which explained why he had been lured away and sent traveling. He could testify the robber had stayed at his rooming house, thereby breaking the alibi. Margie agreed to turn state's evidence. With that, the moving target could go back home.

"Corpse On The Town" was written by John Roeburt and aired on 1955-03-09. His client was a dentist Luther Bassett who invested in a stage production "2055". For the benefit of the listening audience, not a few of whom didn't get the reference, Bassett explained the play was science fiction, et 100 years into the future.

He was concerned the play was over-financed, a fraud where 150% or more of the show is sold to investors. If the play flopped, as would be planned, the promoter kept all the investment money. After expenses were paid, he still had a nice profit.

The danger was the play might become a box office hit. In that case the promoter was in serious trouble, since there was no way to pay out 150% of the gross income. Mel Brooks made a comedy movie THE PRODUCERS about such an unsuccessful fraud.

No one was laughing here. Craig visited the theatre. The producer, named Stanton Bishop, objected to Craig snooping through his ledger. Craig settled that argument by rendering Bishop unconscious.

The ledger book proved to be not worth its weight in paper. The play had a budget of \$300,000 but \$400,000 in shares had been sold. When Bishop revived, he offered a rebuttal with a handgun, which trumped Craig.

However Bishop did mention that Eloise Finchley had put up \$150,000. He married her that night, as Craig found out in the morning newspapers. Since she was no longer an outside investor, that took her off the books and ended any

fraud in strictly legal terms. The other benefit was that wives can't testify against their husbands.

Craig interviewed her but got no satisfaction. He reported to Bassett that the operation was now legitimate. Case closed and Craig got a \$300 fee. The next day's newspaper reported Eloise's murder. Short honeymoon.

Moving on, Craig discovered Eloise was a front for a bank robber named Artie Van Dyke. He had large sums handy from a recent job and used her as a front to avoid the attention of tax agents. She double-crossed him.

Craig visited her not-grieving husband and pointed out a choice between a rap for bad bookkeeping or sitting in the electric chair. Stanton decided to squeal on Van Dyke.

Boston Blackie.

BOSTON BLACKIE, real name Horatio Black, had at one time been a jewel thief in Boston, but later became a freelance paladin. He was created by Jack Boyle who only published one book about him, a collection of stories in 1919.

The character proved popular, producing 10 silent films, 14 talkies, two radio series, and a television series in the early 1950s. In the book his wife was Mary and they lived in San Francisco, while in the second radio series Mary Wesley was his girlfriend and they were in New York City.

The radio shows are leavened with humour and quips. Everyone, including Mary, called him Blackie. Writers were not credited, although the actors were. The tag line in the opening credits was "*Boston Blackie: Enemy to those who make him an enemy, friend to those who have no friend.*"

Blackie was supposedly reformed now that he lived in New York City. Supposedly, because he had no day job and took no fees as an amateur detective, yet lived well in a nice apartment and squired Wesley around to the fanciest nightclubs.

Blackie's nemesis was NYPD Homicide Inspector Farraday. The name was originally spelt in the usual way with one 'r' but after the series got going for some reason the extra letter was added. In the early episodes of the radio series, Farraday would arrest Blackie on sight, then gather evidence to fit him.

Over time their relationship moderated to being sparring partners. Blackie liked to barge into hot cases and race Farraday to the solution, while Farraday always had the snappiest lines.

One amusing aspect of the series was the berserk organist who provided all the music. Scenes were punctuated, and that is the correct word, by abrupt chords on the organ. Dramatic lines spoken by the cast were followed by crescendos, although the opening and closing themes were more sedate.

"The Star Of The Nile" aired on 1944-07-14. The aforesaid Star was a big emerald announced to be on display at a New York City jeweler.

The \$200,000 stone was being brought from Chicago by an executive named Stevens. Also on the train were Boston Blackie and femme fatale Helen Carew.

Stevens mislaid the stone and claimed robbery. At the train station upon arrival, Inspector Farraday arrested Blackie from force of habit. Stevens later found the gem and had the good grace to apologize.

Sometime later, Stevens made arrangements for the heist of the emerald by a safe-cracker named Fingers. A snitch named Shorty learned of the plan and tipped off Blackie, who in turn told Carew. She telephoned Farraday, which ensured a full crowd at the event.

Fingers couldn't open the vault but Blackie arrived and volunteered to do the job. Farraday was next, took the culprits in custody, but found the vault unopened. Stevens later showed up and announced the gem had been stolen.

Assorted alarums and excursions followed and shots were fired. Stevens was the actual thief, having embezzled from the jewelry company and needing the stone to balance the books. He took a dive out a high window, thereby saving the cost of a trial.

Casey.

CASEY, CRIME PHOTOGRAPHER aired on radio from 1943 to 1955. The title varied several times but is generally remembered by this version. The series was based on novels by George Harmon Coxe. The episodes were written by Alonzo Deen Cole.

The hero was Casey, first name never given, who was a newspaper photographer for the MORNING EXPRESS. He was accompanied by reporter and girlfriend Ann Williams.

The intro and outro were usually at the Blue Note Café, where Casey and Williams hung out. The bartender Ethelbert was a few millilitres shy of a full shot glass. He was used as the comic relief and a sounding board so that Casey could explain the plot.

“Murder In Black And White” aired on 1948-03-18. Opening as usual in the Blue Note Café, Ethelbert the bartender told Casey that he had found a strange sheet of paper. The same sentence was typed over and over: “*The quick brown fox jumps over the lazy dog*”.

Ethelbert wondered if the message was a secret code but Casey explained the sentence was standard practice for new typewriting students. (It has all the letters of the alphabet, so touch-typing makes use of the entire keyboard.) Ethelbert asked why they didn’t type something that made sense.

“*Like what?*”, asked Casey. That gave the announcer an excuse to leap in with the answer: “*Anchor Hocking, the most famous name in glass.*” From there to a murder scene in a park, with police investigators checking the body while Casey and Ann Williams watched.

The deceased was a failed boxer who drifted on the margins of society and was known to police. The only clue on him was a book of matches from the Briar Wall Casino, a local roadhouse also known to police.

Casey got a call from a woman who said someone had mailed her a black-and-white photo of the murderer standing over the body. The envelope had been mis-delivered because of bad handwriting.

The addressee was Max Prevey, so Ann checked the telephone directory and found his place further down the street. She speculated the photograph was the opening communication by a blackmailer.

Off they went to find Prevey. He didn’t answer the doorbell but blood was seeping out from under. They broke in and found Prevey’s body. The apartment had been tossed by someone looking for something.

The orchestra hit a crescendo and the action shifted to Ethelbert talking to the announcer. The big news was that Fire King ovenware was now available in ivory. Another crescendo took the episode back to Casey and Ann, examining the latest body.

Before notifying police, they searched the body and found a book of matches from the Briar Wall Casino. They busily contaminated the crime scene, even by 1940s standards. Casey took a pen off the dead man so he could write notes.

Off to the casino for more infodumps. The barkeep Lou was a mine of information until Casey pulled out the pen at which point Lou pulled a gun. He ordered Casey to open up the pen, which revealed a roll of negative film.

Casey got the drop on Lou, then looked at the film. One of the negatives showed Lou stealing from the casino cash. Casey and Ann quickly surmised that Prevey had taken the photo through a window and then began blackmailing Lou.

The gun changed hands again, but the casino boss Jake showed up and shot Lou. He turned his attention to Casey and Ann but didn’t get the chance to kill them. Lou had only been wounded and shot Jake, so the reporters had two casualties to turn over to the police.

Another crescendo and glass commercial. Anchor Hocking proudly announced a new kind of beer bottle, one that never had to be returned. No deposit payable. Just drink it dry and then toss it. Convenient and a wonderful idea.

And so to the Blue Note Café for a lengthy explanation to wrap up the loose ends. Both Lou and Jake died of their wounds but blabbed all before they went. The boxer was an enforcer. Lou set up his murder as a photographic trap to blackmail Prevey in turn.

Richard Diamond.

RICHARD DIAMOND, PRIVATE DETECTIVE aired on radio from 1949 to 1953 as a star vehicle for singer Dick Powell, who was making a transition from crooner to actor. Private detective Richard Diamond, supported by his rich girlfriend Helen Asher, was an average investigator.

His gimmick was that at the end of each episode he would serenade Asher with a romantic ballad in his rich voice. If they were in his apartment, the next-door neighbour would complain in loud counterpoint to Diamond's singing, a very funny running gag through the series.

Diamond and Asher were night people, so they constantly woke up the neighbour out of his sleep. Diamond was played as a happy-go-lucky detective who got on well with the police. Noir, it wasn't, but the episodes were enjoyable listening.

"The Big Foot Grafton Case" was written by Blake Edwards and aired on 1953-08-30. The episode had two threads. Diamond had been asked by two members of the Ducklings women's baseball team to help find a missing teammate. Just after they left, a gangster wearing a gabardine suit arrived and told Diamond to drop the case.

Police Lieutenant Walter Levinson took Richard Diamond to the funeral of gangster Big Foot Grafton, who wore size 14^{1/2} shoes. The body had been fished out of the river and there was some doubt it was Grafton. He might have faked his death to reduce the pressure of his hectic life.

Levinson wanted Diamond to identify other mobsters at the funeral. He spotted the gabardine man, who got away. Diamond did some more investigating, which produced two more murders. People who talked to Diamond often didn't finish the conversation due to sudden lead poisoning from snipers.

After various alarms, Diamond rescued the fair maiden. His pickup line with her was that Diamond was a girl's best friend. The gabardine man didn't survive to the end credits. He wasn't mourned.

Diamond sang his closing song to Helen Asher, this time to mollify her. She wasn't happy about him being a female baseball player's best friend.

Johnny Dollar.

YOURS TRULY, JOHNNY DOLLAR was the second-last of the old-time radio series, airing from 1949 to 1962. (The final episode of SUSPENSE aired immediately after the final episode of YTJD.) Almost all the OTR shows had died off by 1955.

The episodes were standard half-hour weekly shows except for a year starting in 1955 October, when the series aired as daily 15-minute installments comprising one complete episode each week, or in other words, 75-minute episodes.

Johnny Dollar was an insurance investigator based in Hartford, Connecticut. Each episode began with a claims adjustor from an insurance company ringing him up and asking him to take on a case.

The running joke of this series was that Dollar shamelessly padded his expense account. Each scene was introduced by Dollar reciting a line item from his expense report, followed by a segue to the action.

"The Lorko Diamonds Matter" was a five-parter that aired in early November 1955, and was written by Les Crutchfield. Johnny Dollar was sent by an insurance company to Algiers, at that time a French colony.

A courier carrying \$100,000 in diamonds for the Lorko corporation fell dead from an apparent heart attack in the airport. His briefcase and other personal effects were placed in Customs security.

The Customs agent Andre Jardine was assaulted and the diamonds went missing. Customs Inspector Pierre Marcus met Dollar and filled him in on the details. The diamonds were intended for the Countess Maria Besalia.

The autopsy revealed the courier had been poisoned on board the airplane. That meant a conspiracy who knew in advance about the diamonds. Dollar decided the Countess was the main suspect and began to gather evidence to fit her.

She was broke and living on credit, which raised the question of how she was going to pay for the diamonds. She said she was buying them on behalf of her fiancé Charles Barrett, a Chicago tycoon. She didn't like him but beggars can't be choosers.

Many alarms followed. The Lorco representative Herr Zeindorf was gassed in the Countess' apartment but both survived. A car chase ensued as Barrett tailed Dollar and Marcus tailed Barrett. The trail led into the casbah and around Algiers.

Additional characters were introduced, including Hollywood's idea of Arabs. One of them, Bobo, spoke like Peter Lorre. Barrett kept trying to throw his weight around.

Lorre, pardon me, Bobo, asked after a reward for the diamonds. The deal was moot after someone shot him dead in the casbah. The Countess got herself in trouble, shots were fired, another car chase, the usual routine.

Suspects were steadily eliminated. Jardine made a surprise reappearance but just as quickly was killed when he went off a cliff during the car chase. On that basis, his office was searched and the diamonds found in his vault.

The Countess was the mastermind of the heist. Bobo had poisoned the courier, and Jardine had murdered Bobo. She never had actual possession of the diamonds. As Marcus pointed out, there was no hard evidence to take her to court.

Total expense account was \$1,214.16. In his final report to the insurance company, Dollar noted that the Countess had married Barrett and moved to Chicago. Dollar strongly urged that a bulletin be sent to all insurance companies warning them not to provide life insurance to Barrett.

"The Broderick Matter" was a five-part episode written by John Dawson and aired in middle November 1955. John Adam Smith died of malnutrition in a charity ward. He had left a \$1,500 life insurance policy to Miss Lorraine Broderick.

The insurance company wanted Johnny Dollar to find her, now a young woman. He began tracking her through a high school and street directories. His job might have been easier if he had explained himself to people instead of just barking questions at them.

Broderick was a drifter who never stayed long in a job or apartment. She seemed to be moving constantly for unknown reasons, and went through boyfriends just as constantly. Never any forwarding addresses.

Dollar tried a newspaper ad and got a response from William Dameron from New York City. He said he knew Broderick but she had disappeared one Christmas Eve without explanation. Dameron felt she was frightened of life in general and was running from phantoms.

Step by step, Dollar plodded along her trail. She had been run in by police for drunk and disorderly, but had since drifted westward. She was leaving bad cheques under the name of Lorraine Bradley cross-country out to California.

By now the expense account was approaching the amount payable. Dollar went to the coast for more plodding. She had been living high on other people's money, and partying like there was no tomorrow. But Dollar was gradually getting closer. Instead of being months behind Broderick, he was now only days behind.

Evelyn Brady, as she was now, was finally run to ground at the 60-minute mark and got her first speaking part. Or rather, almost to ground. Dollar found her standing on a skyscraper ledge ready to jump. She said when the crowd was big enough, she would jump.

The finale was a powerful psychological drama as Dollar tried to talk her out of suicide. He told her about Smith. She climbed down and was admitted to psychiatric care. Total expenses were \$1,132.14. If you only listen to one episode of this series, then I recommend this one.

Philip Marlowe.

THE ADVENTURES OF PHILIP MARLOWE was based on the character created by Raymond Chandler. It aired on radio from 1947 to 1951, changing networks in midstream. The series was slightly darker than most mystery shows, although never as dark as the noir novels upon which it was based.

"The Bedside Manner" was written by Robert Mitchell and Eugene Levitt, and aired on 1950-05-30. Philip Marlowe didn't look where he was going when crossing the street, was hit by a car, and wound up in hospital with a broken leg.

Sometime later he was released but had to stay in his apartment living room in a special bed. Thus immobilized, he had to solve a case without leaving the room. Shades of Nero Wolfe. Audine Patterson, a rich heiress, brought him a case she said he could solve flat on his back.

Her brother Maynard was a ne'er-do-well who lived off an allowance she gave him. Their father, knowing what the son was like, left his estate to her. Audine said Maynard was under threat from a mysterious Mr Fish, who wanted to collect on a \$50,000 gambling debt.

Using various people, via telephone or face-to-face in his apartment, Marlowe sleuthed. Gangster Sid Rayfield was one such visitor. Said Marlowe: “*If I’d known you were coming, I’d have baked a snake.*” Sid said Fish was a nasty man and Marlowe should lay off the case.

The doorbell rang, which put Sid in a dither. Marlowe told him to go out the bedroom window onto the fire escape. Moments later, there was the sound of breaking glass and Sid’s voice croaking that he had been hit. Then an awful silence.

The next visitor was his housekeeper. She dropped off a meal and left. Marlowe had to presume there was a dead man in his bedroom. He couldn’t verify his guess because the few steps to his bedroom might as well have been a trip to the moon.

Fish telephoned, uttering threats. He said he left one of Maynard's markers on the bedroom windowsill to establish his bonafides. Next up was Faye Aldrin, a friend of Rayfield. Marlowe asked her to go into the bedroom and get the envelope off the window. Pay no attention to the dead man. She didn’t.

She knew Maynard but hadn’t heard of his loss, nor did the name Fish mean anything. After her departure, Maynard arrived, pointing a gun at Marlowe on the correct assumption that he had guessed there was no Fish.

Maynard was trying to score \$50,000 off his sister with a swindle. He admitted killing Rayfield, who had figured out the scam and was trying to get a piece. He tried to kill Marlowe. He didn’t succeed.

Michael Shayne.

Michael Shayne began as a series of novels by Davis Dresser, writing under the pseudonym of Brett Halliday. As a fictional detective, Shayne appeared not only in print but as an old-time radio series, movies, television, and a mystery fiction digest.

Dresser quit writing Shayne stories after 1958 but farmed out the Halliday pseudonym as a house name to other writers, so the stories continued to appear for decades afterwards.

THE NEW ADVENTURES OF MICHAEL SHAYNE aired on radio from 1944 to 1953. The series was based on the novels by Brett Halliday, although the episodes were pastiches.

From 1944 to 1948, Shayne was located in San Francisco and had a pretty secretary named Phyllis Knight. Wally Maher voiced Shayne as a relatively sedate and average detective.

From 1948 to 1950, Shayne lived in New Orleans without a secretary. He was voiced by Jeff Chandler, who narrated the show in tones of rising hysteria, even if he was just crossing the street. That period could best be described as frenetic. Thereafter a variety of forgettable actors portrayed him.

“John M. Crowder’s Body” aired on 1945-09-10 and was written by Richard de Graffe. Michael Shayne and Phyllis Knight were summoned by a police inspector to inspect Crowder’s body.

The reason was that the deceased had been at a party when he became deceased. On a scratch pad next to the telephone was written Shayne’s telephone number. He had never heard of Crowder.

Janet Whitcom, Crowder’s ward, said he had picked the number out of the telephone directory. Just before the party began, Crowder excused himself to listen to his favourite radio programme “The Days Of ‘49”. Others heard gunshots but thought they were from the radio show.

When the show was over, Crowder didn’t come out to the party. Whitcom went in and found the body. The wall safe was hanging open but \$2,500 in cash was inside. The question was what might have been taken. Shayne found an inventory in a desk. Missing were \$21,000 in bonds.

A plethora of suspects and servants were quickly catalogued. Shayne and Knight inspected the room, then interrogated the possible suspects. A social butterfly Richard Russell kept fluttering through the plot, popping up at intervals for trivial reasons.

Cec Oliver was a client in Crowder's investment brokerage and lived across the street. He had been the last person to see Crowder alive. Uncle John, as Whitcom referred to her guardian, had opposed to her engagement to Lee Strahorn, whom he considered to be a ne'er-do-well.

The bonds were found in Oliver's house but he said he had just bought them from Crowder, the reason for him being in the room. A Chinese servant Charlie Lung seemed suspicious. He had \$17,000 in walking around money, for one thing. He didn't trust banks, not uncommon in those days.

Somewhere in the house a woman screamed, the traditional signal for a commercial break. I'm not exaggerating, as I have listened to hundreds of old-time radio episodes. In mystery series, a scream is invariably followed by a pitch for gasoline or hair oil.

And so it was here, as Union Oil proclaimed its gasoline used ingredients perfected during the war for aviation. The scream was from Whitcomb, who saw a man threatening her.

The MacGuffin was a money clip, which led to a car search, which revealed the murder revolver. Shayne promptly convened a J'accuse! meeting. And the name of the murderer was, after a recitation to tie up the loose threads, Strahorn.

"The Case Of The Phantom Neighbour" aired on 1949-01-08 and was written by Robert Ryf. Ann Griffin telephoned Michael Shayne in the early hours of the morning. She thought she had just killed Lyle Metcalf in his apartment.

Griffin had suffered a blackout for two hours and couldn't remember the details. Shayne came over, checked the body, telephoned police, and then took Griffin outside so she could verify her travels. The search for an alibi wasn't successful. She did say she was followed by a man named Jimmy.

The police were not happy with Shayne. After they took Griffin to the station, a strange woman named Suzanne burst into the apartment. Shayne was still there with a Homicide inspector.

She told them the dead man was her boyfriend, and Griffin had not left the apartment for more than five minutes. No two-hour ramble, which contradicted Griffin.

Shayne left. As he returned home, he was intercepted on the street by Tom Harris, who said he was Griffin's boyfriend. Nothing much resulted from that meeting, so they went their separate ways.

The next morning Shayne visited the police. Metcalf was a gambler. No, not debts, but rather he was too successful at winning every bet. Particularly from Eddie Zernio, who was the next person to be interrogated. Again nothing of substance, which may make the listener wonder if the script writer was padding.

Suzanne was caught lying about what she had been doing. Shayne went to his office and found Jimmy sitting at his desk, ready to provide an alibi for Griffin. That sprung her but didn't solve the murder.

There was one final alarm with Shayne at gunpoint. Jimmy tried to shoot him but was shot dead by Harris, who had also murdered Metcalf. Griffin explained the details at top speed. No, seriously, she sounded like a 33-rpm record running at 45 rpm.

With a single bound, Shayne was free. Etcetera, etcetera. Admissible evidence for the courtroom? Not Shayne's job.

Sam Spade.

THE ADVENTURES OF SAM SPADE, based on the character created by Dashiell Hammett, aired from 1946 to 1951. It went off the air shortly after both Hammett and Howard Duff, the actor who played Sam Spade, were named as Communist sympathizers during the Red Scare.

Unlike the movie, where Spade was a serious man, the radio series played him as a happy-go-lucky fellow, sometimes swerving into slapstick. The series struggled on for a few more episodes as a sustained show with no advertisers. No corporation dared to be associated with it. The replacement actor couldn't live up to Duff's characterization.

Spade worked in San Francisco. His secretary was Effie Perrine, a scatterbrained young woman who took down his narration in the form of a report. Each episode began with Spade telephoning Effie and telling her to rush down to the office to meet him there and dictate a report on the case he had just solved.

The report was a letter to a local police officer keeping him informed of criminal matters or occasionally addressed to the client. On one occasion, he told Effie to bring a pencil and \$20,000 in cash. “*But Sam, where am I going to find a pencil at this time of night?*”

“The Battles Of Belvedere Caper” was written by Robert Tallman and Gil Doud, and aired on 1949-05-14. Sam Spade was hired by Jonathan Battle, who lived on Belvedere Island in the northwest corner of San Francisco Bay.

Upon arrival, Spade was greeted by Sharma Leslie, who was Battle’s foster daughter from India. Battle was an artist but a tormented man. In his past he met a murderer who had now reappeared nearby. For that reason he had hired Spade to throw a scare into his stalker.

Battle was anxious to work on his painting while the sun was at the proper angle, so Spade wandered about the garden. There were two wax figures in the studio, one of Sharma, another of a Sikh rifleman.

Out in the garden, Spade met Battle’s son Bob, who carried a chip on his shoulder. Captain Sherring was also on the island, an underworld figure that Spade had met before. All that was prelude, as soon enough a gunshot was heard.

Battle was the victim, inside a locked room. Spade broke down the door but had to leave to telephone the police. When he returned, the Sikh was missing. Spade went next door to Sherring’s place. He had to wrestle with the butler Marcus to get in but lost since the man was 8 feet tall.

However, Sherring came along and called off Marcus, then gave Spade a guided tour. He went into a long-winded spiel about his past connections with Battle and Sharma. Spade yawned and coughed through it.

Finally Sherring came to a conclusion, saying that he was there to make Sharma his wife. She had a £2 million fortune and a gold mine, which were appreciated as much as her beauty. Bob was arrested as the likeliest suspect.

Spade went to see Sharma, who said Battle had wanted her to marry Bob. The son was sprung for lack of evidence. Spade set up a re-creation of the murder with all and sundry present. He proved Bob killed his father, and nailed Sherring for drug smuggling in the bargain.

The epilogue was a detailed explanation of the Rube Goldberg method used by Bob. You may want to draw diagrams as you listen to this.

“The Queen Bee Caper” was written by Robert Tallman and Gill Doud, and aired on 1949-07-10. Sam Spade was called in by the Miss Wigginson School For Girls to investigate a series of thefts.

The head mistress Miss Elizabeth Collie and trustee Miss Ursula Cavanagh had chosen a suspect and wanted Spade to gather evidence to fit her. Collie’s assistant Gloria Thomas was the chosen one. Spade explained that wasn’t how an investigation worked.

The school had an apiary, whose beekeeper had just been fired. Cavanagh was eliminated from the plot, stung to death by bees. The beekeeper soon followed in the same way. The medical examiner found each victim had been injected with formic acid by hypodermic needle. The two were murdered. Another trustee behaved suspiciously.

Thomas suddenly married the trustee’s nephew. Spade suspected her because she taught chemistry and had access to formic acid. On that basis, and with no evidence that would hold up in court, the case abruptly concluded.

George Valentine.

LET GEORGE DO IT aired on radio from 1946 to 1954, sponsored by Standard Oil for its Chevron stations. The series was about George Valentine, a private investigator.

He solicited clients with a running newspaper classified advertisement in the Personals column that he cited in the opening credits: *Danger’s my stock in trade. If the job’s too tough for you to handle, you’ve got a job for me. Write full details.*

Valentine’s secretary/girlfriend was Claire Brooks, whom everyone called Brooksie. Her main function was to act as a sounding bound for Valentine and have the plot explained to her at intervals.

“Destination Dead End” aired on 1949-02-14 (Valentine’s Day) and was written by David Victor and Herbert Little Jr. The opening letter was from an anguished woman Sophie Pebbleman about her wayward son Richard.

Richard was a corrupt private detective who peddled information to rival gangsters. After talking to Sophie at her home, George Valentine and Claire Brooks met Richard in a classy restaurant. He openly admitted he was in a jam.

Gunsels working for a gangster named Nat Downing were waiting for him outside. Richard figured his life had just hit a dead end. Valentine called in a false alarm to the fire department as a diversion to get Pebbleman out alive.

He took Pebbleman to the police, suggesting they work a deal in exchange for information about Downing. There was lots of to-ing and fro-ing about, including a direct challenge to Downing. That was answered when he said he had Sophie as a hostage for trade with Richard.

The story paused for a commercial from Standard Oil about how there is nothing worse than engine corrosion due to inferior lubricant oil. Back at the plot, Valentine agreed to the exchange. Downing told his henchman Jinks to make certain Valentine didn't return.

Valentine rescued Sophie and evaded Jinks but upon returning learned that Richard had bailed himself out. A suicidal move. Not too difficult to find him, as Richard simply went home to his house. He told Valentine and Brooks that he had just drawn two high cards but wouldn't say what.

Sophie showed up, gave him a what-for lecture, and disowned him. As she finished, Downing arrived. Valentine disarmed him but Downing told him Jinks and the boys were waiting outside. They had cut the telephone wires so no one could call for help.

That struck me as an obsolete plot point today in this era of smartphones. Much melodrama followed, shots were fired, and Richard basically committed suicide rushing the gangsters. In the epilogue, Brooksie presented Valentine with some bright red argyle socks as a gift. It was, after all, Valentine's Day.

"The Elusive Hundred Grand" aired on 1949-04-18 and was written by David Victor and Herbert Little Jr. The episode began as Las Vegas performer Walter Haney hired George Valentine to stay at a classy casino and act as a shill.

Haney gave Valentine \$15,000 to bid on a rare vase which he hoped to immediately flip for \$100,000 to pay off gambling debts. Haney couldn't bid in person since the Syndicate banned him from the hotel because of his debts.

Henchman Marty Oul tried to scare away Valentine but had he succeeded this would have been an 8-minute episode. A femme fatale named Lola ("*Just Lola*", she told Valentine) then inserted herself into the plot.

He gave her the brush-off but not before she said she was Haney's new wife. The wedding was secret because Haney's sister Adele, his manager, didn't like her.

The vase having been bought, Walter had Valentine and Claire Brooks deliver it to Texas oilman Hank McQuery. He gladly paid \$100,000 in cash.

Heading back to the hotel, Valentine and Brooks were intercepted by Adele, who insisted on riding with them. They were followed by a car full of goons, who were equally insistent about getting the cash. At this point, the sponsor Standard Oil insisted on telling listeners about its high-octane gas.

Returning to the plot, Valentine acted as a diversion to let Brooks and Adele get away. He was beaten up by the hijackers, but they didn't get the cash. Valentine made his way back to the hotel. As he cleaned himself, Oul arrived for his turn at the punching bag.

Jump cut to another hotel room where Brooksie, Adele, and Walter were squabbling. Lola abruptly arrived, saying she had hired the hijackers but they didn't have the cash.

She wanted to make certain the Syndicate got the cash and Walter didn't fritter it away. She gave Adele the shock of her life by revealing the marriage.

Adele wasn't shocked long, and was soon found shot dead, a suicide. There followed a contemptible tomato surprise beneath my dignity to comment on but it didn't change the plot resolution. The Syndicate got their cash, while Valentine and Brooks drove off into the sunset.

Philo Vance.

S.S. Van Dine was the pseudonym of American art critic Willard Huntington Wright. During World War One, he loudly advocated for the Germans, which got him run out of town and not just figuratively. Years later he made a comeback under the Van Dine pseudonym.

Vance was a wealthy young man about town but unlike the later Lamont Cranston, didn't keep his detecting a secret. What I hadn't previously known was made explicit in the books: *“This man was a young social aristocrat, whom, for purposes of anonymity, I have chosen to call Philo Vance.”*

In the movies and radio series, everyone addressed him as Philo Vance as his real name. In the novels he spoke with a phony English accent despite being an uptown New Yorker. Detractors referred to Vance as a soft-boiled detective.

Philo Vance detected in 12 novels, 15 movies, and well over 100 old-time radio episodes. In the books, Vance's lawyer and amanuensis, named Van Dine, narrated the story a la Watson. The first two novels are available as free pdfs from www.gutenberg.org, and probably more are on their way.

THE BENSON MURDER CASE (1926) by S.S. Van Dine introduced the amateur sleuth Philo Vance to the world. The narrator was Van Dine, who played Dr Watson to Vance.

This first novel opened with an extended biography of Vance, who inherited money, collected fine art, and was seldom out of bed before noon. His friend was District Attorney John Markham, who brought him along on cases.

Alvin Benson, wealthy stockbroker and man-about-town, had been shot in his house while he was sitting in a lounge chair. A single bullet through the forehead, through the headrest, and into the wall. A woman's purse was found on a table.

The author provided floor plans and charts through the novel to assist the reader. Mysteries used to do that in the old days. Benson's housekeeper Anna Platz had a room on the third floor of the house. She woke from her sleep when she heard what she thought was a car backfiring. Going back to sleep, she found the body the next morning.

From there, much plodding police work ensued, tracking down acquaintances and interrogating them. Vance lurked about the fringes with a supercilious smile, spouting pop psychology at great length.

The suspects kept changing their stories to fit the situation. Eventually the truth began to trickle out. Benson had caught a friend forging his name to a cheque to cover an unrelated embezzlement elsewhere.

Instead of calling the police, he had the forger give him a promissory note, a handwritten confession, and sufficient jewelry from the man's mistress. She wanted the gems back, and thus inadvertently set off the final round of sleuthing.

Vance annoyed Markham, and the readers, by rehashing all the evidence, adding in suppositions by the shovelful, and pointing to each suspect in turn as the culprit. Finally he got to the point and named the killer, who had been embezzling from Benson in a big way.

THE “CANARY” MURDER CASE (1927) was the second novel. The victim was introduced as deceased before she even got a speaking part. Margaret Odell was a Follies showgirl, intimate with European princelings, a favourite of gossip columnists, and, alas, strangled in her apartment.

The police were baffled, as they usually were, and Philo Vance stepped into the case, as he usually did. As Markham, Vance, and the police arrived at the Odell apartment, the author kindly provided floor plans of the building for the reader.

The body was still there, demonstrating she had died the hard way and put up a fight. The apartment was ransacked, as explained in great length. Valuable jewelry was stolen from the body.

The police sloughed off all the discrepancies pointed out by Vance as unimportant details. Markham was obviously justified in his lack of confidence in them.

Interrogation of possible witnesses produced nothing useful and some contradictory evidence. What seemed to be established was that a thief had been lurking hidden in her apartment and witnessed her murder.

Much padding followed as the characters repeated and restated the available evidence over the next few chapters. Eventually a list of suspects was produced. Some acted suspiciously but seemed innocent, while others had a knack of changing the facts each time they were interrogated.

It became evident there were two criminals operating independently, a jewel thief and the murderer. The jewels were an obvious target. As for Odell, she only dated wealthy middle-aged married men and lived off the proceeds of blackmail.

The case depended on how the thief got out of the apartment building through a side door and threw a deadbolt as he exited. No key or lock on the door, just an old-fashioned drop-down bar.

As Vance demonstrated, the thief did it with thread and tweezers to tip the bolt shut after he exited, then pulled the tweezers with the thread under the door to where he was.

The murderer had left first. Eventually he deduced the facts about the thief, who got himself strangled. Vance set up a J'accuse! meeting in the form of a poker game, complete with a diagram of who sat where around the table. Much detail about who had what cards and how to play a given hand. The game broke up without resolution.

The next day Vance named the murderer to Markham based on the poker game. One doesn't have to be a district attorney to know that poker psychology is not admissible evidence.

A return visit to Odell's apartment turned up a ridiculous tomato surprise. The killer had placed a phonograph record on a machine that played a woman's voice to make it seem Odell was still alive after he killed her. Once the murderer was arrested, he blabbed all.

Jack Webb.

Before he vaulted to national fame as Sgt Joe Friday in DRAGNET, Jack Webb served an apprenticeship in several private detective radio series, most of them originating from San Francisco where he lived at the time. He generally played a harsh man among harsh people, crime noir relieved only by a constant flow of exaggerated similes and sarcastic remarks.

The first of these was PAT NOVAK, FOR HIRE, which aired from 1946 to 1947 and a brief revival in 1949. This series was mostly written by Richard Breen. Pat Novak worked in San Francisco along the waterfront.

Webb's second series was JOHNNY MODERO, PIER 23, which aired for four months in the spring and summer of 1947. The man rented boats in San Francisco and did anything else along the waterfront that would make him money. "*The sign outside looks honest but down here the only sign people pay any attention to is rigor mortis.*"

Because PAT NOVAK was still running on another network with a different leading man, there was a flurry of legal briefs back and forth. Webb had to make some cosmetic changes, but since both series were not long for this world, the dispute was a tempest in a teapot. The name was also frequently spelled Madero.

JEFF REGAN, INVESTIGATOR aired in the last half of 1948. The name was always pronounced 'ree-gun'. The episodes were very harsh, too noir. The grimness was unrelieved. After Webb left, the series continued on in a milder tone with other actors. Webb later toned down his performance for DRAGNET and played Joe Friday as a polite man.

PETE KELLY'S BLUES aired in the summer of 1951 and was a brief sideline for Webb. In private life, he and his first wife, jazz singer Julie London (better remembered as the ER nurse in the Webb-produced television series EMERGENCY!), were both jazz aficionados.

Pete Kelly was a jazz musician in Kansas City during the Roaring Twenties. Each episode was not only a noir mystery, but Webb and his band played one or two jazz instrumentals. One can safely say that Webb wasn't just doing the series for money. He really loved the music and was an accomplished player.

DRAGNET began in June 1949 and on radio went until early 1957. Webb never looked back, and from radio his franchise extended into television and movies. He never said "*Just the facts, ma'am.*" but it became a catch phrase because of his use of similar remarks.

It has been said that every successful subgenre ends in parody. Westerns had BLAZING SADDLES, spy series had GET SMART, and police procedurals had the 1987 movie DRAGNET.

The original radio and then television series of DRAGNET were quite serious and set the standard for police procedurals. The 1987 movie of the same title was mostly parody but did occasionally pay tribute to the broadcast series.

The movie was written by Dan Aykroyd, Alan Zweibel, and Tom Mankiewicz. Aykroyd played the part of Sgt Joe Friday, nephew of the original Friday, with a deadpan expression, and did it well.

The plot concerned a multiple conspiracy with a religious cult leader, a soft-porn publisher, and a police commissioner who wanted the mayor's job. Various clichés were trotted out, such as Friday being suspended from his job, and a rookie partner from a clashing generation. Eventually Friday prevailed and arrests were made.

The traditional epilogue, where the court trial results were reported, solemnly intoned that the cult leader received 43 consecutive 99-year sentences, with no parole for 7 years.

Mr Monk.

There are several mystery television series long since discontinued but still existing as book series. Jessica Fletcher in MURDER, SHE WROTE immediately comes to mind but another series was MONK, which aired from 2002 until 2009.

This was a comedy drama series about private investigator Adrian Monk, who worked mainly as a consultant to the San Francisco Police Department. He had previously been a police officer but became unhinged after his wife Trudy was murdered. He was given a medical discharge but occasionally hired by SFPD as a consultant.

Adrian Monk developed severe obsessive-compulsive disorder and was a germophobe. He could and did take scattered seemingly irrelevant clues at a crime scene and link them in logical order to identify the culprit.

The novels were mostly original stories, but occasionally novelizations of television episodes. Lee Goldberg wrote most of them but the later novels were written by Hy Conrad. The two both worked on the television series as writers and producers, so the hand-off was a natural one.

The first novel in the book series was MR MONK GOES TO THE FIREHOUSE (2006) by Lee Goldberg. This plot also appeared in the television series.

Monk's apartment was being fumigated for a couple of days so he went to stay with his assistant, a young widow Natalie Teeger who had a 12-year-old daughter Julie. He brought along two suitcases and all his furniture and appliances. Natalie only let him bring the suitcases inside her house.

Julie had made friends with a firehouse dog nearby. While the firefighters were at a fire, someone broke in and killed the dog. Monk visited the charred ruins of the house fire with Natalie and SFPD Captain Stottlemeyer.

From an indisputable chain of logic Monk determined the elderly woman who lived there had been murdered first. The investigation left a trail of confused witnesses who had never met an OCD detective before and were baffled by his questions.

The deceased was cranky and her neighbours were happy she was dead. She was an obnoxious cat lady. Monk stirred up people because they didn't do things by even numbers or sanitize the way he expected. He was able to make giant leaps to unassailable conclusions.

The humour in this and subsequent novels was in his method, stymying crooks with unexpected connections between pieces of evidence that no one else noticed. Quite funny at times.

The murder of the elderly lady was connected to the murder of the firehouse dog. The killer's name was announced halfway through the book but the fun was seeing how Monk wove ridiculous clues into a net to catch the murderer.

MR MONK GOES TO HAWAII (2006) was the second novel in the book series. Natalie Teeger had been sent a round-trip ticket to Hawaii by her friend Candace, who had asked her to be the maid of honour. Natalie's problem was to keep Adrian Monk from finding and tagging along. She failed.

The wedding would be talked about for years. When the minister reached the part where he asked the congregation if anyone objected to the marriage, Monk stood up. He enumerated clues he had noticed which proved the groom Brian was already married.

Candace slapped Brian in the face and walked away. He admitted to Natalie that he had a wife and kids in New Jersey. With time on her hands before the return flight, Natalie and Monk went strolling and passed a crime scene.

Monk barged in, identified himself to the police detective, and quickly corrected everyone. Helen Gruber, a rich older woman with a young husband, had apparently been fatally bopped with a coconut while relaxing in a hot tub under a tree.

After convincing the detective that the death was murder, Monk became part of the investigation. There were rough moments for Monk. Geckos were everywhere, the ceiling fans were unsynchronized, and the Hawaiians served a paste food called poi. Disgusting to no end.

Complicating the case was a television psychic who claimed he was in contact with the spirit of Gruber. Monk went after him, determined to prove him a fraud. He not only did that but connected him to Gruber's murder using a tomato surprise in the denouement.

MR MONK AND THE BLUE FLU (2007) by Lee Goldberg was the third novel of the series. The SFPD police officers were calling in sick as part of contract negotiations. Monk was rehired as a police officer in charge of a squad of behaviourally challenged members who also had been previous police officers. Off they went, solving cases.

Monk's team consisted of Jack Wyatt, known as Mad Jack to both criminals and police, Cynthia Chow, who wore tinfoil hats, and Frank Porter, good with paperwork but now senile.

There followed a string of murders, all apparently unrelated. The reader will expect Monk to tie them together with ridiculous clues, and will not be disappointed.

Porter came up with the first break, finding that all but the first victim had the same birth date, the day that John Glenn became the first American to orbit Earth. On page 190 of the mass market paperback the text erroneously stated that Glenn was the first person to orbit Earth.

The odd victim out was an astrologer who had been preparing a horoscope for someone born on that date when she was murdered. The killer noticed she was

preparing the horoscope and that a possible witness had just left the room. With no name to go by, the murderer cross-referenced a list of people born that day and began killing off possibles.

Monk used a variety of ex post facto deductions to identify the culprit as a rival astrologer who was losing customers to the first victim.

MR MONK AND THE TWO ASSISTANTS (2007) by Lee Goldberg returned Adrian Monk's first assistant Sharona Fleming to the story arc. She had been Monk's previous assistant/caretaker before Natalie Teeger.

The reunion took place at a hospital where Natalie's daughter Julie was having a broken wrist set after a soccer game injury. Monk was there because he was at the game, where he identified the opposing coach as a murderer. After goals were scored, the coach did a victory dance that matched the sequence of bloody footprints at the murder. All that in the first chapter.

Natalie was uneasy about Sharona's reappearance, fearing for her job. Monk was mostly oblivious, living as he did in his obsessive compulsive world. Sharona's ex-husband Trevor was in jail for murder. He was a convicted thief and unreliable mate, so she ditched him.

While Natalie and Sharona fussed over that, Julie sold advertising rights on her cast to a pizzeria. Trevor was in jail in Santa Monica, so Monk and his two assistants went down there to investigate.

The police were helpful but mystery author Ian Ludlow was also poking around. The trio met him, then continued investigating the murder. Amateur detectives as far as the human eye could see. Monk didn't think much of Ludlow's novels.

Then back to San Francisco, where Monk began investigating the death of a man bitten to death on a nude beach by a large alligator. Since alligators are not found on seaside beaches in northern California, all the investigators were flummoxed.

Ludlow showed up, annoying Monk, who resented the competition. There were several twists and turns, ultimately resolved by Ludlow's inability to think up plots. He killed both victims, then hung around the police for useful copy for his novels.

ZINE LISTINGS

Alouette #1 to 11

(complete archive in a single PDF, available free at www.efanzines.com)

Robert J. Sawyer writes:

Between 1992 and 1997, I published eleven issues of a fanzine called Alouette: The Newsletter of the Canadian Region of SFWA (named in honor of Canada's first satellite).

The zine was nominated for the Canadian Science Fiction and Fantasy Association's Aurora Award for best fanzine of 1993 and contains a lot of material (author interviews, short fiction, news notes, etc.) that I think would be of interest to fan historians.

WORLD WIDE PARTY 2023

This year was the 30th annual World Wide Party, founded by Benoit Girard (Québec) and Franz Miklis (Austria) in 1994. On June 21, at 21h00 Calgary time, I raised a bottle of Cherry Coke while facing east and toasted those who had already celebrated. I then faced, south and north to toast those in my time zone, and finally to the west to toast those yet to celebrate.

SEEN IN THE LITERATURE

Physics.

Ananthaswamy, Anil (2023) **Double trouble: two slits, many questions.** NATURE 618:454-456 (available as a free pdf)

Speirs: No abstract available as this is a non-technical review explaining the paradoxes of quantum physics in its most basic form: Are photons particles or waves? Well worth reading to learn about an ongoing problem in physics that stumped even Einstein.

Astronomy.

Goobar, A., et al (2023) **Uncovering a population of gravitational lens galaxies with magnified standard candle SN Zwicky.** NATURE ASTRONOMY 7:doi.org/10.1038/s41550-023-01981-3 (available as a free pdf)

[Einstein predicted that gravity warps images from the far side of a star around the star so that we could see them. With modern space telescopes, astronomers can now see distant images warped by galaxies.]

Authors' abstract: *Detecting gravitationally lensed supernovae is among the biggest challenges in astronomy. It involves a combination of two very rare phenomena: catching the transient signal of a stellar explosion in a distant galaxy and observing it through a nearly perfectly aligned foreground galaxy that deflects light towards the observer.*

Here we describe how high-cadence optical observations with the Zwicky Transient Facility, with its unparalleled large field of view, led to the detection of a multiply imaged type Ia supernova, SN Zwicky, also known as SN 2022qmx.

Magnified nearly 25-fold, the system was found thanks to the standard candle nature of type Ia supernovae. High-spatial-resolution imaging with the Keck telescope resolved four images of the supernova with very small angular separation, corresponding to an Einstein radius of only 0.167" and almost identical arrival times.

The small Einstein radius and faintness of the lensing galaxy are very unusual, highlighting the importance of supernovae to fully characterize the properties of galaxy-scale gravitational lenses, including the impact of galaxy substructures.

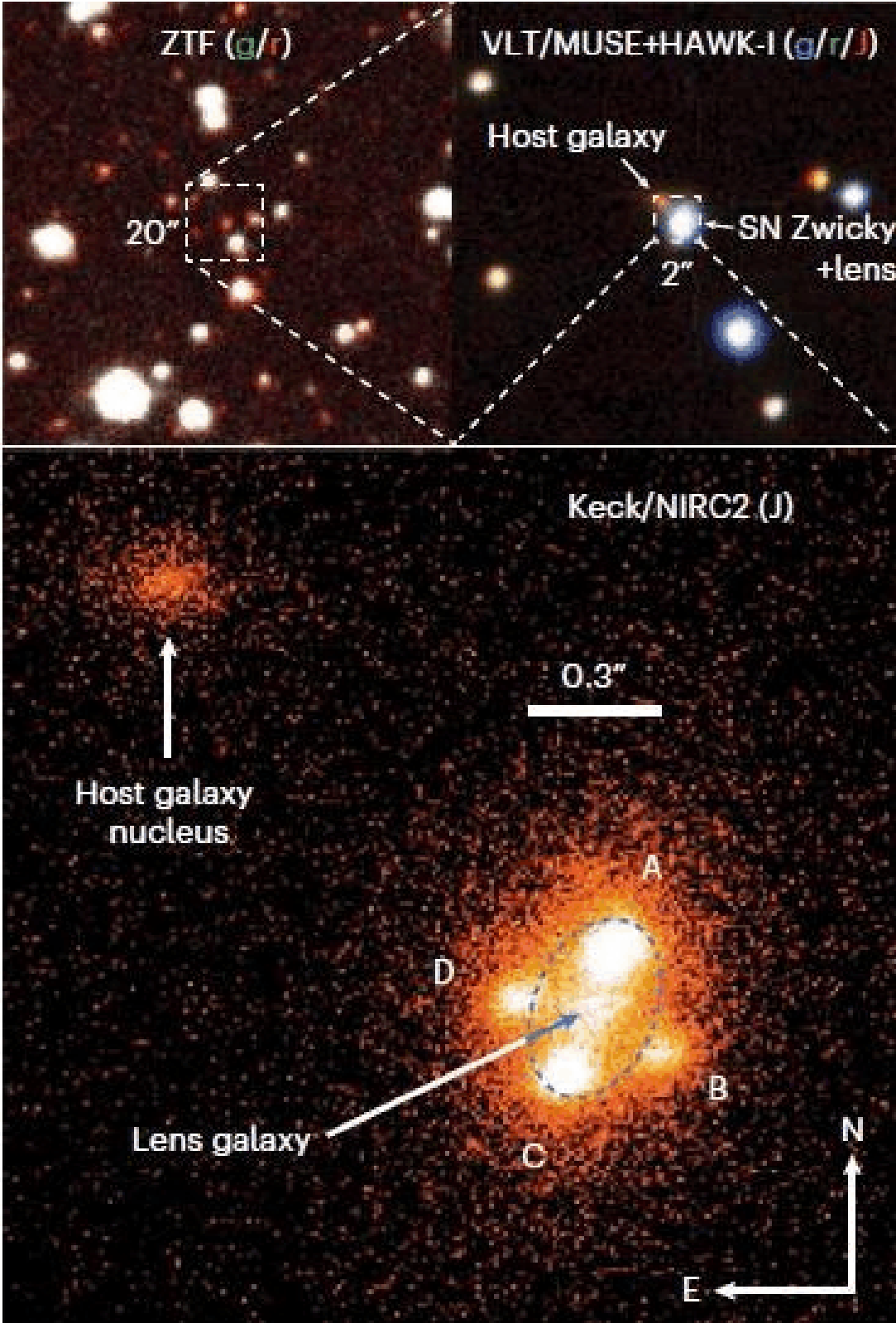
Our understanding of gravitational lensing due to the curvature of spacetime, and the analogy with the deflection of light in optics, dates back to the work of Einstein in 1936.

In this pioneering work he considered the case where both the lens and the magnified background source were stars in our Galaxy.

Einstein concluded that the deflection angles were too small to be resolved with astronomical instruments.

It was Zwicky who one year later pointed out that, if the source was extragalactic, entire galaxies or clusters of galaxies could be considered as gravitational deflectors.

[Images are from this paper. Upper left square is general view of supernova SN Zwicky, upper right square is close-up, and bottom half is extreme magnification showing how a galaxy warped multiple images of the supernova.]



Planets.

Onyett, I.J., et al (2023) **Silicon isotope constraints on terrestrial planet accretion.** NATURE 618:doi.org/10.1038/s41586-023-06135-z (available as a free pdf)

Authors’ abstract: *Understanding the nature and origin of the precursor material to terrestrial planets is key to deciphering the mechanisms and timescales of planet formation. Nucleosynthetic variability among rocky Solar System bodies can trace the composition of planetary building blocks.*

Here we report the nucleosynthetic composition of silicon ($\mu^{30}\text{Si}$), the most abundant refractory planet-building element, in primitive and differentiated meteorites to identify terrestrial planet precursors.

Inner Solar System differentiated bodies, including Mars, record $\mu^{30}\text{Si}$ deficits of -11.0 ± 3.2 parts per million to -5.8 ± 3.0 parts per million whereas non-carbonaceous and carbonaceous chondrites show $\mu^{30}\text{Si}$ excesses from 7.4 ± 4.3 parts per million to 32.8 ± 2.0 parts per million relative to Earth.

This establishes that chondritic bodies are not planetary building blocks. Rather, material akin to early-formed differentiated asteroids must represent a major planetary constituent.

The $\mu^{30}\text{Si}$ values of asteroidal bodies correlate with their accretion ages, reflecting progressive admixing of a $\mu^{30}\text{Si}$ -rich outer Solar System material to an initially $\mu^{30}\text{Si}$ -poor inner disk. Mars’ formation before chondrite parent bodies is necessary to avoid incorporation of $\mu^{30}\text{Si}$ -rich material.

In contrast, Earth’s $\mu^{30}\text{Si}$ composition necessitates admixing of 26 ± 9 per cent of $\mu^{30}\text{Si}$ -rich outer Solar System material to its precursors. The $\mu^{30}\text{Si}$ compositions of Mars and proto-Earth are consistent with their rapid formation by collisional growth and pebble accretion less than three million years after Solar System formation.

Finally, Earth’s nucleosynthetic composition for s-process sensitive (molybdenum and zirconium) and siderophile (nickel) tracers are consistent with pebble accretion when volatility-driven processes during accretion and the Moon-forming impact are carefully evaluated.

The classical theory for terrestrial planet formation involves a phase of giant impacts between embryos over timescales of 50 to 100 megayears. This long-standing paradigm has recently been challenged by astrophysical observations and isotopic evidence for rapid planetary accretion.

Although the hafnium-tungsten age of Earth has been used to argue for its protracted accretion >30 megayears after Solar System formation, the tungsten isotope composition of Earth’s mantle is consistent with rapid accretion of proto-Earth provided that the Moon-forming giant impact occurred late.

Thus, the mechanisms of terrestrial planet formation are still debated and theories such as pebble accretion allowing rapid formation timescales have emerged.

In this model, streaming instabilities facilitate the rapid formation of 100-km-sized bodies that grow to form the terrestrial planets by the accretion of millimetre-sized pebbles within the 3 to 5 megayear protoplanetary disk lifetime.

Zhang, Z., et al (2023) **Giant tidal tails of helium escaping the hot Jupiter HATP-32b.** SCIENCE ADVANCES 9:doi.org/10.1126/sciadv.adf8736 (available as a free pdf)

Authors’ abstract: *Capturing planets in the act of losing their atmospheres provides rare opportunities to probe their evolution history. This analysis has been enabled by observations of the helium triplet at 10,833 angstrom, but past studies have focused on the narrow time window right around the planet’s optical transit.*

We monitored the hot Jupiter HAT-P-32 b using high-resolution spectroscopy from the Hobby-Eberly Telescope covering the planet’s full orbit. We detected helium escaping HAT-P-32 b at a 14 sigma significance, with extended leading and trailing tails spanning a projected length over 53 times the planet’s radius.

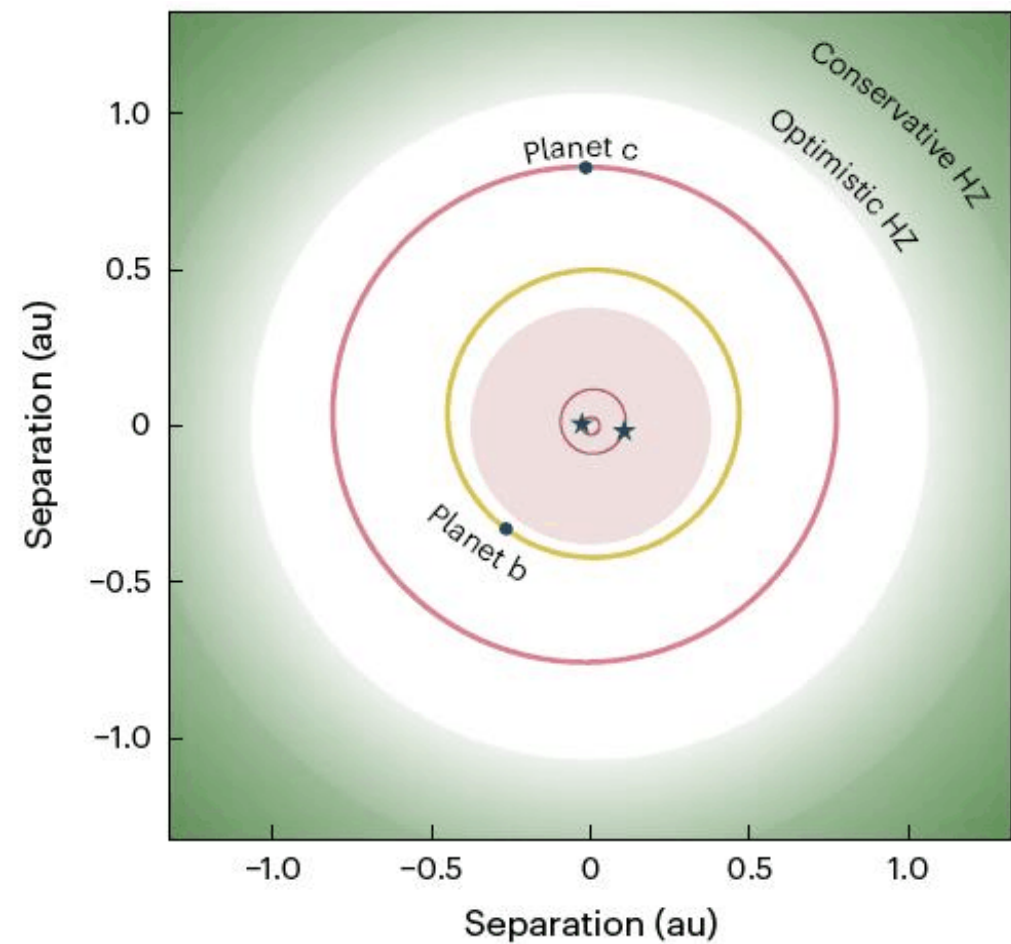
These tails are among the largest known structures associated with an exoplanet. We interpret our observations using three-dimensional hydrodynamic simulations, which predict Roche Lobe overflow with extended tails along the planet’s orbital path.

Standing, M.R., et al (2023) **Radial-velocity discovery of a second planet in the TOI-1338/BEBOP-1 circumbinary system.** NATURE ASTRONOMY doi.org/10.1038/s41550-023-01948-4 (available as a free pdf)

Authors’ abstract: *Circumbinary planets, those that orbit around both stars of a central binary star system, challenge our understanding of planet formation.*

With only 12 binary systems known to host circumbinary planets, identifying more of these planets, along with their physical properties, could help to discern some of the physical processes that govern planet formation.

Here we analyse radial-velocity data obtained by the HARPS and ESPRESSO spectrographs and report the detection of BEBOP-1c, a gas giant planet with a mass of 65.2 ± 11.8 Earth masses (M_{\oplus}) orbiting around both stars of an eclipsing binary star system with a period of 215.5 ± 3.3 days.



The system TOI-1338, hereafter referred to as BEBOP-1, which also hosts the smaller and inner transiting planet TOI-1338b, is only the second confirmed multiplanetary circumbinary system.

We do not detect TOI-1338b with radial-velocity data alone, and we can place an upper limit on its mass of $21.8 M_{\oplus}$ with 99% confidence. TOI-1338b is amenable to atmospheric characterization using JWST, so the BEBOP-1 system has the potential to act as a benchmark for circumbinary exo-atmospheric studies.

[Image is from this paper. ‘au’ is the astronomical unit, the median distance between Earth and the Sun, used as a standard measuring unit in astronomy. HZ is the habitable zone.]

Hall, C., et al (2023) **A new definition of exoplanet habitability: introducing the photosynthetic habitable zone.** ASTROPHYSICAL JOURNAL LETTERS 948:doi.org/10.3847/2041-8213/acccfb (available as a free pdf)

Authors’ abstract: *It may be possible to detect biosignatures of photosynthesis in an exoplanet’s atmosphere. However, such a detection would likely require a dedicated study, occupying a large amount of telescope time.*

It is therefore prudent, while searching for signs of life that we may recognize, to pick the best target possible. In this work, we present a new region, the photosynthetic habitable zone (PHZ), the distance from a star where both liquid water and oxygenic photosynthesis can occur.

It is therefore the region where detectable biosignatures of oxygenic photosynthesis are most likely to occur. Our analysis indicates that in the most ideal conditions for life and no atmospheric effects, the PHZ is almost as broad as the habitable zone.

On the other hand, if conditions for life are anything less than excellent and atmospheric effects are even moderate, the PHZ is concentrated at larger separations around more massive stars.

Such cases are also not tidally locked to their host star, which could result in planetary rotation periods similar to the Earth’s.

We identify five planets, Kepler-452 b, Kepler-1638 b, Kepler-1544 b, Kepler-62 e, and Kepler-62 f, that are consistently in the PHZ for a variety of conditions, and we predict their day lengths to be between 9 and 11 hr.

We conclude that the parameter space in which we should search for signs of life is much narrower than the standard habitable zone.

Wishart, D.S., et al (2023) **Stability of nucleic acid bases in concentrated sulfuric acid: Implications for the habitability of Venus’ clouds.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 120:doi.org/10.1073/pnas.2220007120 (available as a free pdf)

Authors’ abstract: *Despite Venus’ 700 K surface temperature being too hot for any plausible solvent and most organic covalent chemistry, Venus’ cloud-filled atmosphere layers at 48 to 60 km above the surface hold the main requirements for life: suitable temperatures for covalent bonds; an energy source (sunlight); and a liquid solvent.*

Yet, the Venus clouds are widely thought to be incapable of supporting life because the droplets are composed of concentrated liquid sulfuric acid, an aggressive solvent that is assumed to rapidly destroy most biochemicals of life on Earth.

Recent work, however, demonstrates that a rich organic chemistry can evolve from simple precursor molecules seeded into concentrated sulfuric acid, a result that is corroborated by domain knowledge in industry that such chemistry leads to complex molecules, including aromatics. We aim to expand the set of molecules known to be stable in concentrated sulfuric acid.

Here, we show that nucleic acid bases adenine, cytosine, guanine, thymine, and uracil, as well as 2,6-diaminopurine and the “core” nucleic acid bases purine and pyrimidine, are stable in sulfuric acid in the Venus cloud temperature and sulfuric acid concentration range, using UV spectroscopy and combinations of 1D and 2D ¹H ¹³C ¹⁵N NMR spectroscopy.

The stability of nucleic acid bases in concentrated sulfuric acid advances the idea that chemistry to support life may exist in the Venus cloud particle environment.

Natural Satellites.

Degroot, Dagomar (2023) **One small step for man, one giant leap for Moon microbes? Interpretations of risk and the limits of quarantine in NASA’s Apollo program.** ISIS 114:doi.org/10.1086/724888 (available as a free pdf)

Author’s abstract: *As NASA prepared to land astronauts on the Moon in the 1960s, scientists and federal officials came to fear that they could bring lunar microorganisms back to Earth, with potentially grave consequences for human, plant, and animal life.*

To prevent this “back contamination,” representatives from NASA and a network of federal departments and services developed a protocol to quarantine astronauts, equipment, samples, and spacecraft exposed to lunar dust.

Yet although NASA assured policy makers and an anxious public that it had implemented impermeable safeguards against the escape of lunar microorganisms, it had in fact prioritized likely risks to astronauts over unlikely risks to American society.

To a degree previously unknown, the Apollo quarantine protocol suffered from numerous containment breaches that would likely have exposed the terrestrial biosphere to contamination, had lunar microorganisms actually existed.

In the 1960s, a network of American scientists, officials, and civil servants mobilized to protect the Earth against extraterrestrial contamination. Their efforts, which consumed well over \$100 million, confronted the possibility that NASA’s Apollo missions to the Moon could expose the Earth to microorganisms from the lunar surface.

This backward or back contamination, some feared, threatened the wholesale degradation of Earth’s biosphere, and perhaps a pandemic that rivaled the worst in human history.

Acknowledgments. ... *I read many of those documents late at night while holding my newborn son, James; my thanks to him for sleeping.*

Speirs: If you are a science fiction writer looking for a good story idea, download this paper and read it through. You can make COVID-19 look like a walk in the park.

Postberg, F., et al (2023) **Detection of phosphates originating from Enceladus's ocean.** NATURE 618:doi.org/10.1038/s41586-023-05987-9 (available as a free pdf)

Authors' abstract: *Saturn's moon Enceladus harbours a global ice-covered water ocean. The Cassini spacecraft investigated the composition of the ocean by analysis of material ejected into space by the moon's cryovolcanic plume.*

The analysis of salt-rich ice grains by Cassini's Cosmic Dust Analyzer enabled inference of major solutes in the ocean water. Phosphorus, the least abundant of the bio-essential elements, has not yet been detected in an ocean beyond Earth.

Earlier geochemical modelling studies suggest that phosphate might be scarce in the ocean of Enceladus and other icy ocean worlds. However, more recent modelling of mineral solubilities in Enceladus's ocean indicates that phosphate could be relatively abundant.

Here we present Cassini's Cosmic Dust Analyzer mass spectra of ice grains emitted by Enceladus that show the presence of sodium phosphates.

Our observational results, together with laboratory analogue experiments, suggest that phosphorus is readily available in Enceladus's ocean in the form of orthophosphates, with phosphorus concentrations at least 100-fold higher in the moon's plume-forming ocean waters than in Earth's oceans.

Furthermore, geochemical experiments and modelling demonstrate that such high phosphate abundances could be achieved in Enceladus and possibly in other icy ocean worlds beyond the primordial CO₂ snowline, either at the cold seafloor or in hydrothermal environments with moderate temperatures.

In both cases the main driver is probably the higher solubility of calcium phosphate minerals compared with calcium carbonate in moderately alkaline solutions rich in carbonate or bicarbonate ions.

Enceladus's global ocean lies under an ice crust and above a rocky core where tidal dissipation is suspected to drive hydrothermal activity. There are several lines of evidence describing how volatile and dissolved materials from the rocky core are either emitted by the plume in the gas phase or incorporated into ice particles, respectively.

Cassini's Cosmic Dust Analyzer (CDA) recorded time-of-flight (ToF) mass spectra for cations generated by high-velocity impacts of individual grains onto the instrument's rhodium target.

The E-ring of Saturn is formed by ice grains escaping Enceladus's plume into orbits around Saturn, and hence the analysis of these grains by CDA provides important insights into the composition of the subsurface ocean, including a rich variety of organic compounds, with much better statistics compared with data from the rare occasions when Cassini traversed the plume itself.

Asteroids.

Flekkøy, E.G., and R. Toussaint (2023) **Statistical implications of the n = 1 observation of 1I/'Oumuamua.** MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 523:doi.org/10.1093/mnras/slاد049 (available as a free pdf)

Authors' abstract: *We obtain the exact statistical distribution of expected detection rates that may be obtained from the detection of 'Oumuamua, which currently belongs to a class of objects that is only observed once in our Solar system.*

The derivation of the distribution of future detection rates starts from the assumption that the detection is a result of a Poisson process, and uses Bayes theorem along with information theory to get the result.

We derive the probability for the next such observation along with the confidence limits of this prediction assuming that observations are done with the forthcoming Vera C. Rubin Observatory. This probability depends on the estimates of detection rates that existed prior to the 'Oumuamua observation.

However, unless the constraints given by these model-based estimates are within an order of magnitude of the actual detection rate, they have a negligible effect on the probability of making a second observation. The results are generalized to the expected future case where more than one observation exists.

Speirs: When I was a university student, I learned in statistics that a sample size of 1 is not considered significant.

Origin Of Life.

Brocks, J.J., et al (2023) **Lost world of complex life and the late rise of the eukaryotic crown.** NATURE 618:doi.org/10.1038/s41586-023-06170-w

[Eukaryotes are cells with nuclei containing their genetic material. Prokaryotes, which preceded eukaryotes, have no nuclei and their genes are scattered throughout the cell.]

Authors’ abstract: *Eukaryotic life appears to have flourished surprisingly late in the history of our planet.*

This view is based on the low diversity of diagnostic eukaryotic fossils in marine sediments of mid-Proterozoic age (around 1,600 to 800 million years ago) and an absence of steranes, the molecular fossils of eukaryotic membrane sterols.

This scarcity of eukaryotic remains is difficult to reconcile with molecular clocks that suggest that the last eukaryotic common ancestor (LECA) had already emerged between around 1,200 and more than 1,800 million years ago.

LECA, in turn, must have been preceded by stem-group eukaryotic forms by several hundred million years. Here we report the discovery of abundant protosteroids in sedimentary rocks of mid-Proterozoic age.

These primordial compounds had previously remained unnoticed because their structures represent early intermediates of the modern sterol biosynthetic pathway, as predicted by Konrad Bloch.

The protosteroids reveal an ecologically prominent ‘protosterol biota’ that was widespread and abundant in aquatic environments from at least 1,640 to around 800 million years ago and that probably comprised ancient protosterol-producing bacteria and deep-branching stem-group eukaryotes.

Modern eukaryotes started to appear in the Tonian period (1,000 to 720 million years ago), fuelled by the proliferation of red algae (rhodophytes) by around 800 million years ago. This ‘Tonian transformation’ emerges as one of the most profound ecological turning points in the Earth’s history.

Paleobiology.

Luo, M., et al (2023) **Fungal-induced fossil biomineralization.** CURRENT BIOLOGY 33:doi.org/10.1016/j.cub.2023.04.067

Authors’ abstract: *Exceptional preservation of fossils has often been attributed to the actions of bacteria that aid in the preservation of soft tissues that normally decay rapidly.*

However, it is well known that fungi play a major role in organic matter decomposition, biogeochemical cycling of elements, and metal-mineral transformations in modern ecosystems.

Although the fungal fossil record can be traced back over a billion years, there are only a few recorded examples of fungal roles in fossilization. In this research, we have carried out a detailed geobiological investigation on early Pleistocene hyena coprolites (fossilized dung) in an attempt to ascertain possible fungal involvement in their formation.

Using an advanced microscopic and mineralogical approach, we found that numerous hydroxyapatite nanofibers (25 to 34 nm on average), interwoven to form spheroidal structures, constituted the matrix of the coprolites in addition to food remains.

These structures were found to be extremely similar in texture and mineral composition to biominerals produced during laboratory culture of a common saprophytic and geosynthetic fungus, Aspergillus niger, in the presence of a solid source of calcium (Ca) and phosphorus (P).

This observation, and our other data obtained, strongly suggests that fungal metabolism can provide a mechanism that can result in fossil biomineralization, and we hypothesize, therefore, that this may have contributed to the formation of well-preserved fossils (Lagerstätten) in the geological record.

The characteristic polycrystalline nanofibers may also have served as a potential biosignature for fungal life in early Earth and extraterrestrial environments.

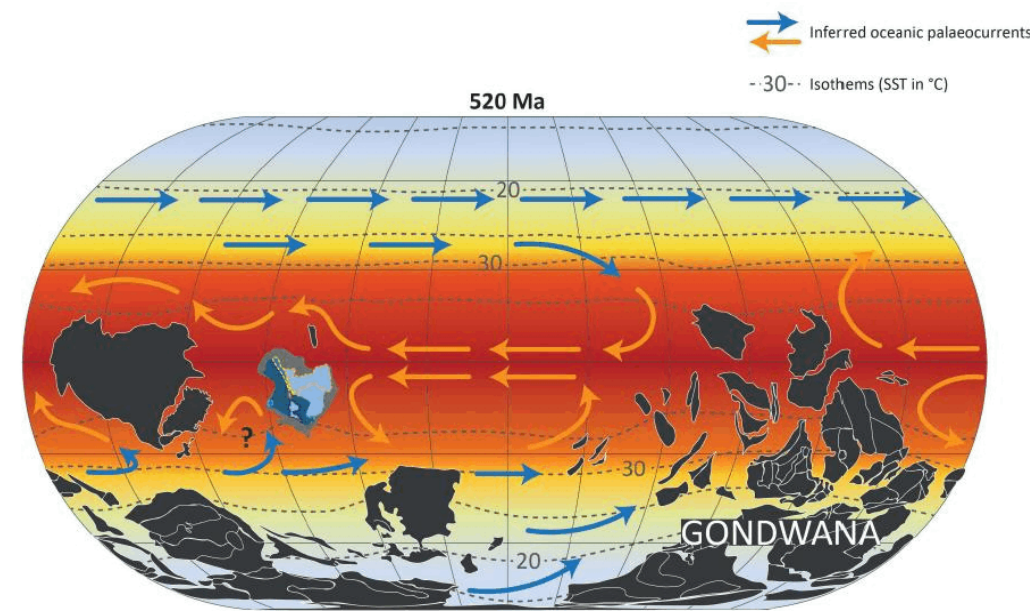
Zhuravlev, A.Y., et al (2023) **Cambrian radiation speciation events driven by sea level and redoxcline changes on the Siberian Craton.** SCIENCE ADVANCES 9:doi.org/10.1126/sciadv.adh2558 (available as a free pdf)

Authors’ abstract: *The evolutionary processes of speciation during the Cambrian radiation and their potential extrinsic drivers, such as episodic oceanic oxygenation events, remain unconfirmed.*

High-resolution temporal and spatial distribution of reef-associated archaeocyath sponge species on the Siberian Craton during the early Cambrian [ca. 528 to 510 million years ago] shows that speciation was driven by increased endemism particularly ca. 521 million years (59.7% endemic species) and 514.5 million years (65.25% endemic species) ago.

These mark rapid speciation events after dispersal of ancestors from the Aldan-Lena center of origin to other regions.

These speciation events coincided with major sea-level lowstands, which we hypothesize were intervals when relative deepening of the shallow redoxcline permitted extensive oxygenation of shallow waters over the entire craton.



This provided oxyc corridors for dispersal and allowed the formation of new founder communities. Thus, shallow marine oxygen expansion driven by sea-level oscillations provides an evolutionary driver for successive speciation events during the Cambrian radiation.

The Ediacaran-Cambrian radiation marks the appearance and rise of diverse animals (metazoans) in the fossil record.

In particular, the early Cambrian [ca. 538.8 to 510 million years (Ma) ago] saw the rapid emergence of all major phyla, complex metazoan reefs, modern-style food webs, as well as a substantial rise of metazoan abundance and biodiversity.

Biodiversity accumulates via speciation, and speciation by dispersal occurs when a population actively migrates into a new geographical area from the ancestral range.

Regional diversification is promoted by either regional isolation or within-region environmental heterogeneity. Temporal and spatial habitat heterogeneity is known to be a major driver of biodiversification over evolutionary time scales.

Modern marine invertebrate distributions are controlled mainly by varying dispersal ability in response to factors such as ocean currents, latitudinal/temperature gradients, and other physical barriers, rather than vicariance patterns, i.e., progressive continental fragmentation, usually by a physical barrier.

Modern marine invertebrates can often disperse rapidly across large distances, via either propagules or using various rafting substrates, often driven by ocean currents.

Distinct biogeographic provinces were a feature of the lower Cambrian biota from its first appearance. Notable diversity hot spots fostering further differentiation of assemblages within provinces developed later. Such a distribution may have been facilitated by the diverse types of metazoan propagules now reported from the lower Cambrian.

[Map is from this paper and shows how the continents were arranged during the Cambrian species explosion.]

Li, Y., et al (2023) **Cambrian stem-group ambulacrarians and the nature of the ancestral deuterostome.** CURRENT BIOLOGY 33:doi.org/10.1016/j.cub.2023.04.048 (available as a free pdf)

[Deuterostomes are animals whose anus forms in the embryo before their mouths, such as all vertebrates, sea stars, and crinoids. There are about 60,000 species. Their opposites are the protostomes, which include all arthropods, molluscs, and worms. There are about 1,000,000 species, mostly insects.]

Authors’ abstract: *Deuterostomes are characterized by some of the most widely divergent body plans in the animal kingdom. These striking morphological differences have hindered efforts to predict ancestral characters, with the origin and earliest evolution of the group remaining ambiguous.*

Several iconic Cambrian fossils have been suggested to be early deuterostomes and hence could help elucidate ancestral character states. However, their phylogenetic relationships are controversial.

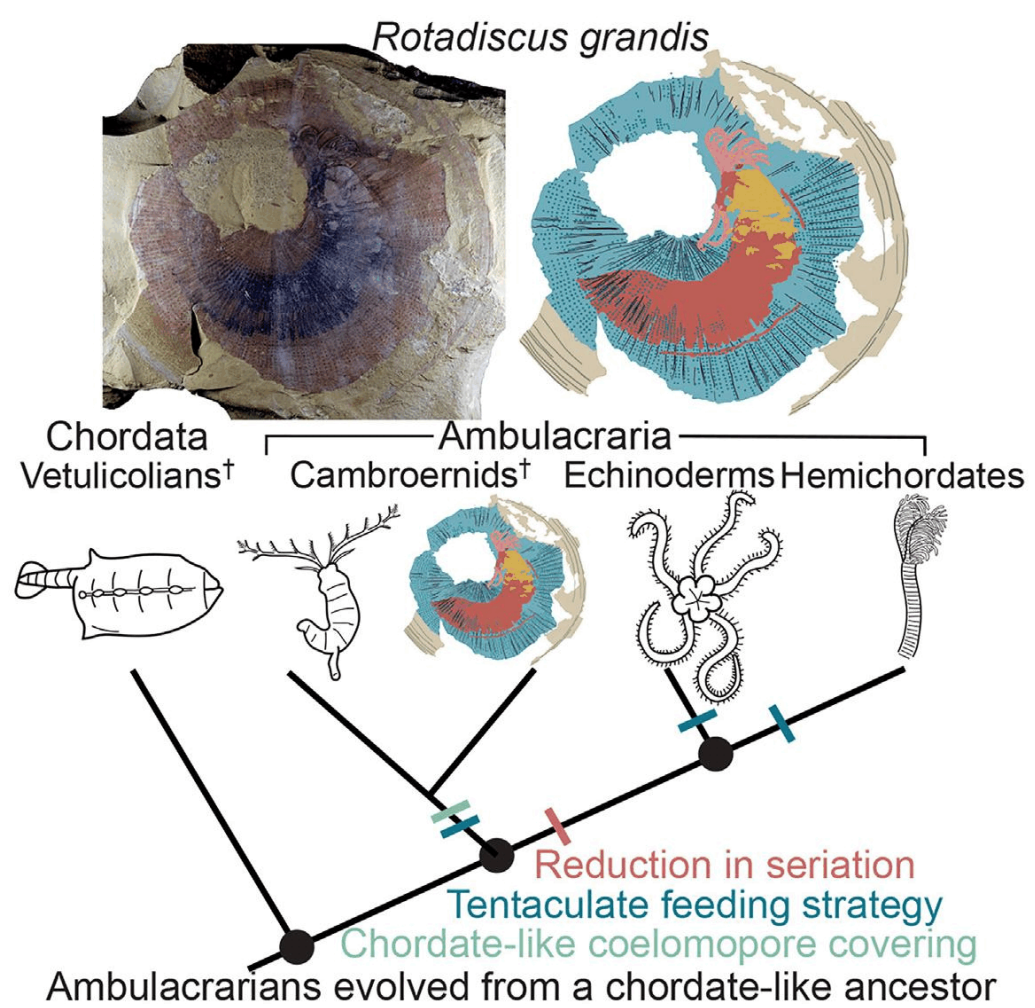
Here, we describe new, exceptionally preserved specimens of the discoidal metazoan Rotadiscus grandis from the early Cambrian Chengjiang biota of China. These reveal a previously unknown double spiral structure, which we interpret as a chordate-like covering to a coelomopore, located adjacent to a horseshoe-shaped tentacle complex.

The tentacles differ in key aspects from those seen in lophophorates and are instead more similar to the tentacular systems of extant pterobranchs and echinoderms. Thus, Rotadiscus exhibits a chimeric combination of ambulacrarian and chordate characters.

Phylogenetic analyses recover Rotadiscus and closely related fossil taxa as stem ambulacrarians, filling a significant morphological gap in the deuterostome tree of life.

These results allow us to reconstruct the ancestral body plans of major clades of deuterostomes, revealing that key traits of extant forms, such as a post-anal region, gill bars, and a U-shaped gut, evolved through convergence.

[Images are from this paper.]



Gess, R.W., and P.E. Ahlberg (2023) **A high latitude Gondwanan species of the Late Devonian tristichopterid Hyneria (Osteichthyes: Sarcopterygii).** PLOS ONE 18:doi.org/10.1371/journal.pone.0281333 (available as a free pdf)

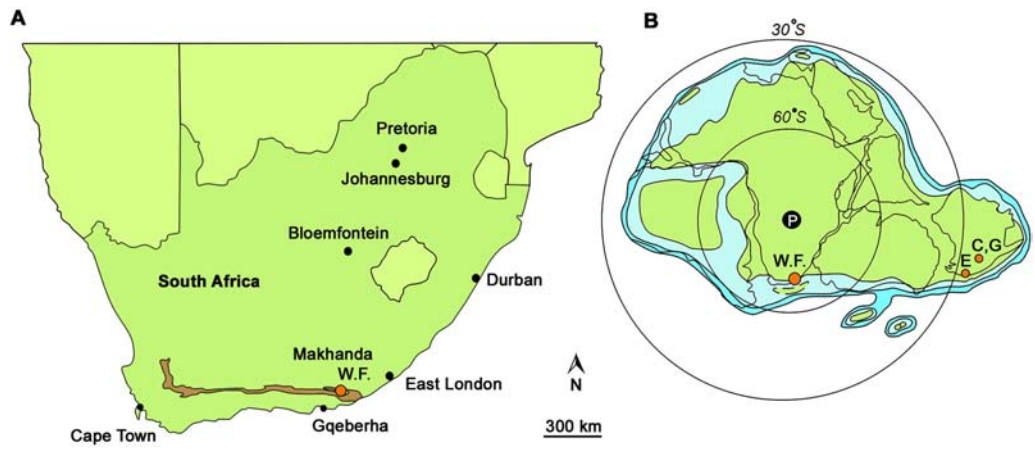
Authors’ abstract: *We describe the largest bony fish in the Late Devonian (late Famennian) fossil assemblage from Waterloo Farm near Makhanda/Grahamstown, South Africa.*

It is a giant member of the extinct clade Tristichopteridae (Sarcopterygii: Tetrapodomorpha) and most closely resembles Hyneria lindae from the late Famennian Catskill Formation of Pennsylvania, USA.

Notwithstanding the overall similarity, it can be distinguished from *H. lindae* on a number of morphological points and is accordingly described as a new species, *H. udlezinye* sp. nov.

The discovery of *H. udlezinye* shows that *Hyneria* is a cosmopolitan genus extending into the high latitudes of Gondwana, not a Euramerican endemic. It supports the contention that the derived clade of giant tristichopterids, which alongside *Hyneria* includes such genera as *Eusthenodon*, *Edenopteron* and *Mandageria*, originated in Gondwana.

[Map and image is from this paper.]



Wang, X., et al (2023) **An exquisitely preserved skeleton of *Eoarcos vorax* (nov. gen. et sp.) from Fitterer Ranch, North Dakota (Early Oligocene) and systematics and phylogeny of North American Early Arctoids (Carnivora, Caniformia).** JOURNAL OF VERTEBRATE PALEONTOLOGY 42:doi.org/10.1080/02724634.2022.2145900

Authors’ abstract: *An exquisitely preserved male skeleton of an early arctoid, *Eoarcos vorax* new genus and species, provides a unique window into the origin and early divergence of Carnivora.*

Recovered from the Fitterer Ranch locality in the early Oligocene (Orellan to Whitneyan North American Land Mammal ages) Brule Formation of southwestern North Dakota (~32 megayears ago), the new arctoid offers an opportunity to evaluate the fundamental relationships of the caniform (dog-like) carnivorans.



**Eoarcos vorax* possesses a suite of plesiomorphic characters inherited from its miacid ancestors, making it an ideal model for ancestral arctoids. We present a comprehensive treatment of *E. vorax*, combining traditional description with photographic documentation, microCT, laser scans, and photogrammetry.*

*Showing its plesiomorphic morphology, *Eoarcos vorax* is scansorial, somewhat like a modern raccoon, retaining the ability to climb trees and lacking cursorial adaptations present in the early canid *Hesperocyon*.*

*However, *E. vorax* shows clear signs of durophagous cranio-dental morphology, presumably for an obligatory diet of mollusks, with frequent damage to shell-crushing premolars, plus associated dental infections.*

Deng, T., et al (2023) **An Oligocene giant rhino provides insights into *Paraceratherium* evolution.** COMMUNICATIONS BIOLOGY 4:doi.org/10.1038/s42003-021-02170-6 (available as a free pdf)

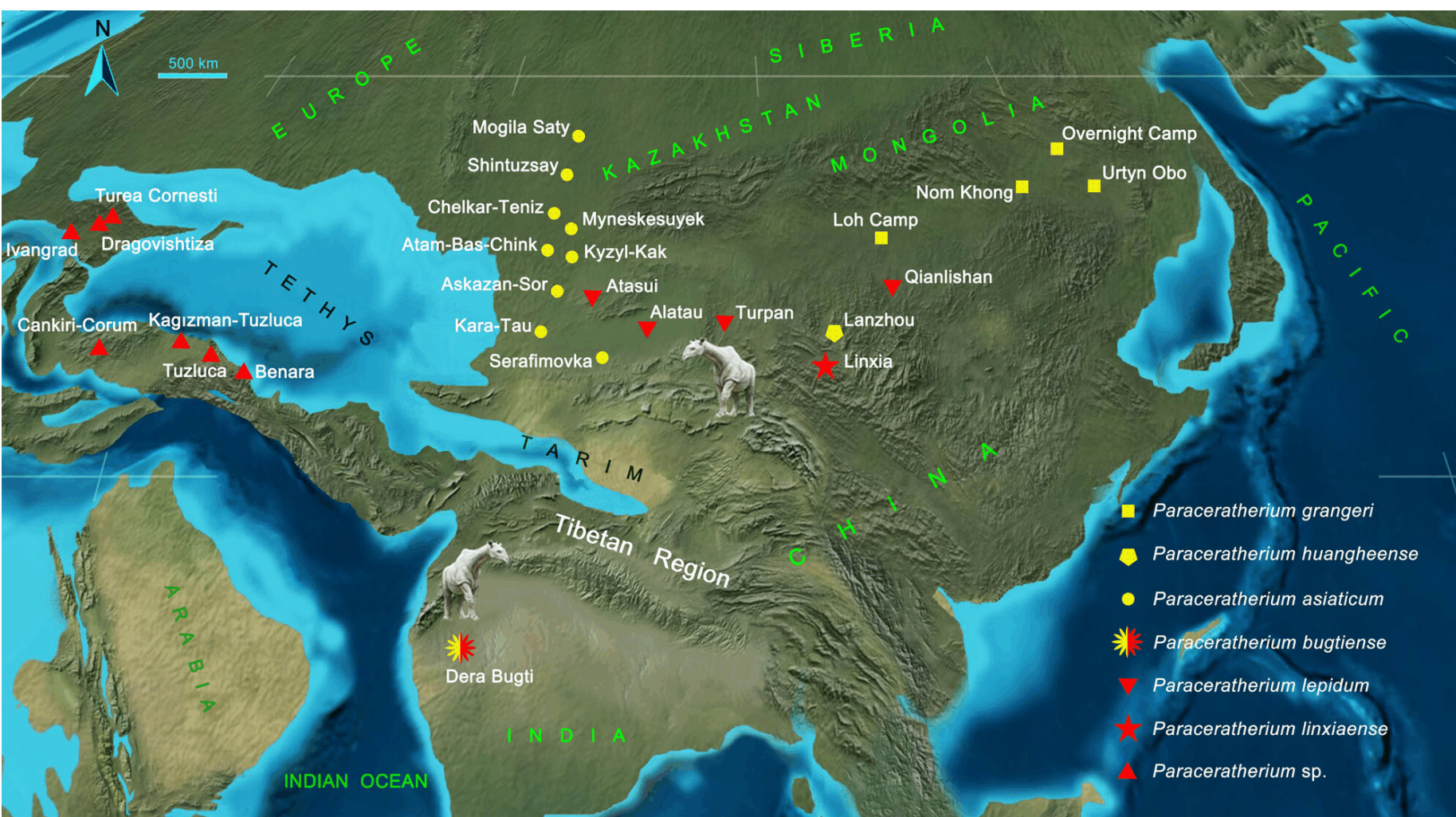
Authors’ abstract: *As one of the largest land mammals, the origin and evolution of the giant rhino *Paraceratherium bugtiense* in Pakistan have been unclear. We report a new species *Paraceratherium linxiaense* sp. nov. from northwestern China with an age of 26.5 megayears ago.*

*Morphology and phylogeny reveal that *P. linxiaense* is the highly derived species of the genus *Paraceratherium*, and its clade with *P. lepidum* has a tight relationship to *P. bugtiense*. Based on the paleogeographical literature, *P. bugtiense* represents a range expansion of *Paraceratherium* from Central Asia via the Tibetan region.*

*By the late Oligocene, *P. lepidum* and *P. linxiaense* were found in the north side of the Tibetan Plateau. The Tibetan region likely hosted some areas with low elevation, possibly under 2000 metres during Oligocene, and the lineage of giant rhinos could have dispersed freely along the eastern coast of the Tethys Ocean and perhaps through some lowlands of this region.*

[The map on the next page is from this paper and shows what Asia looked like during the time of the giant rhinos.]

[Image of giant rhino skeleton is from Wikipedia.]



White, H.E., et al (2023) **Pedomorphosis in the ancestry of marsupial mammals.** CURRENT BIOLOGY 33:doi.org/10.1016/j.cub.2023.04.009 (available as a free pdf)

[Which came first, marsupials or placental mammals? In other words, are marsupials primitive or are they descended from placentals?]

Authors' abstract: *Within mammals, different reproductive strategies (e.g., egg laying, live birth of extremely underdeveloped young, and live birth of well-developed young) have been linked to divergent evolutionary histories. How and when developmental variation across mammals arose is unclear.*

While egg laying is unquestionably considered the ancestral state for all mammals, many long-standing biases treat the extreme underdeveloped state of marsupial young as the ancestral state for therian mammals (clade including both marsupials and placentals), with the well-developed young of placentals often considered the derived mode of development.

Here, we quantify mammalian cranial morphological development and estimate ancestral patterns of cranial shape development using geometric morphometric analysis of the largest comparative ontogenetic dataset of mammals to date (165 specimens, 22 species).

We identify a conserved region of cranial morphospace for fetal specimens, after which cranial morphology diversified through ontogeny in a cone-shaped pattern. This cone-shaped pattern of development distinctively reflected the upper half of the developmental hour glass model.

Moreover, cranial morphological variation was found to be significantly associated with the level of development (position on the altricial-precocial spectrum) exhibited at birth. Estimation of ancestral state allometry (size-related shape change) reconstructs marsupials as pedomorphic relative to the ancestral therian mammal.

In contrast, the estimated allometries for the ancestral placental and ancestral therian were indistinguishable. Thus, from our results, we hypothesize that placental mammal cranial development most closely reflects that of the ancestral therian mammal, while marsupial cranial development represents a more derived mode of mammalian development, in stark contrast to many interpretations of mammalian evolution.

Dinosaurs.

Alarcn-Muoz, J., et al (2023) **Relict duck-billed dinosaurs survived into the last age of the dinosaurs in subantarctic Chile.** SCIENCE ADVANCES 9:doi.org/10.1126/sciadv.adg2456 (available as a free pdf)

[Hadrosaurs were bipedal herbivorous dinosaurs which became the most efficient large herbivores in evolutionary history until the asteroid hit. They roamed the planet like herds of bison.]

Authors' abstract: *In the dusk of the Mesozoic, advanced duck-billed dinosaurs (Hadrosauridae) were so successful that they likely outcompeted other herbivores, contributing to declines in dinosaur diversity.*

From Laurasia, hadrosaurids dispersed widely, colonizing Africa, South America, and, allegedly, Antarctica. Here, we present the first species of a duck-billed dinosaur from a subantarctic region, Gonkoken nanoi, of early Maastrichtian age in Magallanes, Chile.

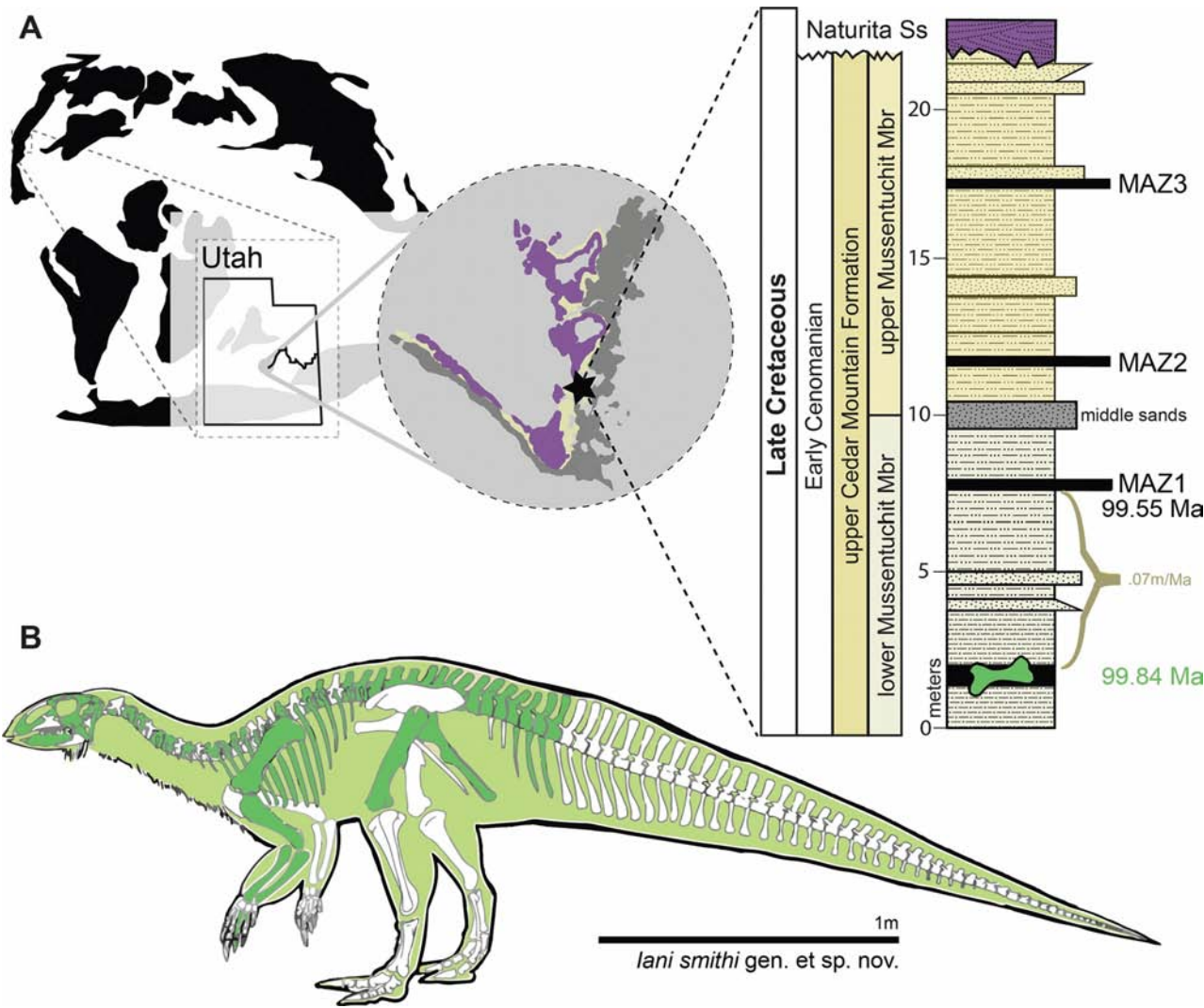
Unlike duckbills further north in Patagonia, Gonkoken descends from North American forms diverging shortly before the origin of Hadrosauridae. However, at the time, non-hadrosaurids in North America had become replaced by hadrosaurids.

We propose that the ancestors of Gonkoken arrived earlier in South America and reached further south, into regions where hadrosaurids never arrived.

All alleged subantarctic and Antarctic remains of hadrosaurids could belong to non-hadrosaurid duckbills like Gonkoken. Dinosaur faunas of the world underwent qualitatively different changes before the Cretaceous-Paleogene asteroid impact, which should be considered when discussing their possible vulnerability.

Authors’ abstract: *Here we report discovery of a new early-diverging ornithopod, Iani smithi gen. et sp. nov., from the Cenomanian-age lower Mussentuchit Member, Cedar Mountain Formation of Utah, USA.*

The single known specimen of this species (NCSM 29373) includes a well-preserved, disarticulated skull, partial axial column, and portions of the appendicular skeleton. Apomorphic traits are concentrated on the frontal, squamosal, braincase, and premaxilla, including the presence of three premaxillary teeth.



Phylogenetic analyses using parsimony and Bayesian inference posit Iani as a North American rhabdodontomorph based on the presence of enlarged, spatulate teeth bearing up to 12 secondary ridges, maxillary teeth lacking a primary ridge, a laterally depressed maxillary process of the jugal, and a posttemporal foramen restricted to the squamosal, among other features.

Prior to this discovery, neornithischian paleobiodiversity in the Mussentuchit Member was based primarily on isolated teeth, with only the hadrosauroid Eolambia caroljonesa named from macrovertebrate remains.

Documentation of a possible rhabdodontomorph in this assemblage, along with published reports of an as-of-yet undescribed thescelosaurid, and fragmentary remains of ankylosaurians and ceratopsians confirms a minimum of five, cohabiting neornithischian clades in earliest Late Cretaceous terrestrial ecosystems of North America.

Due to poor preservation and exploration of Turonian-Santonian assemblages, the timing of rhabdodontomorph extirpation in the Western Interior Basin is, as of yet, unclear.

However, Iani documents survival of all three major clades of Early Cretaceous neornithischians (Thescelosauridae, Rhabdodontomorpha, and Ankylopollexia) into the dawn of the Late Cretaceous of North America.

[Images are from this paper.]

Zoology.

Heinicke, M.P., et al (2023) **Reappraising the evolutionary history of the largest known gecko, the presumably extinct *Hoplodactylus delcourti*, via high-throughput sequencing of archival DNA.** SCIENTIFIC REPORTS 13:doi.org/10.1038/s41598-023-35210-8 (available as a free pdf)

Authors’ abstract: *Hoplodactylus delcourti* is a presumably extinct species of diplodactylid gecko known only from a single specimen of unknown provenance. It is by far the largest known gekkotan, approximately 50% longer than the next largest-known species.

It has been considered a member of the New Zealand endemic genus Hoplodactylus based on external morphological features including shared toe pad structure. We obtained DNA from a bone sample of the only known specimen to generate high-throughput sequence data suitable for phylogenetic analysis of its evolutionary history.

Complementary sequence data were obtained from a broad sample of diplodactylid geckos. Our results indicate that the species is not most closely related to extant Hoplodactylus or any other New Zealand gecko.

Instead, it is a member of a clade whose living species are endemic to New Caledonia. Phylogenetic comparative analyses indicate that the New Caledonian diplodactylid clade has evolved significantly more disparate body sizes than either the Australian or New Zealand clades.

Toe pad structure has changed repeatedly across diplodactylids, including multiple times in the New Caledonia clade, partially explaining the convergence in form between H. delcourti and New Zealand Hoplodactylus. Based on the phylogenetic results, we place H. delcourti in a new genus.

Vigne, J.D., et al (2023) **Earliest “domestic” cats in China identified as leopard cat (*Prionailurus bengalensis*).** PLOS ONE 11:doi.org/10.1371/journal.pone.0147295 (available as a free pdf)

Authors’ abstract: *The ancestor of all modern domestic cats is the wildcat, Felis silvestris lybica, with archaeological evidence indicating it was domesticated as early as 10,000 years ago in South-West Asia.*

A recent study, however, claims that cat domestication also occurred in China some 5,000 years ago and involved the same wildcat ancestor (F. silvestris).

The application of geometric morphometric analyses to ancient small felid bones from China dating between 5,500 to 4,900 BP, instead reveal these and other remains to be that of the leopard cat (Prionailurus bengalensis).

These data clearly indicate that the origins of a human-cat ‘domestic’ relationship in Neolithic China began independently from South-West Asia and involved a different wild felid species altogether.

The leopard cat’s ‘domestic’ status, however, appears to have been short-lived, its apparent subsequent replacement shown by the fact that today all domestic cats in China are genetically related to F. silvestris.

Botany.

Turner, H.A., et al (2023) **Leaves and sporangia developed in rare non-Fibonacci spirals in early leafy plants.** SCIENCE 380:doi.org/10.1126/science.adg4014

[If you look closely at how leaves or flower petals grow from their buds, you will see they follow a spiral pattern. Almost always, modern plants unfold using a Fibonacci sequence as you count down the spiral of flowers or leaves. But was it always so?]

Authors’ abstract: *Lateral plant organs, including leaves and reproductive structures, are arranged on stems in distinct patterns termed phyllotaxis.*

Most extant plants exhibit phyllotactic patterns that are mathematically described by the Fibonacci series. However, it remains unclear what lateral organ arrangements were present in early leafy plants.

To investigate this, we quantified phyllotaxis in fossils of the Early Devonian lycopod Asteroxylon mackiei. We report diverse phyllotaxis in leaves, including whorls and spirals.

Spirals were all $n:(n+1)$ non-Fibonacci types. We also show that leaves and reproductive structures occurred in the same phyllotactic series, indicating

developmental similarities between the organs. Our findings shed light on the long-standing debate about leaf origins and demonstrate the antiquity of non-Fibonacci spirals in plants.

Aerial parts of plants arrange their organs around stems, and this arrangement defines their structure. In most existing plant species, organs emerge at 137.5° from the previous organ.

This results in continuous spirals of organs, with the number of clockwise and anticlockwise spirals forming consecutive numbers in a Fibonacci sequence.

Reconstructing early lycophyte phyllotaxis from Rhynie Chert fossils, we found alternative leaf arrangements suggesting that Fibonacci-style patterning was not ancestral to living land plants.

The authors also found support for a hypothesis that lycophyte leaves originated from modified reproductive structures rather than evolving de novo. The work provides insight into how diverse early plants evolved into the plant forms seen today.

Ackerman, J.D., et al (2023) **Beyond the various contrivances by which orchids are pollinated: global patterns in orchid pollination biology.** BOTANICAL JOURNAL OF THE LINNEAN SOCIETY 202:295-324 (available as a free pdf)

Authors’ abstract: *Orchidaceae show remarkable diversity in pollination strategies, but how these strategies vary globally is not entirely clear. To identify regions and taxa that are data-rich and lend themselves to rigorous analyses or are data-poor and need attention, we introduce a global database of orchid reproductive biology.*

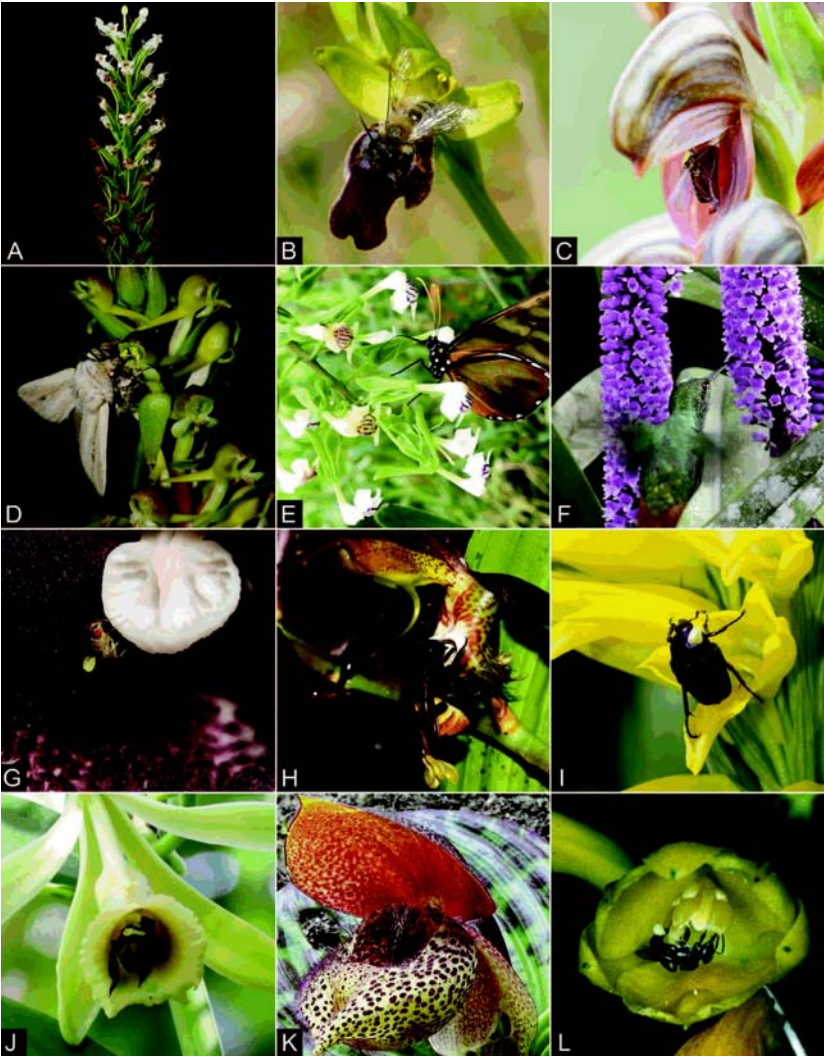
ur database contains > 2,900 species representing all orchid subfamilies and 23 of 24 tribes. We tabulated information on habit, breeding systems, means of pollinator attraction and the identity of pollinators.

Patterns of reproductive biology by habit, geography and taxonomy are presented graphically and analysed statistically. On the basis of our database, most orchid species sampled are pollinator dependent (76%) and self-compatible (88%).

Pollinator attraction based on rewards occurs in 54% of the species, whereas 46% use some means of deceit. Orchids generally have highly specific pollinator interactions (median number of pollinator species = 1).

Nonetheless, on average, specificity is lower for species offering rewards, occurring in multiple continental regions or Northern America (as defined by the Taxonomic Database Working Group Level 1 regions).

Although our database reveals impressive knowledge gains, extensive gaps in basic observations of orchid reproductive biology exist, particularly in tropical regions and diverse lineages of fly-pollinated species. The database is expected to facilitate targeted studies, further elucidating the ecological and evolutionary drivers of orchid diversity.



[Images are from this paper.]

Environmental Science.

Tucker, M.A., et al (2023) **Behavioral responses of terrestrial mammals to COVID-19 lockdowns.** SCIENCE 380:doi.org/10.1126/science.abo6499 (available as a free pdf)

Authors’ abstract: *COVID-19 lockdowns in early 2020 reduced human mobility, providing an opportunity to disentangle its effects on animals from those of landscape modifications.*

Using GPS data, we compared movements and road avoidance of 2,300 terrestrial mammals (43 species) during the lockdowns to the same period in 2019.

Individual responses were variable with no change in average movements or road avoidance behavior, likely due to variable lockdown conditions. However, under strict lockdowns 10-day 95th percentile displacements increased by 73%, suggesting increased landscape permeability.

Animals’ 1-hour 95th percentile displacements declined by 12% and animals were 36% closer to roads in areas of high human footprint, indicating reduced avoidance during lockdowns.

Overall, lockdowns rapidly altered some spatial behaviors, highlighting variable but substantial impacts of human mobility on wildlife worldwide.

Littlefair, J.E., et al (2023) **Air-quality networks collect environmental DNA with the potential to measure biodiversity at continental scales.** CURRENT BIOLOGY 33:R426-R428 (available as a free pdf)

Authors’ extracts: *In our samples, we identified eDNA from >180 vertebrate, arthropod, plant and fungal taxa representative of local biodiversity.*

We contend that air monitoring networks are in fact gathering eDNA data reflecting local biodiversity on a continental scale, as a result of their routine function. In some regions, air quality samples are stored for decades, presenting the potential for high resolution biodiversity time series.

With minimal modification of current protocols, this material provides the best opportunity to date for detailed monitoring of terrestrial biodiversity using an existing, replicated transnational design and it is already in operation.

This finding has the potential to be game changing for our approach to biodiversity monitoring on land, because air pollution monitoring networks, often sampling daily or weekly at high density, are likely to sample eDNA along with the particulate matter for which they were designed.

Speirs: You read this, now read the next one and be prepared to be frightened. It is now possible to track individual humans just by the molecules they left as they walked about. The Chinese government is probably already planning to use this method to track dissidents out of camera range or wearing disguises.

Whitmore, L., et al (2023) **Inadvertent human genomic bycatch and intentional capture raise beneficial applications and ethical concerns with environmental DNA.** NATURE ECOLOGY AND EVOLUTION 7:doi.org/10.1038/s41559-023-02056-Article 2 (available as a free pdf)

Authors’ abstract: *The field of environmental DNA (eDNA) is advancing rapidly, yet human eDNA applications remain underutilized and underconsidered.*

Broader adoption of eDNA analysis will produce many well-recognized benefits for pathogen surveillance, biodiversity monitoring, endangered and invasive species detection, and population genetics.

Here we show that deep-sequencing-based eDNA approaches capture genomic information from humans (Homo sapiens) just as readily as that from the intended target species. We term this phenomenon human genetic bycatch (HGB).

Additionally, high-quality human eDNA could be intentionally recovered from environmental substrates (water, sand and air), holding promise for beneficial medical, forensic and environmental applications.

However, this also raises ethical dilemmas, from consent, privacy and surveillance to data ownership, requiring further consideration and potentially novel regulation.

We present evidence that human eDNA is readily detectable from ‘wildlife’ environmental samples as human genetic bycatch, demonstrate that identifiable human DNA can be intentionally recovered from human-focused environmental sampling and discuss the translational and ethical implications of such findings.

Dong, Z., et al (2023) **Airborne fine particles drive H1N1 viruses deep into the lower respiratory tract and distant organs.** SCIENCE ADVANCES 9:doi.org/10.1126/sciadv.adf2165 (available as a free pdf)

Authors’ abstract: *Mounting data suggest that environmental pollution due to airborne fine particles (AFPs) increases the occurrence and severity of respiratory virus infection in humans. However, it is unclear whether and how interactions with AFPs alter viral infection and distribution.*

We report synergetic effects between various AFPs and the H1N1 virus, regulated by physicochemical properties of the AFPs. Unlike infection caused by virus alone, AFPs facilitated the internalization of virus through a receptor-independent pathway.

Moreover, AFPs promoted the budding and dispersal of progeny virions, likely mediated by lipid rafts in the host plasma membrane.

Infected animal models demonstrated that AFPs favored penetration of the H1N1 virus into the distal lung, and its translocation into extrapulmonary organs including the liver, spleen, and kidney, thus causing severe local and systemic disorders.

Our findings revealed a key role of AFPs in driving viral infection throughout the respiratory tract and beyond. These insights entail stronger air quality management and air pollution reduction policies.

Human Prehistory.

Alger, I., et al (2023) **The evolution of early hominin food production and sharing.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 120:doi.org/10.1073/pnas.2218096120 (available as a free pdf)

Authors’ abstract: *Human foragers share food extensively. Influential scenarios for the evolution of hominin food sharing focus on hunting, scavenging, cooking, or grandparental subsidies.*

However, evidence that the diets of early hominins such as Australopithecus included nutrient-dense extracted foods, long before reliance on meat, fire, or increased lifespan, suggests the possibility that early hominins shared extracted foods.

How did humans evolve from individualistic to collective foraging with sex differences in production and widespread sharing of plant and animal foods?

While current evolutionary scenarios focus on meat, cooking, or grandparental subsidies, considerations of the economics of foraging for extracted plant foods (e.g., roots, tubers), inferred to be important for early hominins (6 to 2.5 mya), suggest that early hominins shared such foods with offspring and others.

Here, we present a conceptual and mathematical model of early hominin food production and sharing, prior to the emergence of frequent hunting, cooking, and increased lifespan.

We hypothesize that extracted plant foods were vulnerable to theft, and that male mate guarding protected females from food theft.

We identify conditions favoring extractive foraging and food sharing across mating systems (i.e., monogamy, polygyny, promiscuity), and we assess which system maximizes female fitness with changes in the profitability of extractive foraging.

Females extract foods and share them with males only when: i) extracting rather than collecting plant foods pays off energetically; and ii) males guard females. Males extract foods when they are sufficiently high in value, but share with females only under promiscuous mating and/or no mate guarding.

These results suggest that if early hominins had mating systems with pair-bonds (monogamous or polygynous), then food sharing by adult females with unrelated adult males occurred before hunting, cooking, and extensive grandparenting.

Such cooperation may have enabled early hominins to expand into more open, seasonal habitats, and provided a foundation for the subsequent evolution of human life histories.

Modern Humans.

Wade, James (2023) **Entertainments from a medieval minstrel’s repertoire book.** REVIEW OF ENGLISH STUDIES 74:doi.org//10.1093/res/hgad053 (available as a free pdf)

Author’s abstract: *National Library of Scotland, Advocates’ MS 19.3.1 (the Heege Manuscript) is a large, late-fifteenth-century English miscellany manuscript from the border of Derbyshire and Nottinghamshire.*

Its first booklet, which existed independently of the manuscript’s other eight booklets throughout much or all of its medieval life, contains three texts: the tail-rhyme burlesque romance The Hunting of the Hare, a mock sermon in prose, and the alliterative nonsense verse The Battle of Brackonwet.

This essay proposes that Richard Heege, the booklet’s scribe, copied these texts from the repertoire of a local entertainer, be that a gifted amateur or, very plausibly, a travelling minstrel working a regular beat.

In this light, the booklet’s comic, crude, and sometimes frivolous contents take on new significance in the history of English literature, as they provide close evidence for what made up the entertainments of English oral culture, or minstrelsy, at the end of the Middle Ages.

*At the poem’s conclusion, in the Advocates’ manuscript, is an ‘amen’, and an ‘Explicit’, followed by a colophon from Richard Heege:
Per me Recardum Heegge quod ipse fuit ad istud conviuium & non habuit potacionem.
(By me, Richard Heege, because I was at that feast and did not have a drink.)*

Martínez, E., et al (2023) **Even lawyers do not like legalese.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 120:doi.org/10.1073/pnas.2302672120173

Authors’ abstract: *Across modern civilization, societal norms and rules are established and communicated largely in the form of written laws. Despite their prevalence and importance, legal documents have long been widely acknowledged to be difficult to understand for those who are required to comply with them (i.e., everyone). Why?*

Across two preregistered experiments, we evaluated five hypotheses for why lawyers write in a complex manner. Experiment 1 revealed that lawyers, like laypeople, were less able to recall and comprehend legal content drafted in a complex “legalese” register than content of equivalent meaning drafted in a simplified register.

Experiment 2 revealed that lawyers rated simplified contracts as equally enforceable as legalese contracts, and rated simplified contracts as preferable to legalese contracts on several dimensions, including overall quality, appropriateness of style, and likelihood of being signed by a client.

These results suggest that lawyers who write in a convoluted manner do so as a matter of convenience and tradition as opposed to an outright preference and that simplifying legal documents would be both tractable and beneficial for lawyers and nonlawyers alike.

Bowman, E., et al (2023) **Not so smart? “Smart” drugs increase the level but decrease the quality of cognitive effort.** SCIENCE ADVANCES 9:doi.org/10.1126/sciadv.add4165 (available as a free pdf)

Authors’ abstract: *The efficacy of pharmaceutical cognitive enhancers in everyday complex tasks remains to be established.*

Using the knapsack optimization problem as a stylized representation of difficulty in tasks encountered in daily life, we discover that methylphenidate, dextroamphetamine, and modafinil cause knapsack value attained in the task to diminish significantly compared to placebo, even if the chance of finding the optimal solution (~50%) is not reduced significantly.

Effort (decision time and number of steps taken to find a solution) increases significantly, but productivity (quality of effort) decreases significantly. At the same time, productivity differences across participants decrease, even reverse, to the extent that above-average performers end up below average and vice versa.

The latter can be attributed to increased randomness of solution strategies. Our findings suggest that “smart drugs” increase motivation, but a reduction in quality of effort, crucial to solve complex problems, annuls this effect.

Technology.

Peng, X., et al (2023) **Autonomous metal-organic framework nanorobots for active mitochondria-targeted cancer therapy.** SCIENCE ADVANCES 9:doi.org/10.1126/sciadv.adh1736 (available as a free pdf)

[Mitochondria are the respiratory organelles of all living cells. Without them, the cell will die.]

Authors’ abstract: *Nanorobotic manipulation to access subcellular organelles remains unmet due to the challenge in achieving intracellular controlled propulsion. Intracellular organelles, such as mitochondria, are an emerging therapeutic target with selective targeting and curative efficacy.*

We report an autonomous nanorobot capable of active mitochondria-targeted drug delivery, prepared by facilely encapsulating mitochondriotropic doxorubicin-triphenylphosphonium (DOX-TPP) inside zeolitic imidazolate framework-67 (ZIF-67) nanoparticles.

The catalytic ZIF-67 body can decompose bioavailable hydrogen peroxide overexpressed inside tumor cells to generate effective intracellular mitochondriotropic movement in the presence of TPP cation.

This nanorobot-enhanced targeted drug delivery induces mitochondria-mediated apoptosis and mitochondrial dysregulation to improve the in vitro anticancer effect and suppression of cancer cell metastasis, further verified by in vivo evaluations in the subcutaneous tumor model and orthotopic breast tumor model.

This nanorobot unlocks a fresh field of nanorobot operation with intracellular organelle access, thereby introducing the next generation of robotic medical devices with organelle-level resolution for precision therapy.

Speirs: Also suitable for biological warfare.

Pereira, L., et al (2023) **The physics of dancing peanuts in beer.** ROYAL SOCIETY OPEN SCIENCE 10:doi.org/10.1098/rsos.230376 (available as a free pdf)

Authors’ abstract: *In Argentina, some people add peanuts to their beer. Once immersed, the peanuts initially sink part way down into the beer before bubbles nucleate and grow on the peanut surfaces and remain attached. The peanuts move up and down within the beer glass in many repeating cycles.*

In this work, we propose a physical description of this dancing peanuts spectacle. We break down the problem into component physical phenomena, providing empirical constraint of each:

- (i) heterogeneous bubble nucleation occurs on peanut surfaces and this is energetically preferential to nucleation on the beer glass surfaces;*
- (ii) peanuts enshrouded in attached bubbles are positively buoyant in beer above a critical attached gas volume;*
- (iii) at the beer top surface, bubbles detach and pop, facilitated by peanut rotations and rearrangements;*
- (iv) peanuts containing fewer bubbles are then negatively buoyant in beer and sink; and*
- (v) the process repeats so long as the beer remains sufficiently supersaturated in the gas phase for continued nucleation.*

We used laboratory experiments and calculations to support this description, including constraint of the densities and wetting properties of the beer-gas-peanut system.

We draw analogies between this peanut dance cyclicity and industrial and natural processes of wide interest, ultimately concluding that this bar-side phenomenon can be a vehicle for understanding more complex, applied systems of general interest and utility.

Speirs: Over to you, fandom.

LETTERS TO THE EDITOR

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

FROM: Lloyd Penney 2023-06-12
Etobicoke, Ontario

OPUNTIA #546: [Re: ice-covered Bow River] It seems odd to see the photo on the cover, especially now when all is melted, and it’s been quite hot, and so many places across the country, especially in Alberta, are dealing with forest fires.

Someone had some fun with the signs [on the street flooded with meltwater], and that probably put some smiles on some worried faces.

[I don’t think anyone was worried because the water was only shin deep but just annoyed.]

[Re: Canstruction sculptures made of food tins] Good to see some creativity with the building materials going to the food banks. Here, food banks are rapidly depleting, mostly because of horrific prices for rent and food, and so few opportunities for jobs or an increase in pay. We’ve been lucky so far, but we do not know how long our luck will hold out.

My letter in that issue: The transporters may not become a reality, but much of the rest of Star Trek science has actually been achieved and improved upon. First thing I can think of is communicators. Cellphones and smartphones have exceeded those communicators. I have seen a cellphone built into a pin-on Starfleet symbol. It activates with a touch, with some voice recognition software added in.

OPUNTIA #547: We have plenty of artwork on our buildings in Toronto, but we have some politicians who just don’t get what the murals and other artworks are for. A few of them still see this urban art as graffiti and vandalism, and in the past, more than one mural became a pure white wall the next day. That still happens, but not as much as it used to.

[Murals are official City of Calgary policy, so no councillors here would interfere.]

I always figured that if sleuths like Holmes, Poirot, and Jessica Fletcher solved so many murders, perhaps they were the greatest serial killers of all time. Death seemed to follow them around. Even Poirot was the killer in his last case. I’d keep my eye open for such sleuths.

OPUNTIA #548: I initially wondered why the various comic cons in Ontario wouldn’t have anything like the Parade of Wonders, but admission to the comic events here is pricy, and given the attendance they get, leaving the convention centre, even for lunch, might mean it’s difficult to get back in. Keep ‘em inside to save on logistical nightmares.

[The Calgary Parade of Wonders took place just before the opening of the Comics Expo, so from there the cosplayers walked over to the Stampede grounds, never to be seen again that weekend. The rodeo grounds are adjacent to the downtown core, an easy 10-minute walk.]

Vale John Mansfield...I wish he could have seen the reception I expect he would have gotten at Pemmi-Con next month. I wish we could go, but the finances just won’t allow for it. I hope to hear positive reports afterwards.

OPUNTIA #549: I would have to wonder about Cooking with Lovecraft. I might not want to know where the ingredients are coming from.

[A cook could play it safe and put up a Food Allergens sign, warning customers that the ingredients might have come into contact with shoggoths.]

I think like a lot of us, I do have a shelf of Ace Doubles from a bygone era. They have all been read in the past, but are kept safe for the time being. I saw your reference to a book called CODEX. That was by Lev Grossman, not Lew.

We do intend to do something to mark the World Wide Party. We don’t do much, but our fanzinish friends are thought of every year.

FROM: Theo Nelson 2023-06-21
Calgary, Alberta

[The next two pages show his quarterly mail art postcard.]

Long time comin',
It's what the
Solstice brings,
It might be day,
It might be night,
It all depends on
Terra's flight
Around our lovely star.
The weather change with
Patterns of
Warmth and cold,
Brought about because
Axial Tilt happened
So very long ago.

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To:

Date -

Solstice swings both ways!



