
OPUNTIA 571

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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.

PARADE OF WONDERS

2024-04-26

photos by Dale Speirs

The Calgary Comic Expo, with paid attendance about 100,000, went on the weekend of April 27 and 28. They didn't have just a hotel or a convention centre but took over the entire Stampede grounds. On the Friday morning before, they held their annual cosplay parade through the downtown core along 8 Avenue South.

Todd McFarlane was the Honourary Parade Marshal. I have no idea who he is since I don't follow anime, video games, or comics, but he gave me a big wave anyway. Seemed like a nice fellow. I liked the car.

Otafest is Calgary's annual anime convention, with about 5,000 attending. This year's event will be May 10 to 12 in the downtown convention centre.

Near left:
Manga is literature? I have my doubts.

A Klingon with reading glasses. Well, the Star Trek franchise is getting old.


THE CALGARY EXPO

SHERLOCKIANA: PART 43
by Dale Speirs

[Parts 1 to 42 appeared in OPUNTIAs #63.1B, 63.1C, 63.1D, 67.1D, 68.1C, 69.1E, 70.1A, 71.1B, 251, 253, 256, 261, 269, 270, 276, 288, 309, 333, 340, 348, 356, 359, 365, 370, 383, 397, 410, 416, 423, 433, 457, 470, 474, 486, 492, 496, 501, 510, 526, 539, 552, and 561.]

The original Sherlock Holmes stories written by Sir Arthur Conan Doyle are referred to as the canon, while stories written by other authors are called pastiches.

In the canon stories, Watson mentioned about 100 cases as throwaway lines. Someday he would write up those cases but never did. My personal favourite was "Wilson, the notorious canary trainer". Pastiche writers have been mining those unwritten cases for decades.

Commentary.

IT'S NOT ALWAYS 1895: A SHERLOCK HOLMES CHRONOLOGY (2022, available from Amazon print-on-demand) by Bruce Harris was one of many books on the subject. The author's blurb on the back cover mentioned he was a member of the Sherlockian Chronologist Guild.

Dr Watson was often deliberately vague about when a case occurred. Sometimes he warned the reader that the dates, names and places had been altered to prevent the British Empire from collapsing if the truth came out.

There was also the circumstance that Watson published his stories as current true crime. Those involved would not appreciate having their names bandied about in public. Today we think of the Holmes stories as gaslight fiction but it must be remembered that they were originally published in contemporary settings.

As an example, "The Adventure of Charles Augustus Milverton" began with Watson writing: "*The reader will excuse me if I conceal the date or any other fact by which he might trace the actual occurrence*". Harris followed that quote with the remark: "*Game on*".

Those ambiguities spawned a cottage industry of Sherlockians trying to pin down exactly when and where a case occurred. Harris went into the fray by analyzing his predecessors' work, then adding his own tuppence's worth. He presented all the canon stories in reverse order of publication by Doyle. Unusual, but given the nebulous nature of Sherlockian chronology, that hardly mattered. An interesting read for dedicated Sherlockians.

Pastiches: Magazines.

From SHERLOCK HOLMES MYSTERY MAGAZINE #28 (2021, available from Amazon print-on-demand) were two pastiches.

'The Curious Case Of Arthur Conan Doyle" by Gary Lovisi was a complaint by Holmes about Doyle. The great detective resented Doyle constantly placing him into danger and then killing him off. He attributed Doyle's actions to jealousy.

"The Problem Of The Vanishing Bullet" by Lee Enderlin was about what police said was murder and the accused claimed was self-defense. Smythe arrived at Hardwicke's rooms, waving a gun and arguing about a dispute the two were having.

Hardwicke was about to leave for his gun club. Both fired a single shot. Hardwicke's bullet was found in Smythe's body. Smythe's bullet was nowhere to be found, so the police arrested Hardwicke. Holmes conducted a thorough search and eventually found the missing bullet. It had deflected underneath a coat rack. Just improbable enough to be true.

From SHERLOCK HOLMES MYSTERY MAGAZINE #29 (2022, available from Amazon print-on-demand) was this story.

"The Holmes Impersonator And The Baker Street Irregulars" by Janice Law was not a pastiche. Set in our times, the plot concerned a museum which was losing, one by one, its valuable Sherlockiana such as first editions and original Paget drawings.

The museum had a youth group inevitably called the Irregulars. They went into the investigation, targeting a visiting scholar as the suspect. Lurking about, they used their smartphones to video him in the act of substituting a fake for a genuine item. Our modern age.

Pastiches: Old-Time Radio.

Sherlock Holmes was very successful on radio. He aired on several networks with several sets of actors from 1930 to 1956, encompassing the entire lifespan of old-time radio. Basil Rathbone and Nigel Bruce had a long run, but others played the parts before and after. Available as free downloads from the Old Time Radio Researchers at www.otrr.org/OTRRLibrary

"The Adventure Of The Sally Martin" aired on 1946-11-23. No writer was credited although everyone else was. This episode commonly circulates without 'the' in the title, but Sally Martin was a ship, not a woman. The correct title was given in the intro.

Holmes and Watson were vacationing in a seaside village. They were relaxing in a pub with an oldtimer named Albert who had a bottomless fount of stories and a thirst to match. They were interrupted by the local police sergeant, who had been called to a murder.

George Byron, prominent manufacturer, had been killed on board his sailboat, the Sally Martin. The Canterbury police couldn't get to the village until the next day, so Holmes was asked to help.

The sergeant reeled off a list of characters on board, all suspects. Holmes interrogated them and dredged up all sorts of stories, some of which may have been true. One of the suspects was murdered on board, a fake suicide.

The false suicide note was written by the killer. Holmes did some elaborate handwriting analysis and identified the murderer, who immediately blabbed a confession which also implicated the widow. They had been carrying on and the rest was obvious.

"The Adventure Of The Elusive Emerald" was written by Denis Green and Anthony Boucher and aired on 1946-12-14. Lord Maurice Danby was the client, who was worried about his wayward nephew Hilary living a riotous life and his mother, the Dowager Duchess of Penfield, who was a kleptomaniac.

The latter problem was partially solved by Holmes' suggestion that shopkeepers be forewarned. Rather than embarrass the family with arrests, have them send an invoice for shoplifted goods to His Lordship, who would quietly settle the matter.

The stickier part was what to do when the Dowager was invited to manor house parties. Specifically she was invited to a party hosted by Polish nobleman Count Steven von Krakov. He was to display the Krakov Emerald. Holmes and Watson were off to the party.

The good news was the stone wasn't snatched. The bad news was the displayed stone was paste. The duchess was accused but she only snatched things, not substituted fakes. Holmes found the jeweler who made the paste stone, who said he had received an order for two duplicates from a young man.

Holmes and Watson went burglarizing in the Penfield manor. They found the Dowager's loot. She found Watson, surmised he was trying to court her a la Romeo and the balcony, and gave him a big kiss.

Watson managed to escape, Holmes already having ducked out before she could see him. After escaping, Watson discovered she had stolen his watch during the embrace.

Holmes held a J'accuse! meeting at 221B with Danby, Krakov, and the nephew. He had the Count sign a paper relieving the Penfields of any liability about the stone.

Holmes then brought in the jeweler, who identified Hilary as the man who ordered the duplicates. He and the Count had done the plot to extort money from the Penfields. The real emerald was safe in Poland.

Class etiquette being what it was, the matter would be hushed up. Krakov would slink back to Poland and never again darken England's doorstep. Lord Danby would speak stern words to his nephew in private.

All seemed a satisfactory conclusion until the duchess arrived. She wanted a private word with Watson, which left him trembling. She gave him back his watch. She also gave him the key to her room, with expectations. On the way out, she lifted the fake emeralds.

"The Strange Case Of Professor Presbury" aired on 1947-03-17. This was actually a retelling of the canon story "The Creeping Man", and should not have been re-titled by the producers.

The episode opened with an observation by Holmes that the behaviour of a dog reflected its owners. A vicious dog had a vicious owner and a frisky dog came from a happy family.

If I may digress, my father was a livestock veterinarian. When I was a boy I would ride out with him on farm calls and got to know a vast number of farm dogs and barn cats. Most dogs were happy to see us when we drove into the farmyard and slobbered all over us.

At a few farms, the dog would attack and we would have to wait for the farmer to call off the beast before getting out of the car. Invariably such farms were run down, with poorly treated cattle and a family trapped in an abusive relationship. Often the farmer would stiff Dad on his invoice.

So began the case of Professor Presbury, whose hitherto faithful wolfhound Roy began to attack him but no one else. Presbury's assistant Trevor Bennett called upon Holmes for help.

Bennett was engaged to Presbury's daughter Edith. Presbury himself was infatuated with the daughter of Professor Morphy. Since Presbury was a wealthy man, Morphy had no objection despite the age difference.

Presbury went to Prague for a fortnight. He came back with a changed personality, noticed by friends and family, not to mention his dog, who attacked him. Assorted alarums occurred in the house, accompanied by assorted screams.

Holmes and Watson visited Presbury, who went berserk at their presumption. The interview was terminated. However, Holmes was able to learn that Presbury's violent spells repeated every nine days.

The duo later returned in stealth to lie in wait outside the mansion. They saw Presbury loping on his hands and feet like a distorted ape. They captured him in his Hyde-like state. Holmes and Watson learned he had been taking a drug to rejuvenate himself as a younger man suitable for Miss Morphy. Instead he reverted to an ape-man.

This particular episode was faithfully adapted from the original by Edith Meiser. She used the story four times with different casts during the life span of old-time radio from the 1930s to the 1950s. This was in contrast to standard Hollywood practice of changing plots and characters for no good reason whatsoever.

THRILLING TYPEWRITER TALES: PART 6

by Dale Speirs

[Parts 1 to 5 appeared in OPUNTIAs #287, 345, 378, 435, and 532.]

Forensic Typing.

As typewriters became commonplace in the late 1800s, police discovered that typewritten documents could be traced to individual typewriters. The keys on typewriters wear differently over time and develop microscopic traces such as scratches and chips. This allowed more than one crime to be solved by police questioned-documents laboratory units.

An example came from the old-time radio show THE SHADOW, available as free downloads from the Old Time Radio Researchers at www.otrr.org/OTRRLibrary. The radio series had a complicated genealogy that began in 1930 and didn't evolve the familiar version of The Shadow until 1933. The series lasted until 1954.

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.

Lamont Cranston and The Shadow both dealt with Police Commissioner Weston but not simultaneously. Weston was usually the arresting officer and frequently worked without any uniformed officers present. Not tenable in any real 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.

"The Poison Death" aired on 1938-01-30. The episode opened with several vignettes of poison victims swamping the hospitals. There was no pattern but the authorities received a extortion demand for $1 million, signed by The Shadow.

The note was, of course, a setup. Commissioner Weston was under pressure from the Mayor to solve the case. Lamont Cranston was stymied but he and Margo Lane went sleuthing. They checked a map and realized the poison was being injected into the water system.

The listener will wonder why health authorities didn't do that as a first check. Then again, this was a city where the police commissioner regularly barged into investigations that normally would be done by uniformed officers.

The killer slipped up by targeting a specific bureaucrat, Dan Brinkley in the Department of Sanitation, and bragging about the murder in another note. This suggested a grudge by a city employee.

Cranston got copies of the notes and noticed they were produced on the same typewriter. Because keys wear unevenly, each typewriter can be identified by unique wear patterns, like fingerprints.

Cranston concluded the typewriter was in the Sanitation offices and the murderer worked there. The listener will wonder why the police hadn't already figured that out. The listener will wonder quite a bit.

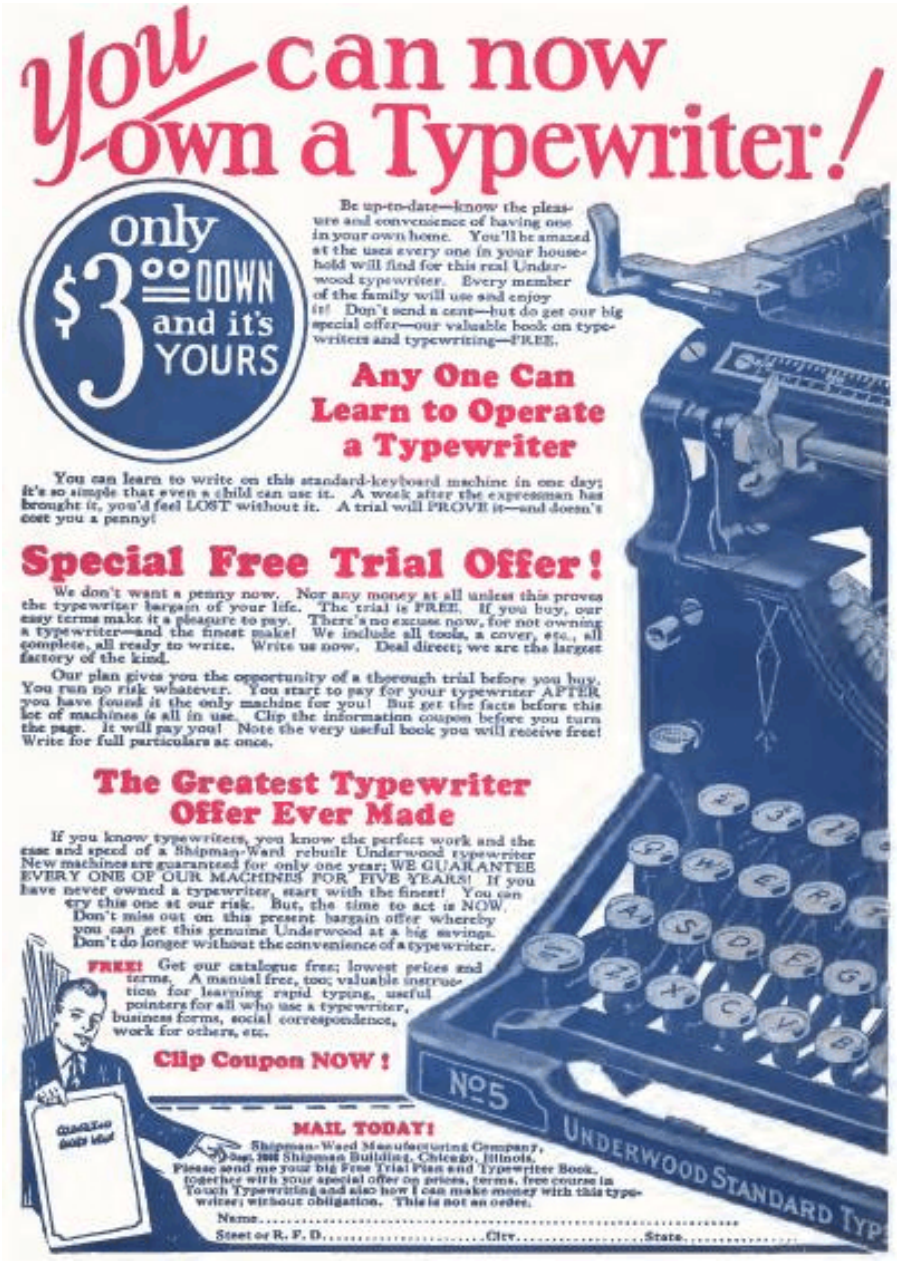
In any event, Cranston and Lane sallied forth in the night to check the Sanitation typewriters. Between them, they typed sample copies on each typewriter on the floor, looking for a match on the keys. They found the machine in the office of the city chemist Gerber. As they exulted, they heard noise in an adjacent laboratory.

Pausing only for a commercial from the sponsor Blue Coal about the wonders of Pennsylvania anthracite, The Shadow went into action. Gerber was bwah-ha!-ha!-ing, and went into a monologue about how Brinkley had beaten him out for a job posting.

Gerber was by himself, preparing fresh poison. His extended diatribe talking to himself demonstrated not only his insanity but kept the listener informed. To be fair, in printed stories the thought processes of characters can be easily exposited, whereas performing arts require some sort of verbal monologue.

The Shadow listened in, then harangued Gerber, who blabbed his plan. He was going to poison a water tower, and The Shadow couldn't stop him. Gerber had a vial of acid for defense, which he tossed about and then fled.

The Shadow got a small amount on him but was not seriously injured. Gerber raced outside, jumped into his car, and took off. Cranston and Lane gave chase. There was a fight on top of the water tower, the outcome of which was not in doubt.



from 1927 September issue of WEIRD TALES

Fun With Keyboards.

THE MARTIN AND LEWIS SHOW was the breakthrough radio show that took singer Dean Martin and comedian Jerry Lewis from Las Vegas headliners to national stardom. Available as free downloads from the Old Time Radio Researchers at www.otrr.org/OTRRLibrary

The series aired from 1949 to 1953 and was a variety show. Martin did the singing, along with a chanteuse, and acted as straight man to Lewis during comedy scenes. There was always a celebrity guest star to join in.

The second episode aired 1949-04-10, with William Bendix as the guest star. He is forgotten today but back then was a big star with a radio series and movie appearances.

A running gag through the series was the maid (unnamed in this episode but later called Florence) who looked after the apartment of Martin and Lewis. She had a timid voice but always managed to firmly blame her shortcomings on them. Her catchphrase was: "*It's people like you who cause unemployment.*"

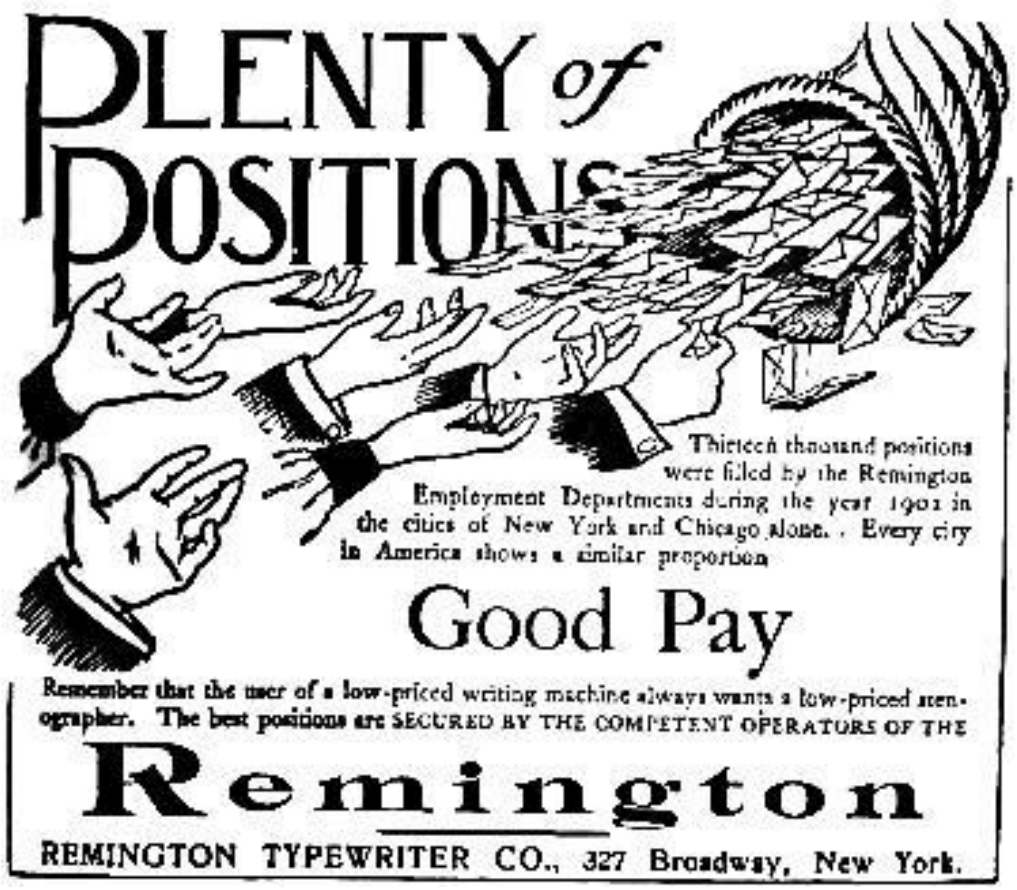
There was, however, a typewriter skit. In this episode, she approached Martin and Lewis for a job as their secretary. They politely explained they didn't need one. She went into her "*It's people like you*" routine, as a result of which they caved in and hired her.

At this point she suddenly became choosy, saying she wasn't going to be rushed into anything. Martin was firm, handed her a script, and told her to make six copies on the typewriter. "*What's a typewriter?*", she asked. "*Are you for real?"* replied Lewis.

He then tried to describe a typewriter to her. It's a thing on a desk, black in colour but sometimes blue, and once in a while red. On the front it had little thingies that went tap, tap, tap, and when the wringer roller went too far a bell would go ding!

That point being settled, Martin reaffirmed that six copies of the script were needed. Florence complained she couldn't use six typewriters at once. Martin had to patiently show her how to use carbon paper.

Off to the studio, where Martin and Lewis had an interlude with a song plugger. Martin sang, Bendix arrived, and assorted gags were exchanged. Florence showed up and swooned upon seeing Bendix. She caught herself in time.



from 1903 May issue of THE BLACK CAT

Ghost Typers In The Sky.

QUIET PLEASE was an anthology series of weird fiction and science fiction that aired on radio from 1947 to 1949, written and produced by Wyllis Cooper.

"Bring Me To Life" aired on 1947-08-10. A scriptwriter was behind schedule, facing writer's block. Somehow his typewriter began typing by itself, asking him to bring a character to life.

"*That typewriter's haunted*". The story began writing itself on the pages, with occasional assistance from the writer. The scenes came to life right there in the room. The writer met his deadline.

The following week, the writer tried to repeat the process. He had to be careful what he typed lest something came to life too dangerous for him. But in the crunch the typewriter remained silent.

He desperately tried to think of a plot. He thought of a character who escaped from prison. Finally the story came to life as the character slugged the writer unconscious, then threatened his wife Ruth.

The convict left, taking Ruth as a hostage. The writer recovered consciousness, hearing the typewriter tapping away by itself. Another character was created to kill the first. The police didn't believe what happened after they found the body.

seen online in 2021, a Lego typewriter

TRAIN OF EVENTS: PART 8
by Dale Speirs

[Parts 1 to 7 appeared in OPUNTIAs #403, 416, 461, 489, 522, 540, and 557.]

Comedy Of Events.

Bob Elliott and Ray Goulding were comedians who worked old-time radio from the 1940s to the 1960s. They were always ranked in the Top Ten of radio comedians and their comedy has withstood the test of time. They seldom had live audiences, preferring to broadcast from studio booths. They did voices both male and female, with nutty characters and bizarre sound effects.

At one time or another they worked on every radio network. Many episodes of the BOB AND RAY show are available as free downloads from the Old Time Radio Researchers at www.otrr.org/OTRRLibrary Well recommended.

A Whale Of A Story.

Bob and Ray frequently had continuing stories, such as the saga of Smelly Dave. This began on BOB AND RAY PRESENT THE CBS RADIO NETWORK during July 1959 and carried on for months.

Smelly Dave was a dead whale packed in ice and sent across the country on a railway flatcar. The train made frequent stops where the townsfolk turned out en masse to see what a real, albeit decomposing, whale looked like.

Accompanying the train was reporter Arthur Schrank, who filed despatches with Bob and Ray back in their studio at network headquarters. He had a wobbly voice that quavered continually. Schrank reported on the whale with great solemnity.

The mayor would make a speech at the welcoming ceremony and pontificate at length. If you've ever attended a ceremony where some famous athlete or celebrity was honoured, then that was how the whale was received.

The special train slowly made its way across the country in the summer heat. At one point the train was mis-laid. Later the Whale Oil Syndicate hijacked the load, hoping to render Dave down into oil. The train became increasingly odouriferous as it approached the Pacific coast.

At Albany, New York, Smelly Dave was parked by the state capitol for inspection by the legislators. Alas, that was where Dave was stolen. Bob and Ray were upset because they hadn't any insurance on him. The duo went upstate, driven by their faithful assistant Kato in his (not theirs) black limousine.

Dave was discovered next to a glue factory. A disgruntled ex-employee of Bob and Ray was the culprit. Dave was re-loaded onto the flatcar and the train resumed its cross-country journey, culminating at the Whale-arama Exhibition.

The Trophy Train.

The success of the Smelly Dave train led Bob and Ray to send out the Trophy Train a few months later in 1959. This was a display train whose cars were converted into a traveling museum containing artifacts from Bob and Ray's childhoods and later lives.

The awestruck general public could, for a reasonable fee, view the memorabilia of the great duo. This time the train started out from the west coast at San Diego, California. Wally Ballou was the reporter covering the tour. He spoke as if he had a mouthful of marbles, and reminded listeners that he had won over seven awards for diction.

Memorabilia on the train included the necktie that Bob wore at his high school graduation, Ray's shoes from the fourth grade, and the gearshift knob off the first car that Bob owned.

The train was mis-managed by Mr Gilmore, constantly apologizing to Wally for the mix-ups. An example was spotting the train inside a railyard on a weekday instead of an accessible siding on a holiday. Gilmore chose obscure villages instead of halting in big cities. And so the train wended its way.

For the hungry tourist at the concession, menu items included pickle burgers (just pickles, no meat), Maryland crab cakes, and fried toast. Gilmore kept pushing the crab cakes but for some reason Wally was averse to them. He preferred the grilled cheese and tomato sandwich.

Ghan Down Under.

EVERYONE ON THIS TRAIN IS A SUSPECT (2023) by Benjamin Stevenson was a mystery novel set on board the famous Ghan train that crosses the Australian continent from Adelaide to Darwin. The protagonist was Ernest Cunningham, one of a group of mystery authors holding a convention on board the train.

The novel was a humourous read but a little bit too self-referential. First-person narration is a standard technique but requires the protagonist not breaking the story with asides addressed directly to the reader. The reader must be able to become immersed in the story, not be constantly yanked away by an author shouting "Hey, dig me!" a la George Carlin.

Another fault was that he kept referring to past events in a predecessor novel on the assumption that everyone read that book and explanations were not necessary. Well no, not every reader, me included, is going to bother with all his books. Details should be explicit, not nudge, nudge, wink, wink.

But on to the plot. The Australian Mystery Writers' Festival began at the Darwin end. A slow start as all the characters were introduced. Ernest's girlfriend Julliette Henderson had apparently suffered in the previous novel but was now back on track with him, pun intended.

The guests of honour were Lisa Fulton (legal thrillers), S.F. Majors (blockbusters), Alan Royce (forensic novels), Henry McTavish (series detective), and Wolfgang, no surname ever given (literary awards collector). Ernest was a debut writer, with his first novel doing well but who was sweating over his second novel.

McTavish was a Scottish boor, ill mannered and an embarrassment to the Auld Sod. Fulton was uptight and repressed. Wolfgang just rewrote Truman Capote and resented others pointing that out. Lots of sniping at each other to set up the mood for the forthcoming murders.

The first panel was held outside the train where it stopped for non-festival passengers to go on a side trip to view some natural wonders. The land was uninhabited. There was no train station or any kind of building. The Ghan simply stopped on the tracks.

While the tourists enjoyed themselves, the festival members held a trackside panel that any readercon or science fiction convention could host in any basement ballroom. The panelists spouted the usual clichés about writing. A lady in the audience asked one author where he got his ideas.

McTavish was queried by Brooke, the president of his fan club. She was worried that he was going to kill off his detective in the series. Ernest suddenly remembered that earlier on the train he had seen Brooke reading a paperback of Stephen King's novel MISERY. That novel was about an obsessive fan who held a writer captive to prevent him from ending a series she loved.

The next morning, as the Ghan sped south across the flatlands, a second panel was to be held in a cramped compartment. Before it could begin, McTavish fell dead from poisoning. Ernest decided to interview the others as potential suspects. He was most annoyed when instead they interviewed him as the obvious suspect. The idea!

Royce, having written forensic novels, shoved Ernest aside and took the lead as detective. Evidence was contaminated or destroyed left, right, and centre by all. Brooke was caught snooping in McTavish's compartment but she had her own explanation.

The train made a scheduled stop at Alice Springs, where McTavish was hauled away. The third panel was cancelled. The good news was a formal dinner was laid on for the festival members in a snazzy restaurant.

Ernest busily collected gossip about McTavish from everyone, none of it admissible in court. When the Ghan moved on, Julliette stayed behind and caught a flight back home. She told Ernest that she was tired of being a character in his narration.

As the train rumbled on, Royce called a J'accuse! meeting and announced he had solved the murder. Wyatt Lloyd, a publisher's agent, had dunnit. A moment later someone burst into the compartment and told everyone that Lloyd had just been hacked to death in his bed. Royce was very irritated.

The other writers wouldn't let Royce examine the crime scene. They reserved to themselves the privilege of contaminating the crime scene. Among other items they found the first draft of McTavish's last novel.

At the next train stop, a police officer came on board. While he was busy, someone stole the manuscript and the officer's Land Rover. Ernest went in pursuit and at that point the plot became really complicated.

McTavish had a nasty back story which came out. The excursions were literal, including a Land Rover chasing the Ghan and Ernest trying to jump from one to the other. Thereafter followed a tangled J'accuse! meeting with some very ugly back stories.

As per tradition, each person was made to look guilty in turn. Assorted tomato surprises were served before the real murderer cracked. From there, one body went under the wheels of the Ghan. The murderer temporarily escaped, later to attempt an encore with Ernest.

The novel generally read well but would have been better without all the asides. The text should be invisible to the reader, not constantly shouting "Dig me!".

Trouble On The Tracks.

"The Man At Solitaria" by Geik Turner (1896 April, THE BLACK CAT, available as a free download from https://gutenberg.org) was set in rural Indiana. The Man, no name given, was in charge of a railroad siding called Solitaria.

He was the only person there, working 18-hour days every day. He telegraphed the railway division office about which trains were in the siding and whether the main track was clear.

The Man went bonkers. He had too much time to think. He got a pair of revolvers and stocked some food and water. First he set the siding switch halfway open. The next train jumped the tracks and derailed. He then telegraphed the line was clear, causing another train to derail. And so on, and so on.

The train crews tried to rush the telegraph station but were driven off by gunfire. They sent brakemen up and down the mainline to stop anymore wrecks. A stalemate set in. Eventually The Man fell asleep and the train men were able to capture him. The multiple wrecks were cleared away. The railway company re-opened the siding, this time with two men taking turns.

Ye Olde Trains.

Edward Marston had a long series of novels about Detective Inspector Robert Colbeck, set in England during the 1850s. Working for Scotland Yard, he became by default a railroad detective. He was assisted by Sergeant Victor Leeming and annoyed by their superior officer Superintendent Edward Tallis, a stick-in-the-mud kowtower too easily frightened by aristocrats.

THE IRON HORSE (2007) took place on Derby Day at Epsom Downs. The race couldn't match the excitement at the railroad station. A hatbox was knocked over on the platform. Out rolled a decapitated human head.

Insp. Robert Colbeck began his investigation by tracing the hatbox, which came from the manor of Lord and Lady Hendry. The aristocrat had one of his horses entered in the Derby. When later a headless torso was dredged from the Thames River, it was a groom from the Hendry stables.

Step by step, Colbeck and Sgt Victor Leeming brought forth interesting facts and began connecting them. The top three contenders in the Derby were also owned by the top three suspects in the case.

The ending was rather spectacular with a murder-suicide. Colbert and Leeming didn't let it distract them from finding the decapitator.

MURDER ON THE BRIGHTON EXPRESS (2008) was the next case. The Brighton Express out of London derailed as it sped along, then rolled over to the other track and collided head-on with a northbound train. The rails were sabotaged.

Insp Robert Colbeck had to deal with stubborn idiots, such as a railway detective who blamed the engine driver despite all the other evidence to the contrary. Colbeck suspected revenge, perhaps for a dismissal or to kill a director of the railway company known to be riding on the train.

Eventually the real target was discovered. The culprit was an outsider who had nothing to do with the railway. He hired a hit man, if such a term was used in the 1850s, to dispose of his enemy. The climax was a cliché from action-adventure movies, a fight to the death on the carriage roofs of the train as it roared along the track. Colbeck won since he was in for the series.

RAILWAY TO THE GRAVE (2010) began in Yorkshire in 1855 when Col. Aubrey Tarleton deliberately walked in front of a speeding train. Pinned to his coat was a note in his handwriting asking that Superintendent Edward Tallis of Scotland Yard be notified. The two had been old army comrades.

Tarleton's wife Miriam had gone missing and was presumed dead. The villagers were convinced that the colonel had murdered his wife and the suicide was his repentance. Others thought she had left him and he was too embarrassed to admit the desertion. The gossip flowed like a river.

Tallis, Colbeck, and Leeming went to investigate. The Scotland Yard investigation concentrated on the wife. They ran into many prickly personalities, in a society where everyone was class conscious. Past histories were uncovered and all the villagers had something against the colonel.

Possibly the colonel had been having an affair with his housekeeper. Eventually Miriam's body was found out in the countryside. 18 pages before the last one, a twist was introduced that quickly solved Miriam's murder. While it was a fair twist in the sense that the reader could deduce the crime, it made the rest of the novel as so much padding.

BLOOD ON THE LINE (2011) took place in 1857. Inspector Robert Colbeck was engaged to an engine driver's daughter Madeline Andrews. Elsewhere two policemen were escorting Jeremy Oxley to the gallows. His girlfriend Irene Adnam sneaked on board the train, shot the policemen dead, and helped Oxley escape.

The engine driver was Madeline's father Caleb, and Oxley was an old adversary of Colbeck. The escaped duo were slippery. They knew train and ship schedules and led a merry chase. Or it would have been merry had Oxley not been a psychopath.

The criminal pair took a ship to New York City, brazenly traveling under the names of Mr and Mrs Colbeck. They were pursued by the Scotland Yard detectives. The final battle was nasty but Oxley was subdued and brought back to England. At that point the story quietly faded away. Wot, no hanging?

TWISTED FICTION: PART 3
by Dale Speirs

[Parts 1 to 2 appeared in OPUNTIA #505 and 522.]

Revival Radio.

THEATER FIVE was a short-lived attempt at reviving drama shows on radio. It aired for the 1964-65 season but the war against television was lost a decade prior. The title referred to the fact that the series was aired five times per week.

The episodes were generally well written and produced. Available as free downloads from the Old Time Radio Researchers at www.otrr.org/OTRRLibrary The 2022 March issue of OLD RADIO TIMES discusses the history of this series in great detail. Available as a free pdf from www.otrr.org/?c=times

"The Fix" was written by Robert Newman and aired on 1964-09-02. A drug addict lost his regular pusher and tried to hold up a doctor. As Dr Rand explained, he was a psychiatrist and didn't have narcotics in his office.

A telephone call interrupted them, from a suicidal patient. Afterward, the doctor used her call to elucidate information from the addict, such as his name Duke and that he was a musician addicted to heroin. Trying to calm Duke got Rand assaulted and rendered unconscious just as someone rang the doorbell.

With no place to run, Duke tried to impersonate the doctor. He stuffed Rand into a closet. The man was John Bakker, a paranoid who was just plain crazy and had escaped from an institution. He kept hearing the voice of his dead wife Mary, was estranged from his daughter Lily, and blamed Rand for committing him.

Bakker pulled a gun just as the telephone rang again. Duke suddenly found the tables turned and tried to calm Bakker down. Rand revived and began kicking on the closet door. Bakker went into a frenzy and shot Duke dead. Mary's voice told him he did well.

THE ZERO HOUR was yet another unsuccessful attempt to revive radio drama that aired 1973-74. Available as free downloads from the Old Time Radio Researchers at www.otrr.org/OTRRLibrary

"But I Wouldn't Want To Die There" was a five-part episode that aired in November 1973. Script was by Kim Weiskopf from a story by Stanton Forbes. Sylvia Bennett was contemplating suicide. She had divorced after visiting the island of Saint Maartin in the Caribbean.

Tom had been strolling the beach when he found the body of Annabelle Lee. The murder investigation got underway and a plethora of characters was introduced. There were flashbacks within flashbacks.

The plot was tangled. The denouement seemed to be that Lee's death was accidental. At the last moment Sylvia discovered evidence that the death was murder by her new fiancé. She died of suicide after all, but was it really suicide or another murder?

Tempting Fate.

SUSPENSE was one of the great anthology series of radio, airing from 1940 to 1962. The announcer would intone "*Tales well calculated to keep you in* [dramatic pause] *SUSPENSE!*" Episodes are available as free downloads from the Old Time Radio Researchers at www.otrr.org/OTRRLibrary

This series had the distinction of being the very last old-time radio show ever aired. The episodes were a mixture of mystery, fantasy, science fiction, and weird fiction. Well worth perusing.

"The Man Who Couldn't Lose" was written by Emile C. Tepperman and aired on 1947-12-12. The episode was about Leonard Snell, a loser who owed $1,750 in gambling debts. He was an insurance agent who spent his commissions on the horses.

His wife Celia had money but wouldn't let him have any, so he murdered her. She had a safe-deposit box key with big cash in it. He couldn't get to the box. Suddenly he got lucky and sold a big policy. He cashed out without remitting the premium or the policy to the company, then killed a stranger and switched identities, swapping wallets and clothing.

His luck changed again when he won $40,000 in a sweepstakes. Trouble was, the ticket was in his wallet, which was in the dead man's effects. Further, he had written a letter confessing he killed Celia and mailed it to police. His idea had been for the dead stranger to take the rap and thereby close the case.

Another twist happened when the radio news reported the mails had been stolen by a gang. This allowed Leonard to go to the police and reported that his wallet had been stolen. He got it back

In the same broadcast was an item about a fire that had killed Celia. The authorities didn't know she had been murdered because her body was so charred. This allowed Leonard to claim the safe deposit box as the grieving widower.

Another twist, when the post office gang went through the mail searching for cash and found the letter. They held Leonard for blackmail, asking $40,000 for his silence. Then they were caught.

The twists kept coming with every change of scene. But as every gambler and mathematician can vouchsafe, sooner or later a run of luck will change. The last twist finished off Leonard. Clever writing but the episode was marred by orchestral music that often drowned out the dialogue.

WORLD WIDE PARTY ON JUNE 21

Founded by Benoit Girard (Quebec) and Franz Miklis (Austria) in 1994, the World Wide Party is held on June 21st every year. 2024 will be the 31st year of the WWP. Mark your calendars now!

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

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

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

FREE STUFF ONLINE

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

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

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

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

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

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

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

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

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

Planets.

Bains, W., et al (2024) **Venus' atmospheric chemistry and cloud characteristics are compatible with Venusian life.** ASTROBIOLOGY 24:doi.org/10.1089/ast.2022.0113 (available as a free pdf)

Authors' abstract: *Venus is Earth's sister planet, with similar mass and density but an uninhabitably hot surface, an atmosphere with a water activity 50 to 100 times lower than anywhere on Earths' surface, and clouds believed to be made of concentrated sulfuric acid.*

These features have been taken to imply that the chances of finding life on Venus are vanishingly small, with several authors describing Venus' clouds as ''uninhabitable,'' and that apparent signs of life there must therefore be abiotic, or artefactual.

In this article, we argue that although many features of Venus can rule out the possibility that Earth life could live there, none rule out the possibility of all life based on what we know of the physical principle of life on Earth.

Specifically, there is abundant energy, the energy requirements for retaining water and capturing hydrogen atoms to build biomass are not excessive, defenses against sulfuric acid are conceivable and have terrestrial precedent, and the speculative possibility that life uses concentrated sulfuric acid as a solvent instead of water remains.

Metals are likely to be available in limited supply, and the radiation environment is benign. The clouds can support a biomass that could readily be detectable by future astrobiology-focused space missions from its impact on the atmosphere. Although we consider the prospects for finding life on Venus to be speculative, they are not absent.

Seager, M.D., et al (2024) **Stability of 20 biogenic amino acids in concentrated sulfuric acid: implications for the habitability of Venus' clouds.** ASTROBIOLOGY 24:doi.org/10.1089/ast.2023.0082 (available as a free pdf)

Authors' abstract: *Scientists have long speculated about the potential habitability of Venus, not at the 700K surface, but in the cloud layers located at 48 to 60 km altitudes, where temperatures match those found on Earth's surface.*

However, the prevailing belief has been that Venus' clouds cannot support life due to the cloud chemical composition of concentrated sulfuric acid, a highly aggressive solvent.

In this work, we study 20 biogenic amino acids at the range of Venus' cloud sulfuric acid concentrations (81% and 98% w/w, the rest water) and temperatures. We find 19 of the biogenic amino acids we tested are either unreactive (13 in 98% w/w and 12 in 81% w/w) or chemically modified in the side chain only, after 4 weeks.

Our major finding, therefore, is that the amino acid backbone remains intact in concentrated sulfuric acid. These findings significantly broaden the range of biologically relevant molecules that could be components of a biochemistry based on a concentrated sulfuric acid solvent.

Michalski, J.R., et al (2024) **Diverse volcanism and crustal recycling on early Mars.** NATURE ASTRONOMY 8:doi.org/10.1038/s41550-023-02191-7

Authors' abstract: *The relatively well-preserved ancient crust of Mars provides a natural window into early planetary evolution not available on Earth due to sustained tectonic recycling and erosion on this planet.*

Mars has generally been considered a one-plate basaltic planet, though recent evidence suggests magmatic evolution resulting in felsic crust might have occurred sporadically. Here we show multiple lines of evidence for diverse volcanism and complex volcanotectonics in the southern highlands of Mars within and around the ~3.5 to 4-billion-year-old Eridania basin.

Infrared remote sensing reveals bimodal volcanism consisting of olivine-bearing basalts and voluminous, widespread dacitic (64 to 69% SiO_2, and possibly higher) volcanic deposits within a region of high crustal potassium.

The diverse igneous compositions are associated with an extraordinary number and morphological range of volcanic structures, including domes, stratovolcanoes, calderas and pyroclastic shields occurring proximal to large (hundreds of kilometres in diametre) basins within the Eridania region.

The 2 to 4 km-deep topographically concave-up basins have crustal thicknesses 10 to 20 km thinner than adjacent terrain and disrupt patterns of deeply seated remnant crustal magnetism.

The Eridania basins may represent ancient episodes of crustal recycling via lithospheric delamination in which altered, hydrated volcanic materials were cycled downward and melted resulting in magmatic evolution analogous to pre-plate tectonic processes on the Archaean Earth.

Before the emergence of a recognizable form of plate tectonics on Earth circa 3 billion years ago (Ga), the Earth was resurfaced by earlier forms of volcanotectonics.

Despite the importance for understanding planetary evolution and the environments where life originated on this planet, there is little consensus on the style and process of crustal resurfacing in the Eoarchean and Paleoarchean (3.2 to 4.0 Ga).

Understanding Archaean crustal evolution relies heavily on models and geochemical proxies within rare, highly metamorphosed and metasomatized terranes because most of our planet's ancient crust has been lost to erosion and younger crustal recycling.

Geological exploration of other rocky planets provides clues to early crustal evolution and volcanotectonic processes because other bodies exemplify comparable geosystems with variable mass, gravity and composition.

Observed through the lenses of different gravity fields, bulk planet compositions and heat flow, it is possible to test models for crustal resurfacing and so discover the steps that led to plate tectonics and other forms of crustal recycling.

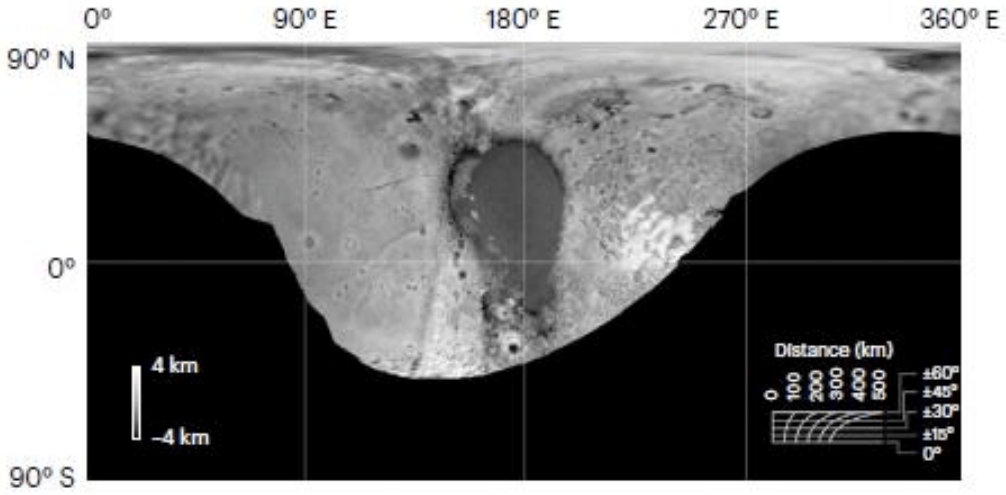
The planet Mars represents a particularly valuable puzzle piece in this regard. Approximately 70% of the Martian surface is >3 billion years old, and ~45% is older than 3.6 billion years.

Ballantyne, H.A., et al (2024) **Sputnik Planitia as an impactor remnant indicative of an ancient rocky mascon in an oceanless Pluto.** NATURE ASTRONOMY 8:doi.org/10.1038/s41550-024-02248-1 (available as a free pdf)

Authors' abstract: *Pluto's surface is dominated by the huge, pear-shaped basin Sputnik Planitia. It appears to be of impact origin, but modelling has not yet explained its peculiar geometry. We propose an impact mechanism that reproduces its topographic shape while also explaining its alignment near the Pluto-Charon axis.*

Using three-dimensional hydrodynamic simulations to model realistic collisions, we provide a hypothesis that does not rely upon a cold, stiff crust atop a contrarily liquid ocean where a differentiated ~730 km ice-rock impactor collides at low-velocity into a subsolidus Pluto-like target.

The result is a new geologic region dominated by impactor material, namely a basin that (in a 30˚ collision) closely reproduces the morphology of Sputnik Planitia, and a captured rocky impactor core that has penetrated the ice to accrete as a substantial, strength-supported mascon.

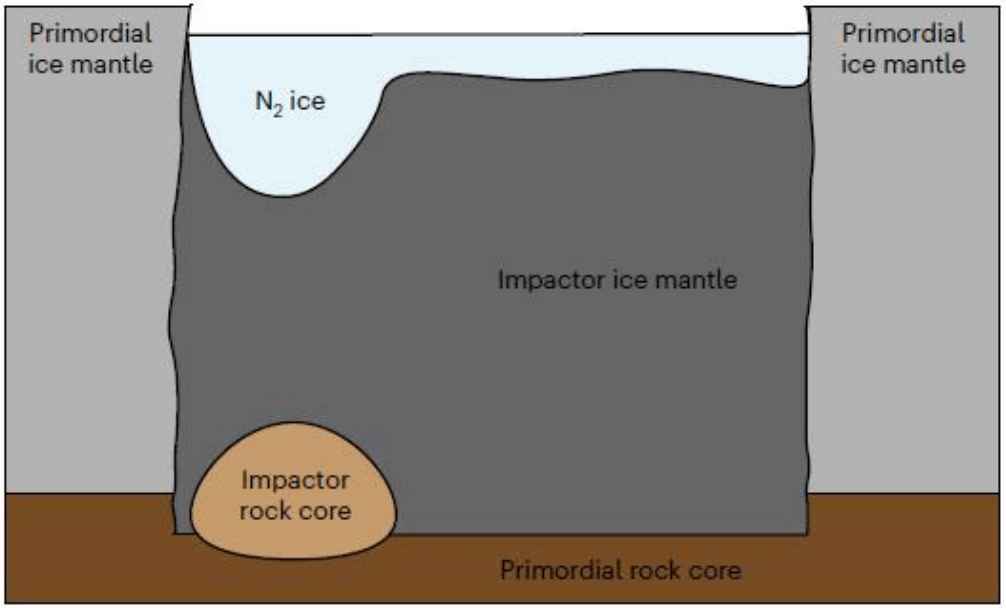


This provides an alternative explanation for Sputnik Planitia's equatorial alignment and illustrates a regime in which strength effects, in low-velocity collisions between trans-Neptunian objects, lead to impactor-dominated regions on the surface and at depth.

In 2015, the New Horizons space probe revealed Pluto's surface to be geologically complex. It is dominated by an ~1,200 km × 2,000 km, nitrogen-ice-filled basin named Sputnik Planitia (SP)1 whose central plains are 3 to 4 km below its surroundings.

These values correspond to the surface of the nitrogen ice, whose thickness is unknown. The quasi-elliptical shape and mountainous rim resemble a degraded impact basin, which has motivated several studies into its formation using computational impact models.

[Images are from this paper.]



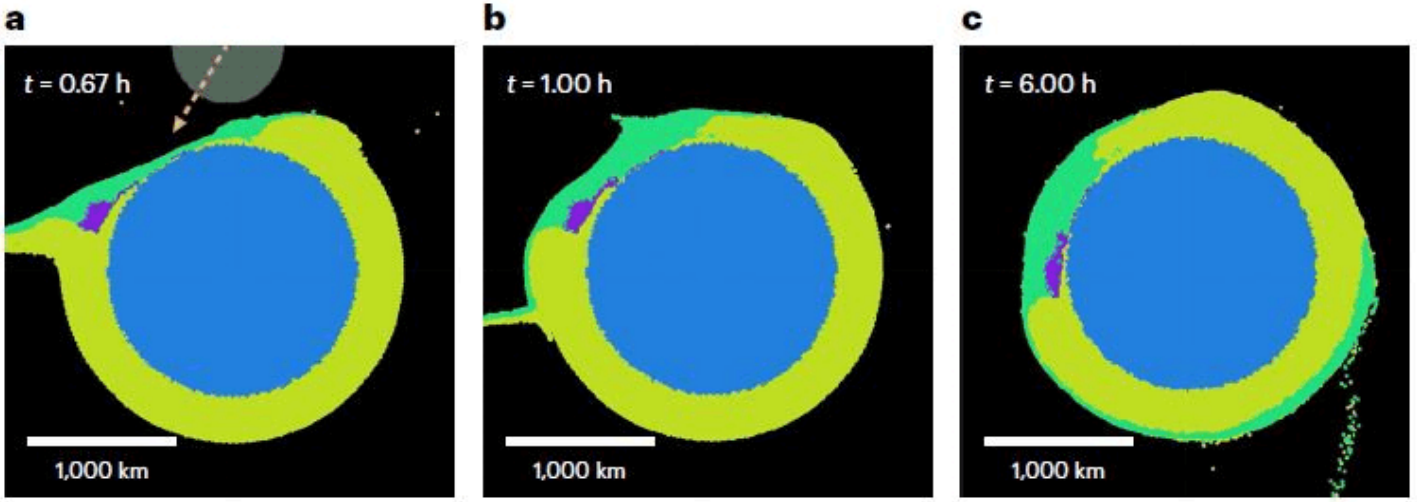


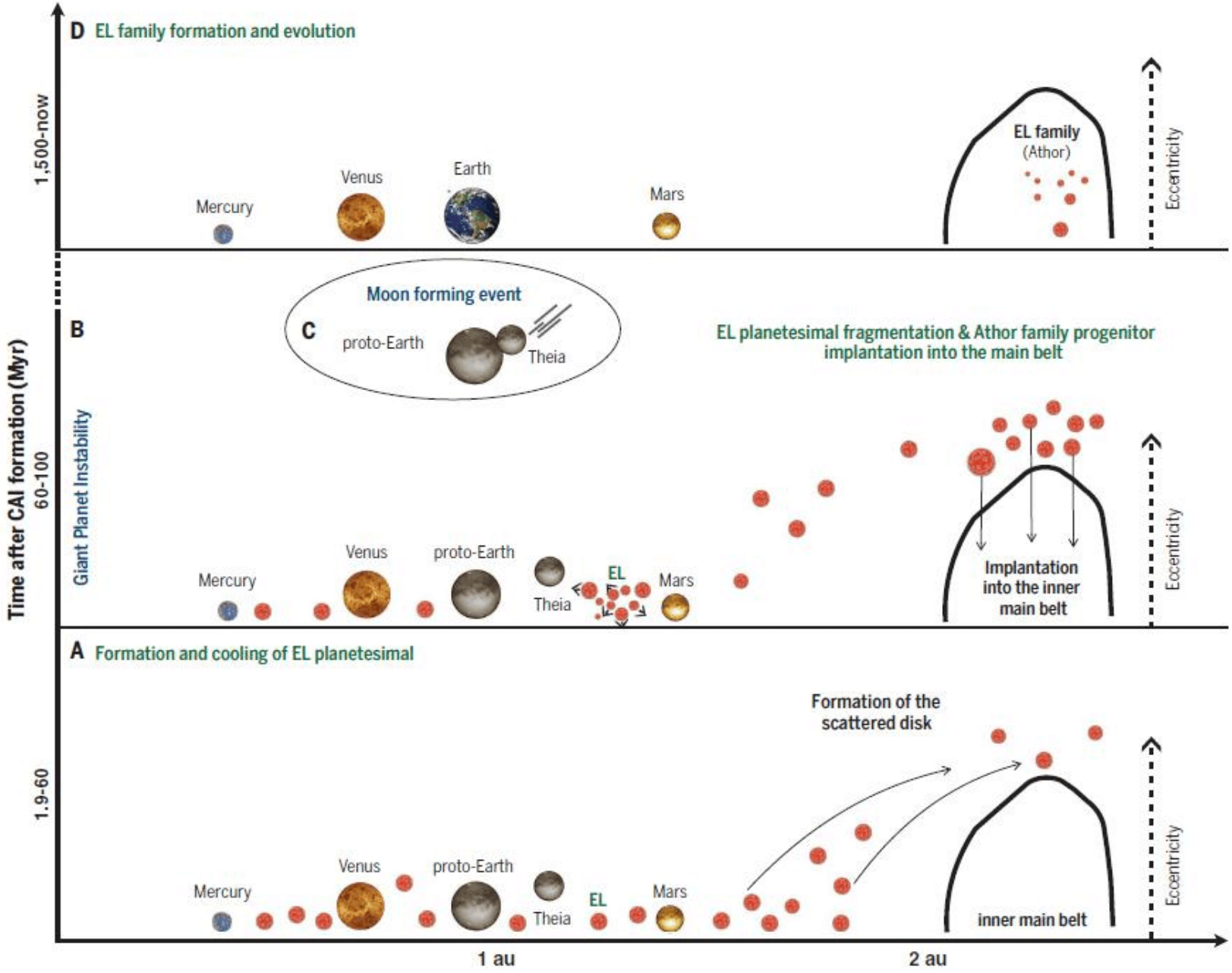
Fig. 2 | Time series of a simulation based on smoothed-particle hydrodynamics for an ~730-km-diameter impactor, 15% core mass fraction, $v_{coll} = 1.2v_{esc}$ and an impact angle of 30°. a–c, Slices through the impact plane. Colours indicate material composition and source parent body, with purple and green indicating impactor rock and ice, and blue and yellow indicating target rock and ice, respectively, as in Fig. 1. The faded body shows the size and position of the impactor at the moment of impact, with the arrow indicating the impact velocity. **a**, Shortly after impact, the transient crater is still present. The impactor core has impacted Pluto's core and continues downrange. **b**, The transient SP crater has collapsed and been infilled with ice from the impactor. Beneath, the impactor core has nearly come to rest along the ice–rock boundary. **c**, State after impact, $t = 6$ h. The rocky impactor core is at rest under the narrow southern end of SP.

Avdellidou, C., et al (2024) **Dating the Solar System's giant planet orbital instability using enstatite meteorites.** SCIENCE 384:doi.org/10.1126/science.adg8092 (available as a free pdf)

Authors' abstract: *The giant planets of the Solar System formed on initially compact orbits, which transitioned to the current wider configuration by means of an orbital instability. The timing of that instability is poorly constrained. In this work, we use dynamical simulations to demonstrate that the instability implanted planetesimal fragments from the terrestrial planet region into the asteroid main belt. We use meteorite data to show that the implantation occurred >60 million years (Myr) after the Solar System began to form.*

Combining this constraint with a previous upper limit derived from Jupiter's trojan asteroids, we conclude that the orbital instability occurred 60 to 100 Myr after the beginning of Solar System formation. The giant impact that formed the Moon occurred within this range, so it might be related to the giant planet instability.

[Images are from this paper.]



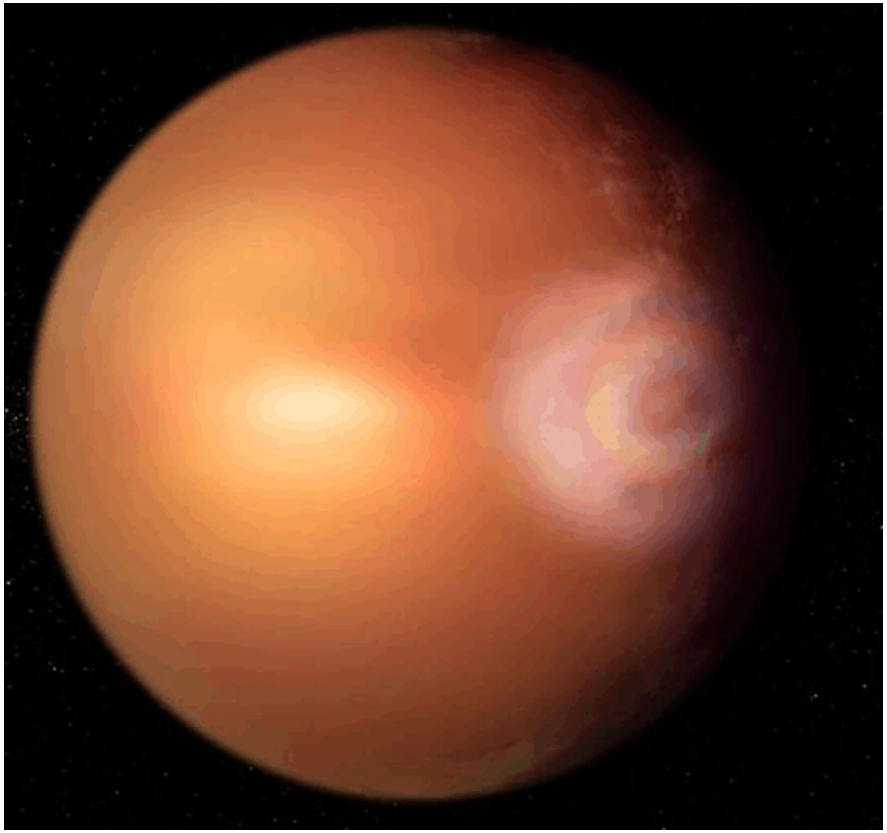
Demangeon, O.D.S., et al (2024) **Asymmetry in the atmosphere of the ultra-hot Jupiter WASP-76b.** ASTRONOMY AND ASTROPHYSICS 684:doi.org/10.1051/0004-6361/202348270 (available as a free pdf)

Authors' abstract: *WASP-76b has been a recurrent subject of study since the detection of a signature in high-resolution transit spectroscopy data indicating an asymmetry between the two limbs of the planet.*

The existence of this asymmetric signature has been confirmed by multiple studies, but its physical origin is still under debate. In addition, it contrasts with the absence of asymmetry reported in the infrared (IR) phase curve.

In light of these findings, we hypothesise that WASP-76b could have night-side clouds that extend predominantly towards its eastern limb. At this limb, the clouds would be associated with spherical droplets or spherically shaped aerosols of an unknown species, which would be responsible for a glory effect in the visible phase curves.

[Image of WASP-76b is from European Space Agency.]



Alien Life.

Stern, R.J., and T.V. Gerya (2024) **The importance of continents, oceans and plate tectonics for the evolution of complex life: implications for finding extraterrestrial civilizations.** SCIENTIFIC REPORTS 14:doi.org/10.1038/s41598-024-54700-x (available as a free pdf)

[In the summer of 1950, Enrico Fermi asked a question that has never been answered. Where is everybody? If life can easily originate in a variety of environments, then why haven't alien civilizations been detected?]

Authors' abstract: *Within the uncertainties of involved astronomical and biological parameters, the Drake Equation typically predicts that there should be many exoplanets in our galaxy hosting active, communicative civilizations (ACCs).*

These optimistic calculations are however not supported by evidence, which is often referred to as the Fermi Paradox. Here, we elaborate on this long-standing enigma by showing the importance of planetary tectonic style for biological evolution.

We summarize growing evidence that a prolonged transition from Mesoproterozoic active single lid tectonics (1.6 to 1.0 gigayears ago) to modern plate tectonics occurred in the Neoproterozoic Era (1.0 to 0.541 Ga), which dramatically accelerated emergence and evolution of complex species.

We further suggest that both continents and oceans are required for ACCs because early evolution of simple life must happen in water but late evolution of advanced life capable of creating technology must happen on land.

We resolve the Fermi Paradox
(1) by adding two additional terms to the Drake Equation: f_{oc} (the fraction of habitable exoplanets with significant continents and oceans) and f_{pt} (the fraction of habitable exoplanets with significant continents and oceans that have had plate tectonics operating for at least 0.5 Ga); and
(2) by demonstrating that the product of f_{oc} and f_{pt} is very small (< 0.00003 to 0.002).

We propose that the lack of evidence for ACCs reflects the scarcity of long-lived plate tectonics and/or continents and oceans on exoplanets with primitive life.

Sahai, N., et al (2024) **Bioenergetics of iron snow fueling life on Europa.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 121:doi.org/10.1073/pnas.2316452121 (available as a free pdf)

Authors' abstract: *The main sources of redox gradients supporting high-productivity life in the Europan and other icy ocean world oceans were proposed to be photolytically derived oxidants, such as reactive oxygen species (ROS) from the icy shell, and reductants (Fe(II), S(-II), CH_4, H_2) from bottom waters reacting with a (ultra)mafic seafloor.*

Important roadblocks to maintaining life, however, are that the degree of ocean mixing to combine redox species is unknown, and ROS damage biomolecules. Here, we envisage a unique solution using an acid mine drainage-filled pit lakes analog system for the Europan ocean, which previous models predicted to be acidic.

We hypothesize that surface-generated ROS oxidize dissolved Fe(II) resulting in Fe(III) (hydr)oxide precipitates, that settle to the seafloor as iron snow. The iron snow provides a respiratory substrate for anaerobic microorganisms (breathing iron), and limits harmful ROS exposure since they are now neutralized at the ice-water interface.

Based on this scenario, we calculated Gibbs energies and maximal biomass productivities of various anaerobic metabolisms for a range of pH, temperatures, and H_2 fluxes.

Productivity by iron reducers was greater for most environmental conditions considered, whereas sulfate reducers and methanogens were more favored at high pH.

Participation of Fe in the metabolic redox processes is largely neglected in most models of Europan biogeochemistry.

Our model overcomes important conceptual roadblocks to life in icy ocean worlds and broadens the potential metabolic diversity, thus increasing total primary productivity, the diversity and volume of habitable environmental niches and, ultimately, the probability of biosignature detection.

Origin Of Life.

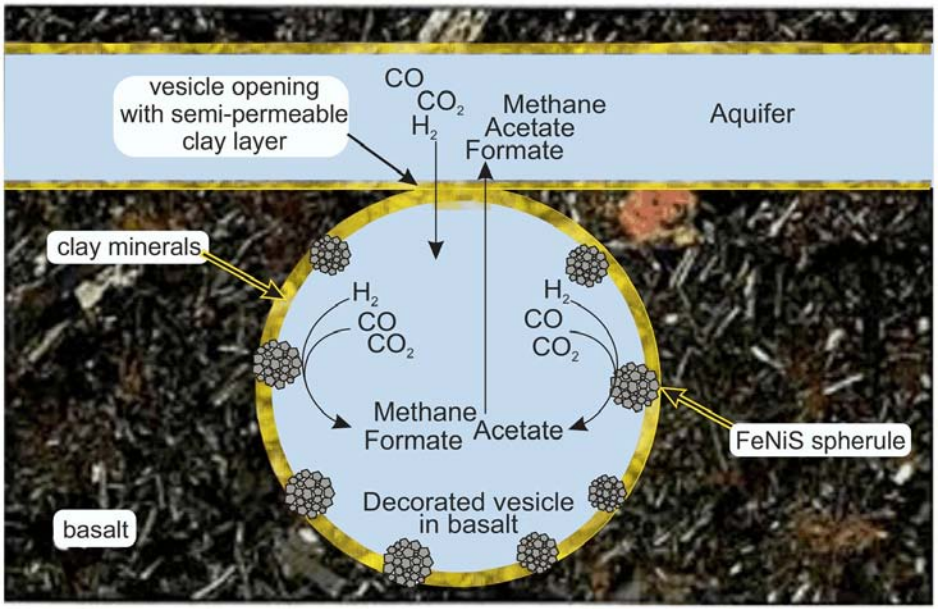
Fisk, M., and R. Popa (2023) **Decorated vesicles as prebiont systems (a hypothesis).** ORIGINS OF LIFE AND EVOLUTION OF BIOSPHERES 53:doi.org/10.1007/s11084-023-09643-0 (available as a free pdf)

Authors' abstract: *Decorated vesicles in deep, seafloor basalts form abiotically, but show at least four life analogous features, which makes them a candidate for origin of life research. These features are a physical enclosure, carbon-assimilatory catalysts, semi-permeable boundaries, and a source of usable energy.*

The nanometer-to-micron-sized spherules on the inner walls of decorated vesicles are proposed to function as mineral proto-enzymes. Chemically, these structures resemble synthetic FeS clusters shown to convert CO2, CO and H2 into methane, formate, and acetate.

Secondary phyllosilicate minerals line the vesicles' inner walls and can span openings in the vesicles and thus can act as molecular sieves between the vesicles' interior and the surrounding aquifer.

Lastly, basalt glass in the vesicle walls takes up protons, which replace cations in the silicate framework. This results in an inward proton flux, reciprocal outward flux of metal cations, more alkaline pH inside the vesicle than outside, and production of more phyllosilicates.



Such life-like features could have been exploited to move decorated vesicles toward protolife systems. Decorated vesicles are proposed as study models of prebiotic systems that are expected to have existed on the early Earth and Earth-like exoplanets.

[Image is from this paper.]

Paleobiology.

Mantica, F., et al (2024) **Evolution of tissue-specific expression of ancestral genes across vertebrates and insects.** NATURE ECOLOGY AND EVOLUTION 8:doi.org/10.1038/s41559-024-02398-5

[Every animal species has duplicated genes which are used for different purposes in different tissues.]

Authors' abstract: *Regulation of gene expression is arguably the main mechanism underlying the phenotypic diversity of tissues within and between species.*

Here we assembled an extensive transcriptomic dataset covering 8 tissues across 20 bilaterian species and performed analyses using a symmetric phylogeny that allowed the combined and parallel investigation of gene expression evolution between vertebrates and insects.

We specifically focused on widely conserved ancestral genes, identifying strong cores of pan-bilaterian tissue-specific genes and even larger groups that diverged to define vertebrate and insect tissues.

Systematic inferences of tissue-specificity gains and losses show that nearly half of all ancestral genes have been recruited into tissue-specific transcriptomes. This occurred during both ancient and, especially, recent bilaterian evolution, with several gains being associated with the emergence of unique phenotypes (for example, novel cell types).

Such pervasive evolution of tissue specificity was linked to gene duplication coupled with expression specialization of one of the copies, revealing an unappreciated prolonged effect of whole-genome duplications on recent vertebrate evolution.

McCutcheon, J.P., et al (2024) **How do bacterial endosymbionts work with so few genes?** PLOS BIOLOGY 22:doi.org/10.1371/journal.pbio.3002577 (available as a free pdf)

Authors' abstract: *The move from a free-living environment to a long-term residence inside a host eukaryotic cell has profound effects on bacterial function. While endosymbioses are found in many eukaryotes, from protists to plants to animals, the bacteria that form these host-beneficial relationships are even more diverse.*

Endosymbiont genomes can become radically smaller than their free-living relatives, and their few remaining genes show extreme compositional biases. The details of how these reduced and divergent gene sets work, and how they interact with their host cell, remain mysterious.

This unsolved mystery reviews how genome reduction alters endosymbiont biology and highlights a "tipping point" where the loss of the ability to build a cell envelope coincides with a marked erosion of translation-related genes.

Sosiak, C., et al (2024) **Prolonged faunal turnover in earliest ants revealed by North American Cretaceous amber.** CURRENT BIOLOGY 34:doi.org/10.1016/j.cub.2024.02.058

[Ants are surprisingly young on the geological scale, having only evolved during the dinosaur age.]

Authors' abstract: *All ~14,000 extant ant species descended from the same common ancestor, which lived ~140 to 120 million years ago (Ma). While modern ants began to diversify in the Cretaceous, recent fossil evidence has demonstrated that older lineages concomitantly occupied the same ancient ecosystems.*

These early-diverging ant lineages, or stem ants, left no modern descendants; however, they dominated the fossil record throughout the Cretaceous until their ultimate extinction sometime around the K-Pg boundary.

Even as stem ant lineages appear to be diverse and abundant throughout the Cretaceous, the extent of their longevity in the fossil record and circumstances contributing to their extinction remain unknown.

Here we report the youngest stem ants, preserved in ~77 Ma Cretaceous amber from North Carolina, which illustrate unexpected morphological stability and lineage persistence in this enigmatic group, rivaling the longevity of contemporary ants.

Through phylogenetic reconstruction and morphometric analyses, we find evidence that total taxic turnover in ants was not accompanied by a fundamental morphological shift, in contrast to other analogous stem extinctions such as theropod dinosaurs.

While stem taxa showed broad morphological variation, high-density ant morphospace remained relatively constant through the last 100 million years, detailing a parallel, but temporally staggered, evolutionary history of modern and stem ants.

Loewen, E.J.T., et al (2024) **New Canadian amber deposit fills gap in fossil record near end-Cretaceous mass extinction.** CURRENT BIOLOGY 34:doi.org/10.1016/j.cub.2024.03.001

[The Big Muddy Badlands are in southern Saskatchewan.]

Authors' abstract: *Amber preserves an exceptional record of tiny, soft-bodied organisms and chemical environmental signatures, elucidating the evolution of arthropod lineages and the diversity, ecology, and biogeochemistry of ancient ecosystems.*

However, globally, fossiliferous amber deposits are rare in the latest Cretaceous and surrounding the Cretaceous-Paleogene (K-Pg) mass extinction. This faunal gap limits our understanding of arthropod diversity and survival across the extinction boundary.

Contrasting hypotheses propose that arthropods were either relatively unaffected by the K-Pg extinction or experienced a steady decline in diversity before the extinction event followed by rapid diversification in the Cenozoic.

These hypotheses are primarily based on arthropod feeding traces on fossil leaves and time-calibrated molecular phylogenies, not direct observation of the fossil record.

Here, we report a diverse amber assemblage from the Late Cretaceous (67.04 ± 0.16 Ma) of the Big Muddy Badlands, Canada. The new deposit fills a critical 16-million-year gap in the arthropod fossil record spanning the K-Pg mass extinction.

Seven arthropod orders and at least 11 insect families have been recovered, making the Big Muddy amber deposit the most diverse arthropod assemblage near the K-Pg extinction.

Amber chemistry and stable isotopes suggest the amber was produced by coniferous (Cupressaceae) trees in a subtropical swamp near remnants of the Western Interior Seaway.

The unexpected abundance of ants from extant families and the virtual absence of arthropods from common, exclusively Cretaceous families suggests that Big Muddy amber may represent a yet unsampled Late Cretaceous environment and provides evidence of a faunal transition before the end of the Cretaceous.

Claeson, K.M., et al (2024) **From sabers to spikes: A newfangled reconstruction of the ancient, giant, sexually dimorphic Pacific salmon, †*Oncorhynchus rastrosus* (Salmoninae: Salmonini).** PLOS ONE 19doi.org/10.1371/journal.pone.0300252 (available as a free pdf)

Authors' abstract: *The impressive †Oncorhynchus rastrosus of the Pacific Northwest's Miocene and Pliocene eras was the largest salmonid ever to live.*

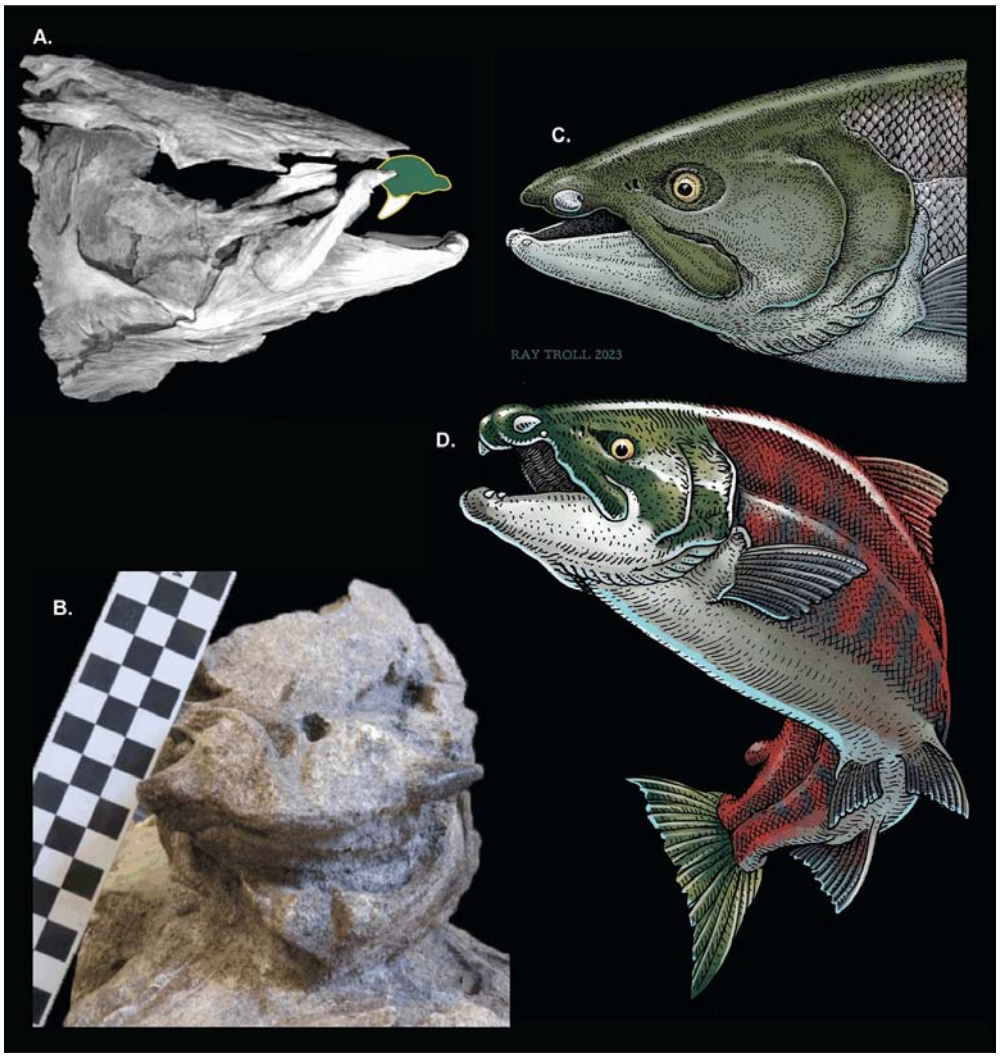
It sported a hypertrophied premaxilla with a pair of enlarged teeth which the original describers reconstructed as projecting ventrally into the mouth, leading them to assign the species to "Smilodonichthys," a genus now in synonymy.

Through CT reconstruction of the holotype and newly collected specimens, we demonstrate that the famed teeth projected laterally like tusks, not ventrally like sabers or fangs. We also expand the original description to characterize sexual dimorphism in mature, breeding individuals.

Because male and females possess hypertrophied premaxillae and lateral premaxillary spikes, the former common name "Sabertoothed Salmon" no longer reflects our understanding of the species' morphology.

Accordingly, we redub †O. rastrosus the Spike-Toothed Salmon and postulate that its spikes were multifunctional, serving as defense against predators, in agonism against conspecifics, and as a practical aid to nest construction.

[Images are from this paper.]



Dinosaurs.

Dunne, E.M., et al (2024) **Climatic controls on the ecological ascendancy of dinosaurs.** CURRENT BIOLOGY 33:doi.org/10.1016/j.cub.2022.11.064 (available as a free pdf)

Authors' abstract: *The ascendancy of dinosaurs to become dominant components of terrestrial ecosystems was a pivotal event in the history of life, yet the drivers of their early evolution and biodiversity are poorly understood.*

During their early diversification in the Late Triassic, dinosaurs were initially rare and geographically restricted, only attaining wider distributions and greater abundance following the end-Triassic mass extinction event.

This pattern is consistent with an opportunistic expansion model, initiated by the extinction of co-occurring groups such as aetosaurs, rauisuchians, and therapsids.

However, this pattern could instead be a response to changes in global climatic distributions through the Triassic to Jurassic transition, especially given the increasing evidence that climate played a key role in constraining Triassic dinosaur distributions.

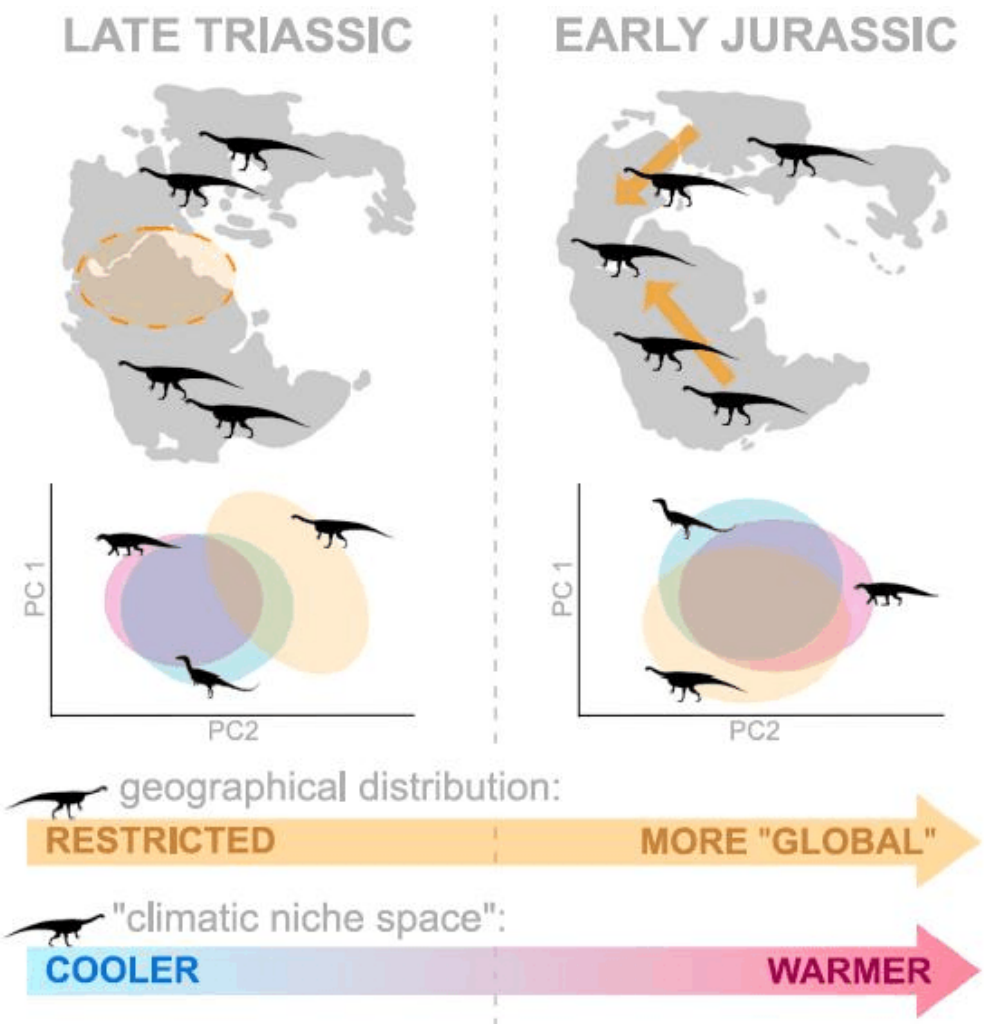
Here, we test this hypothesis and elucidate how climate influenced early dinosaur distribution by quantitatively examining changes in dinosaur and tetrapod ''climatic niche space'' across the Triassic-Jurassic boundary.

Statistical analyses show that Late Triassic sauropodomorph dinosaurs occupied amore restricted climatic niche space than other tetrapods and dinosaurs, being excluded from the hottest, low-latitude climate zones.

A subsequent, earliest Jurassic expansion of sauropodomorph geographic distribution is linked to the expansion of their preferred climatic conditions.

Evolutionary model-fitting analyses provide evidence for an important evolutionary shift from cooler to warmer climatic niches during the origin of Sauropoda. These results are consistent with the hypothesis that global abundance of sauropodomorph dinosaurs was facilitated by climatic change and provide support for the key role of climate in the ascendancy of dinosaurs.

[Images are from this paper.]



LeBlanc, Jacques (2024) **Review of the surface Cretaceous-Paleogene (K-Pg) boundary localities in Alberta, Canada.** www.academia.edu/112676060 (available as a free pdf)

[The asteroid impact that killed off the dinosaurs is known as the K-Pg boundary. Alberta is one of the few places with a good selection of K-Pg boundaries.]

Author's extracts: *At the Cretaceous-Paleogene contact, the terrestrial sediments spanning the K-Pg boundary throughout mid-continental United States and western Canada include a distinctive claystone containing an iridium anomaly, shocked quartz, and evidence for a biological crisis.*

In western Alberta, the K-Pg boundary is found within the Coalspur, Scollard and Willow Creek formations (the Scollard Sequence). Each of these three units have a Cretaceous lower member and a Paleocene upper member.

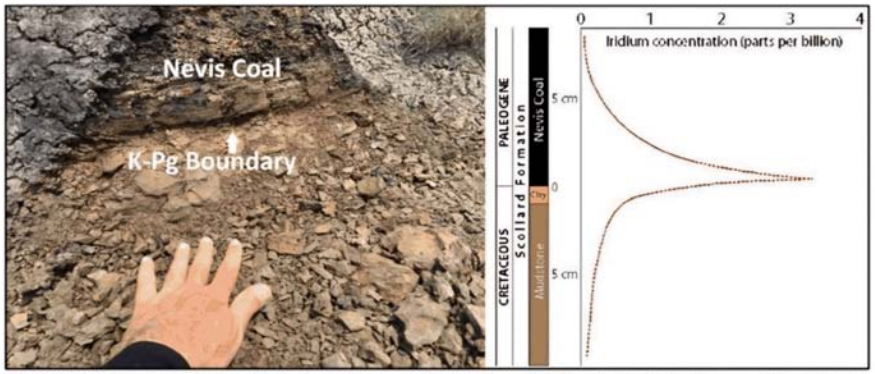


Fig. 3D-11: ***Left*** *- The K-Pg boundary layer (about 2cm thick) at site 2 (Source: Photo taken by the author during Tako Koning's APS field trip of July 8th, 2023). A boundary claystone, a tan or pinkish-tan, clay-rich unit associated with the K-Pg extinction event, is present at the Knudsen's Farm and Knudsen's Coulee (Sweet and Braman, 1992).* ***Right*** *– Iridium anomaly at the Knudsen's Farm K-Pg exposure. (Source: Modified from APS, 2022-09; simplified and updated from Lerbekmo and St. Louis, 1986).*

Fig. 3D-12: Slab across the K-Pg boundary from Knudsen's farm on display at the Royal Tyrrell Museum. The orange layer can be found worldwide at the K-Pg boundary. Its color represents oxidation and likely is the result of fires ignited by the asteroid strike. (Koning, 2021, 2023).

In southeastern Alberta, the K-Pg boundary is located at the contact between the Cretaceous Frenchman Formation and the Paleocene Ravenscrag Formation. The boundary is visible at the surface at specific locations and has been studied in the subsurface by several authors using core holes and geophysical logs.

The eight surface K-Pg boundary locations discussed herein are from the Scollard and Willow Creek formations in central (along the Red Deer River) and southern Alberta. No known surface locations exist in the Coalspur Formation nor at the contact with the Frenchman/Ravenscrag formations in Alberta.

[Images are from this paper.]

Lomax, D.R., et al (2024) **The last giants: New evidence for giant Late Triassic (Rhaetian) ichthyosaurs from the UK.** PLOS ONE 18:doi.org/10.1371/journal.pone.0300289 (available as a free pdf)

Authors' abstract: *Giant ichthyosaurs with body length estimates exceeding 20 metres were present in the latest Triassic of the UK. Here we report on the discovery of a second surangular from the lower jaw of a giant ichthyosaur from Somerset, UK.*

The new find is comparable in size and morphology to a specimen from Lilstock, Somerset, described in 2018, but it is more complete and better preserved. Both finds are from the uppermost Triassic Westbury Mudstone Formation (Rhaetian), but the new specimen comes from Blue Anchor, approximately 10 km west along the coast from Lilstock.

The more complete surangular would have been >2 metres long, from an individual with a body length estimated at ~25 metres. The identification of two specimens with the same unique morphology and from the same geologic age and geographic location warrants the erection of a new genus and species, Ichthyotitan severnensis gen. et sp. nov.

Thin sections of the new specimen revealed the same histological features already observed in similar giant ichthyosaurian specimens. Our data also supports the previous suggestion of an atypical osteogenesis in the lower jaws of giant ichthyosaurs.

The geological age and giant size of the specimens suggest shastasaurid affinities, but the material is too incomplete for a definitive referral. Ichthyotitan severnensis gen. et sp. nov., is the first-named giant ichthyosaur from the Rhaetian and probably represents the largest marine reptile formally described.

Zoology.

Sommer-Trembo, C., et al (2024) **The genetics of niche-specific behavioral tendencies in an adaptive radiation of cichlid fishes.** SCIENCE 384:doi.org/10.1126/science.adj9228

[There are about 250 species of cichlid fishes in Lake Tanganyika, many of which are popular in the aquarium trade because of their spectacular colours.]

Authors' abstract: *Behavior is critical for animal survival and reproduction, and possibly for diversification and evolutionary radiation. However, the genetics behind adaptive variation in behavior are poorly understood.*

In this work, we examined a fundamental and widespread behavioral trait, exploratory behavior, in one of the largest adaptive radiations on Earth, the cichlid fishes of Lake Tanganyika.

By integrating quantitative behavioral data from 57 cichlid species (702 wild caught individuals) with high-resolution ecomorphological and genomic information, we show that exploratory behavior is linked to macrohabitat niche adaptations in Tanganyikan cichlids.

Furthermore, we uncovered a correlation between the genotypes at a single-nucleotide polymorphism upstream of the AMPA glutamate-receptor regulatory gene cacng5b and variation in exploratory tendency. We validated this association using behavioral predictions with a neural network approach and CRISPR-Cas9 genome editing.

Botany.

Butel, N., and C. Köhler (2024) **Flowering plant reproduction.** CURRENT BIOLOGY 34:r308-r312 (available as a free pdf)

[This paper explains the complicated process of pollination and seed development. Lots of diagrams to show the way.]

Authors' extracts: *Flowering plants, also known as angiosperms, emerged approximately 150 to 200 million years ago. Since then, they have undergone rapid and extensive expansion, now encompassing around 90% of all land plant species.*

Environmental Science.

Parisek, C.A., et al (2024) **Reservoir ecosystems support large pools of fish biomass.** SCIENTIFIC REPORTS 14:doi.org/10.1038/s41598-024-59730-z (available as a free pdf)

Authors' abstract: *Humans increasingly dominate Earth's natural freshwater ecosystems, but biomass production of modified ecosystems is rarely studied. We estimate potential fish total standing stock in USA reservoirs is 3.4 billion (B) kg, and approximate annual secondary production is 4.5 B kg per year.*

We also observe varied and non-linear trends in reservoir fish biomass over time, thus previous assertions that reservoir fisheries decline over time are not universal. Reservoirs are globally relevant pools of freshwater fisheries, in part due to their immense limnetic footprint and spatial extent.

This study further shows that reservoir ecosystems play major roles in food security and fisheries conservation. We encourage additional effort be expended to effectively manage reservoir environments for the good of humanity, biodiversity, and fish conservation.

Löffler, F., et al (2024) **Urban rooftops near sports pitches provide a safe haven for a declining shorebird.** SCIENTIFIC REPORTS 14:doi.org/10.1038/s41598-024-59693-1 (available as a free pdf)

Authors' abstract: *Urbanisation has contributed to a severe decline in biodiversity worldwide. However, urban ecosystems can also play an important role in the conservation of threatened species, including ground-nesting birds such as the Eurasian Oystercatcher (Haematopus ostralegus).*

While the coastal populations of this shorebird have declined sharply, there is growing evidence that pairs nesting on urban flat roofs have high reproductive success. However, the reasons for rooftop nesting and the species' habitat use in urban areas remain poorly understood.

In this study, we investigate the territory selection and foraging behaviour of the Eurasian Oystercatcher in the city of Münster (NW Germany). All nesting sites were located on flat roofs (N = 24), most of which were covered with gravel.

Overall, reproductive success was high. This was mainly because the roofs provided protection from mammalian predators, leading to increased nest and chick survival. Moreover, breeding performance in the study area was favoured by the proximity of sports pitches.

According to our observations, they provided a large amount of easily accessible prey throughout the breeding season. Overall, our study highlights that the reproductive success of the Eurasian Oystercatcher in urban environments is highly dependent on both safe nesting sites on flat roofs and the availability of suitable foraging habitats.

Although our study suggests that breeding in urban areas can be beneficial for the model organism, the species' strong territory fidelity makes it very sensitive to the rapid environmental changes occurring in cities. The value of urban ecosystems for bird conservation should therefore be better integrated into urban planning and management.

Sharmin, M., et al (2024) **Urban greening with shrubs can supercharge invertebrate abundance and diversity.** SCIENTIFIC REPORTS 14:/doi.org/10.1038/s41598-024-58909-8 (available as a free pdf)

Authors' abstract: *In urban areas, diverse and complex habitats for biodiversity are often lacking. This lack of diversity not only compromises essential ecological processes, such as pollination and nutrient cycling, but also diminishes the resilience of urban ecosystems to pests and diseases.*

To enhance urban biodiversity, a possible solution is to integrate shrubs alongside trees, thereby increasing the overall amount of vegetation, structural complexity and the associated resource diversity.

Here, using a common garden experiment involving a variety of trees and shrubs planted alone and in combination, we evaluate how canopy-associated invertebrate assemblages are influenced by vegetation type.

In particular, we test whether the presence of shrubs, alone or with trees, results in increased abundance and taxonomic richness of invertebrates, compared to trees on their own.

We found that the overall abundance of invertebrates, and that of specific functional groups (e.g., herbivores, pollinators, detritivores), was higher on shrubs, compared to trees, and when trees and shrubs were planted in combination (relative to trees on their own).

Our results suggest that planting shrub and tree species with wide and dense crowns can increase the associated abundance and taxonomic and functional group richness of invertebrate communities.

Overall, our findings indicate that urban planning would benefit from incorporating shrubs alongside urban trees to maximise invertebrate abundance, diversity and function in urban landscapes.

Kotz, M., et al (2024) **The economic commitment of climate change.** NATURE 628:doi.org/10.1038/s41586-024-07219-0 (available as a free pdf)

Authors' abstract: *Global projections of macroeconomic climate-change damages typically consider impacts from average annual and national temperatures over long time horizons.*

Here we use recent empirical findings from more than 1,600 regions worldwide over the past 40 years to project sub-national damages from temperature and precipitation, including daily variability and extremes.

Using an empirical approach that provides a robust lower bound on the persistence of impacts on economic growth, we find that the world economy is committed to an income reduction of 19% within the next 26 years independent of future emission choices (relative to a baseline without climate impacts, likely range of 11 to 29% accounting for physical climate and empirical uncertainty).

These damages already outweigh the mitigation costs required to limit global warming to 2˚C by sixfold over this near-term time frame and thereafter diverge strongly dependent on emission choices.

Committed damages arise predominantly through changes in average temperature, but accounting for further climatic components raises estimates by approximately 50% and leads to stronger regional heterogeneity.

Committed losses are projected for all regions except those at very high latitudes, at which reductions in temperature variability bring benefits. The largest losses are committed at lower latitudes in regions with lower cumulative historical emissions and lower present-day income.

Human Prehistory.

van Holstein, L.A., and R.A. Foley (2024) **Diversity-dependent speciation and extinction in hominins.** NATURE ECOLOGY AND EVOLUTION 8:doi.org/10.1038/s41559-Article 9-024-02390-z (available as a free pdf)

Authors' abstract: *The search for drivers of hominin speciation and extinction has tended to focus on the impact of climate change. Far less attention has been paid to the role of interspecific competition.*

However, research across vertebrates more broadly has shown that both processes are often correlated with species diversity, suggesting an important role for interspecific competition.

Here we ask whether hominin speciation and extinction conform to the expected patterns of negative and positive diversity dependence, respectively. We estimate speciation and extinction rates from fossil occurrence data with preservation variability priors in a validated Bayesian framework and test whether these rates are correlated with species diversity.

We supplement these analyses with calculations of speciation rate across a phylogeny, again testing whether these are correlated with diversity. Our results are consistent with clade-wide diversity limits that governed speciation in hominins overall but that were not quite reached by the Australopithecus and Paranthropus subclade before its extinction.

Extinction was not correlated with species diversity within the Australopithecus and Paranthropus subclade or within hominins overall. This is concordant with climate playing a greater part in hominin extinction than speciation.

By contrast, Homo is characterized by positively diversity-dependent speciation and negatively diversity-dependent extinction, both exceedingly rare patterns across all forms of life.

The genus Homo expands the set of reported associations between diversity and macroevolution in vertebrates, underscoring that the relationship between diversity and macroevolution is complex.

These results indicate an important, previously underappreciated and comparatively unusual role of biotic interactions in Homo macroevolution, and speciation in particular.

The unusual and unexpected patterns of diversity dependence in Homo speciation and extinction may be a consequence of repeated Homo range expansions driven by interspecific competition and made possible by recurrent innovations in ecological strategies.

Raia, P., et al (2024) **Past extinctions of *Homo* species coincided with increased vulnerability to climatic change.** ONE EARTH 3:doi.org/10.1016/j.oneear.2020.09.007 (available as a free pdf)

Authors' abstract: *At least six different Homo species populated the World during the latest Pliocene to the Pleistocene. The extinction of all but one of them is currently shrouded in mystery, and no consistent explanation has yet been advanced, despite the enormous importance of the matter.*

Here, we use a recently implemented past climate emulator and an extensive fossil database spanning 2,754 archaeological records to model climatic niche evolution in Homo.

We find statistically robust evidence that the three Homo species representing terminating, independent lineages, H. erectus, H. heidelbergensis, and H. neanderthalensis, lost a significant portion of their climatic niche space just before extinction, with no corresponding reduction in physical range.

This reduction coincides with increased vulnerability to climate change. In the case of Neanderthals, the increased extinction risk was probably exacerbated by competition with H. sapiens. This study suggests that climate change was the primary factor in the extinction of Homo species.