OPUNTIA 562

Middle December 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.

ABOUT THE COVER: I took this photo last year after the final issue of this zine for 2022 had been posted, so I held it over for this year. Usually Calgary gets a week of cold weather in the -25°C to -30° range around Christmas or early January. When this photo was taken in December 2022, the temperature was -28°C but life went on as normal in Calgary.

Calgary Transit had a sense of humour. The small electronic sign at the bottom left of the windshield is normally used for route information. With a bit of jiggery-pokery, the sign read COLD.

CPR HOLIDAY TRAIN 2023-12-09
photos by Dale Speirs

Each year the Canadian Pacific Railway sends across Canada a train decorated with Christmas lights and carrying a stage for a band and other performers. I've shown the train in issues #294 and 540 of this zine, but because the light show changes every year I'll run some more photos.

Calgary has had a mild winter so far, with temperatures about -5°C and a couple of light snowfalls not more than 10 cm at a time. Consequently the crowd was bigger than usual at Anderson LRT station where the CPR Holiday Train stopped.

Above right: A vendor was doing good business selling Christmas lights on a stick.

Bottom right: The Holiday Train arrives at Anderson station.


CANADIAN PACIFIC RAILWAY
CPKC


CPKC
Holiday Train


CPKC
Thank you for supporting local food banks
CPKC


Thank you for supporting local food banks

The light displays were animated. I'll only show just this one in sequence but the others were likewise.


CANADIAN
CP


RAILWAY

CHRISTMAS CUT-UPS AT THE LIBRARY
photos by Dale Speirs

The New Central Library had this Christmas display in the entrance lobby, part of which was made from (gasp!) books cut up and fluffed out to create sculpture.

CHRISTMAS FICTION: PART 7
by Dale Speirs

[Parts 1 to 6 appeared in OPUNTIAs #430, 431, 463, 490, 514, and 540.]

Never Accept A Christmas Invitation To A Manor House.

THE SANTA KLAUS MURDER was a 1936 novel reprinted in 2019 by Poisoned Pen Press, which was the copy I read. The author was Mavis Doriel Hay, a minor writer even in her own time.

The novel was a country house mystery set at Flaxmere, the estate of the Melbury family. The patriarch Sir Osmond Melbury was shot dead on Christmas Day. The body was found by a guest dressed as Santa Klaus. Sir Osmond did not approve of Santa Claus or Father Christmas.

He was past disapproving of anything now. The entire Melbury family, and it was an extended one, had grudges against Sir Osmund, not to mention the guests staying over for the holidays. The novel began with a long infodump about the Melburys past and present.

The narrative rotated between characters, mostly staff and guests. Everyone had a motive. The story flowed smoothly and was a pleasant read. The denouement was complicated but made easier by the author providing a table of who did what to whom when.

There were two Santa Klaus costumes about the mansion, one of which was used by the murderer as a diversion. The culprit was one of the staff, who had delusions of marrying the inheritor of the estate.

MURDER AFTER CHRISTMAS by Rupert Latimer (pseudonym of Algernon Vernon Mills) was originally published in 1944 and re-issued in 2022 by Poisoned Pen Press.

Frank and Rhoda Redpath had invited her stepfather Sir Willoughby Keene-Cotton for Christmas. Normally the old man wintered in Italy but that boor Mussolini put the kibosh on that tradition. The Redpaths were hoping for favourable mention in Sir Willoughby's will.

He was found dead on Boxing Day (December 26, a holiday in Britain and Canada). He was dressed as Father Christmas and apparently poisoned by chocolates. His relatives, past friends and enemies, and the police took turns on the stage.

The J'accuse! meeting was the most confusing I have ever read, as almost everyone confessed to the crime amid a whiteout generated by a blizzard of clues. A police officer remarked: *Almost a relief to realise there's still a war on after listening to all that stuff.* I re-read the final pages and was still unable to figure out the truth of the matter.

Carrying on the theme was MURDER FOR CHRISTMAS (1949) by Francis Duncan (pseudonym of William Underhill). This manor house mystery was reprinted in 2015, the copy that I read.

The protagonist was Mordecai Tremaine, invited to spend Christmas at the mansion of Benedict Grame. There were other guests aplenty, all with dark secrets.

Christmas Eve ticked over into Christmas Day. The custom of the house was that after the guests were abed, Grame would dress up as Father Christmas, sneak downstairs, and lay out presents under the tree.

Alas, murder was done and the body of Father Christmas was found on the floor. Except it wasn't Grame but a guest named Rainer who was dressed as the jolly old gent. The question was did the murderer intend to kill Grame or was Rainer the target?

Tremaine did some sleuthing, as did the police. Lots of back stories, culminating in the revelation that Grame was blackmailing all the guests except Tremaine. The murderer got the wrong man.

MURDER MOST FESTIVE (2021) by Ada Moncrieff was yet another Christmas Day manor house murder. The Westbury family filled the mansion with relatives and guests for Christmas 1938.

One of the guests was David Campbell-Scott, recently returned from eight years in Malaya with a fortune in his pocket. Unfortunately, if I can use that word in a different sense, he was destined to never spend the money. His body was found out in the snow on Christmas morning.

Only one set of footprints led to the body, and a spent pistol was beside the corpse. Suicide obviously, except to amateur sleuth Hugh Gaveston. Otherwise the novel would have ended at Chapter 7.

The back stories included all the family members, who were a good reason to abolish the nobility and make England a republic again. Gaveston had to spend as much time facing down upper-class nobs as he did investigating.

His J'accuse! meeting laid out the facts. The deceased was a blackmailer who failed to realize that trade shortens life spans considerably. His murderer had built a career on an impersonation, for which Campbell-Scott had intended to bleed him dry.

Canine Christmases.

DACHSHUND THROUGH THE SNOW (2019) by David Rosenfelt was a novel in a cozy series about lawyer Andy Carpenter and his wife Laura, a police officer, of Paterson, New Jersey.

Their local pet store had a Christmas tree decorated with wishes of local children. The Carpenters picked one from a boy named Danny, who wanted a coat for his mother, a sweater for his dachshund, and the safe return of his father, wanted for murder.

In a side plot, Andy was suing the police department for overworking their dogs. The canines, both dachshund and police, didn't distract Andy too much from gaining an acquittal for Danny's father and stopping the spy network that did the killing.

SANTA'S LITTLE YELPERS (2022) began with Andy Carpenter involved with a humane society who had more puppies than they knew what to do with. Eight golden retriever puppies, which Carpenter's friend Chris Myers agreed to babysit over the holidays.

Myers was trying to overturn a conviction for which he served time. A witness in the case was murdered and suddenly Myers wasn't going to have a merry Christmas. Andy took up arms against Myers' sea of troubles.

The ending was ugly, with a nuclear reactor being blown up, but Myers was exonerated. Plus he got a special Christmas gift. Hint: it went "woof, woof".

HERE COMES SANTA PAWS (2019) by Laurien Berenson was a novel in a dog cozy series about Melanie Travis of Greenwich, Connecticut. Lots of dogs around, mostly poodles, plus the occasional human corpse. In between dogs and family, Melanie did some sleuthing.

Her friend Claire Travis, a distant relative by marriage and divorce (not by blood, it was complicated) was an event planner and personal shopper. For the latter, she was Christmas shopping for a client Lila Moran. Unfortunately, after Claire tripped over Moran's body, she became a suspect.

Both women had dark pasts and Melanie was busy ferreting out secrets. The dogs only woofed when she talked to them, although they did help threaten one of the suspects.

In the end, the deceased died from adultery and a jealous wife. The police were there first for the collar, so the traditional gunpoint confrontation came to naught.

Cozy Christmases.

END ME A TENOR (2013) by Joelle Charbonneau was a novel in a cozy series about Paige Marshall, a music teacher and performer in suburban Chicago.

She was preparing for the Christmas season, both training a high school choir for the WInter Wonderland festival, and her own part in a separate performance of Handel's 'Messiah'.

Paige became busier when David Richard, the temperamental tenor of the 'Messiah' cast, had his golden voice permanently silenced in Chapter 2. Her students at the high school were eager to help solve the crime rather than rehearse their own songs.

Paige had to babysit both choirs as the adults singing 'Messiah' were no more emotionally mature than the students. Richard was not mourned but Paige went Marpleing for fear that the killer would strike again.

The usual alarums ensued. Someone tried to run her off the road, she was slugged unconscious, etcetera. Also as per usual in cozies was the gunpoint confrontation with the murderer, who was Richard's unacknowledged illegitimate daughter from a one-night stand. And so to the Hallelujah chorus.

A GARLAND OF BONES (2020) by Carolyn Haines was a novel in a cozy series about Sarah Booth Delaney of Zinnia, Mississippi. Christmas was approaching and rather than kill off any more Zinnians, Sarah took a group of friends on a road tour to Columbus, Mississippi.

This helped spread out the death toll, or at least the serious injuries. Anyone at an event attended by Sarah was at risk, she being an excellent murder magnet.

A karaoke singer got a severe electrical shock from a microphone, a guest at a party in an historic home fell down the stairs, and another woman was nearly shot dead with an arrow during a mumming party.

Sarah, her boyfriend Coleman, and her friend Tinkie went Marpleing amidst the Christmas cheer. Lots of suspects and lots of motives were uncovered. The grand finale was at the Santa Claus parade, with Sarah and the Zinnia ladies in one float.

An elf on another float got an arrow in the gut. After some misdirection, the killer was caught. She was taking revenge for murders done to steal an estate from her. The wrap-up was on Christmas morning, listening to Dean Martin singing "Winter Wonderland".

CHRISTMAS SCARF MURDER (2022) was an anthology of three cozy novellas, no editor listed. Leading off was "Christmas Scarf Murder" by Carlene O'Connor, set in Kilbane, Ireland.

The holiday festivities in the village were marred by thefts from a nursing home and a death during the tractor parade. The deceased Michael Walsh was found wearing a long scarf stolen from the home. The scarf had tangled in the tractor rear wheel and snapped his neck a la Isadora Duncan. The death didn't seem like a plausible accident.

The protagonist was a local Garda, Siobhan O'Sullivan, married to a detective, which gave her an inside edge. There was a suspicious monk, or someone dressed like one.

The deceased had his ugly side, enough to provoke others. Walsh had indeed committed the thefts but had been hired by the killer, his lover whom he had ditched. A woman scorned and all that.

The wrap-up was a hearty "Nollaig shona daoibh" to everyone all around. For anglos, "Happy Christmas to you".

"Scarfed Down" by Maddie Day was a food cozy in a series about Robbie Jordan of South Lick, Indiana. She operated the Pans 'N Pancakes cafe when not Marpleing.

A member of the knitting club, which met regularly at the cafe, had her skein of wool poisoned by pesticide. She died later in her apartment from contact poisoning.

Robbie and her assistant Miss Marples from the knitting club went into action. So did the police but what of them? The women eventually found the murderer, a jealous woman who wanted the deceased's boyfriend for herself.

"Death By Christmas Scarf" by Peggy Ehrhart was a knitting club mystery set in Arborville, New Jersey. The deceased Carys Walnutt was strangled with a scarf at the village Christmas tree lighting ceremony.

The knitting club discussed the details over tea and snowman sugar cookies. Indeed, there was much cooking and eating all through the story, almost making it a food cozy. Not to mention the cats, who had fun with the Christmas tree.

Walnutt had discovered the local library had been embezzled by the murderer. The knitters worked out the details, saw him arrested, and then adjourned to tea and poppy seed cakes.

DASHING THROUGH THE SNOWBIRDS (2022) by Donna Andrews was a novel in a cozy series about Meg Langslow and her extended family in Caerphilly, Virginia.

A dozen Canadian computer programmers were rooming at the Langslow bed-and-breakfast. They were working on a rush project for AcerGen, a genealogy and DNA analysis company. They weren't happy about Christmas in Virginia.

The president of the company was rude and crude, and wasn't mourned when he was murdered. Surprisingly, he survived until Chapter 13. The Christmas season was in full swing. Meg's sleuthing was hampered by holiday events, a clutter of lawyers, and, as eventually transpired, two different murderers roaming about.

The author evidently did a lot of research on forensic DNA analysis, with plenty of infodumps. Meg's grandfather was an animal lover, so he supplied a lecture on the genetics of yellow cats. The culprits were tagged with the help of DNA. A thoroughly modern Miss Marple.

A KILLER CAROL (2019) by Laura Bradford was the seventh novel in a cozy series about Claire Weatherby of Heavenly, Pennsylvania. She operated a gift shop in Amish country and was an experienced Miss Marple. Twas the season and Claire was organizing the village's Christmas fete.

The trouble began when an elderly Amish couple were murdered on their farm. The Deppity Dog, a lapsed Amish, settled on two suspects from the colony. Claire doubted their guilt so she went Marpleing. She stirred up back stories when not fussing about the decorations and catering at the festival.

The killers were entangled in a dispute over the inheritance of a family business. Claire went through the usual contretemps of cozy denouements, including being kidnapped, arson, attempted murder (hers), and a last minute save.

The festival and the gift shop were successes. Even better, Claire's boyfriend proposed marriage to her in the final paragraphs.

Holy Land Troubles.

Anne Perry (born Juliet Marion Hulme in England) had better qualifications than any other best-seller mystery author. In 1954, she and a friend were convicted of premeditated murder in New Zealand where her family lived at the time. They were both aged 15, so as minors they escaped the death penalty.

Each served five years in prison. After parole, Hulme and her family returned to England. She made a new life under the name Anne Perry and not until many decades later was her past uncovered. By then she had published more than 70 novels.

From 2003 until her death on April 10,2023, her books included a series of annual Christmas novellas. These were published as small hardcovers for the stocking stuffer trade.

A CHRISTMAS MESSAGE (2016) was set in the year 1900 when Victor and Vespasia Narraway took their Christmas vacation in Jerusalem. Em route, at a Jaffa hotel, they befriended an elderly man who was murdered the next day. Just before his murder, he slipped a fragment of parchment and a note into Victor's jacket pocket.

The note asked Victor to deliver the parchment to the House of Bread on the Via Dolorosa in Jerusalem before Christmas Eve. The parchment and two others like it became the MacGuffins of the plot for everyone to chase. The Narraways were chased by a mysterious man called The Watcher, and various alarums ensued.

The finale was at a bakery where clerics were waiting for the Narraways. The three parchments were respectively a confession by Pontius Pilate about his guilty feelings in executing Jesus, a testimonial by Mary about her son, and an account by Lazarus about his resurrection.

At that point the story ended in a vague note of fantasy. The reader was left befuddled as to what it was all about.

Way Up North.

MRS CLAUS AND THE EVIL ELVES (2022) by Liz Ireland (pseudonym of Elizabeth Bass) was part of a cozy series about April Claus, recently married to Nicholas. Yes, April, there really is a Santa Claus.

She was preparing for her second Christmas in Santaland. Her friend Claire Emerson was visiting from Oregon, under the impression that Santaland was an elaborate cosplay theme park. All was not jolly.

Drone deers, invented by elf Blinky Brightlow, ruined the ice sculpture contest and the pre-Christmas festival. The elf clogging was painful to listen to and watch. Then Blinky went missing.

The reindeer were on strike over fears they would be automated out of jobs by the drone deers. Nick was worried about the Christmas Eve deliveries. Worse yet was the murder of the elf Virgil.

Blinky's girlfriend Juniper was both a suspect and potential victim. Fortunately he reappeared in time at the Brightlow Enterprises factory. Blinky's evil brother Dabb had automated the assembly lines and was out to rule the world, or at least toy manufacturing. Blinky and Virgil had been in his way.

Christmas Comedy.

HANCOCK'S HALF HOUR aired on BBC Radio from 1954 to 1959, and also became a television series. The radio series was a pure situation comedy, not a variety show as were most comedy shows on air at the time. All the episodes were written by Ray Galton and Alan Simpson.

Tony Hancock was the star, assisted by a variety of supporting actors. Unusually, their characters were fictional but they used their real names. They generally shared accommodations such as a council house. Hancock lived in East Cheam, a bland English town.

"The Christmas Club" was a December 1959 episode, written by Alan Simpson and Ray Galton. Tony Hancock was anticipating a grand spread of Christmas food with the money he saved through the year in his Christmas Club account.

Someone knocked on the door. Instead of answering it, Hancock and Sidney James remained seated in the living room and speculated who was there. They managed to stretch the routine for eight minutes and keep the audience laughing before Hancock finally answered the door.

The caller was a constable soliciting for the Police Benevolent Fund. He was very subtle with his threats as to what might happen if Hancock didn't cough up. Handing Hancock an envelope, he said someone would be round tomorrow to collect the donation.

Unfortunately Hancock's £59 share-out (call it £600 in today's currency or about $1,500) of the Christmas Club fund was accidently given in full to the police fund instead of the intended 10 shillings. Hancock tried to get the money back at the police station without success.

No turkey for Christmas dinner. The vicar came by to solicit food for the church hampers but Hancock told him there was none in the house. The vicar apologized and left. So much for Christian charity.

Hancock and James fainted from hunger but were eventually rescued and taken to hospital. The doctor noted that they must have pigged out because there wasn't a scrap of food found in the house. He therefore put them on a starvation diet to deal with their presumed overeating.

Alternative Christmases.

A CHRISTMAS CAROL MURDER (2020) by Heather Redmond took place in London, England, in December 1835. Charles Dickens and his fiancée Kate Hogarth were out with friends caroling.

At one house, the season wasn't jolly when a body fell from an upper window. Subsequently identified as Jacob Harley, the deceased had chains wrapped around his neck. The house belonged to his business partner Emmanuel Screws.

There being little in the way of police detectives in those days, Dickens began investigating. He was more qualified than the constabulary because he was a newspaper reporter. He was however, saddled with an orphan baby named Timothy, dumped on him by a woman who claimed he was the father.

Harley's body disappeared. Dickens meandered through London, allowing for lots of infodumps about how people survived in those days. The killer was part of a conspiracy to steal the counting house business of Screws and Harley. The final sentence was Kate saying to Dickens: "*Wed me quick, before anyone else dies at our feet.*"

ZINE LISTINGS

[I only list zines I receive from the Papernet. If the zine is posted on www.efanzines.com or www.fanac.org, then I don't mention it since you can read it directly.]

FOR THE CLERISY #95 (Available for The Usual from Brant Kresovich, Box 404, Getzville, New York 14068-0404) Reviews of older books, including the Edsel car in television and novels, surely an exotic subgenre. Also a look at why the Japanese like William Faulkner novels.

ALTERNATIVE HISTORY REVIEWS: PART 14

by Dale Speirs

[Parts 1 to 13 appeared in OPUNTIA #67.1E, 68.1B, 291, 303, 304, 312, 336, 370, 453, 470, 501, 535, and 557. See also the cumulative subject index of OPUNTIA for others.]

Anthologies.

MULTIVERSES (2023) was an anthology of 18 multiverse and alternative histories, edited by Preston Grassmann. The stories are mostly original but there are selections from the past two decades. To pick a few stories:

"Banish" by Alistair Reynolds occured on an Earth where windows occasionally opened between parallel Earths. A neurosurgical team was asked to remove a brain tumour on a man who in his world had done nothing wrong, but in other universes he had been a cruel mass-murdering tyrant.

The team would not separate him from the others. Like wokers who condemn all those within a label, some of the surgeons had to be convinced that the patient should not be condemned for the sins of others.

"Crunchables" by Ian McDonald took place on an Earth riven by cracks between universes. One side of a street might stay Earth-like, while the other suddenly transformed into a parallel universe.

The breaks could be dramatic, with strange eldritch creatures. Conversely, the other side could be almost identical except that their electric cars had non-compatible rechargers.

Two stories considered the consequences of meeting one's alter-egos from adjacent universes. "Quorum's Eye" by Alvaro Zinos-Amaro was where avatars of an individual from across a continuum joined together in support of each other. Anyone who stayed an individual was at a serious economic disadvantage.

Another such story was "Nine Hundred Grandmothers" by Paul di Filippo, not to be confused with the 1970 story of the same title by R.A. Lafferty. In this story, a drug addict in one universe was constantly hectored by his successful avatars and the avatars of all his relatives in other universes.

"A Brief History Of The Trans-Pacific Tunnel" (2013) by Ken Liu posited train tunnels running underneath the Pacific Ocean between Shanghai, Tokyo, and Seattle. Construction began in the 1930s and as a result altered history, including no World War Two.

What wasn't altered was basic human behaviour with racial prejudice on both sides of the ocean. The protagonist was a labourer in the tunnels, where life was cheap and the work was hard.

"Thirty-Six Alternate Views Of Mount Fuji" by Rumi Kaneko was translated by Preston Grassmann. A Japanese historian was contacted by an elderly man who had documents and artifacts from centuries ago.

They had the look and feel of genuineness but they illustrated dirigibles and geothermal electrical generators. She went to visit the old man, who gave her the items to authenticate. When she stepped outside, she found herself in that alternative timeline, while the documents now illustrated her timeline.

Alternative Space.

"Apollo In Retrograde" by Rosemary Claire Smith (2023 Nov/Dec, ANALOG) was an alternative history where Apollo 11 had a different crew, including a woman. Bobby Kennedy was president. Apollo 13 had its disaster but in that timeline one of the astronauts was seriously injured, although all three made it home.

Apollo 14 and beyond were paused, as was Skylab. The Soviets had landed cosmonauts on the Moon and had a fleet of robot rovers exploring the surface. Notwithstanding all that, the space race continued. Eventually Apollo 17 landed, just about the time the Soviet lunar base met with disaster. One cosmonaut survived and was rescued by the American lunarnauts.

The story read well for us Boomers old enough to remember the Cold War. These things could have happened without major points of divergence, which makes the story plausible.

Alternative Hollywood.

I watch YouTube videos occasionally, mostly Sunflower Farm baby goats, kittens, and dashcam accidents. Make of that what you will. Recently videos

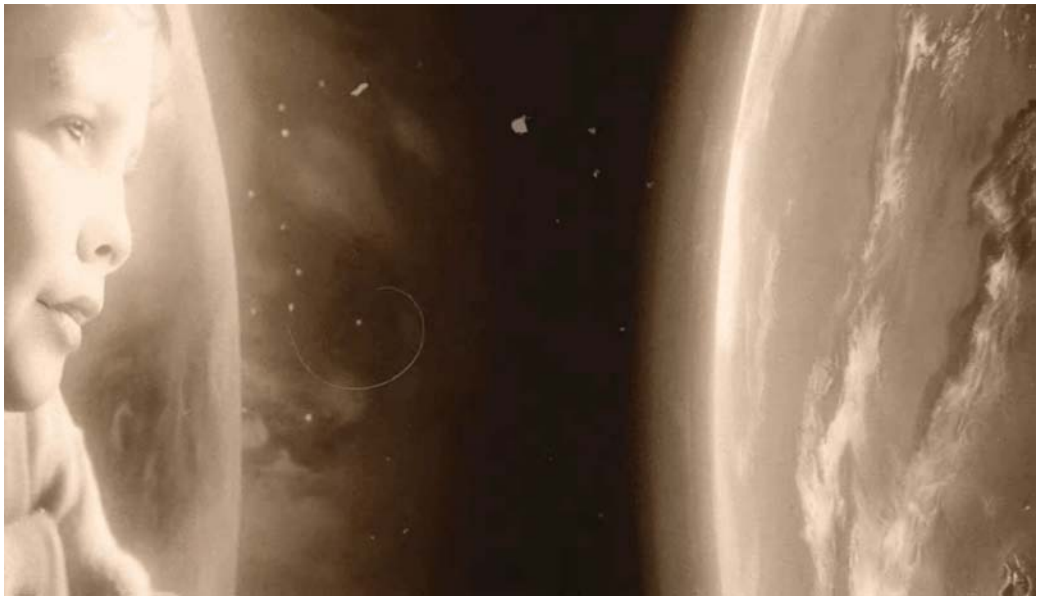
produced by Shortyverse have been appearing, showing modern science fiction movies and television series as if they had been produced in the 1920s silent film era.

Each video is short, highlighting recognizable scenes but in black-and-white and with the technology of the 1920s. Very well done, no doubt using AI software. Well worth viewing. There are a dozen or more sci-fi flicks; I append screenshots from a few of them. This page shows the 1920s version of LOST IN SPACE.

Star Trek a la 1920s. Below is the shuttle lander. At bottom is the warp drive. At right is Lieutenant Uhura, always beautiful in every multiverse.

The noble Batman doesn't cut quite the figure he did in later decades.

1920, pardon me, 2001: A SPACE ODYSSEY. The creators increased the verisimilitude by adding in scratches and inclusions on the film.



FANAC FAN HISTORY PROJECT NEWSLETTER 2023-12-08
by Edie Stern and Joe Siclari

[These are extracts from the newsletter. For the full letter, visit www.fanac.org]

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

Behold, the timebinding: We've now exceeded 22,000 fanzines on the archive, with almost 400,000 pages of material. Over 3,000 of those fanzines were published in the 1930's-1940's.

Back To The Future: Joe On APAs.

[An APA is an amateur press association. Members send a batch of their zines to a central mailer, who then collates them into bundles and sends everyone a set of all the zines received.]

[FAPA is the Fantasy APA, the first science fiction APA. It was founded in 1937 and is still going.]

What was it like to be a fan in the 40s or 50s, and get a big fat FAPA mailing? One of our recent software updates has given us the ability to recompile old APA mailings.

As we scan fanzines and identify which APAs they were originally from, Mark Olson's software is allowing us to "reconstruct" mailings. That is, on FANAC.org, you can browse the zines in a mailing together, as if you had received the mailing. As we add more scans to the archive, the mailings will become more complete. https://fanac.org/fanzines/APA_Mailings/

YouTube Channel.

If you like to enjoy your history through audio and video, the FANAC YouTube channel is there for it. As is customary, we've added our Zoom sessions to the channel. Since the last newsletter, we have had "Boston in 60s", with Tony Lewis, Leslie Turek and Mike Ward, and "Evolution of Art(ists)", with Grant Canfield, Tim Kirk, Jim Shull, and Dan Steffan.

One of the advantages of our zoom-ed world is that we are able to bring together superbly qualified panelists to address the topic of the day, and these two panels are evidence of that. Judge for yourself, and listen to the recordings.

FANAC By The Numbers.

Fanzines: 22,305 issues (covering 2,403 titles) with more than 396,070 pages.

Conpubs: 4,308 publications, with 72,961 pages, representing 970 conventions.

Fancyclopedia: 29,520 pages which include 6,439 for people, 4,693 for fans (a subset of people), 8,593 for fanzines, another 1,540 for clubs and apas, and 6,367 for conventions.

YouTube: 170,838 views, 1,363 subscribers and 153 recordings.

Selected Links.

FANAC.org: https://www.fanac.org
Fancyclopedia 3: https://fancyclopedia.org

Fanac YouTube channel:
https://www.youtube.com/c/FanacFanhistory

Fanzines: https://fanac.org/fanzines/Classic_Fanzines.html
References: https://fanac.org/fanzines/References/
APA Mailings https://fanac.org/fanzines/APA_Mailings/

Alphabetical Listing:
https://fanac.org/fanzines/alphabetical_listing_of_fanzines.html

Chronological Listing:
https://fanac.org/fanzines/chronological_listing_of_fanzines.html

Country
Listing: https://fanac.org/fanzines/country_listing_of_fanzines.html

Editor Listing: https://fanac.org/fanzines/by_editor.html

Newszine Project: https://fanac.org/fanzines/newszines.html

SEEN IN THE LITERATURE

Astronomy.

Roederer, I.U., et al (2023) **Element abundance patterns in stars indicate fission of nuclei heavier than uranium.** SCIENCE 382:doi.org/10.1126/science.adf1341

Authors' abstract: *The rapid neutron capture process (r-process) occurs in neutron-rich environments such as neutron star mergers or certain types of supernovae. This process is thought to produce many of the chemical elements heavier than iron, but the details are poorly understood and cannot be studied in the laboratory.*

The heaviest chemical elements are naturally produced by the rapid neutron-capture process (r-process) during neutron star mergers or supernovae. The r-process production of elements heavier than uranium (transuranic nuclei) is poorly understood and inaccessible to experiments so must be extrapolated by using nucleosynthesis models.

We examined element abundances in a sample of stars that are enhanced in r-process elements. The abundances of elements ruthenium, rhodium, palladium, and silver (atomic numbers Z = 44 to 47; mass numbers A = 99 to 110) correlate with those of heavier elements.

There is no correlation for neighboring elements. We interpret this as evidence that fission fragments of transuranic nuclei contribute to the abundances. Our results indicate that neutron-rich nuclei with mass numbers >260 are produced in r-process events.

Planets.

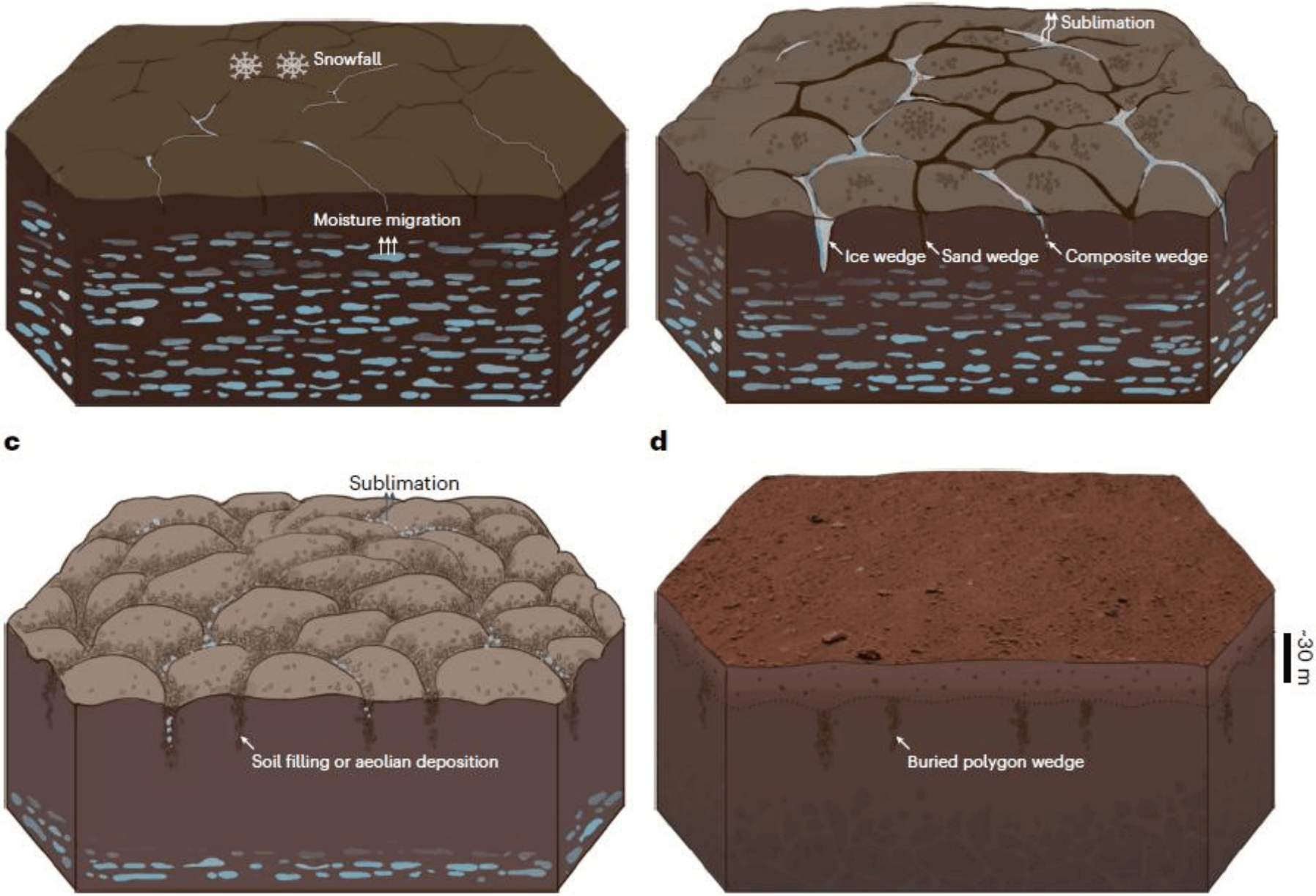
Zhang, L., et al (2023) **Buried palaeo-polygonal terrain detected underneath Utopia Planitia on Mars by the Zhurong radar.** NATURE ASTRONOMY 7:doi.org/10.1038/s41550-023-02117-3 (available as a free pdf)

Authors' abstract: *As the largest basin on Mars, Utopia Planitia has both experienced and recorded variations of the Martian palaeoclimate. Layered*

subsurface structures have been identified by ground-penetrating radar in southern Utopia Planitia but lateral variations of the subsurface, potentially linked to the Martian palaeoclimatic evolution, have not been investigated.

Here we report the lateral frequency-variation patterns of Zhurong radar reflections and interpret them as buried polygonal terrain below a depth of 35 m. Sixteen polygonal wedges were identified within ~1.2 km distance, suggesting a wide distribution of such terrain under Utopia Planitia.

The contrast above and below ~35 m depth represents a notable transformation of aqueous activity or thermal conditions in the Late Hesperian-Early Amazonian. The interpreted buried polygons, possibly generated by freeze-thaw cycles, imply that there was a strong palaeoclimatic variability at low-to-mid latitudes (~25° N), potentially due to the high obliquity of ancient Mars.



Utopia Planitia, the largest impact basin in the northern hemisphere of Mars, is considered to be a Late Hesperian lowland unit.

The northern lowlands were largely filled with materials of the Vastitas Borealis Formation (VBF) as a sublimation residue from frozen ponded bodies of water and subsequently modified by Amazonian resurfacing, such as long-term weathering, aeolian deposition and impact remixing.

A large number of orbital and in situ geomorphometry measurements show that polygonal terrain and other periglacial features are extensively distributed in southern and western Utopia Planitia, indicating the occurrence of water-related or ice-related activities.

Viking 2, a previous ground-based probe in northern Utopia Planitia, identified troughs that probably form a polygonal network.

[Images are from this paper.]

Quick, L.C., et al (2023) **Prospects for cryovolcanic activity on cold ocean planets.** ASTROPHYSICAL JOURNAL 956:doi.org/10.3847/1538-4357/ace9b6 (available as a free pdf)

Authors' abstract: *We have estimated total internal heating rates and depths to possible subsurface oceans for 17 planets that may be cold ocean planets, low-mass exoplanets with equilibrium surface temperatures and/or densities that are consistent with icy surfaces and a substantial H_2O content.*

We have also investigated the potential for tidally driven cryovolcanism and exosphere formation on these worlds.

Estimated internal heating rates from tidal and radiogenic sources are large enough that all planets in our study may harbor subsurface oceans, and their geological activity rates are likely to exceed the geological activity rates on Jupiter's moon Europa.

Several planets are likely to experience enhanced volcanic activity rates that exceed that of Io. Owing to their relatively thin ice shells and high rates of internal heating, Proxima Cen b and LHS 1140 b are the most favorable candidates for telescopic detection of explosive, tidally driven cryovolcanism.

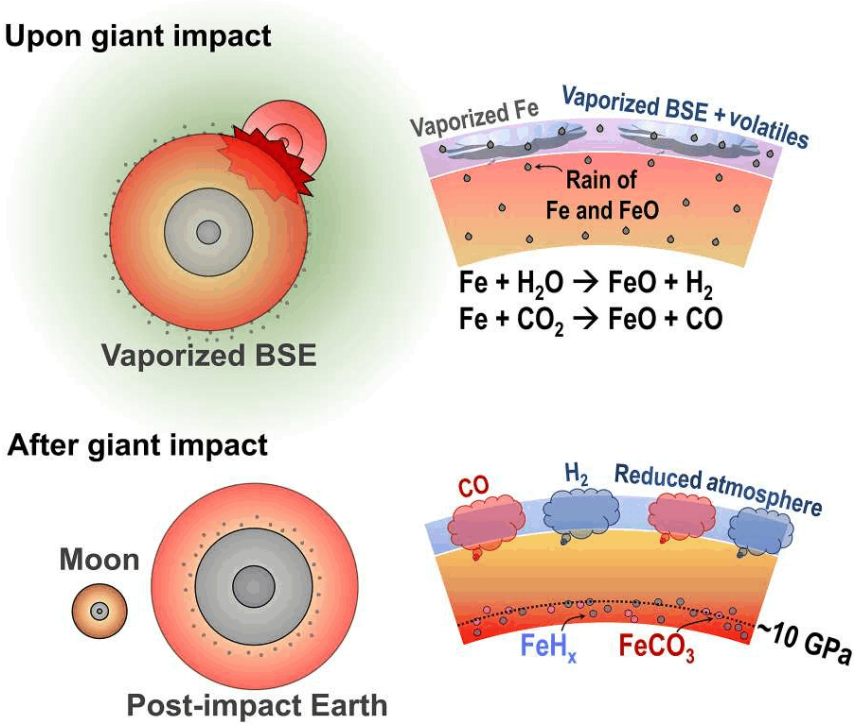
Estimates for thin ice shells on Proxima Cen b, LHS 1140 b, Trappist-1f, and several Kepler planets suggest that any H_2O vented into space during explosive cryovolcanic eruptions on these worlds could be sourced directly from their subsurface oceans.

Like the icy moons in our outer solar system, cold ocean planets may be astrobiologically significant worlds that harbor habitable environments beneath their icy surfaces.

Choi, J., et al (2023) **Oxidation of iron by giant impact and its implication on the formation of reduced atmosphere in the early Earth.** SCIENCE ADVANCES 9:doi.org/10.1126/sciadv.adi6096 (available as a free pdf)

Authors' abstract: *Giant impact-driven redox processes in the atmosphere and magma ocean played crucial roles in the evolution of Earth. However, because of the absence of rock records from that time, understanding these processes has proven challenging.*

Here, we present experimental results that simulate the giant impact-driven reactions between iron and volatiles (H_2O and CO_2) using x-ray free electron laser (XFEL) as fast heat pump and structural probe.



Under XFEL pump, iron is oxidized to wüstite (FeO), while volatiles are reduced to H2 and CO. Furthermore, iron oxidation proceeds into formation of hydrides (gamma-FeHx) and siderite ($FeCO_3$), implying redox boundary near 300-km depth.

Through quantitative analysis on reaction products, we estimate the volatile and FeO budgets in bulk silicate Earth, supporting the Theia hypothesis. Our findings shed light on the fast and shortlived process that led to reduced atmosphere, required for the emergence of prebiotic organic molecules in the early Earth.

[Images are from this paper.]

Bolides.

Sieh, K., et al (2023) **Proximal ejecta of the Bolaven extraterrestrial impact, southern Laos.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 120:doi.org/10.1073/pnas.2310351120 (available as a free pdf)

[780,000 years ago an asteroid slammed into southeast Asia and sprayed debris for thousands of kilometres. Tektites are melted drops of debris rock that solidified in flight and were scattered across Asia and Australia.]

Authors' abstract: *For decades, scientists have searched for the source of the most extensive spray of extraterrestrial-impact debris on Earth, the Australasian strewn field.*

We document a unique pebbly to bouldery breccia that points unambiguously to its source, an impact crater buried beneath lavas of the Bolaven Plateau in southern Laos. The crater's location is constrained by the breccia's thickening and coarsening onto the plateau.

Sediments in southern Laos and eastern Thailand confirm that the Australasian tektite strewn field came from an extraterrestrial impact crater on the Bolaven Plateau of southern Laos. The principal evidence is the Bolaven diamicton, a pebbly to bouldery breccia that is thickest and coarsest on the plateau.

Tektites, the melted target material strewn widely by the forces of the impact 789.0 ± 1.8 kiloyears ago, lie either within the uppermost part of the diamicton or atop it. On the flanks of the plateau, the basal diamicton often contains clasts from preimpact lavas and gravels and sometimes mantles broken Mesozoic bedrock.

Locally, its upper portions contain unweathered boulders of basalt or sandstone. Its sharp upper contact with a thick sandy silt implies that the two beds formed in rapid succession.

These characteristics of the Bolaven diamicton show that it resulted primarily from the excavation, comminution, and launch of sandstone and weathered basaltic lavas from a crater on the Bolaven Plateau, and entrained other materials while in transit.

Paleobiology.

Briggs, D.E.G. and N.M. Koch (2023) **A Silurian pseudocolonial pterobranch.** CURRENT BIOLOGY 33:doi.org/10.1016/j.cub.2023.10.024

Authors' abstract: *Pterobranchs, a major group of the phylum Hemichordata, first appear in the fossil record during the Cambrian, and there are more than 600 fossil genera dominated by the mainly planktic graptolites of the Paleozoic, which are widely used as zone fossils for correlating sedimentary rock sequences.*

Pterobranchs are rare today; they are sessile marine forms represented by Rhabdopleura, which is considered the only living graptolite, and Cephalodiscus.

Unlike their sister taxon, the colonial graptolites, cephalodiscids are pseudocolonial. Here, we describe a problematic fossil from the Silurian (Pridoli) Bertie Group of Ontario (420 mya), a sequence of near-shore sediments well known for its remarkably preserved diversity of eurypterids (sea scorpions).

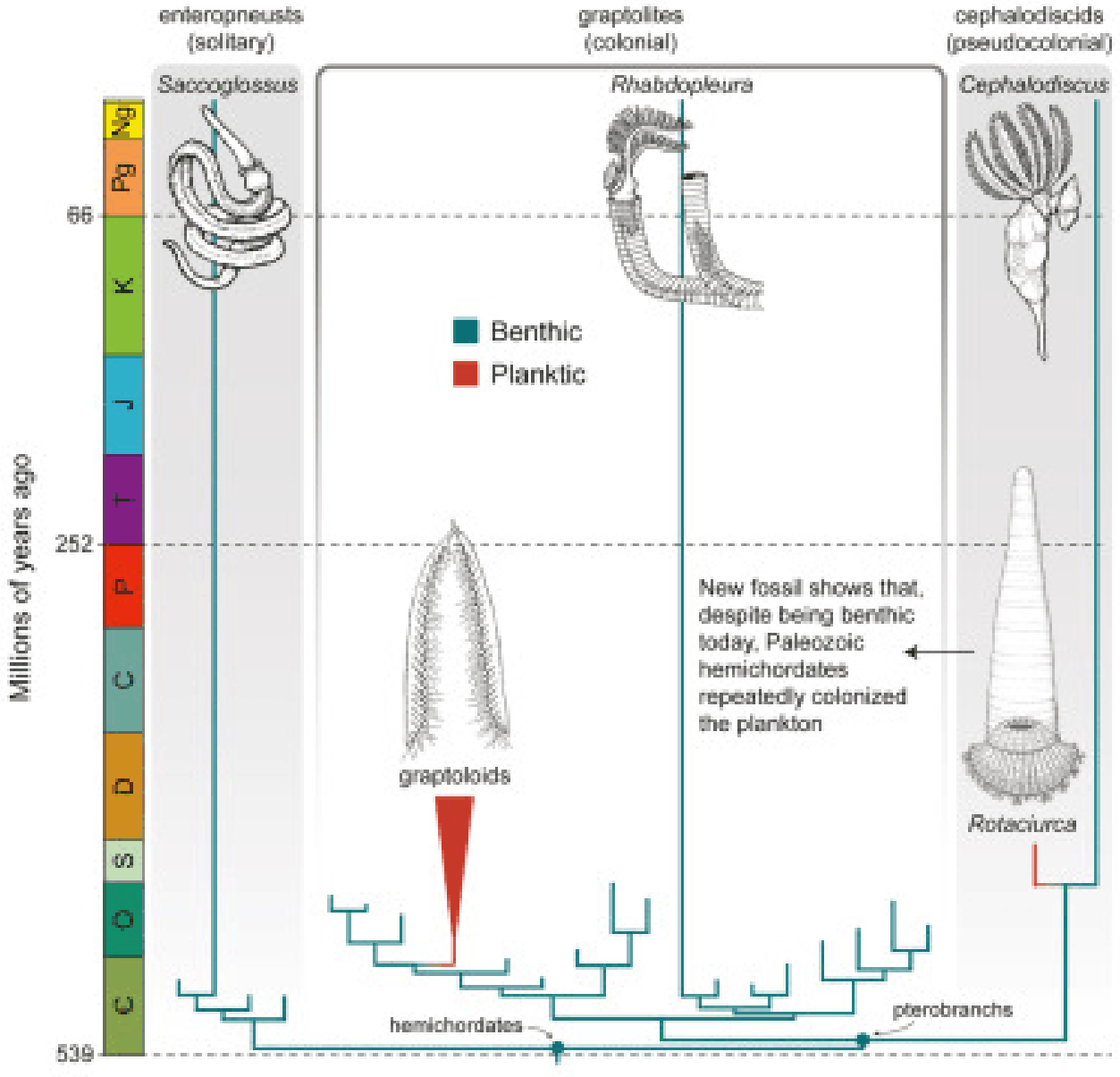
The fossil, Rotaciurca superbus, a new genus and species, was familiarly known as Ezekiel's Wheel, with reference to the unusual circular arrangement of the tubes that compose it. The structure and arrangement of the tubes identify

Rotaciurca as a pterobranch, and phylogenetic analysis groups it with the cephalodiscids.

We place it in a new family Rotaciurcidae to distinguish it from Cephalodiscidae. A large structure associated with the tubes is interpreted as a float, which would distinguish Rotaciurca as the only known planktic cephalodiscid. Thus cephalodiscids, like the graptolites, invaded the water column.

This mode of life reflects the rarity of pseudocolonial macroinvertebrates in planktic ocean communities, a role occupied by the tunicates (Chordata) known as salps today. Our estimates of divergence times, the first using relaxed total-evidence clocks, date the origins of both hemichordates and pterobranchs to the earliest Cambrian (Fortunian).

[Chart is from this paper.]



Azar, D., et al (2023) **The earliest fossil mosquito.** C U R R E N T B I O L O G Y 33:doi.org/10.1016/j.cub.2023.10.047 (available as a free pdf)

[Hematophagy is a fancy word for blood sucking. Mosquitoes evolved from plant sap feeders.]

Authors' abstract: *Female mosquitoes are among the most notorious blood-feeding insects, sometimes causing severe allergic responses or vectoring a variety of microbial pathogens.*

Hematophagy in insects is likely a feeding shift from plant fluids, with the piercing-sucking mouthparts serving as suitable exaptation for piercing vertebrates' skin.

The origins of these habits are mired in an often-poor fossil record for many hematophagous lineages, particularly those of sufficient age, as to give insights into the paleoecological context in which blood feeding first appeared or even to arrive at gross estimates as to when such shifts have occurred.

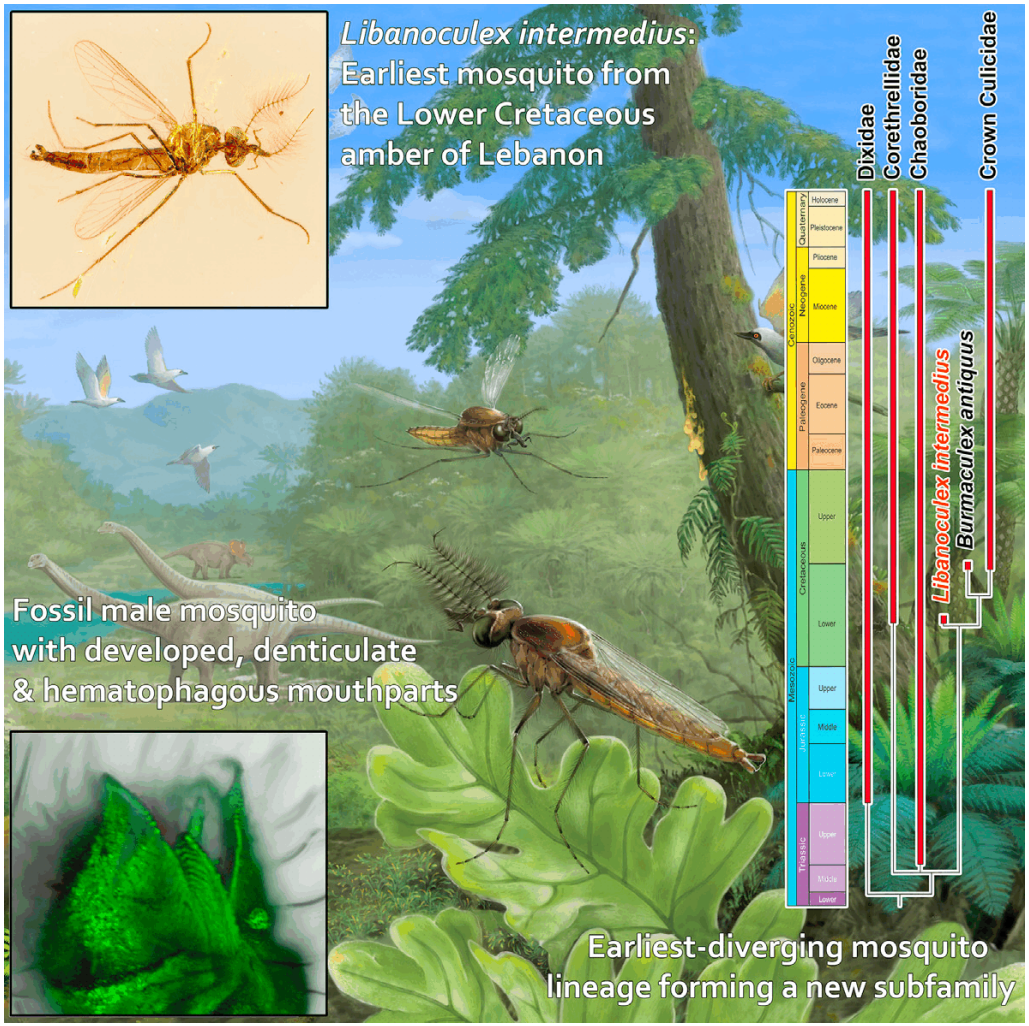
This is certainly the case for mosquitoes, a clade estimated molecularly to date back to the Jurassic.

The known Mesozoic Culicidae are Late Cretaceous, assigned to the modern Anophelinae or to the extinct Burmaculicinae, sister to other Culicidae, all with

mouthparts of a modern type. Here, we report the discovery, in Lower Cretaceous amber from Lebanon, of two conspecific male mosquitoes unexpectedly with piercing mouthparts, armed with denticulate sharp mandibles and laciniae.

These male fossils were likely hematophagous. They represent a lineage that diverged earlier than Burmaculicinae, extending the definitive occurrence of the family into the Early Cretaceous and serving to narrow the ghost-lineage gap for mosquitoes.

[Images are from this paper.]



Salles, T., et al (2023) **Landscape dynamics and the Phanerozoic diversification of the biosphere.** NATURE 624:doi.org/10.1038/s41586-023-06777-z (available as a free pdf)

[The Phanerozoic eon is from 541 megayears ago to present date, and begins with abundant animal and plant life in the Cambrian era.]

Authors' abstract: *The long-term diversification of the biosphere responds to changes in the physical environment. Yet, over the continents, the nearly monotonic expansion of life started later in the early part of the Phanerozoic eon than the expansion in the marine realm, where instead the number of genera waxed and waned over time.*

A comprehensive evaluation of the changes in the geodynamic and climatic forcing fails to provide a unified theory for the long-term pattern of evolution of life on Earth.

Here we couple climate and plate tectonics models to numerically reconstruct the evolution of the Earth's landscape over the entire Phanerozoic eon, which we then compare to palaeodiversity datasets from marine animal and land plant genera.

Our results indicate that biodiversity is strongly reliant on landscape dynamics, which at all times determine the carrying capacity of both the continental domain and the oceanic domain. In the oceans, diversity closely adjusted to the riverine sedimentary flux that provides nutrients for primary production.

On land, plant expansion was hampered by poor edaphic conditions until widespread endorheic basins resurfaced continents with a sedimentary cover that facilitated the development of soil-dependent rooted flora, and the increasing variety of the landscape additionally promoted their development.

The diversity of marine and terrestrial life was assembled over the Phanerozoic eon through complex interplays between biotic controls and abiotic controls that are still unclear, although biodiversity patterns over time are fairly well identified from the fossil record and mounting evidence from phylogenetics.

Although both continents and oceans, in the most recent stages of the Phanerozoic, host more species than ever, the monotonic increase of diversity over time in the terrestrial realm contrasts with the more complex evolution of

diversity in the oceans. Besides the 'big five' mass extinctions, turning points in their progressions also became iconic. Darwin referred to the advent of flowering plants in continents as an abominable mystery. Vermeij coined the term Cenozoic marine revolution.

Another enduring puzzle is the late expansion of land plants compared to marine life that rapidly diversified 100 million years earlier. Although the joint effects of biotic and abiotic factors are probably required to explain the biodiversity patterns in time and space, a wealth of possible mechanisms have been examined independently.

Within this variety, truly independent potential abiotic forcings might have been overlooked, although they are not many and ultimately refer to the physical environment, which couples climatic or geological forcings, suggesting that biodiversity trends could be more comparable for marine and terrestrial life.

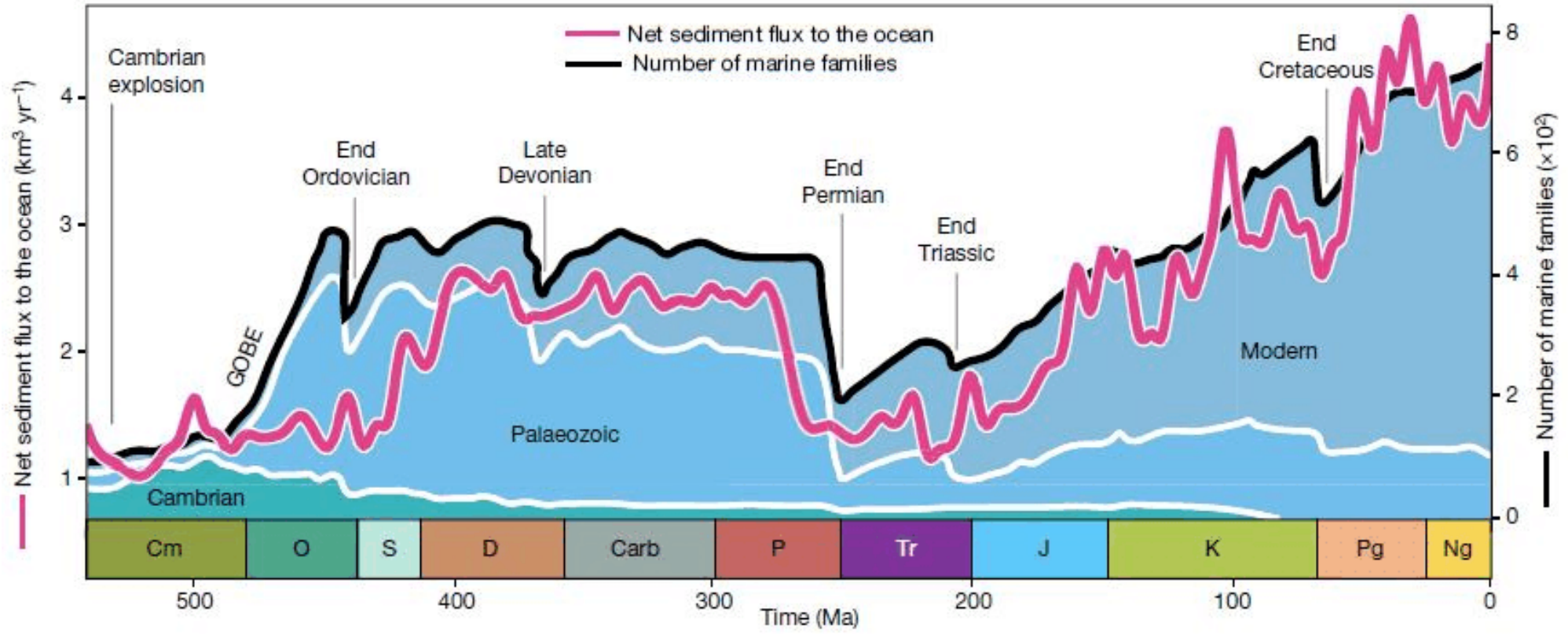
Continental drift sets the distribution of landmasses at the surface of the Earth during the Phanerozoic. The changing palaeogeography in turns influences the atmospheric circulation.

Both plate tectonics and climate are critical to the development of marine and terrestrial life, by setting the latitude and hours of daylight, temperatures or hydrological cycles.

Although these processes are undoubtedly primordial, they do not account for the dynamic evolution of the surface of the Earth, which should not be regarded as a series of stationary configurations.

Reliefs are changing over time and mass transfers are crucial to the expansion of life: both on the continents and in the oceans, nutrient availability is determined by landscape dynamics.

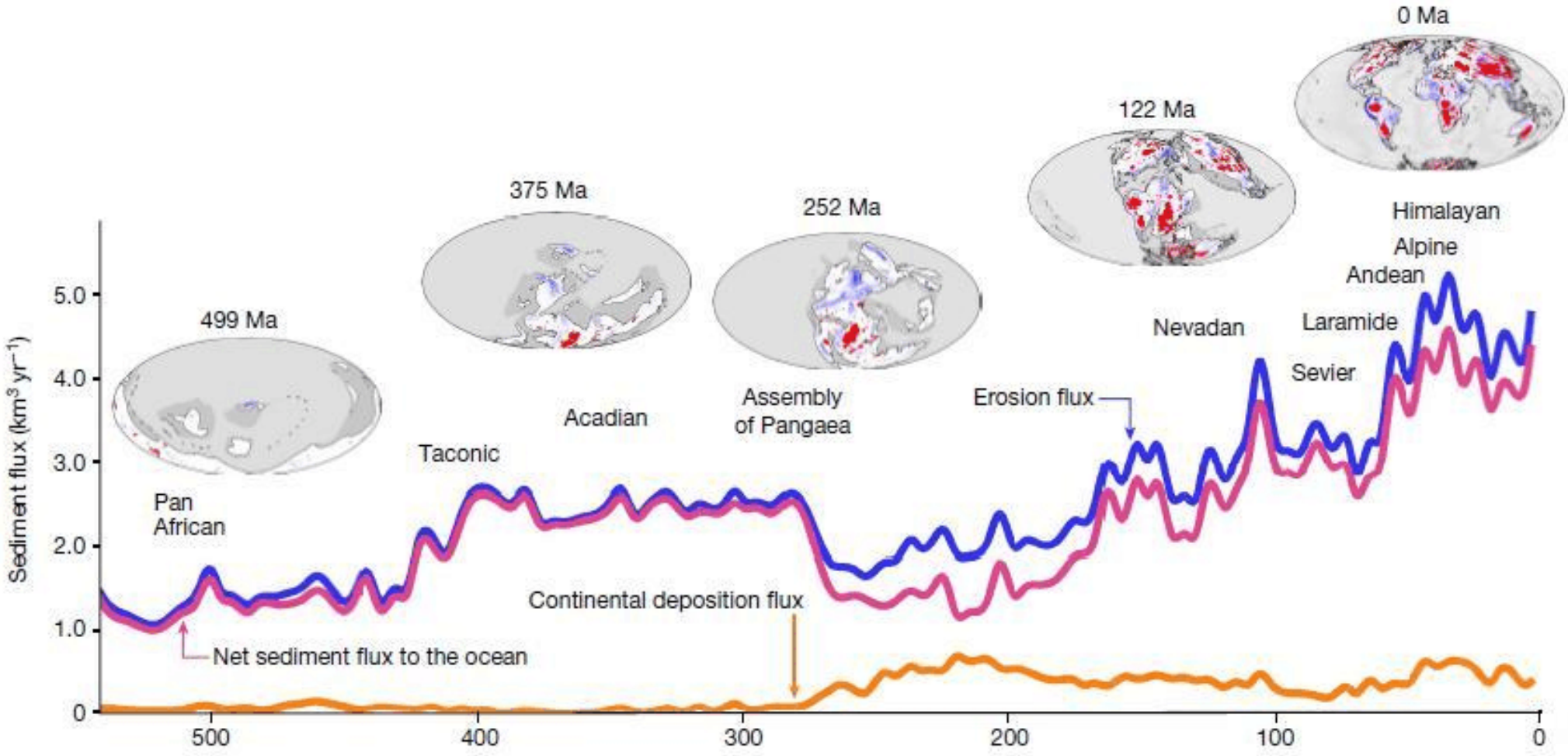
Understanding the impact of nutrient fluxes thus requires a comprehensive quantitative approach that we develop herein, leaving aside the role of truly biotic processes.



H e

re we propose a new method to quantify the global-scale physiographic changes over the Phanerozoic eon, applying the landscape evolution model goSPL to a series of global-scale palaeo-elevation reconstructions, consistently tied to a plate tectonic model and to a series of palaeoclimatic reconstructions.

[Images are from this paper.]



Diedrich, C.G. (2023) **Eurasian Grey and White wolf ancestors: 800,000 years evolution, adaptation, pathologies and European dog origins.** ACTA ZOOLOGICA 105:doi.org/10.1111/azo.12451

Author's abstract: *The oldest known wolf appears 800,000 years ago (Marine Isotope Stage 21) in Eurasia with the unspecialized shortlegged old Mammoth steppe wolf Canis lupus bohemica nov. spec.*

From this species, about 600,000 to 420,000 years ago (MIS 15-11), the interglacial Canis lupus mosbachensis short-legged Mosbach grey wolf subspecies roamed Eurasia.

In the late Middle Pleistocene, there are two lineages, the southern interglacial grey and northern glacial White wolves in Eurasia. Since 320,000 (MIS 8), the short-legged White wolf Canis lupus spelaeus was the glacial Mammoth steppe-adapted wolf.

Parallel to the "cave wolf" (found in the German Zoolithen Cave), the warm climate grey wolf Canis lupus brevis existed. C. lupus spelaeus relates to the Holocene (MIS 1) extant Holarctic Greenland Canis lupus arctos and Siberian Canis lupus albus.

The Late Palaeolithic (MIS 2) "Gravettian Goyet dogs" fall into the DNA pool of C. lupus spelaeus and are identified herein as pathological bite trauma individuals, which braincase shortened during the healing process.

European prehistoric Neolithic dogs seem to have been imported from Central Asia with the Bandkeramik people (approx. 7000 BP) first, which have the stepped frontals originating from grey wolves.

Dinosaurs.

Therrien, F., et al (2023) **Exceptionally preserved stomach contents of a young tyrannosaurid reveal an ontogenetic dietary shift in an iconic extinct predator.** SCIENCE ADVANCES 9:doi.org/10.1126/sciadv.adi0505 (available as a free pdf)

Authors' abstract: *Tyrannosaurids were large carnivorous dinosaurs that underwent major changes in skull robusticity and body proportions as they grew, suggesting that they occupied different ecological niches during their life span. Although adults commonly fed on dinosaurian megaherbivores, the diet of juvenile tyrannosaurids is largely unknown.*

Here, we describe a remarkable specimen of a juvenile Gorgosaurus libratus that preserves the articulated hindlimbs of two yearling caenagnathid dinosaurs inside its abdominal cavity. The prey were selectively dismembered and consumed in two separate feeding events.

This predator-prey association provides direct evidence of an ontogenetic dietary shift in tyrannosaurids. Juvenile individuals may have hunted small and young dinosaurs until they reached a size when, to satisfy energy requirements, they transitioned to feeding on dinosaurian megaherbivores.

Tyrannosaurids occupied both mesopredator and apex predator roles during their life span, a factor that may have been key to their evolutionary success.

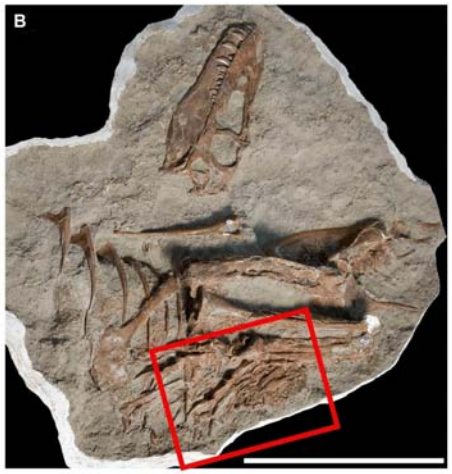
Providing direct fossil evidence of diet and feeding behavior in young tyrannosaurids, here, we report on an articulated skeleton of a juvenile Gorgosaurus libratus from the Upper Cretaceous Dinosaur Park Formation (~75.3 megayears ago) of Alberta, Canada, that preserves the remains of two small caenagnathid theropods (Oviraptorosauria) in its abdominal cavity.

This specimen (Royal Tyrrell Museum of Palaeontology (TMP) 2009.12.14) represents, to our knowledge, the first instance of in situ stomach contents (i.e., preserved in proper anatomical position) for a tyrannosaur and provides direct fossil evidence of diet and feeding behavior in a young tyrannosaurid.

[Images are from this paper, shown on the next page. On the fossil slab the red rectangles show the stomach contents. The silhouettes show the juvenile Gorgosaurus and the two small oviraptors it fed on.]

[The specimen was collected from Dinosaur Provincial Park, about a two-hour drive east of Calgary. OPUNTIA #320 has my trip report there.]


A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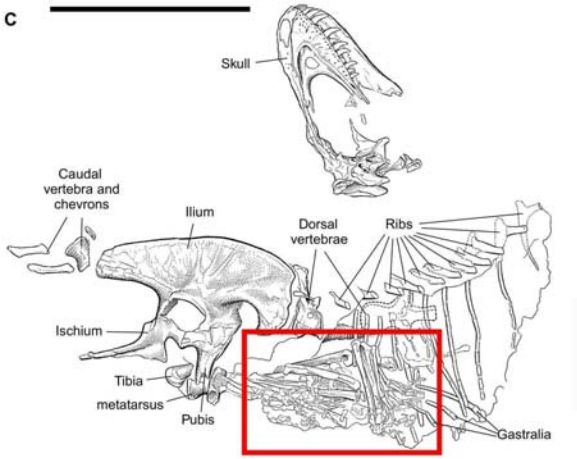
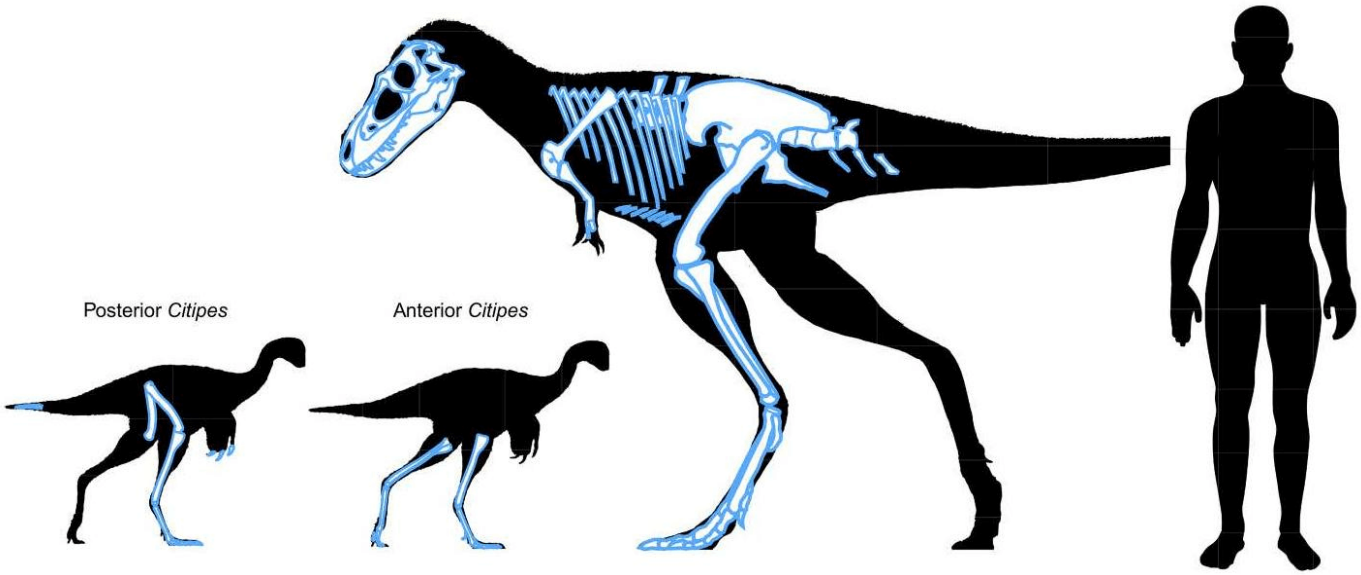

C
Skull
Caudal vertebra and chevrons
Ilium
Dorsal vertebrae
Ribs
Ischium
Tibia
metatarsus
Pubis
Gastralia


Posterior *Citipes*
Anterior *Citipes*

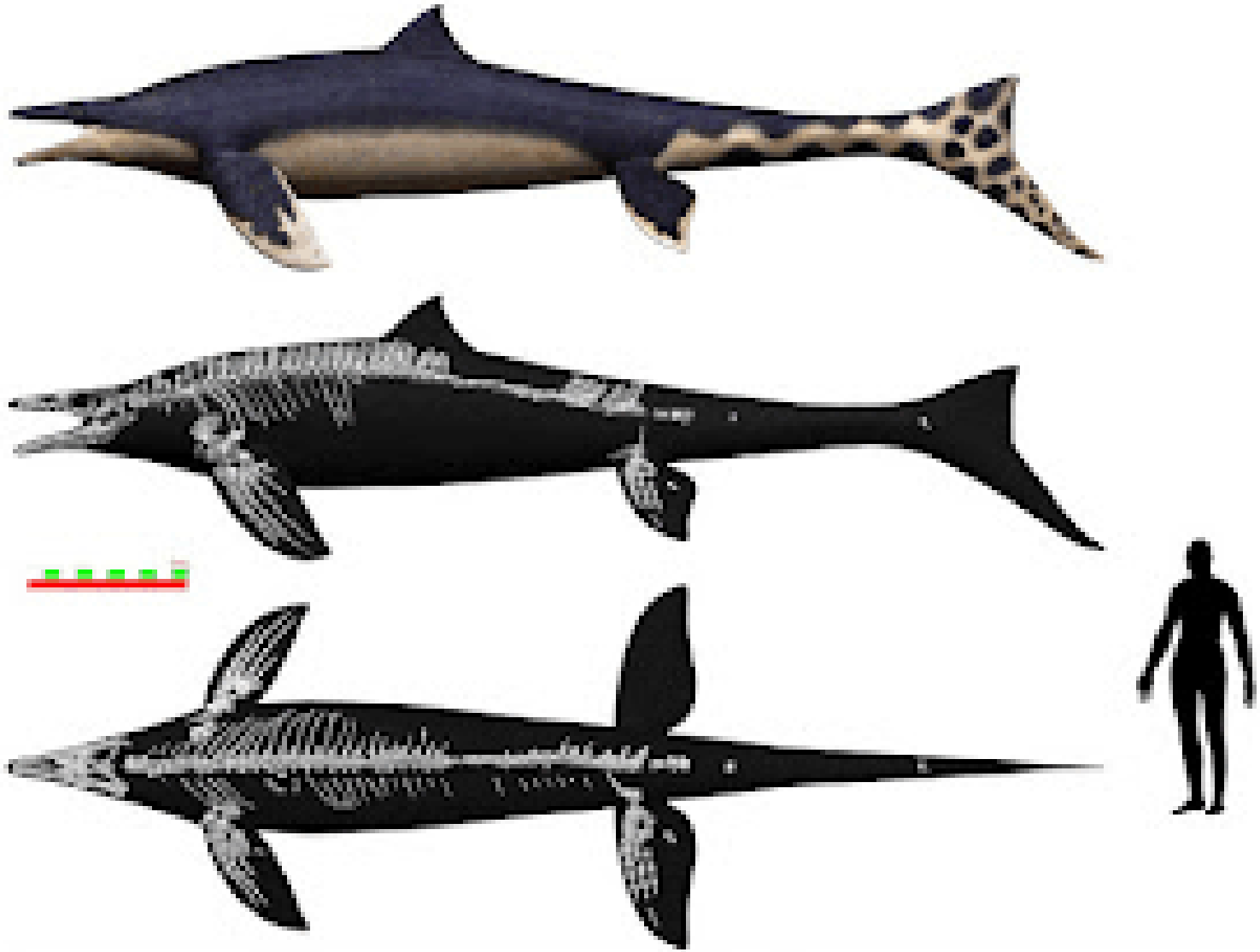
Konishi, T., et al (2023) **A new derived mosasaurine (Squamata: Mosasaurinae) from south-western Japan reveals unexpected postcranial diversity among hydropedal mosasaurs.** JOURNAL OF SYSTEMATIC PALAEONTOLOGY 21:doi.org/10.1080/14772019.2023.2277921

Authors' abstract: *Reported herein is a largely complete mosasaurine mosasaur (Squamata: Mosasauridae) skeleton from Wakayama Prefecture, south-western Japan. It is represented by many skeletal elements including the skull, a complete cervical and dorsal vertebral series with more than 40 vertebrae, paired ribs, right and left front flippers, and the left hind flipper.*

The specimen is from near the Campanian/Maastrichtian boundary (c. 72 megayears ago) within the Hasegawa Muddy Sandstone Member of the Toyajo Formation.

The two sets of large, wing-shaped flippers were likely selected for fast manoeuvring, as seen in the humpback whale among extant mysticetes. The presence of a dorsal fin is suggested by the sweeping arrangement of the neural spines along the dorsal vertebrae, well posterior to the presumed centre of gravity.

Finally, the pubis and the ilium articulate at an obtuse angle in anteroposterior view, allowing no bony contact between the latter and the axial skeleton.



Extinctions.

Cribb, A.T., et al (2023) **Contrasting terrestrial and marine ecospace dynamics after the end-Triassic mass extinction event.** PROCEEDINGS OF THE ROYAL SOCIETY OF LONDON 290B:doi.org/10.1098/rspb.2023.2232 (available as a free pdf)

[The end-Triassic mass extinction happened 199.6 megayears ago.]

Authors' abstract: *Mass extinctions have fundamentally altered the structure of the biosphere throughout Earth's history.*

The ecological severity of mass extinctions is well studied in marine ecosystems by categorizing marine taxa into functional groups based on 'ecospace' approaches, but the ecological response of terrestrial ecosystems to mass extinctions is less well understood due to the lack of a comparable methodology.

Here, we present a new terrestrial ecospace framework that categorizes fauna into functional groups as defined by tiering, motility and feeding traits.

We applied the new terrestrial and traditional marine ecospace analyses to data from the Paleobiology Database across the end-Triassic mass extinction, a time of catastrophic global warming, to compare changes between the marine and terrestrial biospheres.

We found that terrestrial functional groups experienced higher extinction severity, that taxonomic and functional richness are more tightly coupled in the terrestrial, and that the terrestrial realm continued to experience high ecological dissimilarity in the wake of the extinction.

Although signals of extinction severity and ecological turnover are sensitive to the quality of the terrestrial fossil record, our findings suggest greater ecological pressure from the end-Triassic mass extinction on terrestrial ecosystems than marine ecosystems, contributing to more prolonged terrestrial ecological flux.

Callegaro, S., et al (2023) **Recurring volcanic winters during the latest Cretaceous: Sulfur and fluorine budgets of Deccan Traps lavas.** SCIENCE ADVANCES 9:doi.org/10.1126/sciadv.adg8284 (available as a free pdf)

[Just before the asteroid killed off the dinosaurs, there were massive flood lava outflows covering most of India, kilometres thick, known as the Deccan Traps.]

Authors' abstract: *Two events share the stage as main drivers of the Cretaceous-Paleogene mass extinction-Deccan Traps volcanism, and an asteroid impact recorded by the Chicxulub crater.*

We contribute to refining knowledge of the volcanic stressor by providing sulfur and fluorine budgets of Deccan lavas from the Western Ghats (India), which straddle the Cretaceous-Paleogene boundary.

Volcanic fluorine budgets were variable (400 to 3000 parts per million) and probably sufficient to affect the environment, albeit only regionally.

The highest sulfur budgets (up to 1800 parts per million) are recorded in Deccan lavas emplaced just prior (within 0.1 million years) to the extinction interval, whereas later basalts are generally sulfur-poor (up to 750 parts per million).

Independent evidence suggests the Deccan flood basalts erupted in high-flux pulses. Our data suggest that volcanic sulfur degassing from such activity could have caused repeated short-lived global drops in temperature, stressing the ecosystems long before the bolide impact delivered its final blow at the end of the Cretaceous.

Environmental Science.

Hoenisch, B., et al (2023) **Toward a Cenozoic history of atmospheric CO_2.** SCIENCE 382:doi.org/10.1126/science.adi5177

Authors' abstract: *Although earlier studies have compiled published paleo-CO_2 estimates, those studies typically applied only limited proxy vetting, included estimates that were made before the proxies were sufficiently validated, and/or focused on only a subset of available proxy data.*

The international consortium of the Cenozoic CO_2 Proxy Integration Project (Cen CO_2 PIP) has undertaken a 7-year effort to document, evaluate, and synthesize published paleo-C CO_2 records from all available archives, spanning the past 66 million years.

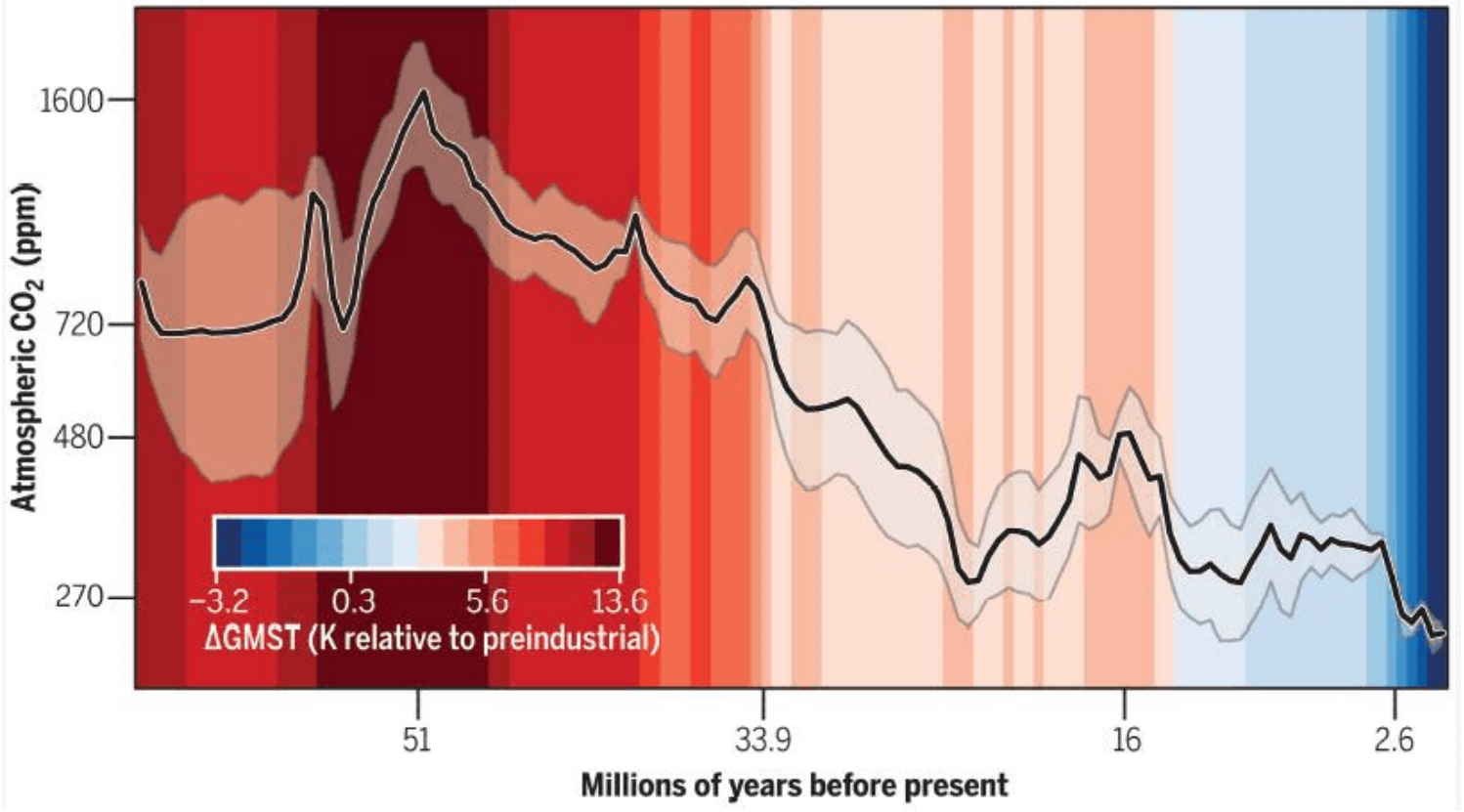
The most reliable CO_2 estimates were identified, some records were recalculated to conform with the latest proxy understanding, age models were updated where necessary and possible, and data were categorized according to the community's level of confidence in each estimate.

The highest-rated data were eventually combined into a reconstruction of the Cenozoic history of atmospheric CO_2.

The resulting reconstruction illustrates a more quantitatively robust relationship between CO_2 and global surface temperature, yielding greater clarity and confidence than previous syntheses. The new record suggests that early Cenozoic "hothouse" CO_2 concentrations peaked around 1600 ppm at ~51 megayears ago.

Near 33.9 Ma, the onset of continent-wide Antarctic glaciation coincided with an atmospheric CO_2 concentration of 720 ppm. By ~32 Ma, atmospheric CO_2 had dropped to 550 ppm.

This value coincided with the onset of radiation in plants with carbon-concentrating mechanisms that populate grasslands and deserts today. CO_2 remained below this threshold for the remainder of the Cenozoic and continued its long-term decrease toward the present.



Along this trajectory, the middle Miocene (~16 Ma) marks the last time that CO_2 concentrations were consistently higher than at present.

Greenland was not yet glaciated at that time, and independent estimates suggest that sea level was some 50 metres higher than today.

Values eventually dropped below 270 ppm at the Plio-Pleistocene boundary (2.6 Ma), when Earth approached our current "icehouse" state of bipolar glaciation.

[Chart is from this paper.]

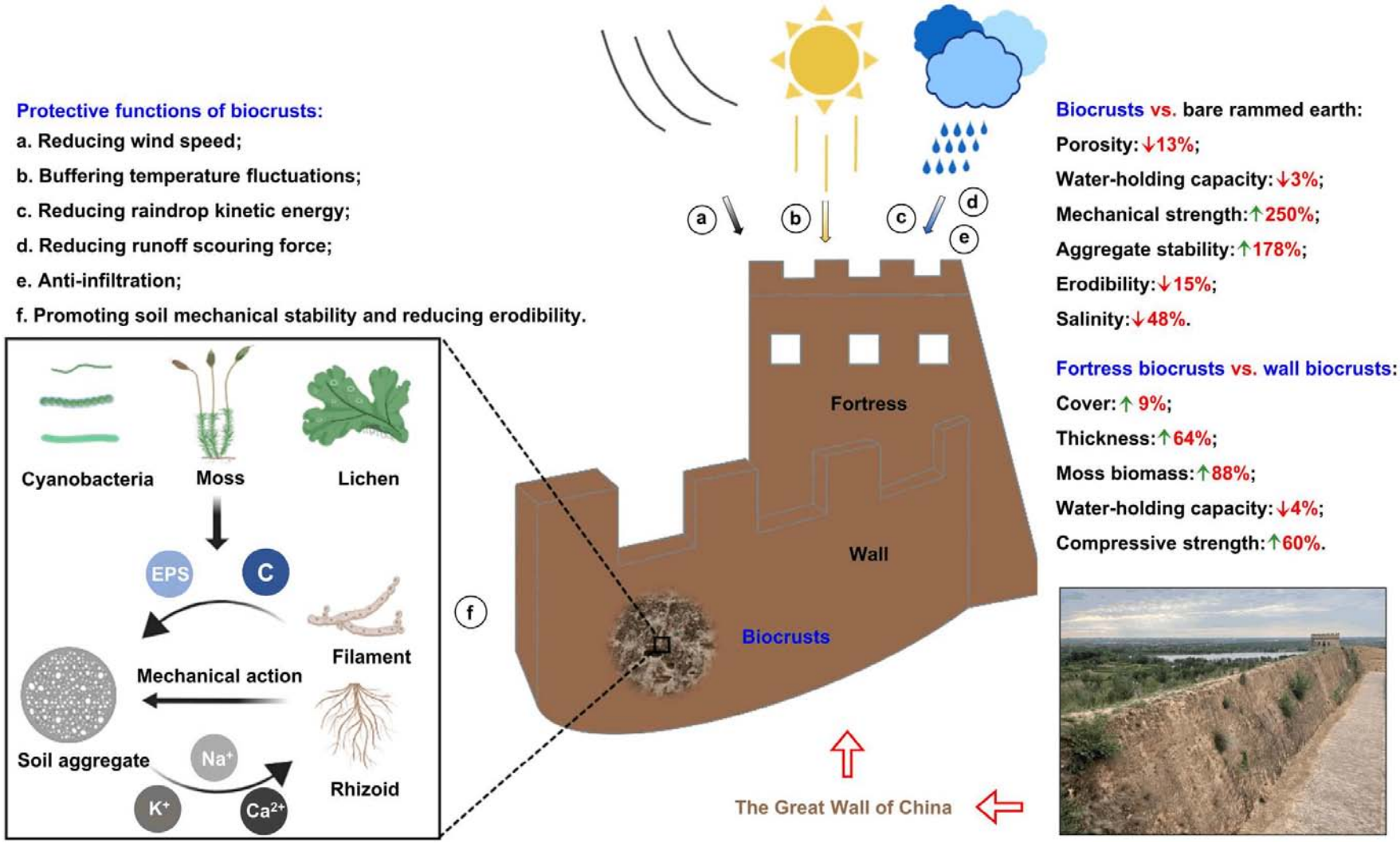
Cao, Y., et al (2023) **Biocrusts protect the Great Wall of China from erosion.** SCIENCE ADVANCES 9:doi.org/10.1126/sciadv.adk5892 (available as a free pdf)

Authors' abstract: *The Great Wall of China, one of the most emblematic and historical structures built by humankind throughout all of history, is suffering from rain and wind erosion and is largely colonized by biocrusts. However, how biocrusts influence the conservation and longevity of this structure is virtually unknown.*

Here, we conducted an extensive biocrust survey across the Great Wall and found that biocrusts cover 67% of the studied sections. Biocrusts enhance the mechanical stability and reduce the erodibility of the Great Wall. Compared with bare rammed earth, the biocrust-covered sections exhibited reduced porosity, water-holding capacity, erodibility, and salinity by 2 to 48%, while increasing compressive strength, penetration resistance, shear strength, and aggregate stability by 37 to 321%.

We further found that the protective function of biocrusts mainly depended on biocrust features, climatic conditions, and structure types.

[Images are from this paper.]



Zareshahrabadi, Z., et al (2023) **Evaluation of building washing machines as an extreme environment for potentially pathogenic fungi.** SCIENTIFIC REPORTS 13:doi.org/10.1038/s41598-023-48598-0 (available as a free pdf)

Authors' abstract: *Washing machines are commonly used in households and are considered indispensable appliances for maintaining cleanliness and hygiene. Environmental conditions within household washing machines are ideal for fungal colonization, which may pose risks to human health and contribute to sick building syndrome.*

This study aimed to investigate the fungal species contamination in the building washing machines.

A total of 50 building washing machines were swab-sampled at three locations: the detergent drawer, the inner and outer parts of the rubber door seal. The housekeeping conditions of these appliances were assessed through a questionnaire.

The isolated fungi were identified using standard mycological diagnostic procedures and molecular analysis based on the ITS1/ITS4 and ß-tubulin gene regions.

The possibility of fungal agents transferring from contaminated washing machines to autoclaved clothes during laundry cycles was investigated.

Fungi were detected in 82% of the sampled appliances, with the inner rubber door seal being the most frequently colonized area. Using conventional and molecular techniques, we identified 122 fungal isolates, encompassing 17 diverse genera of molds, yeast-like, and yeast fungi.

The mold fungi included 14 genera of hyaline and black genus. Among these, the most frequently identified genera of hyaline and black fungi were Aspergillus (27.7%), and Cladosporium (10.7%), respectively.

This study demonstrates that building washing machines may serve as suitable ecological niches for fungal growth and transmission. Therefore, regular cleaning and disinfection of these devices are necessary.

Botany.

El Fakhouri, K, et al (2023) **Isolation, identification and pathogenicity of local entomopathogenic bacteria as biological control agents against the wild cochineal *Dactylopius opuntiae* (Cockerell) on cactus pear in Morocco.** SCIENTIFIC REPORTS 13:doi.org/10.1038/s41598-023-48976-8 (available as a free pdf)

[*Opuntia ficus-indica* is an upright pricklypear which produces large and tasty fruits. All cacti are native to the Americas but this species is now cultivated around the world in dry regions where other crops cannot survive.]

Authors' abstract: *The Opuntia ficus-indica (L.) cactus, a crucial crop in Morocco, is threatened by the wild cochineal, Dactylopius opuntiae (Cockerell). The aim of this research was to investigate the efficacy of nine bacterial strains against both D. opuntiae nymphs and adults females applied individually or after black soap in the laboratory, greenhouse, and field conditions.*

Using the partial 16S ribosomal DNA, the bacterial isolates were identified as Pseudomonas koreensis, Pseudomonas sp., Burkholderia sp. and Bacillus sp.

Under laboratory conditions, the insecticidal activity of P. koreensis strain 66Ms.04 showed the level mortality (88%) of adult females' at 108 CFU/mL, 7 days after application. At a concentration of 108 CFU/mL, P. koreensis strain 66Ms.04 and Pseudomonas sp. (strains 37 and 5) caused 100% nymphs mortality rate three days after application.

Under greenhouse conditions, the use of P. koreensis strain 66Ms.04 at 108 CFU/mL following the application of black soap (60 g/L) demonstrated the maximum levels of females and nymphs' mortalities with 80 and 91.25%, respectively, after 8 days of treatment.

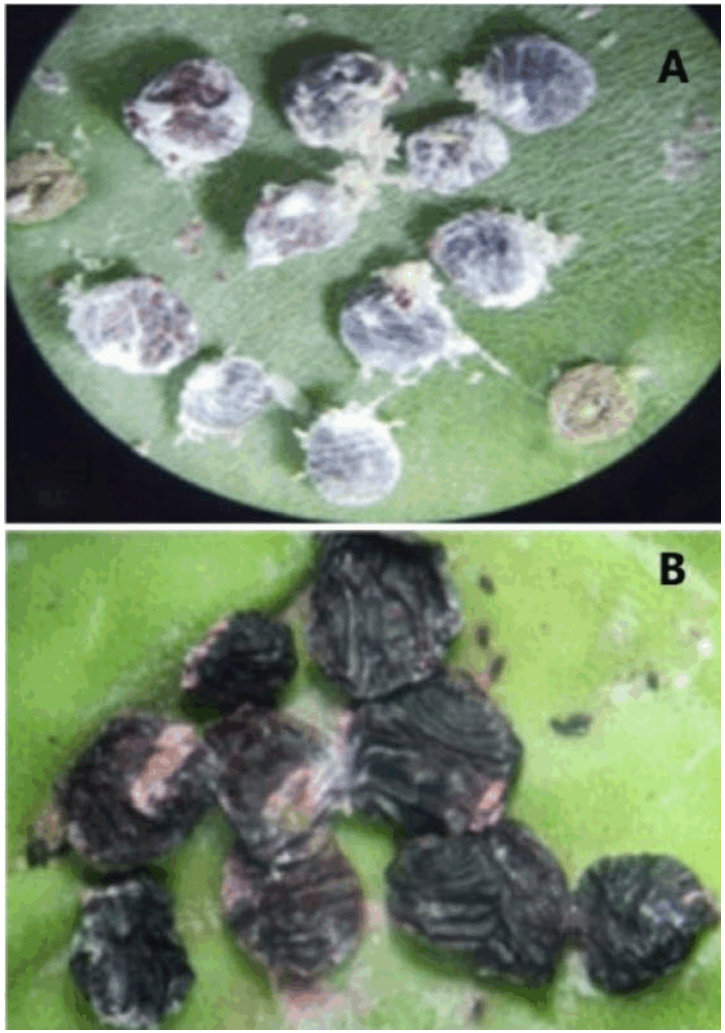
In field conditions, the combined application of the P. koreensis strain 66Ms.04 at 108 CFU/mL with black soap at 60 g/L, for an interval of 7 days, significantly increased the mortality of adult females to 93.33% at 7 days after the second application.

These findings showed that the combined treatment of P. koreensis strain 66Ms.04 with black soap can be a potent and eco-friendly pesticide against D. opuntiae.

Opuntia ficus-indica (L.) Mill. (Caryophyllales: Cactaceae) commonly called prickly pear or nopal cactus, belongs to the dicotyledonous angiosperm family Cactaceae and originates from Mexico. This species has the ability to thrive in arid and semi-arid environments and geographically distributed in South Africa, Latin America, and the Mediterranean countries.

It has special adaptive mechanisms and a high biomass production capacity, which allows it to grow in adverse conditions, such as high temperatures and nutritionally poor soils subject to erosion. The cactus has been present in Morocco since 1770 and is currently widely distributed in the national landscape.

[Images show opuntia insect pests before (A) and after (B) bacteria were applied.]



Quail, M.R., et al (2023) **Surrounded by concrete: genetic isolation of Tillandsia recurvata L. in an urban landscape in southeastern Brazil.** BOTANICAL JOURNAL OF THE LINNEAN SOCIETY 203:doi.org/10.1093/botlinnean/boad031 (available as a free pdf)

[Epiphytes are plants that grow on tree branches, cliff faces, or, in the modern era, on buildings. They are not parasites but simply use holdfasts to get up into the sunlight and moisture.]

Authors' abstract: *Increasing urban expansion has resulted in the decline of many natural and seminatural communities globally. However, the connectivity and genetic structure of species that survive in these urban landscapes have received little attention, especially with regard to epiphytic plants.*

This study aimed to describe and evaluate the connectivity and genetic structure of populations of Tillandsia recurvata, a highly abundant and widely distributed atmospheric epiphyte, amongst urban green spaces within a city. A total of 288 T. recurvata individuals were sampled across 65 trees throughout the city of Alfenas in South-East Brazil.

We designed seven novel microsatellite markers and used four cross-amplified loci to determine the basic genetic structure of T. recurvata. All populations showed high global spatial genetic structure, which indicated low connectivity between urban populations.

The findings of this study, as well as evidence from previous assessments of T. recurvata genetic structure, suggest that the combined effects of genetic drift, breeding system, and dispersal may have dictated the connectivity of these urban populations.

This study represents an important step towards understanding epiphyte population structure within urban landscapes. Low connectivity across urban landscapes is likely to benefit epiphytes such as T. recurvata, due to their adaptability and high tolerance. This suggests a bleak future for many other more sensitive epiphytic species under predicted urbanization globally.

[Images on the next page are from this paper.]

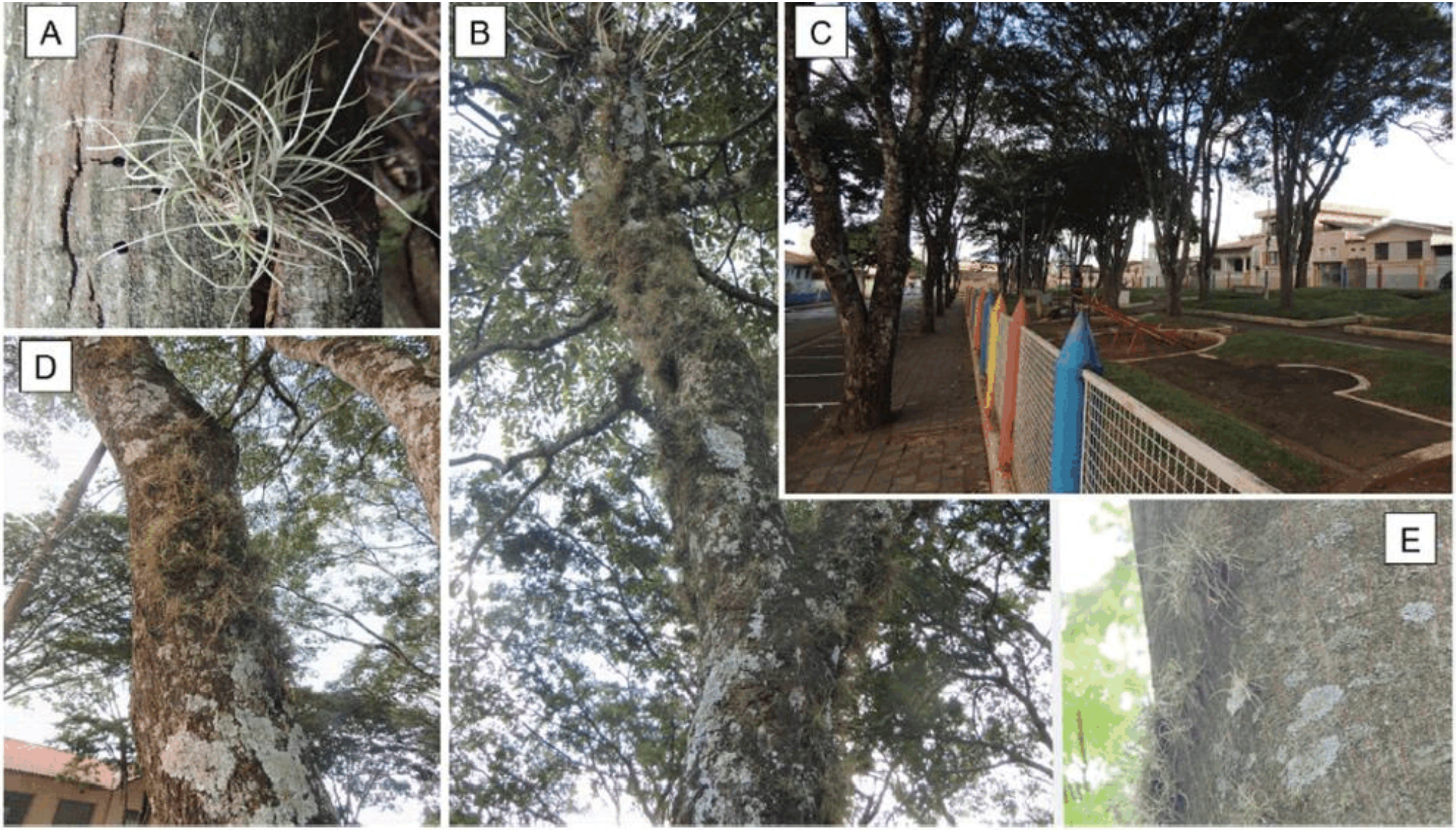


Figure 2. *Tillandsia recurvata* in Alfenas city. A single *T. recurvata* individual (A), an urban tree with a larger colony of *T. recurvata* individuals (B), an urban square (A1) with many large trees, almost all colonized by *T. recurvata* individuals (C), and trees with a smaller number of *T. recurvata* individuals (D and E) in Alfenas city. Photos by Flavio N. Ramos.

Human Prehistory.

Gaudzinski-Windheuser, S., et al (2023) **Widespread evidence for elephant exploitation by Last Interglacial Neanderthals on the North European plain.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES 120:doi.org/10.1073/pnas.2309427120 (available as a free pdf)

Authors' abstract: *Neanderthals hunted and butchered straight-tusked elephants, the largest terrestrial mammals of the Pleistocene, in a lake landscape on the North European plain, 125,000 years ago, as recently shown by a study of the Last Interglacial elephant assemblage from Neumark-Nord (Germany).*

With evidence for a remarkable focus on adult males and on their extended utilization, the data from this location are thus far without parallel in the archaeological record.

Given their relevance for our knowledge of the Neanderthal niche, we investigated whether the Neumark-Nord subsistence practices were more than a local phenomenon, possibly determined by local characteristics.

Analyzing elephant remains from two other Last Interglacial archaeological sites on the North European plain, Gröbern and Taubach, we identified in both assemblages similar butchering patterns as at Neumark-Nord, demonstrating that extended elephant exploitation was a widespread Neanderthal practice during the (early part of the) Last Interglacial.

The substantial efforts needed to process these animals, weighing up to 13 metric tons, and the large amounts of food generated suggest that Neanderthals either had ways of storing vast amounts of meat and fat and/or temporarily aggregated in larger groups than commonly acknowledged.

The data do not allow us to rule out one of the two explanations, and furthermore both factors, short-term larger group sizes as well as some form of food preservation, may have played a role.

What the data do show is that exploitation of large straight-tusked elephants was a widespread and recurring phenomenon amongst Last Interglacial Neanderthals on the North European plain.

Lin, A.T., et al (2023) **The history of Coast Salish "woolly dogs" revealed by ancient genomics and indigenous knowledge.** SCIENCE 382:doi.org/0.1126/science.adi6549 (available as a free pdf)

Authors' abstract: *Ancestral Coast Salish societies in the Pacific Northwest kept long-haired "woolly dogs" that were bred and cared for over millennia. However, the dog wool-weaving tradition declined during the 19th century, and the population was lost.*

In this study, we analyzed genomic and isotopic data from a preserved woolly dog pelt from "Mutton", collected in 1859. Mutton is the only known example of an Indigenous North American dog with dominant precolonial ancestry postdating the onset of settler colonialism.

We identified candidate genetic variants potentially linked with their distinct woolly phenotype. We integrated these data with interviews from Coast Salish Elders, Knowledge Keepers, and weavers about shared traditional knowledge and memories surrounding woolly dogs, their importance within Coast Salish societies, and how colonial policies led directly to their disappearance.

Bayarsaikhan, J., et al (2023) **The origins of saddles and riding technology in East Asia: discoveries from the Mongolian Altai.** ANTIQUITY 97:/doi.org/10.15184/aqy.2023.172 (available as a free pdf)

Authors' abstract: *Innovations in horse equipment during the early Middle Ages provided advantages to societies from the steppes, reshaping the social landscape of Eurasia.*

Comparatively little is known about the precise origin of these crucial advances, although the available evidence points to early adoption in East Asia.

The authors present new archaeological discoveries from western and northern Mongolia, dating to the fourth and fifth centuries AD, including a wooden frame saddle with horse hide components from Urd Ulaan Uneet and an iron stirrup from Khukh Nuur.

Together, these finds suggest that Mongolian groups were early adopters of stirrups and saddles, facilitating the expansion of nomadic hegemony across Eurasia and shaping the conduct of medieval mounted warfare.

Modern Humans.

Shimo, Y., et al (2023) **Social stress induces autoimmune responses against the brain.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 120:doi.org/10.1073/pnas.2305778120 (available as a free pdf)

Authors' abstract: *Patients with stress-related disorders, including depression, show high prevalence rates for autoimmune diseases.*

To explore the relationship between stress and autoimmunity, we analyzed blood and brain samples from socially stressed mice and patients with major depressive disorder.

Clinical studies have revealed a high comorbidity between autoimmune diseases and psychiatric disorders, including major depressive disorder (MDD). However, the mechanisms connecting autoimmunity and depression remain unclear.

Here, we aim to identify the processes by which stress impacts the adaptive immune system and the implications of such responses to depression. To examine this relationship, we analyzed antibody responses and autoimmunity in the chronic social defeat stress (CSDS) model in mice, and in clinical samples from patients with MDD.

We show that socially stressed mice have elevated serum antibody concentrations. We also confirm that social stress leads to the expansion of specific T and B cell populations within the cervical lymph nodes, where brain-derived antigens are preferentially delivered.

Similarly, in humans, increased peripheral levels of brain-reactive IgG antibodies were associated with increased anhedonia.

Reis, M., et al (2023) **Creative thinking does not promote dishonesty.** ROYAL SOCIETY OPEN SCIENCE 10:doi.org/10.1098/rsos.230879 (available as a free pdf)

Authors' abstract: *We assessed the relation of creativity and unethical behaviour by manipulating the thinking style of participants (N =450 adults) and measuring the impact of this manipulation on the prevalence of dishonest behaviour.*

Participants performed one of three inducer tasks: the alternative uses task to promote divergent thinking, the remote associates task to promote convergent thinking, or a simple classification task for rule-based thinking.

Before and after this manipulation, participants conducted the mind game as a straightforward measure of dishonesty.

Dishonest behaviour increased from before to after the intervention, but we found no credible evidence that this increase differed between induced mindsets. Exploratory analyses did not support any relation of trait creativity and dishonesty either.

We conclude that the influence of creative thinking on unethical behaviour seems to be more ambiguous than assumed in earlier research or might be restricted to specific populations or contexts.

Moeckel, Benjamin (2023) **"What has posterity ever done for me?": Future generations, intergenerational justice, and the chronopolitics of distant futures.** HISTORY AND THEORY 62:10.1111/hith.12325 (available as a free pdf)

Author's abstract: *Future generations play a key role in current political debates. In the context of the climate crisis especially, political controversies are often framed as moral problems of intergenerational justice.*

This article aims to historicize the use of the concept of future generations in modern political discourse and to uncover its long, and often ambivalent, history. Its main argument is that talking about future generations was part of an attempt to integrate (distant) futures into the political discourse of the time.

The first part of the article outlines a theoretical perspective on the relationship between generations and temporalities. The second part focuses on how anticipating future generations became an important part of the history of utopian thinking and political planning in the nineteenth and early twentieth centuries, especially in the realm of demographic and economic discussions.

The third part analyzes the emergence of future ethics and intergenerational justice as important political discourses in the 1970s. This part refers both to the academic debates about future generations and to the way political decision-makers used the concept to legitimize their policies.

The article argues that the concept of future generations should not be taken as an ethical principle that transcended the political debates of the present. Rather, it was itself the result of intense political controversies.

Modern Humans: Intoxicants.

Chanut, J., et al (2023) **A key to wine conservation lies in the glass-cork interface.** PNAS NEXUS 2:doi.org/10.1093/pnasnexus/pgad344 (available as a free pdf)

Authors' abstract: *The shelf-life of bottled wines, intimately linked to cork-based closures, is a major concern in the wine industry. Premium wines reach organoleptic optimum after aging periods ranging from a few months to likely several years or decades.*

This work demonstrates that the glass–cork interface is a major pathway for oxygen entry into the bottled wines. Neither the temperature nor the position of the bottle, horizontal or vertical, has an impact on the intrinsic oxygen diffusion property of microagglomerated corks after 24 months of storage. However, high storage temperature strongly increases the oxygen transfer at the glass-cork interface.

This study investigates the evolution of the oxygen barrier properties of the bottleneck-stopper system under conditions simulating the conservation of wine in the bottle (presence of model wine, storage position, and temperature) over a long aging period of 24 months.

The results highlighted that the oxygen diffusion coefficient of the stopper alone is not modified regardless of the storage conditions.

At 20˚C, the presence of model wine favors oxygen transfer at the glass-cork interface, accounting for nearly 75% of total oxygen transfer in comparison to cork studied without model wine.

Yet, the position of the bottle during storage, vertical (i.e. cork in contact with the vapor phase of the model wine) or horizontal (i.e. cork in contact with the liquid phase), does not influence the oxygen transfer.

At higher storage temperatures (35˚ and 50˚C), the barrier properties of the bottleneck–cork system remain stable up to 9 and 3 months, respectively. After this period, an alteration of the barrier properties is observed with an increase of the transfer at the glass–cork interface.

McTaggart, A.R., et al (2023) **Domestication through clandestine cultivation constrained genetic diversity in magic mushrooms relative to naturalized populations.** CURRENT BIOLOGY 33:doi.org/10.1016/j.cub.2023.10.059 (available as a free pdf)

Authors' abstract: *Fungi that are edible or fermentative were domesticated through selective cultivation of their desired traits. Domestication is often associated with inbreeding or selfing, which may fix traits other than those under selection, and causes an overall decrease in heterozygosity.*

A hallucinogenic mushroom, Psilocybe cubensis, was domesticated from its niche in livestock dung for production of psilocybin. It has caused accidental poisonings since the 1940s in Australia, which is a population hypothesized to be introduced from an unknown center of origin.

We sequenced genomes of 38 isolates from Australia and compared them with 86 genomes of commercially available cultivars to determine
(1) whether P. cubensis was introduced to Australia, and
(2) how domestication has impacted commercial cultivars.

Our analyses of genome-wide SNPs and single-copy orthologs showed that the Australian population is naturalized, having recovered its effective population size after a bottleneck when it was introduced, and it has maintained relatively high genetic diversity based on measures of nucleotide and allelic diversity.

In contrast, domesticated cultivars generally have low effective population sizes and hallmarks of selfing and clonal propagation, including low genetic diversity, low heterozygosity, high linkage disequilibrium, and low allelic diversity of mating-compatibility genes.

Analyses of kinship show that most cultivars are founded from related populations. Alleles in the psilocybin gene cluster are identical across most cultivars of P. cubensis with low diversity across coding sequence; however, unique allelic diversity in Australia and some cultivars may translate to differences in biosynthesis of psilocybin and its analogs.

Technology.

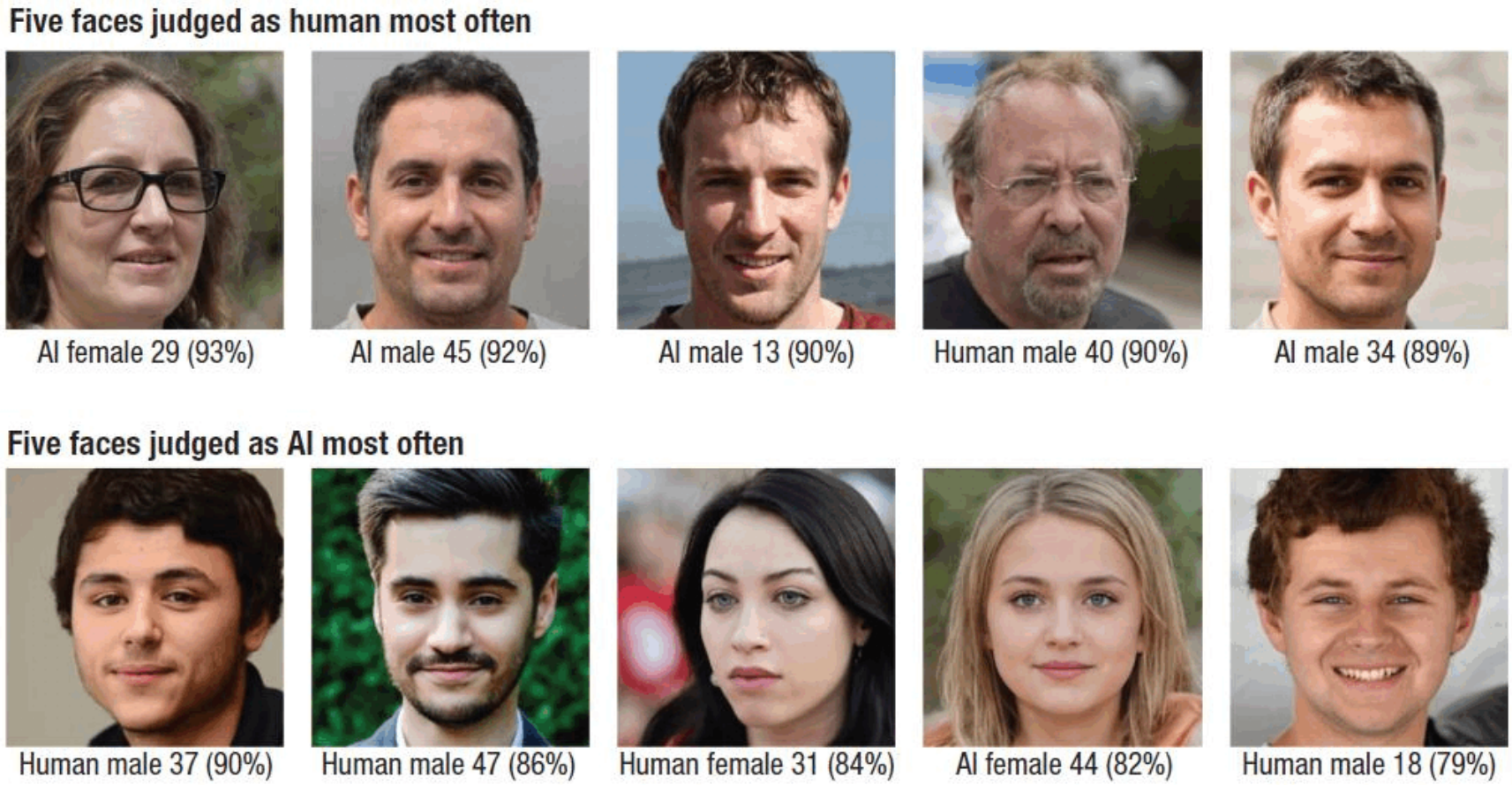
Miller, E.J., et al (2023) **AI hyperrealism: Why AI faces are perceived as more real than human ones.** PSYCHOLOGICAL SCIENCE 34:10.1177/09567976231207095 (available as a free pdf)

Authors' abstract: *Recent evidence shows that AI-generated faces are now indistinguishable from human faces. However, algorithms are trained disproportionately on White faces, and thus White AI faces may appear especially realistic.*

In Experiment 1 (N = 124 adults), alongside our reanalysis of previously published data, we showed that White AI faces are judged as human more often than actual human faces, a phenomenon we term AI hyperrealism. Paradoxically, people who made the most errors in this task were the most confident (a Dunning-Kruger effect).

In Experiment 2 (N = 610 adults), we used face-space theory and participant qualitative reports to identify key facial attributes that distinguish AI from human faces but were misinterpreted by participants, leading to AI hyperrealism. However, the attributes permitted high accuracy using machine learning.

[Images are from this paper.]



Hebbelstrup, S., et al (2023) **The event-driven nature of online political hostility: How offline political events make online interactions more hostile.** PNAS NEXUS 2:doi.org/10.1093/pnasnexus/pgad382 (available as a free pdf)

Authors' abstract: *We monitored the level of political hostility on American Twitter over a year of high turmoil including the onset of the COVID-19 pandemic, the murder of George Floyd, the electoral loss of Donald Trump in 2020, and the storming of the US Congress in 2021.*

We observe that the dynamics of hostile social media discussions about politics is closely tied to these developments in the offline world such that divisive events increase online political hostility.

For authorities and practitioners working to deescalate online discussions, this provides insights that hostility is not constant and that it is a key to precisely time interventions against hostility and employ them in the immediate aftermath of divisive events.

Hostile interactions permeate political debates on social media, but what is driving the long-term developments in online political hostility? Prior research focuses on individual-level factors such as the dispositions of users or network-level factors such as echo chambers.

Moving beyond these accounts, we develop and test an event-oriented explanation and demonstrate that over the course of the 2020 election year in the United States, all major shifts in political hostility on the social media platform Twitter were driven by external offline events.

Importantly, these events were magnified by Twitter users within the most politically hostile and most ideologically homogeneous networks.

Further contributing to the individual and network-oriented accounts, we show that divisive offline events mobilized individual users not already disposed for hostility and may have helped facilitate the formation of echo chambers. The dynamics of online interactions, including their level of hostility, seem crucially dependent on developments in the offline world.

Haroon, M., et al (2023) **Auditing YouTube's recommendation system for ideologically congenial, extreme, and problematic recommendations.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 120:doi.org/10.1073/pnas.2213020120 (available as a free pdf)

Authors' abstract: *Algorithms of social media platforms are often criticized for recommending ideologically congenial and radical content to their users. Despite these concerns, evidence on such filter bubbles and rabbit holes of radicalization is inconclusive.*

We conduct an audit of the platform using 100,000 sock puppets that allow us to systematically and at scale isolate the influence of the algorithm in recommendations.

We test
1) whether recommended videos are congenial with regard to users' ideology, especially deeper in the watch trail and whether
2) recommendations deeper in the trail become progressively more extreme and come from problematic channels.

We find that YouTube's algorithm recommends congenial content to its partisan users, although some moderate and cross-cutting exposure is possible and that congenial recommendations increase deeper in the trail for right-leaning users.

We do not find meaningful increases in ideological extremity of recommendations deeper in the trail, yet we show that a growing proportion of recommendations comes from channels categorized as problematic (e.g., "IDW," "Alt-right," "Conspiracy," and "QAnon"), with this increase being most pronounced among the very-right users.

Although the proportion of these problematic recommendations is low (max of 2.5%), they are still encountered by over 36.1% of users and up to 40% in the case of very-right users.