OPUNTIA 516

Edgar Allan Poe's Birthday 2022

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

ABOUT THE COVER

2022-01-02

I live about ten blocks from the Elbow River canyon. The polar cold that gripped Calgary from Boxing Day to New Year's Day was briefly interrupted by a chinook that brought the temperature up to 0°C for a day.

I took the opportunity to stroll out and take this photo. The view is northeast toward the downtown core, about 5 km away. The following day, temperatures went back down to -25°C for another week. It wasn't until January 10 that the polar front moved east and we had a sustained chinook.

AROUND COWTOWN

photo by Dale Speirs

The logic of the City of Calgary Traffic Operations passes understanding. The signs at right, at 12 Street SE and 8 Avenue in the Inglewood district, make one wonder about the people in charge. Okay, they disabled the manual crosswalk button and made it automatic, as part of the traffic lights. So why didn't they just remove the old button?

This is also the only location I've seen where motorists don't have to look both ways for bicycle riders. Simply look at the special blue light instead of watching the road.

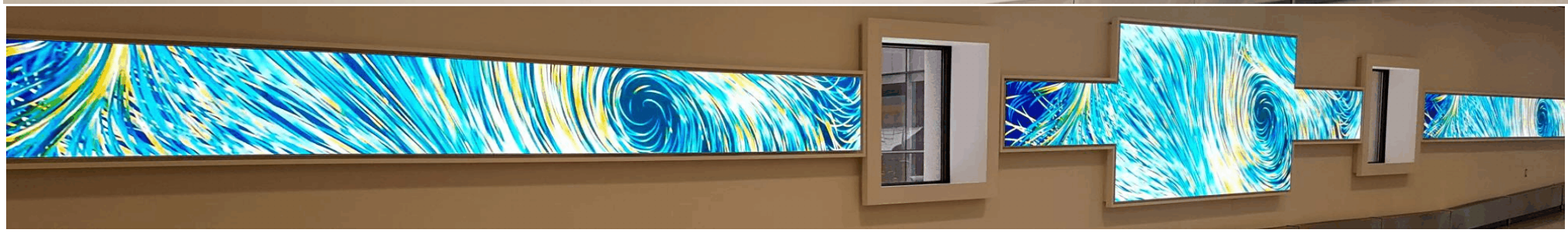
I've never seen any autonomous cars in Calgary but I'm sure that will be a matter of time. Then no traffic signs will be needed.

BOW VALLEY SQUARE ELECTRONIC ART: PART 3
photos by Dale Speirs

[Parts 1 to 2 appeared in OPUNTIA #487 and 490.]

Bow Valley Square is a cluster of skyscrapers in downtown Calgary linked into the Plus-15 pedestrian system which connects about half the downtown skyscrapers at the second floor with an enclosed pedestrian network. Along the south side, connecting to the Brookfield Place tower across the street is this wall of electronic art. The displays by local artists constantly rotate.

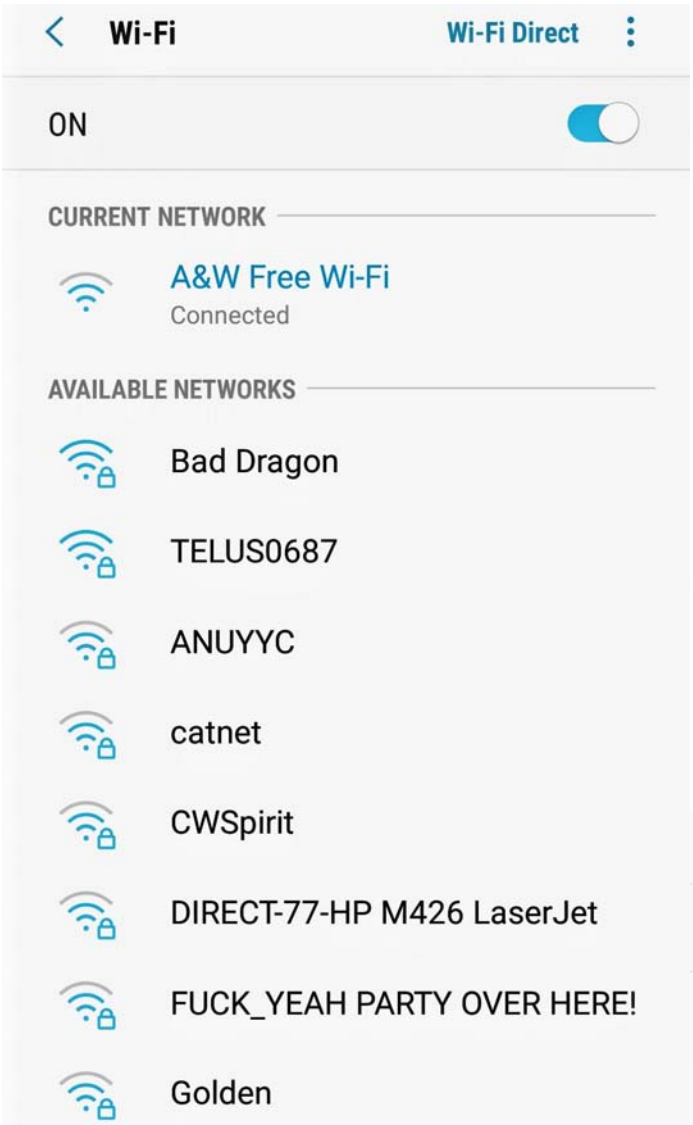
I seldom went into Bow Valley Square after the pandemic began. These photos are from late 2020 and early 2021 on the rare occasions that I used the Plus 15.

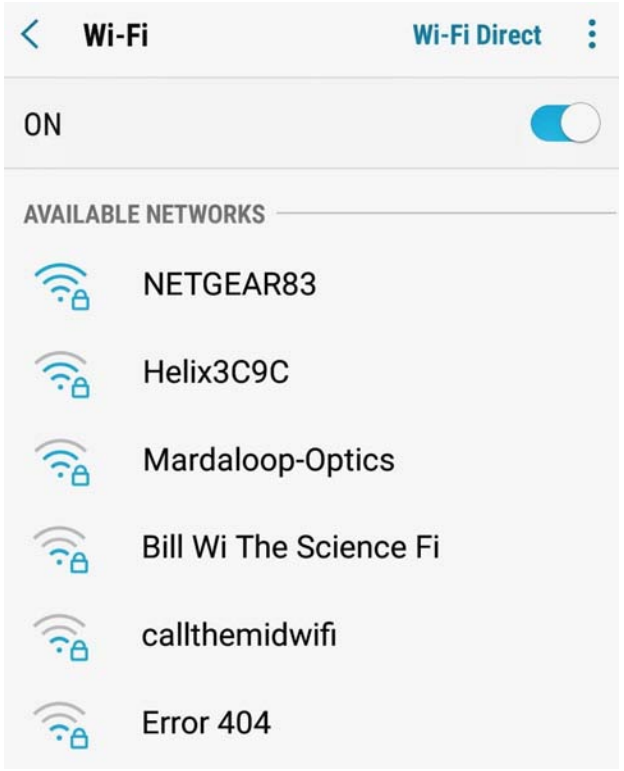


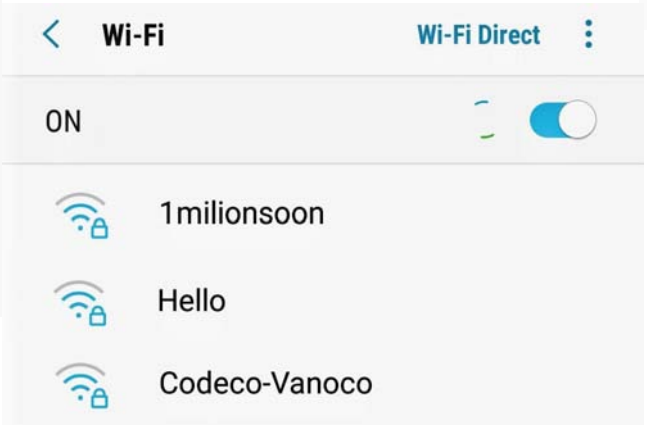
THE NUMBER YOU HAVE DIALED: PART 4
by Dale Speirs

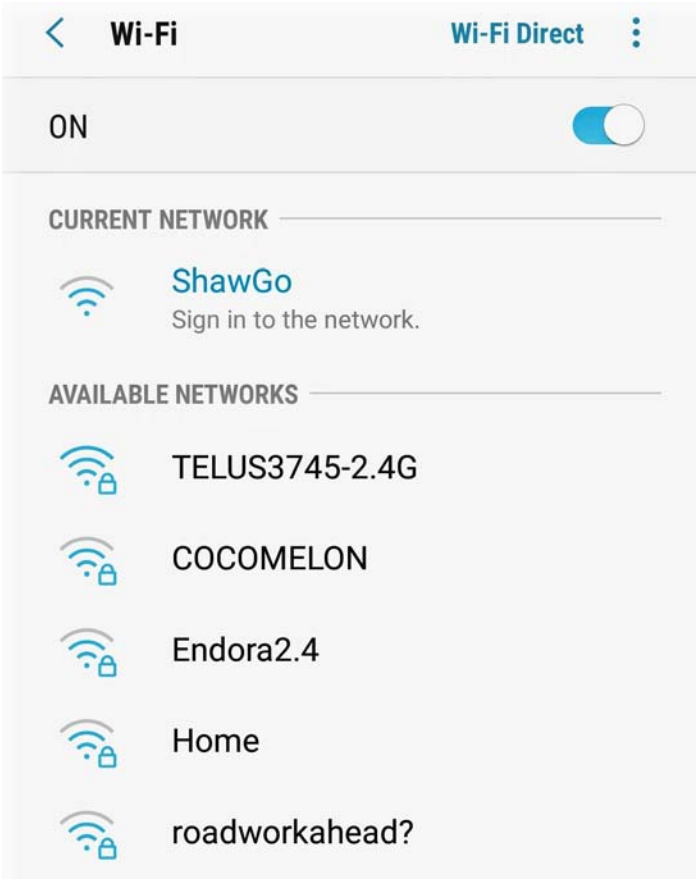
[Parts 1 to 3 appeared in OPUNTIAs #413, 462, and 497.]

Screenshots from my smartphone when looking for public Wifi.





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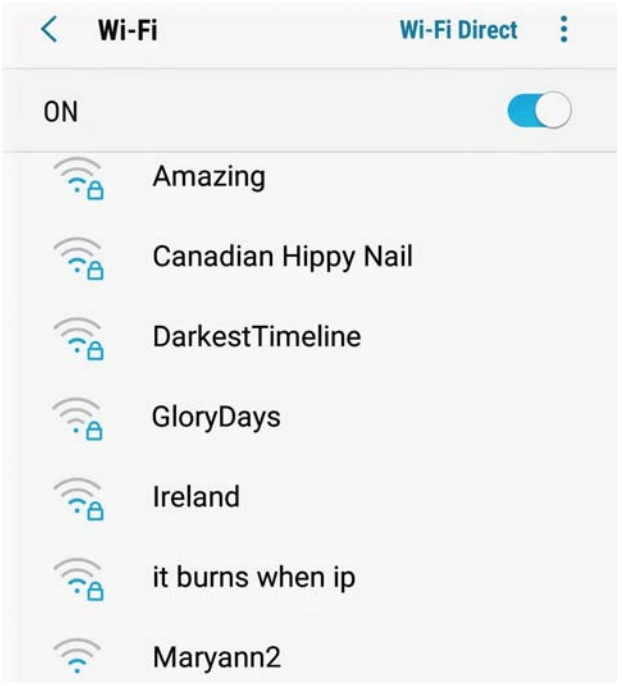
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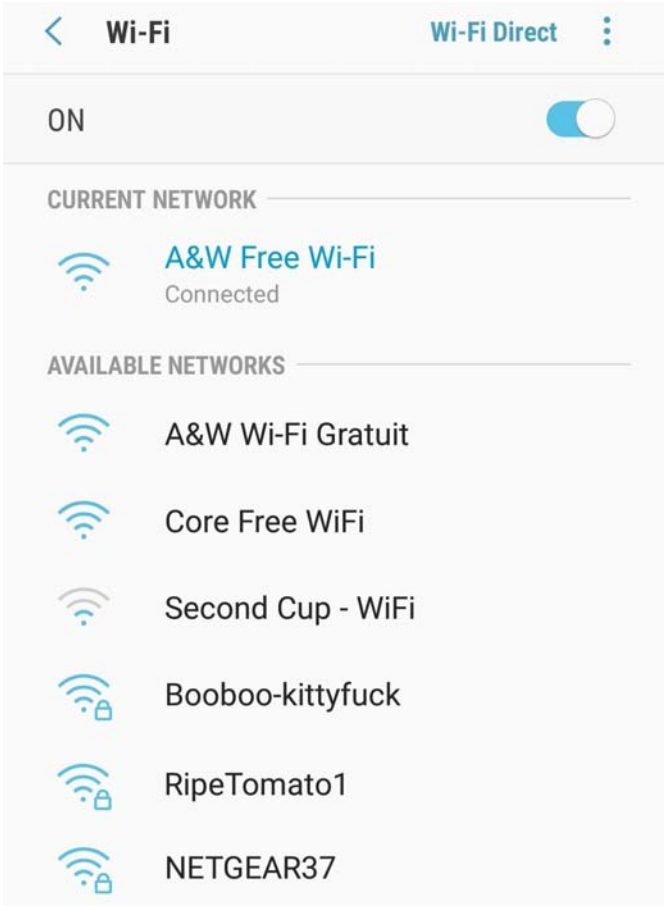
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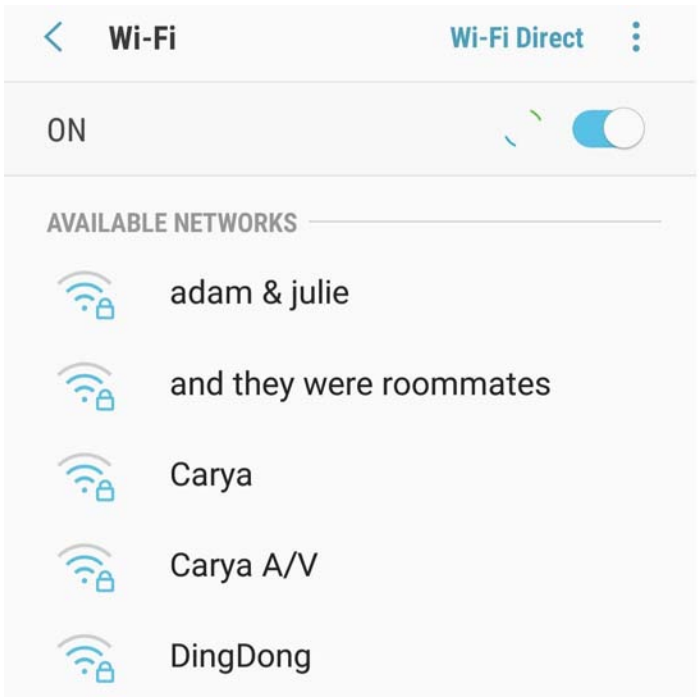
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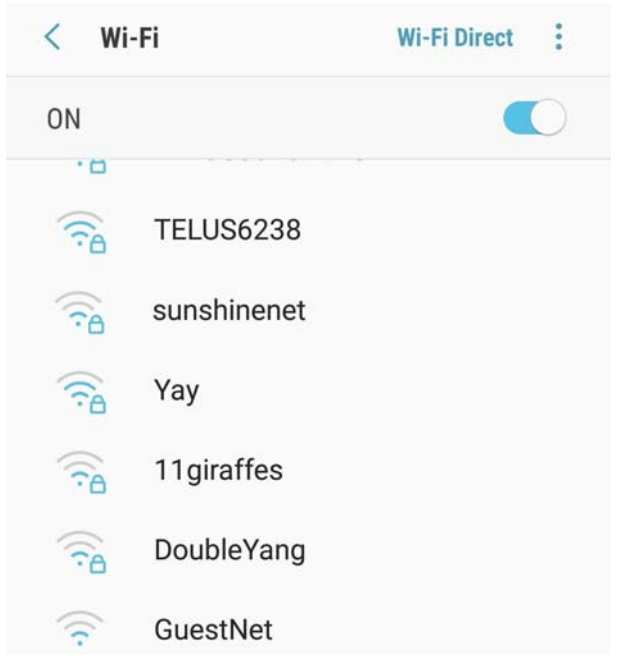
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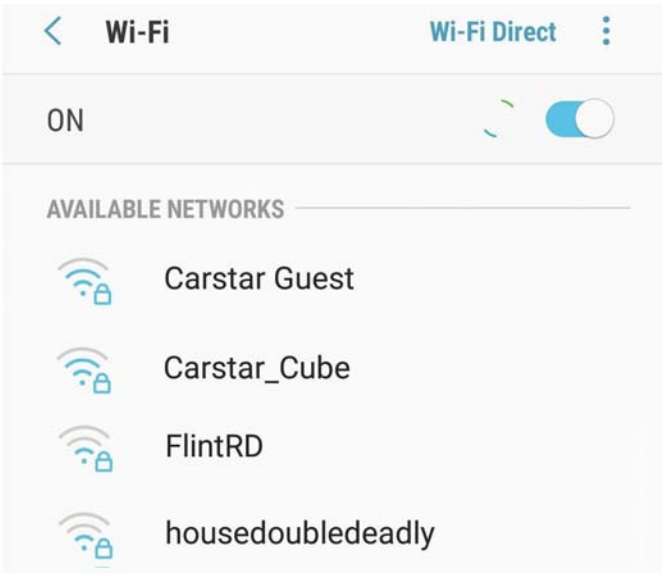
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EDGAR GALLOPING POE: PART 9
by Dale Speirs

[Parts 1 to 8 appeared in OPUNTIAs #325, 332, 344, 356, 370, 433, 465, and 492.]

Short Stories.

"The Plagiarist From Rigel IV" by Evan Hunter (1954 March, IMAGINATION, available as a free pdf from www.gutenberg.org) was about a typewriter that created more problems than it solved. The narrator Fred bought an almost-new Remington Noiseless in a pawn shop for $5, a ridiculous bargain even then.

There was a catch. When Fred started typing a story, what he got instead were extracts from Edgar Allan Poe's work. The typewriter was sentient. When the narrator spoke, it typed replies. Instead of original fiction, it insisted on only typing Poe.

After a bit of shouting, and not a little bit of strife, the typewriter admitted it was an alien communicating from Rigel IV. They had been monitoring Earth culture and were quite taken by Poe and Shakespeare, in that order. Fred convinced it to transmit Rigelian stories, which he then sold to the pulp magazines.

"A Death In Baltimore" by Arjay Lewis (2019, SHERLOCK HOLMES MYSTERY MAGAZINE #27, available from www.wildsidepress.com or Amazon) was a mashup of Sherlockiana and Edgar Allan Poe. Since Sherlock was too young to cross paths with Poe, it was therefore his father who did so.

Captain Holmes was a mariner who sailed to Baltimore in 1849 for a cargo. While waiting for his ship to be loaded, he found Poe dying in a street gutter, as indeed happened in our timeline. After taking him to a hospital, he found himself involved in the Baltimore underworld.

A Frenchman named C. Auguste Dupin entered the investigation. Eventually the two detectors identified the culprit responsible for Poe's death but could do nothing to obtain a conviction in court. They had to satisfy themselves that the culprit, none other than Poe's literary executor Griswold, would eventually receive justice in other ways.

Dupin was, of course, the first private detective in fiction when Poe invented the detective story. And Holmes, equally of course, was inspired by Dupin.

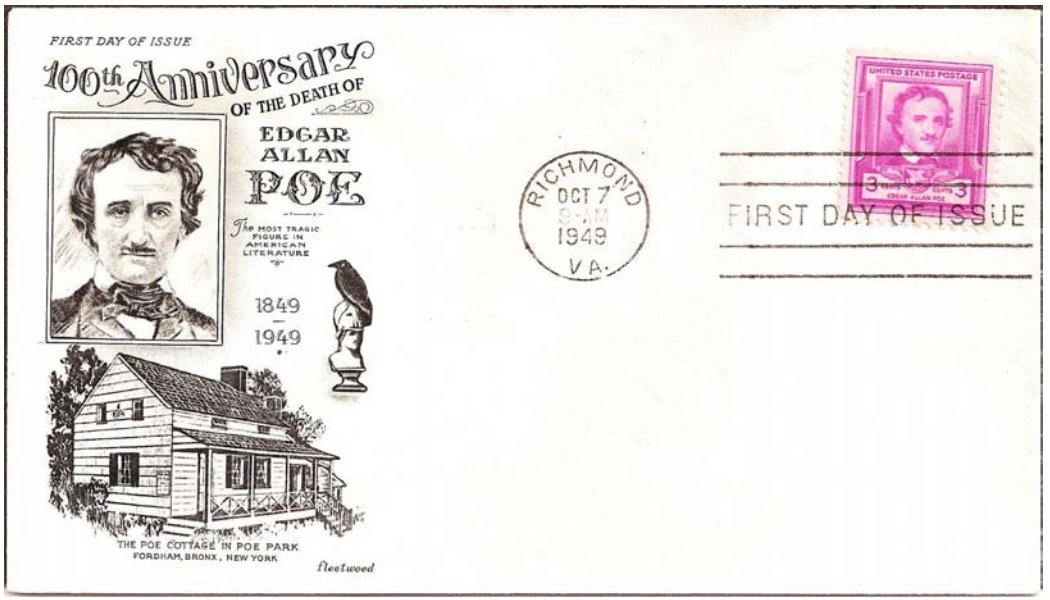
"I, Montresor" by Edward Lodi (2021 October, MYSTERY MAGAZINE, available from www.mysterymagazine.ca or Amazon print-on-demand) was a double variation on EAP's Amontillado story.

The narrator Richard took a college writing course taught by a published author named Felix Guirini. Richard worked up a variation of the Amontillado plot in which the victim was trapped inside a septic tank.

Guirini stole the idea and published it as his own. Richard didn't find out until much later. His word didn't carry as much weight with the editor as a well-known writer. He began plotting his revenge.

He built a small, soundproof and escape-proof room to hold Guirini. He got his version of Fortunato drunk on Amontillado spiced with barbiturates. While dragging the victim into the room, Guirini put up a struggle, during which the one-way door was accidently knocked closed.

Guirini then died from acute toxicity, leaving Richard trapped with a corpse inside the room. No way out. No one would ever know what became of them, both Montresor and Fortunato.



RADIO FICTION: PART 14
by Dale Speirs

[Parts 1 to 13 appeared in OPUNTIAs #301, 302, 310, 319, 330, 353, 370, 377, 394, 411, 443, 473, and 489.]

Before God Created The Audio File.

I didn't become a serious old-time radio fan until about a decade ago when tens of thousands of free mp3s appeared online from the Old Time Radio Researchers at www.otrr.org/OTRRLibrary and also from www.archive.org.

The other problem I had was that before the rise of the World Wide Web and Google, doing research on OTR shows (or anything else, for that matter) involved long hours slogging through library bookshelves. That was only possible for big city dwellers such as myself who had access to a large public library system and/or a university library. In Calgary, however, even the big libraries had little about OTR.

I had no idea there were OTR fans who had rooms full of tapes, or who published fanzines. The last decade brought a revolutionary change. The fanzines are now free pdfs and I have listened to hundreds of mp3s downloaded for free.

Some companies did produce cassettes of complete OTR episodes, two per tape, but they were expensive and as a young man paying off a mortgage I couldn't afford many. Those were the days when a $3.49 purchase was something I had to think about seriously, and I lay awake at night worrying about mortgage rates. (I paid off the house in 1997 and ever since then have never sweated the small purchases.)

One night in the late 1980s while driving home just before midnight on a long trip, I was scanning the car radio when I came across a Jack Benny comedy by accident. That was how I found out a local station CHQR 770 AM played two hours a night of old-time radio, from 23h00 until 02h00.

The problem was that my job required rising for work at 05h45, so I had to be in bed by 22h00 to get sufficient sleep. However, on my off days I could stay up late and listen to the programme. I bought blank tapes by the dozens and began making air checks of the OTR episodes.

I later got a radio/twin tape deck that allowed me to set a timer to record the shows while sleeping, and so I built up a collection into the early 2000s. I retired in 2010 and then could set my own hours, but ironically no longer had to tape shows because free mp3s had become available. Below is a rack of some of my homemade tapes.

On Saturdays, the Calgary station of the Canadian Broadcasting Corporation Radio 1 aired comedy shows which I also taped extensively. They were the troupe Royal Canadian Air Farce, which later moved to television, and Double Exposure, the couple Linda Cullen and Bob Robertson from Vancouver. Both troupes specialized in topical humour, funny when fresh but which has not withstood the test of time.

Another comedy series was MADLY OFF IN ALL DIRECTIONS, hosted by Lorne Elliott. This was a road show playing to live audiences across Canada.

The CBC keeps a tight grip on its radio backlist, and trying to find Canadian OTR shows from the 1940s to the 1960s as mp3s was a task I soon gave up. The Farce did release annual compilation cassettes and CDs in later years, and DVDs once they went to television.

Below is a sample of my airchecks. They'll eventually be binned if I have to go into a nursing home or my heirs clean house, assuming I still have working tape decks by then. When I go to bed, I often play them to drift off to sleep. The deck by my bedside has an automatic shut-off when the tape reaches the end.

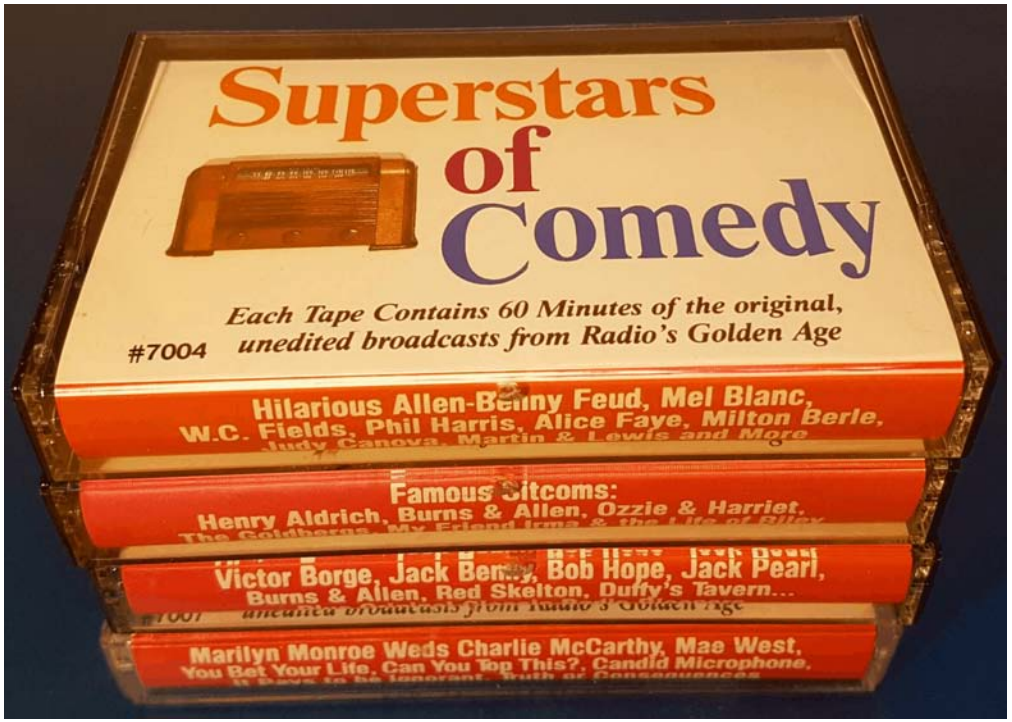
The Great American Audio Corporation.

Prior to all that, I occasionally bought OTR cassette tapes in bookstores, most produced by the Great American Audio Corporation. Googling that name produced hundreds of sale listings but I could find nothing about the history of GAAC, nor did Wikipedia have a listing. I get the impression they are defunct or absorbed into another company.

I recently listened through them one last time before putting them out in local Little Free Libraries around my neighbourhood. Now that I have the mp3s of the full original shows, the tapes are redundant, more junk for me to pass on to others, elsewise my heirs will simply toss them into the black bin after I'm gone.

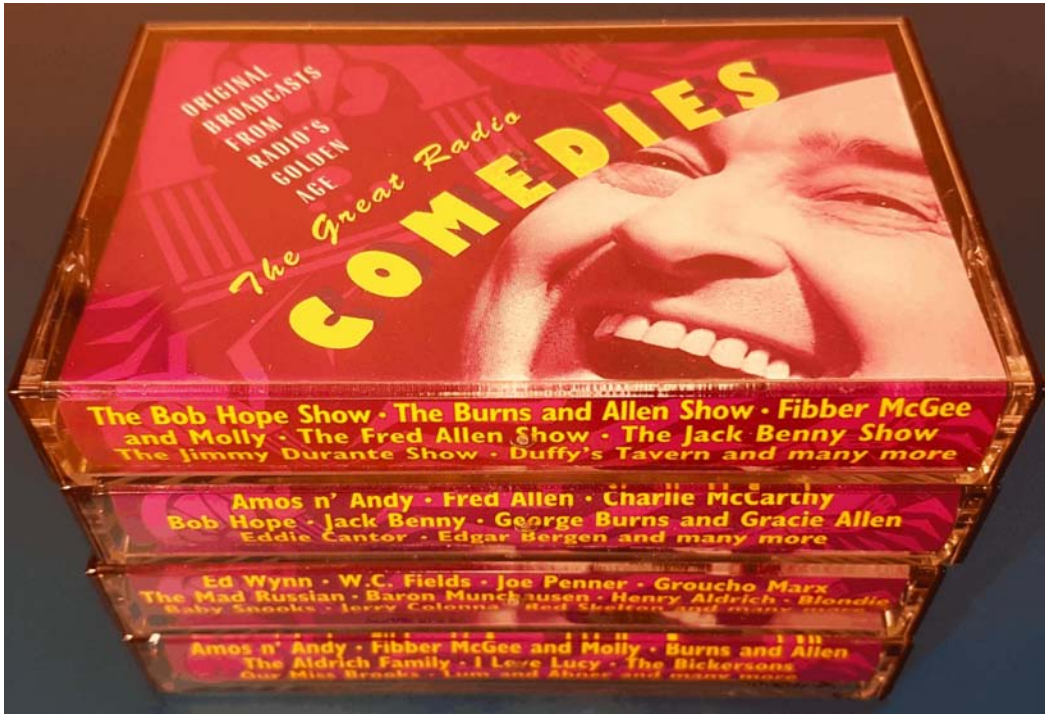
GAAC issued a large quantity of cassettes. They had three different series of OTR comedy, not as complete shows but rather as extracts with brief commentary on each performer(s). If you know nothing whatsoever about OTR, the commentaries are mildly helpful but their information content is low.

"Superstars Of Comedy" was a four-tape collection issued by GAAC, no copyright or publication date given. However the stock numbers were 7004 to 7007, which preceded a later collection that was dated 1986.



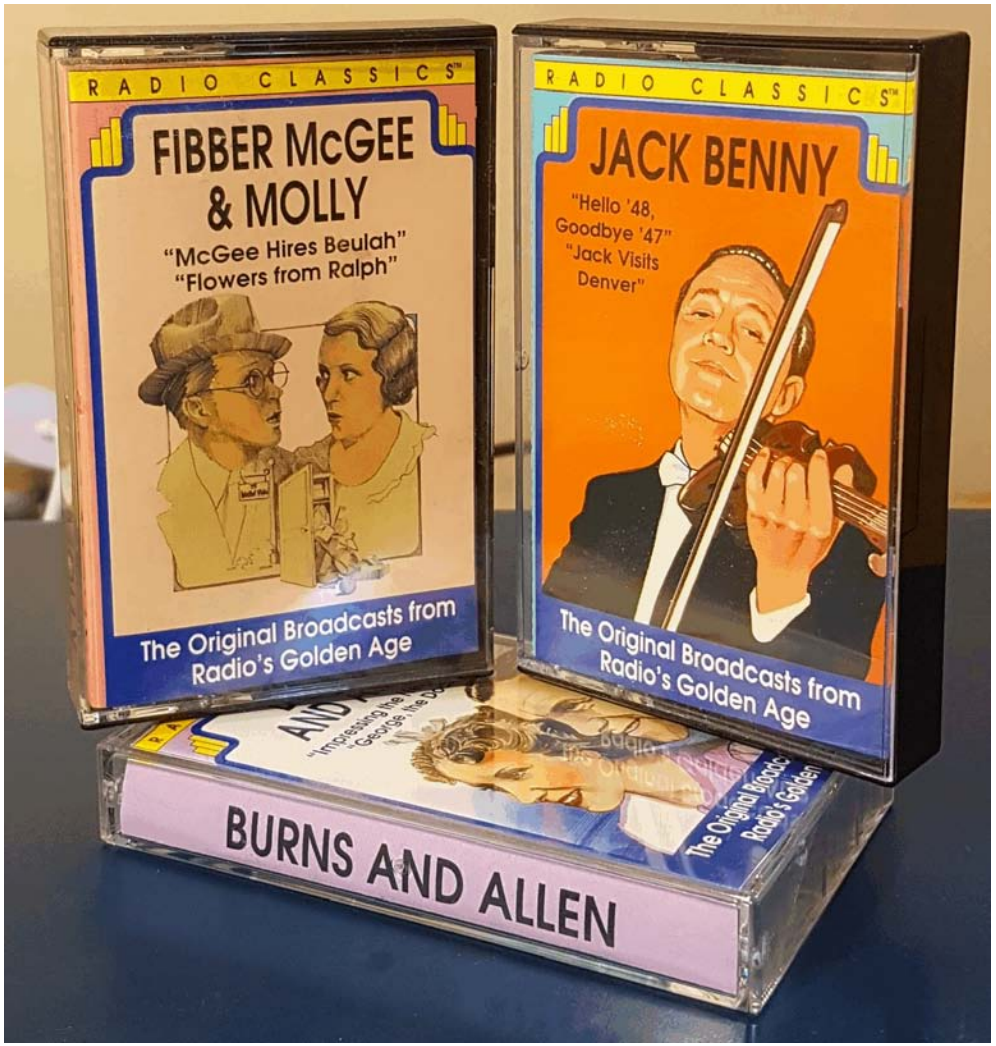
"Golden Age Of Comedy" was a two-tape collection issued by GAAC in 1986. The stock numbers were 7118 and 7119.

The final compilation set I bought, "The Great Radio Comedies", was a four-tape compilation dated 1993, stock numbers 45016 to 45018.



Eventually some complete OTR episodes became available on cassettes in Calgary supermarkets, the only place I ever saw them, but in very hit-or-miss fashion. I picked up a few, as shown in the following photos, but as mentioned, my budget was very constricted.

GAAC also produced several sets of full episodes of THE SHADOW. These will be mentioned in a future installment of my column "Series Detectives".



Above left: GAAC cassettes, dated 1994.
Above right: Radio Reruns of Toronto, dated 1977 but I know I bought them in the late 1980s.
Below right: MMP International/Camco Enterprises, Fort Lee, New Jersey, dated 1992

On The Air.

SUSPENSE was one of the great anthology series of radio, airing from 1940 to 1962. Episodes are available as free mp3s from the Old Time Radio Researchers at www.otrr.org/OTRRLibrary It 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 Twist" was written by Rafe Blau and aired on 1947-09-11. Two radio comedy writers Gus Green and Van Houser were separated by Julie Phelps, who was engaged to the latter. Green didn't want to break up a winning team of comedy writers, so he went to work on her from several angles. He used part of a radio episode plot as his plan.

Firstly he convinced her to work for the team as a secretary. She took dictation which enabled him to get samples of her handwriting. He also told her that an old boyfriend Nick Edwards was looking for her. She didn't want him back in her life. Green used her handwriting for a fake note to entice Edwards into the plot.

Green stage-managed her murder by himself and set up Edwards to take the blame. He stored her body in his apartment closet and told Houser that she had run off with Edwards. Next he moved her body into the trunk of Edwards' car and tipped off the police. The plan succeeded.

Houser went downhill in a hurry. The comedy team was in trouble, and were about to be canned by their radio show. Green's plot was exposed. Edwards broke jail and got his revenge by framing Green for the murder of Houser, but in turn was convicted for Julie's murder. As Edwards remarked, the twist was that both were convicted for each other's murders.

Cold Print.

BROADCAST 4 MURDER (2020) by J.C. Eaton (pseudonym of Ann I. Goldfarb and her husband James E. Clapp) was part of a series about a book club called Booked 4 Murder, in Sun City West, Arizona. The members reviewed mystery novels and solved murders, not necessarily in that order.

A local radio station KSCW had an open broadcast slot after a sewing show went off the air due to underwhelming demand from the listening public. The book club leaped in with a mystery novel review show hosted by Harriet Kimball and Myrna Mittleson. Harriet's daughter Sophie was the resident Miss Marple in Sun City West.

The first episode of the show would prove impossible to top. The duo began chatting about a cozy but when Myrna spotted a body in the corner she screamed. The subsequent silence gave real meaning to the term "dead air". Sophie was listening at home, realized what had happened, and raced to the radio station. She beat the police into the building by several steps.

The defunct was Howard Buell, the programming director, who had a pair of sewing shears embedded in his chest. The suspect was his ex-girlfriend Sylvia Strattlemeyer. She had expected to take over the sewing show and was mightily miffed when the book club barged in.

Sophie began digging up the past histories of everyone connected even tangentially with the radio station. She uncovered a commercial theft ring, which led her to suspect the wrong person. A blackmailer poked a nose into the murder and got what he deserved.

Excitement all around. Buell had been part of the theft ring and had demanded a bigger share. Instead he got a cemetery plot which he didn't have to share.

WILLIAM HENRY PRATT
by Dale Speirs

I've mentioned some of the old-time radio shows in which Boris Karloff appeared as a guest. See OPUNTIA #491, pages 12 to 16. Many movie fans may not be aware that he appeared in radio as often, if not more, as he did in movies. These radio series are available as free mp3s from the Old Time Radio Researchers at www.otrr.org/OTRRLibrary

Something Peculiar.

LIGHTS OUT aired from 1934 to 1947, and was an anthology radio series specializing in fantasy, weird fiction, and horror. "The Dream" was written by Arch Oboler and aired on 1938-03-23. Boris Karloff played the part of Daryl Hall, voiced entirely as his internal thoughts.

Hall was sitting in a courtroom awaiting the jury's decision on his murder charge. In a flashback that lasted most of the episode, he thought about a dream he had about a ghostly woman who urged him to kill. In the background he heard massed voices but couldn't make out what they were saying to him.

Soon enough he began to have problems separating dreams and reality, uncertain if he was awake or still in a dream. Kill whom, and why?, he wondered, as the ghost kept after him. Hall appealed to his girlfriend Mary for help. The listener will not be surprised to learn he killed her in a fit. That didn't release him from the ghost and the voices in his head.

The voices told him to expiate his sin by volunteering for the gallows as his penance, otherwise the ghost would have him for eternity. The twist was that he died of a heart attack from psychological stress just before the verdict was rendered, so he was condemned to servitude with the ghost.

INNER SANCTUM MYSTERIES was an old-time radio anthology series that aired from 1941 to 1952. The episodes ranged from mystery to fantasy to horror. The host was a smarmy man who liked to make ghoulish puns. The show was a natural for Karloff.

"Study For Murder" was written by Sigmund Miller and aired on 1942-05-03. Boris Karloff was the guest star in the role of psychologist Herbert Lodge.

The scene opened with him visiting a death row inmate. Sam Edwards had murdered his wife in a fit of anger. Lodge questioned him about the moment of the murder and Sam's feelings in the immediate aftermath.

After the interview, Lodge spoke with the warden, who did not like him. Lodge spoke in a calm cultured voice. When he asked to observe the execution, the warden considered the request to be voyeurism rather than professional research.

Lodge's wife Margaret was also concerned about his obsession with the final moments of a murder and the desire to kill. Lodge kept repeating to everyone that all of us are capable of murder. "*You can't write about fire unless you've been burned*", he said.

A false premise, but by now, at the 8-minute mark, the listener had a good idea of where the plot was headed. Lodge formed his own criminal gang so as to have a front-row seat to murders. His men resented him asking psychological questions of them after each murder.

Lodge had his own problems when the ghost of Edwards visited and told him the best method of learning the state of mind of a murderer was to become one. So he did, choking the life out of Margaret.

The grand finish was Lodge going to the electric chair and repeating the dialogue of Edwards verbatim.

"The Corridor Of Doom", written by Robert Newman, aired on 1945-10-23 and featured Boris Karloff as the protagonist John Clay. The plot wasn't complicated, just a sick man dying in a hospital. He kept having dreams, or were they visions?, of himself walking down a long corridor. At the end of it there would be a room with his name on it.

This episode aired during the period when the series was sponsored by Lipton Tea, a rather odd pairing. The host, in his smarmy voice, made ghoulish puns. He would then be interrupted by Mary Bennett, a perky young woman brightly extolling the benefits of tea drinking.

Clay woke up in a hospital after surgery. The nurse and Dr Stone were uninformative. Stone told Clay the initial period always required adjustment. Appearances were made by son-in-law Alec Bartley and Clay's dog, who was

dead. The doctor doped Clay with a sedative to make him forget everything. An orderly named Martin made Clay drink the liquid.

That took Clay into the endless passageway. He tried to turn back and woke up in the hospital bed. The nurse gave away what little mystery there was by asking Clay if he had been dreaming of his former life. Then he noticed he had dust on his bare feet. He really had been walking down the corridor.

At this point Mary burst into the narrative, saying she didn't believe Clay had dusty feet. That gave the host an opportunity to get in a pun about feet of clay. Mary said that discouraged or tired people should have a cup of Lipton Tea to cheer themselves.

Back to Clay who got another dose of sedative from Martin and went walking again. Then another, until he reached a door with his name. He fought the urge to go inside.

Jump cut to the hospital room. Clay was bright and cheerful. Perhaps he had a cup of tea. He told Bartley that Martin was a private detective and the plan was to expose Bartley for attempted murder. Clay was a wealthy man, while Bartley was in financial trouble.

The narrative was all a hoax, designed to perturb Bartley. The son-in-law tried to leave but Martin pulled out a gun and fired shots into the ceiling. That ought to get his investigator licence rescinded and probably a court appearance. The shots triggered a fatal heart attack in Bartley from the fear.

Outside in the corridor, Clay noticed a door with Bartley's name on it. And so to Mary, who extolled the benefits of Lipton Tea, with a brisk flavour. Just the thing before a long walk.

Something Appalling.

CREEPS BY NIGHT was a short-lived old-time radio anthology series that aired in 1944 from February to August. The scripts were good but the writers were not credited.

Worse yet, the series was never advertised by the Blue Network, the predecessor of the American Broadcasting Company. Listeners had to stumble across the show by accident to know that it existed.

Boris Karloff was the host for the first half when the series aired from Hollywood. An anonymous actor hosted for the second half from New York City when production moved there in a cost-cutting measure.

The anonymous host was called Doctor X in an apparent attempt to build up interest in such a mysterious character. That idea was undercut by the fact that few listeners knew the series was on the air in the first instance. Undoubtedly Doctor X was just a stock player, probably whomever was standing about the studio when the episode was recorded.

"The Final Reckoning" was about George Miller (played by Boris Karloff), who had been paroled after 20 years. There was an extended conversation between him and the warden before he walked out of the prison. Miller talked about how he was a changed man but it was obvious to the warden and the listener that the change wasn't for the good.

Miller was out for revenge. He hadn't committed the murder and was framed. During his last six months in prison, when it appeared his parole would be granted, he had apprenticed as a barber. Ostensibly he wanted to learn a trade to support himself, but the warden was suspicious. This was in the days of straight razors. No safety razors or electric shavers.

After Miller walked out the prison gates, the news of his coming preceded him through the criminal underworld. Miller had refused visitors in prison, so no one on the outside knew what he looked after two decades inside. The man who had set up Miller for the crime, nicknamed Ace, quickly found himself living in fear. Ace had a heart condition, so the psychological stress was doubly hard on him.

Miller used psychological warfare. He left a dead rat on Ace's doorstep, then mailed another one inside a miniature coffin to him. Ace fled to a mountain hideout with his girlfriend Vera.

Miller was there, masquerading as the caretaker Walter. They didn't know who he was. Vera remarked that he looked like a Hollywood butler, to which Ace replied he was more like a zombie. When they unpacked their bags, they found a dead rat inside.

Ace hit the extremes of paranoia, afraid of friend and foe alike. Strangely he trusted Walter. After a week in hiding, Ace had a ragged beard. Walter offered

to shave him. With the razor against Ace's throat, Miller qua Walter revealed who he was. Ace babbled and begged for his life before dying of a heart attack triggered by fear. Miller got his revenge in a manner that could never be proven as murder.

From INNER SANCTUM MYSTERIES was "Bird Song For A Murderer", no writer credited, aired on 1952-06-22 as the summer began. Hence, after the creaking door, the host invited the listeners inside, assuring them the sanctum was scare-conditioned.

Boris Karloff narrated as Karl Warner, a man with a young wife Elaine and lots of canaries. His equilibrium was disturbed when Chester Brule, a former attendant from the Cragmont insane asylum, arrived on a dark and stormy night.

Brule told the story of a former patient, a homicidal maniac, who could only be calmed by canaries singing. He put the bite on Karl for $5,000 to keep quiet about certain past history. Bad mistake. Karl followed him home and stabbed Brule dead.

Elaine read out the newspaper report of the murder at the breakfast table. Karl became hysterical. The police soon arrived to ask questions because his name had been found in Brule's address book.

Strangely, there was a bird cage with a canary at the scene of the crime. The landlady swore Brule never had a pet bird. The following night, Karl tried to get the bird back by burgling the dead man's room.

There was a policeman sleeping a chair next to the bird cage. Fortunately Karl was able to steal it and get away while the officer slept. Unfortunately the next day the police were back at his house, snooping about the bird room.

Lieutenant Gregg told Karl he was going to drive out to Cragmont to do some research. Instead he lurked outside the house that night. Karl had trouble sleeping. Gregg went to sleep in eternity and the next morning Elaine found his body in the garden.

The twist was then inserted. Elaine had been the homicidal maniac, not Karl. She made him the next and final victim.

A Comedy Tonight.

THE CHASE AND SANBORN HOUR, named after the coffee company that sponsored it, was an hour-long variety series on radio. The master of ceremonies was Don Ameche, who was a matinee idol and popular with comedians as a good straight man. A regular on the show was ventriloquist Edgar Bergen with his dummy Charlie McCarthy.

The show of 1938-01-30 had as one of its guests Boris Karloff. In the intro, as Ameche introduced his guests, Charlie kept interrupting and asked if he would walk him home through Beverly Hills after the show.

Ameche agreed but when Charlie asked that he stay overnight, he wondered why. Charlie was afraid that Boris Karloff might follow him home and kidnap him for evil experiments. Ameche reassured him that Karloff in real life was a kind, cultured gentleman.

Assorted singers and skits followed. Karloff arrived at the 21-minute mark with a dramatized reading of Edgar Allan Poe's "The Tell-Tale Heart". The performance lasted a full ten minutes, quite lengthy for radio.

After the half-time commercial, there were more acts; a sentimental song, several cross-talk comedy routines, and an orchestra instrumental. At the 44-minute mark, Charlie McCarthy returned, a nervous wreck at the thought of meeting Karloff.

Ameche and Bergen insisted Charlie meet Karloff. When he arrived, Charlie began babbling in fear. Karloff invited Charlie to his country house. He said it had eight rooms and lots of closets. "*That's where he hides them*" whispered Charlie to Bergen.

Karloff said he hadn't actually seen his own Frankenstein movie. He went into the theatre but left after the first reel because he was too frightened. Charlie began bragging about how courageous he was when he visited a haunted house.

Karloff became more nervous as the tale continued. When Charlie reached the end of the story, Karloff fainted.

Eddie Cantor was on the air for decades with a comedy show that varied in name depending on the sponsor. An episode aired on 1941-12-17, ten days after

the Pearl Harbor attack, featured Boris Karloff as a guest. The show was titled IT'S TIME TO SMILE, sponsored by a toothpaste manufacturer. Nothing was said about the war until the very end when Cantor sang a patriotic jingle.

The opening dialogue was about Cantor's recent turn as a department store Santa. He traded quips with announcer Harry Von Zell and the orchestra leader Cookie Fairchild. The routines were interrupted by a crashing noise as musicians fled the stage when Boris Karloff entered.

Cantor put his foot in it when he asked Karloff if he always wore makeup as the monster. Karloff replied that he wasn't wearing makeup. What really miffed him though, was that he had visited Cantor qua Santa in the department store but still hadn't received the Christmas gift he had asked for, a talking doll.

Cantor sent Von Zell out to get a doll, then interviewed Karloff. After a series of gags, their repartee was interrupted by Dinah Shore, then at the beginning of her singing career. And so she sang, followed by Von Zell plugging Ipana toothpaste.

Karloff confessed to Cantor that what he really wanted to be was a sweater boy. That remark got a big laugh from the audience, demonstrating why topical humour fades away with the generation who understood it.

I couldn't find this slang term on Google, which had nothing but advertisements for boy's sweaters. Karloff then mentioned he'd like to dance with Ginger Rogers or Rita Hayworth, so this suggested the term was for a male dancer or crooner.

In any event, Karloff stepped off stage a moment to prepare a refreshing drink. He offered some to Cantor, who was reluctant to take the cup. Karloff wouldn't take no for an answer. Cantor managed to pass the drink over to Von Zell, as Karloff bwah-ha!-ha!-ed with pleasure. There was a twist ending, as the drink was fine brandy.

The Mad Russian, a famous character actor in those days, popped up out of nowhere. He insulted Karloff, who gave back with threats to render him into a corpse. Karloff told the Russian about some of his horror films, but the Russian topped him with stories about his honeymoon.

The episode abruptly ended when the janitor barged on stage and told the ensemble their time was done. He wanted to sweep up. Cantor had just a moment to sing a "we'll get them yet" song and plug the Red Cross.

An oddity of old-time radio was that one of the most successful comedians on the air was Edgar Bergen, a ventriloquist. You wouldn't think that would work for radio but it obviously did. However, he did do his broadcasts in front of a live studio audience, so the at-home audience accepted that he really was doing an ventriloquism act.

Bergen's two main dummies were Charlie McCarthy, a wise-cracking kid, and Mortimer Snerd, a slow-thinking rube. The series had various names but were most commonly announced as THE CHARLIE MCCARTHY SHOW.

Like most comedy shows, the first half was random gags, a song by the resident chanteuse or tenor, and set-ups for a skit in the second half. The guest star usually did not walk on stage until after the middle commercial.

"Boris Karloff's Haunted House" aired on 1945-10-28, just before Halloween. He showed up at the 17m20s mark, after a song by chanteuse Anita Gordon. Playing straight man to the wooden dummy, Karloff traded quips with McCarthy.

Bandleader Ray Noble asked Karloff what his rates were. He replied that sending a chill up the spine was $10. The blue-face special** was a cold sweat for only $7.85. McCarthy objected to the prices, which were a bit high, so Karloff invited everyone over to his house. With a musical segue, the cast of the show departed on Karloff's sidecar-equipped broomstick.

Upon arrival at Gruesome Gables, they were met by a ghost. It was played by recurring character actor Ercil Twing, who had a very distinctive quavering effeminate voice. (He died young in 1954 and is forgotten today except by OTR fans.) Twing complained he was cold because his shroud wasn't very warm.

** The term is almost extinct today, but a blue-plate special in sit-down restaurants was a daily specially-priced meal for 25 to 75 cents in the 1940s. This was a full meal served on china by a waiter, not a fast-food takeaway. Today you would pay $25 and up.

Karloff didn't have much luck frightening his jaded audience in the house. Anita Gordon thought he was just so cute. McCarthy criticized him, causing Karloff to burst into tears. Everyone else left but McCarthy, who suddenly realized his peril.

Karloff wondered out loud about using McCarthy's head for an experiment. Two heads are better than one, etcetera. McCarthy fled, punching a body-sized hole through the wall because the laboratory door was locked. The writers having run out of ideas, time was called and the episode ended.

Jimmy Durante was an old-time vaudeville comedian who never changed his act for radio. From 1933 to 1950, he was on the air under a variety of series names, most named after the sponsors. He had a Roman nose which he used as a gimmick, and constantly mispronounced words, or rather mispernunciated woids.

"Happy Sam The Record Man" aired on 1947-12-10. After the usual opening dialogue, Durante went over to a local radio station to meet a disk jockey. Happy Sam turned out to be the on-air name of Boris Karloff.

The sponsor of the show was Pickled Cucumber Beauty Cream. Most of Karloff's routine was for the cream. He convinced Durante to join him in singing the commercial jingle:
Use Cucumber Beauty Cream,
you'll make the Notre Dame football team.
With All-Americans you will click,
And your face won't look like it blocked the kick.

[Male chorus]
Pickle it, pickle it, rah, rah, rah!

Actually that chorus sounds like it would be a good one for football games even today. Karloff finished his shift and then chatted with Durante, who expressed surprise at him working as a disk jockey. Karloff said he had refused to act in soap operas.

He listed titles such as "John's Other Head", "One Man's Funeral", and "Just Plain Hideous". The audience laughed hysterically but a modern-day listener will miss the humour.

You have to be an old-time radio fan to know Karloff was parodying the top-ranked soap operas "John's Other Wife", "One Man's Family", and "Just Plain Bill".

Karloff invited Durante to come out to his manor house Happy Hollow. What Durante didn't know was that Karloff was trying to marry off his ward Gwendolyn. Unlike every other mad scientist's daughter, beautiful and very nubile, Gwendolyn weighed about the same as any two men combined, and had a face that would stop a clock. Durante was terrorized by her, not any monster.

When Durante arrived, the butler Snodgrass offered to take his head, then apologized and said he meant 'hat'. Assorted screams and howls around the manor kept Durante on edge, although once Gwendolyn walked in, the noises became the least of his worries.

Something Repulsive.

Jumping ahead to our time, I present a mystery novel using Karloff as a character. SOMETHING MORE THAN NIGHT (2021) by Kim Newman was a novel whose amateur detective sleuths were Raymond Chandler and Boris Karloff. Chandler narrated. If anything was rotten in a state, it was the state of Hollywood in the late 1930s.

A mutual friend, private detective Joh Devlin, had supposedly committed suicide by blowing his face off with a shotgun while accelerating his car off the end of a pier into the ocean. No one believed such an elaborate method was suicide. Even for Hollywood, the manner of death was excessive.

A couple of hours later the car had been winched out of the ocean. A tapping sound came from the trunk. Opening the lid revealed a woman, still alive. The official story was that she had survived in an air pocket, but Karloff and Chandler knew better. She was a witch.

The story then digressed to Devlin's life and times as a former investigator for the District Attorney. He had been involved in a well-publicized case involving a millionaire's son and a scandalous death, probably murder.

The back story soon became the main story. Devlin had his leads to chase down, and asked Chandler and Karloff to look after some other clues.

Karloff had the advantage that he was famous, which would open doors Devlin didn't a chance of getting through. Chandler was a writer. In Hollywood, writers are at par with mailroom clerks and busboys. Possibly lower. Also in the running was the witch from the car trunk, in reality an immortal.

Karloff, with Chandler in tow, charmed his way into a medical clinic run by a genuine mad scientist Dr Lionel Vaudois. Lots of extended and meandering infodumps, not from Vaudois but one of his patients.

The doctor could extend life, although he charged enough to ensure that only the very rich could afford him. Vaudois had also created an ubermensch. Not a stumbling monster like the one Karloff played but created from a rich playboy who had been raised in an incredibly wealthy family and had been taught from childhood that everyone else was a servant. One who now had superpowers but the temperament of a child. One who was now loose in Hollywood.

But wait! There's more! Vaudois churned out additional monsters. Other mad scientists produce one-off monsters, but Vaudois was churning them out with electricity. One such man caught up was Karloff, transformed into the good monster. Not Frankensteinian but an elegant giant playing his own part, unlike what Vaudois had expected.

Alarums intensified, with excursions by Karloff and Chandler across studio back lots, hither and yon. They suddenly dropped out of the story and Devlin re-appeared with his alarums and excursions. His assailants were slapstick comedians who did murder contracts on the side to pick up some extra money.

The story alternated between the two, with blood and guts everywhere and a death toll that would overflow all the city morgues in the Los Angeles basin. Vaudois departed this world in a bloody gun battle around Karloff's swimming pool.

The novel eventually fizzled out with an infodump to tie up all the loose threads. Devlin had faked his death, using one of his enemies as the substitute. The ubermensch came to a bad end, not by death but by turning into a helpless vegetable when all those superscience modifications dissolved his bones and turned him into a bag of jelly.

The book read well, often witty and mildly humourous, then edging into weird fiction. Recommended.

The End Times.

THE BORIS KARLOFF SHOW aired in December 1957 as a set of 5-minute episodes. There was nothing about the series via Google other than what could be easily surmised.

Such 5-minute shows were syndicated via vinyl records sold to radio stations, who played them as they liked. Evidently this was a trial series that didn't sell. Unsurprising, since old-time radio was basically dead by 1955 and the last straggler died in 1962.

Boris Karloff read the stories in his cultured posh voice. There were sound effects but no other actors. He mentioned these stories were from the files of READER'S DIGEST. Not all were fiction, and many were straightforward articles and history.

"The Vampire's Grave" was set in Bavaria when Count Alexis resided in his castle, the last of the family. The villagers wondered if the Count would ever produce an heir. One dark and stormy night, a young black-haired woman traveling past the castle was in a carriage accident. The Count offered her shelter in the castle and fell in love with her. His dogs didn't like her and went berserk every time she went near them.

After the marriage, the young Count weakened in health. The villagers noticed Sylvia only came out at night. Rumours that she was a vampire circulated, and even the Count came to believe. One night he followed her to where the accident had occurred and found her lying in an open grave.

He was about to kill her with a stake when he realized that her blood sucking had made him into a vampire. All he needed to restore his health was blood. They made a happy couple, out hunting together.

"Chung Ling Su" was about William Ellsworth Robinson, a failed stage magician. He decided to impersonate a Chinaman. His assistant was a young woman Su Si Si, née Dorothy Robinson. Their magic act as fake Chinese succeeded.

William began an affair with Estelle in the guise of Chung Ling Su. He got a note reminding him that in his bullet-catching trick, his wife loaded the gun. Nothing for it but to apply for a divorce.

He told Estelle but she replied she could never marry a Chinaman. Diddle with one in secret, yes, but not go about in public with him. (He must have used full body makeup.) William returned the next day as a white man, shocking her. She rejected him on sight.

William decided to quit the stage after one last performance. The bullet-catching trick failed and William died on the stage. Su Si Si, as she was to the public, tearfully explained how the gun's trick mechanism must have been sabotaged.

The investigation revealed that William Robinson had murdered Chung Ling Su. All other suspects were found innocent. William couldn't be found anywhere.

"William Shakespeare's Home Town" was, of course, about Stratford-upon-Avon, the second biggest tourist attraction in England after London. Karloff summarized the history of the town and its belated recognition of its greatest son.

"The Story Of Wood" hardly needs summarizing. Karloff waxed rhapsodic about the transition from the trees of leafy glades to the finished lumber and varnishes. I've read poetry that was less flowery.

"Doctor Harvey Cushing" lived in the late 1800s and early 1900s. He was a neurosurgeon who took brain surgery from a 90% death rate to 90% cured.

"The White House" was a history about the place on 1600 Pennsylvania Avenue. Washington never slept there. Like other government projects, the construction went over budget and behind schedule. There is no new thing under the sun.

WINNIPEG REDUX

The Winnipeg convention committee lost their bid for the 2023 SF Worldcon, so they are now trying for the North American convention as a substitute. Here is their latest press release from their website at www.winnipegin2023.ca The announcement is ambiguous as to who is making it, Shea or Fong.

Exploring a NASFiC
Jannie Shea
2022-01-01

Given the strong show of support with the at-con vote at DisCon III, and the encouragement we have received from a plethora of fans, the WInnipeg in 2023 Worldcon Bid Committee has decided to look into bidding for the first ever Canadian NASFiC in Winnipeg, Manitoba.

Leading this exploratory effort will be Robbie Bourget and Linda Ross-Mansfield. We welcome all comments on this. Should anyone be so inclined, we have set up an e-mail to receive comments, nasfic@winnipegin2023.ca

Thank you
Terry Fong
Chair, Winnipeg in 2023 Worldcon bid

CURRENT EVENTS: PART 32
by Dale Speirs

[Parts 1 to 31 appeared in OPUNTIAs #474, 475, 479, 480, 483, 484, 488 to 503, and 507 to 515.]

As of January 13, Canada had 2,684,622 cases of COVID-19, with 31,190 deaths. 77% of the population of 38,000,000 were vaccinated. The case count is low because there are so many Omicron cases that provincial health ministries have stopped counting non-hospital cases.

Seen In The COVID-19 Literature.

Carstensen, N., et al (2021) **'Let communities do their work': the role of mutual aid and self-help groups in the COVID-19 pandemic response.** DISASTERS 45:doi.org/10.1111/disa.12515 (available as a free pdf)

Authors' abstract: *How to respond quickly, effectively, and sensitively to large-scale crises is debated at length in the aid sector. Institutional focuses on projects and outcomes have led to abundant literature on the efficacy of external interventions, while the actions of individuals and communities to meet their own needs remain under researched.*

This paper seeks to close the gap by joining global trends and specific case studies to explore the scale, breadth, and characteristics of citizen and community-led responses to the COVID-19 pandemic of 2020-21. Using mixed methods, it argues that mutual aid, self-help, and other spontaneous community measures were vital to the early response to COVID-19 globally.

Such endeavours have limitations, however, which can be strengthened with the right national and international support. The paper concludes by calling on authorities and aid actors to widen their understanding of 'first response' and provide meaningful support to mutual aid and local self-help initiatives now and in the future.

As governments, media bodies, and other larger entities scrambled to respond, so too did a great many of us individually and collectively across the world. With apprehension spreading fast, many directed the same basic questions towards friends, family members, and work colleagues, face to face and increasingly by telephone, Zoom, and social media.

This early and spontaneous sharing of information (facts, rumours, beliefs, perceptions, and disinformation), confusion, concerns, anxieties, and fears (right, wrong, and everything in between) amounted to a huge global quest for answers.

It was also the first sign of the subsequent outburst of autonomous and immediate mutual aid, self-help, and communal solidarity, which rapidly spread across the planet, often faster than the virus itself.

Groups drew heavily on traditional methods of organising through meetings and word-of-mouth information dissemination, and they capitalised on newer forms of digital communication and social networking, where this was possible.

They filled a vital lacuna as authorities and larger national and international non-governmental organizations reacted more slowly, taking weeks or months to implement programmes.

Crawford, F.W., et al (2022) **Impact of close interpersonal contact on COVID-19 incidence: Evidence from 1 year of mobile device data.** SCIENCE ADVANCES 8:doi.org/10.1126/sciadv.abi5499 (available as a free pdf)

Authors' abstract: *Close contact between people is the primary route for transmission of SARS-CoV-2, the virus that causes coronavirus disease 2019 (COVID-19). We quantified interpersonal contact at the population level using mobile device geolocation data.*

We computed the frequency of contact (within 6 feet) between people in Connecticut during February 2020 to January 2021 and aggregated counts of contact events by area of residence.

When incorporated into a susceptible-exposed-infective-removed-type model of COVID-19 transmission, the contact rate accurately predicted COVID-19 cases in Connecticut towns.

Contact in Connecticut explains the initial wave of infections during March to April, the drop in cases during June to August, local outbreaks during August to September, broad statewide resurgence during September to December, and decline in January 2021.

The transmission model fits COVID-19 transmission dynamics better using the contact rate than other mobility metrics. Contact rate data can help guide social distancing and testing resource allocation.

Lenton, T.M., et al (2022) **Resilience of countries to COVID-19 correlated with trust.** SCIENTIFIC REPORTS 11:doi.org/10.1038/s41598-021-03358-w (available as a free pdf)

Authors' abstract: *One of the big questions in the wake of the COVID-19 pandemic is why some countries seem to have been so much more successful than others in suppressing the waves of infections and deaths. For example, China and Bhutan performed well, whilst India and Myanmar performed poorly.*

Here we explore this issue using well established ecological measures for the response of complex systems to perturbation. In particular, 'resilience' describes the rate of recovery of a system from perturbation back towards a presumed, pre-existing stable state, here zero infection and associated deaths, where rapid recovery equals high resilience.

The dynamics of infectious disease are such that if the basic reproduction number, R0 (the number of secondary infections produced by a single infected individual) exceeds 1, then exponential growth of new cases will result, i.e. an epidemic (although the lag between primary and secondary infection events complicates the relationship between R0 and growth rate of cases).

Estimates that COVID-19 has R0 ~4.5 imply the potential for rapid exponential spread. In natural populations, such explosive spread typically results in an infection spreading throughout a population, until acquired immunity and/or mortality stabilises and ultimately reduces case numbers.

We characterized >150 countries' resilience to COVID-19 as the nationwide decay rate of daily cases or deaths from peak levels. Resilience to COVID-19 varies by a factor of ~40 between countries for cases/capita and ~25 for deaths/capita.

Trust within society is positively correlated with country-level resilience to COVID-19, as is the adaptive increase in stringency of government interventions when epidemic waves occur.

By contrast, countries where governments maintain greater background stringency tend to have lower trust within society and tend to be less resilient.

All countries where >40% agree "most people can be trusted" achieve a near complete reduction of new cases and deaths, but so do several less-trusting societies. As the pandemic progressed, resilience tended to decline, as adaptive increases in stringency also declined.

These results add to evidence that trust can improve resilience to epidemics and other unexpected disruptions, of which COVID-19 is unlikely to be the last.

Keen, David (2021) **Does democracy protect? The United Kingdom, the United States, and COVID-19.** DISASTERS 45:doi.org/:10.1111/disa.12527 (available as a free pdf)

Author's abstract: *The COVID-19 crises in the United Kingdom and the United States show how democracies may struggle to confront disasters that are increasingly impinging on the Global North.*

This paper highlights the extent to which disasters are now 'coming home' to Western democracies and it looks at some of the principal reasons why democracy has not been especially protective, at least in the case of the UK and the US.

These include: reconceptualising disaster as a good thing (via 'herd immunity'); the influence of neoliberalism; and the limitations in the circulation of information. A key pandemic-related danger is the conclusion that democracy itself is discredited.

Disasters, though, call for a reinvigoration of democracy, not a knee-jerk invocation of autocratic 'emergency' rule. A fundamental problem in the UK and US is that these countries were not democratic enough.

Many disasters and emergencies affecting Western democracies have origins in earlier policies (the deregulation of international markets, the 'War on Terror', the relentless pursuit of economic growth, the after-effects of empire).

But rather than changing fundamental policies in response to these manifestations of 'blowback', many leading politicians are busy taking

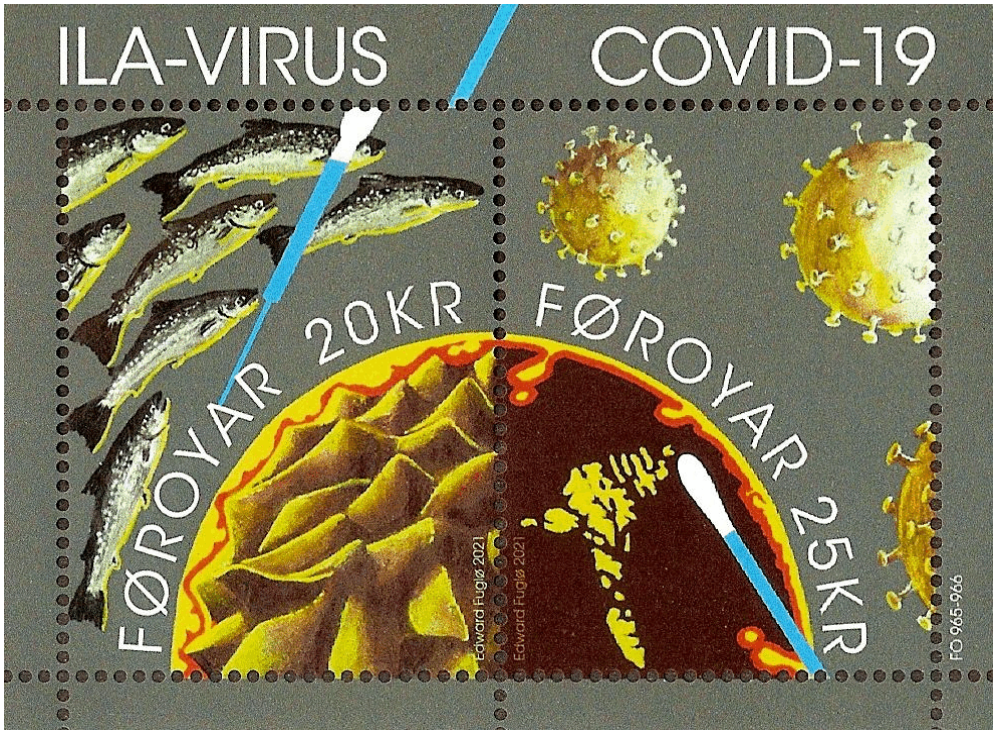
advantage of crises and incorporating blowback into their political and economic strategies.

Part of this is the construction of political capital, and a political constituency, out of a wide-ranging reflex of denial. Another part of it is constructing political capital from suffering.

With humanitarian disasters unfolding among migrants arriving in Europe and North America, their suffering to a large extent reconceptualised as a good thing, appealing at the polls and ostensibly useful in deterring further migration. Meanwhile, the migrants' lack of representation adds to their vulnerability, as do controls on information flows.

Philately.

More additions to my philatelic collection. Stamp images are not to same scale or actual size.



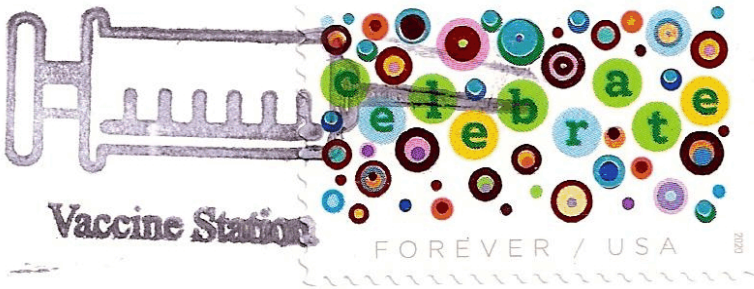
The Faroes Islands are north of Scotland.

Below: It isn't just science fiction fans who are stupid enough to be putting on conventions during the pandemic. Philatelists are staging shows, as the cover below demonstrates.

Omaha Stamp Show 2021

Covid Variants Running Rampant

Omaha NE
Sep 11, 2021
68144



The Omaha Philatelic Society and
The American Philatelic Society say
Fight Covid - Play your part - Be responsible

SEEN IN THE LITERATURE

The Grand Award For Best Research Project Since The New Millennium Began.

Givon, S., and R. Segev (2022) **From fish out of water to new insights on navigation mechanisms in animals.** BEHAVIOURAL BRAIN RESEARCH 419:doi.org/10.1016/j.bbr.2021.113711

Authors' abstract: *We trained goldfish to use a Fish Operated Vehicle (FOV), a wheeled terrestrial platform that reacts to the fish's movement characteristics, location and orientation in its water tank to change the vehicle's; i.e., the water tank's, position in the arena.*

The fish were tasked to "drive" the FOV towards a visual target in the terrestrial environment, which was observable through the walls of the tank, and indeed were able to operate the vehicle, explore the new environment, and reach the target regardless of the starting point, all while avoiding dead-ends and correcting location inaccuracies.

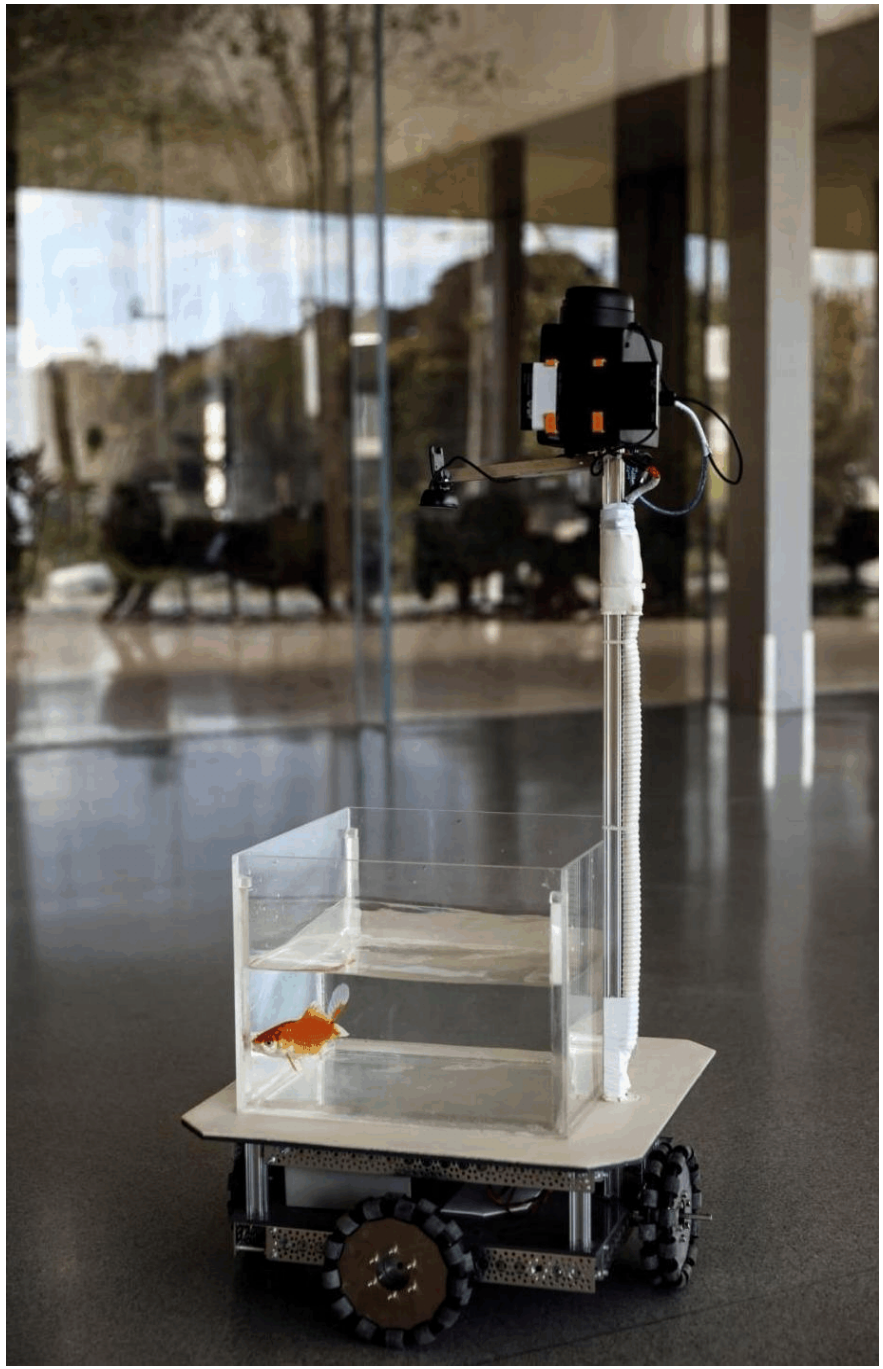
These results demonstrate how a fish was able to transfer its space representation and navigation skills to a wholly different terrestrial environment, thus supporting the hypothesis that the former possess a universal quality that is species-independent.

All the experiments on the goldfish were approved by the Ben-Gurion University of the Negev Institutional Animal Care and Use Committee and were in accordance with the government regulations of the State of Israel. Goldfish (Carassius auratus), 15 to 18 cm in body length, and 80 to 120 g body weight were used in this study. A total of six fish were used for the study, one female, three males and two undetermined.

The FOV was composed of a chassis measuring 40×40×19 cm that housed the platform on which the water tank was placed. Underneath the platform four engines (brushed DC motors) connected to four omni wheels were mounted on 4 sides of the metal skeleton.

A Perspex water tank was placed (35×35×28 cm) on the platform so that the water level reached 15 cm. A relatively shallow water level of 15 cm was selected to reduce surface waves while the FOV was moving.

The fish's control of the vehicle was enabled by streaming the video signal from the camera to the computer which performed segmentation and detection to find the fish's location and orientation in the water tank. If the fish was located near a boundary (i.e., wall) of the water tank while facing outward, the vehicle moved in that direction. If, however, it was facing inward, no motion occurred.



Astronomy.

Gal-Yam, A., et al (2022) **A WC/WO star exploding within an expanding carbon-oxygen-neon nebula.** NATURE 601:201-204

Authors' abstract: *The final fate of massive stars, and the nature of the compact remnants they leave behind (black holes and neutron stars), are open questions in astrophysics. Many massive stars are stripped of their outer hydrogen envelopes as they evolve.*

Such Wolf-Rayet stars emit strong and rapidly expanding winds with speeds greater than 1,000 kilometres per second. A fraction of this population is also helium-depleted, with spectra dominated by highly ionized emission lines of carbon and oxygen (types WC/WO).

Evidence indicates that the most commonly observed supernova explosions that lack hydrogen and helium (types Ib/Ic) cannot result from massive WC/WO stars, leading some to suggest that most such stars collapse directly into black holes without a visible supernova explosion.

Here we report observations of SN 2019hgp, beginning about a day after the explosion. Its short rise time and rapid decline place it among an emerging population of rapidly evolving transients.

Spectroscopy reveals a rich set of emission lines indicating that the explosion occurred within a nebula composed of carbon, oxygen and neon.

Narrow absorption features show that this material is expanding at high velocities (greater than 1,500 kilometres per second), requiring a compact progenitor. Our observations are consistent with an explosion of a massive WC/WO star, and suggest that massive Wolf-Rayet stars may be the progenitors of some rapidly evolving transients.

Roussos, E., et al (2022) **A source of very energetic oxygen located in Jupiter's inner radiation belts.** SCIENCE ADVANCES 8:doi.org/10.1126/sciadv.abm4234 (available as a free pdf)

Authors' abstract: *Jupiter hosts the most hazardous radiation belts of our solar system that, besides electrons and protons, trap an undetermined mix of heavy ions. The details of this mix are critical to resolve because they can reveal the role of Jupiter's moons relative to other less explored energetic ion sources.*

Here, we show that with increasing energy and in the vicinity of Jupiter's moon Amalthea, the belts' ion composition transitions from sulfur- to oxygen-dominated due to a local source of ?50 MeV/nucleon oxygen.

Contrary to Earth's and Saturn's radiation belts, where their most energetic ions are supplied through atmospheric and ring interactions with externally accelerated cosmic rays, Jupiter's magnetosphere powers this oxygen source internally.

The underlying source mechanism, involving either Jovian ring spallation by magnetospheric sulfur or stochastic oxygen heating by low-frequency plasma waves, puts Jupiter's ion radiation belt in the same league with that of astrophysical particle accelerators.

The Origin Of Life.

Bromberg, Y., et al (2022) **Quantifying structural relationships of metal-binding sites suggests origins of biological electron transfer.** SCIENCE ADVANCES 8:doi.org/10.1126/sciadv.abj3984 (available as a free pdf)

[Redox is the transfer of electrons from one atom to another. The atom receiving the electrons is said to be reduced and the atom giving up the electrons is oxidized. Redox is the basis for all life, as it is the transfer of electrons that provides energy for cells to operate.]

[Photosynthesis injects energy into carbon-based molecules. Cells in the plant, or in the animals that eat them, or in the animals that eat the animals, then extract the energy from the molecules via redox.]

[Ligands are atoms or molecules that attach to a metal atom or a larger molecule. Peptides are two or more amino acids linked to gether in a chain. They can be independent or form building blocks for proteins. Ligands and peptides form into biological molecules such as enzymes or proteins.]

Authors' abstract: *Biological redox reactions drive planetary biogeochemical cycles. Using a novel, structure-guided sequence analysis of proteins, we explored the patterns of evolution of enzymes responsible for these reactions.*

Our analysis reveals that the folds that bind transition metal-containing ligands have similar structural geometry and amino acid sequences across the full diversity of proteins. Similarity across folds reflects the availability of key transition metals over geological time and strongly suggests that transition metal-ligand binding had a small number of common peptide origins.

We observe that structures central to our similarity network come primarily from oxidoreductases, suggesting that ancestral peptides may have also facilitated electron transfer reactions. Last, our results reveal that the earliest biologically functional peptides were likely available before the assembly of fully functional protein domains over 3.8 billion years ago.

Peng, H., et al (2022) **Vesicle encapsulation stabilizes intermolecular association and structure formation of functional RNA and DNA.** CURRENT BIOLOGY 32:doi.org/10.1016/j.cub.2021.10.047 (available as a free pdf)

[Not yet settled about the origin of life is whether RNA developed first and began producing proteins (RNA World) or if proteins developed first and then used nucleotides to create RNA to act as templates (Protein World). The matter is undecided because all origin scenarios produce both amino acids (the building blocks of proteins) and nucleotides (the building blocks of RNA). DNA is well established as a derivative of RNA and therefore not part of the origin of life.]

Authors' abstract: *During the origin of life, encapsulation of RNA inside vesicles is believed to have been a defining feature of the earliest cells (protocells).*

The confined biophysical environment provided by membrane encapsulation differs from that of bulk solution and has been shown to increase activity as well as evolutionary rate for functional RNA. However, the structural basis of the effect on RNA has not been clear.

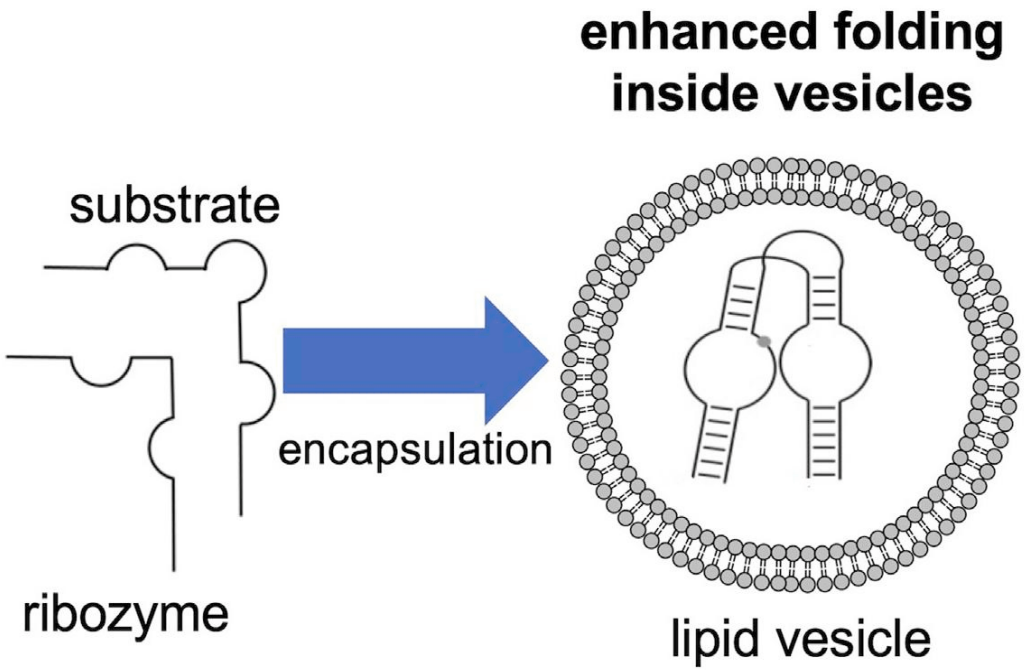
Here, we studied how encapsulation of the hairpin ribozyme inside model protocells affects ribozyme kinetics, ribozyme folding into the active conformation, and cleavage and ligation activities. We further examined the effect of encapsulation on the folding of a stem-loop RNA structure and on the formation of a triplex structure in a pH-sensitive DNA switch.

The results indicate that encapsulation promotes RNA-RNA association, both intermolecular and intramolecular, and also stabilizes tertiary folding, including the docked conformation characteristic of the active hairpin ribozyme and the triplex structure. The effects of encapsulation were sufficient to rescue the activity of folding-deficient mutants of the hairpin ribozyme.

Stabilization of multiple modes of nucleic acid folding and interaction thus enhanced the activity of encapsulated nucleic acids. Increased association between RNA molecules may facilitate the formation of more complex structures and cooperative interactions.

These effects could promote the emergence of biological functions in an ''RNA world'' and may have utility in the construction of minimal synthetic cells.

[Images are from this paper.]



Banerjee, A., et al (2022) **On the oxygenation of the Archaean and Proterozoic oceans.** GEOLOGICAL MAGAZINE 59:doi.org/10.1017/S0016756820001363 (available as a free pdf)

Authors' abstract: *Modern-day ocean circulation behaves as a complex forced convective system that is characterized by the decrease in water temperature but increase in water density with depth. The dissolved oxygen content, which initially decreases due to biological oxygen demand, also increases with depth.*

In contrast to the present-day scenario, we propose that during the Archaean and Proterozoic eons inverted profiles could have developed such that, with depth, ocean water temperature increased and density and dissolved oxygen decreased. These inverted temperature and density profiles resulted in palaeo-ocean circulation behaving as a free convective system.

It is proposed that this free convection, which may have been stable, or chaotic and subject to secondary instabilities, hindered the deep oxygenation of the palaeoocean.

It may not be coincidental that the great oxygenation event (GOE) and Huronian glaciations are contemporaneous, in a similar way that the Neoproterozoic oxygenation event (NOE) is known to have been associated with glaciations.

The global-scale external forcing required to switch the natural convective system to its present-day configuration is suggested to have been associated with Neoproterozoic glaciations and the subsequent lowering of ocean water salinity that accompanied them.

We propose that this inverted the ocean water density gradient, allowing the oxygenation of the oceans for the first time. It is beyond the scope of this work to model the complex natural convection system, but we hope that geophysicists and numerical modellers will quantitatively evaluate the hypothesis proposed here to validate or refute our proposition.

Sowakiewicz, M., et al (2022) **Sinuous stromatolites of the Chandi Formation, Chattisgarh Basin, India: their origin and implications for Mesoproterozoic seawater.** GEOLOGICAL MAGAZINE 159:doi.org/10.1017/S0016756821000674

[Stromatolites are Earth's most ancient life forms and grew in mats just below the water surface of oceans. They were mostly wiped out when herbivorous life forms developed, but still exist even today in a few places such as Shark Bay, Australia, where hypersaline and dryness at low tide exclude herbivores.]

[Fossil stromatolites are common around the world. For the first billion years of life, stromatolites were the only species. They are algae and helped create Earth's oxygen atmosphere.]

Authors' abstract: *Remnants of some of the planet's most ancient life forms, stromatolites in the late Mesoproterozoic sea of the Chattisgarh Basin, India, preserve a conspicuous sinuous pattern.*

They occur as successive biostromes, 10 to 30 cm thick, separated by 2 to 5-cm-thick marly layers and discrete bioherms up to several metres thick and 20 m across.

Stromatolite columns in the Chandi Formation are 5 to 10 cm high, sinuous, inclined and straight, with both branched and non-branched types. These stromatolites are composed of calcite micrite and show well defined light and dark laminae with evidence of erosion between lamina sets.

The column sinuosity probably originated as a response to changes in direction and strength of currents. Successive flat beds of stromatolite (biostromes), separated by marl/clay horizons, impart a rhythmic pattern to the succession.

The Chandi sinuous stromatolite columns resemble those occurring in China, North America and Siberia, of a comparable age, suggesting that similar marine conditions of stromatolite formation might have been operating in the late Mesoproterozoic seas worldwide.

However, the petrographic and sedimentological analyses of these stromatolites indicate their development through in situ production of carbonate with some trapping and binding of detrital sediment.

As a result of the presence of terrigenous material [sediments washed in from the land] *within the stromatolites, whole-rock geochemical analyses for trace elements and rare earth elements cannot be used for interpretation of seawater chemistry and the redox conditions at the time.*

Palaeobiology.

Beaufort, L., et al (2022) **Cyclic evolution of phytoplankton forced by changes in tropical seasonality.** NATURE 601:79-84

[Phytoplankton are single-celled floating algae which form the bottom of the food chain in oceans. They actually generate more oxygen than land plants.]

Authors' abstract: *Although the role of Earth's orbital variations in driving global climate cycles has long been recognized, their effect on evolution is hitherto unknown.*

The fossil remains of coccolithophores, a key calcifying phytoplankton group, enable a detailed assessment of the effect of cyclic orbital-scale climate changes on evolution because of their abundance in marine sediments and the preservation of their morphological adaptation to the changing environment.

Evolutionary genetic analyses have linked broad changes in Pleistocene fossil coccolith morphology to species radiation events. Here, using high-resolution coccolith data, we show that during the last 2.8 million years the morphological evolution of coccolithophores was forced by Earth's orbital eccentricity with rhythms of around 100,000 years and 405,000 years, a distinct spectral signature to that of coeval global climate cycles.

Simulations with an Earth System Model coupled with an ocean biogeochemical model show a strong eccentricity modulation of the seasonal cycle, which we suggest directly affects the diversity of ecological niches that occur over the annual cycle in the tropical ocean.

Reduced seasonality in surface ocean conditions favours species with mid-size coccoliths, increasing coccolith carbonate export and burial; whereas enhanced seasonality favours a larger range of coccolith sizes and reduced carbonate export.

We posit that eccentricity pacing of phytoplankton evolution contributed to the strong 405,000-year cyclicity that is seen in global carbon cycle records.

MacIver, M.A., and B.L. Finlay (2021) **The neuroecology of the water-to-land transition and the evolution of the vertebrate brain.** PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY OF LONDON 377B:doi.org/10.1098/rstb.2020.0523 (available as a free pdf)

Authors' abstract: *The water-to-land transition in vertebrate evolution offers an unusual opportunity to consider computational affordances of a new ecology for the brain.*

All sensory modalities are changed, particularly a greatly enlarged visual sensorium owing to air versus water as a medium, and expanded by mobile eyes and neck. The multiplication of limbs, as evolved to exploit aspects of life on land, is a comparable computational challenge.

As the total mass of living organisms on land is a hundredfold larger than the mass underwater, computational improvements promise great rewards. In water, the midbrain tectum coordinates approach/avoid decisions, contextualized by water flow and by the animal's body state and learning.

On land, the relative motions of sensory surfaces and effectors must be resolved, adding on computational architectures from the dorsal pallium, such as the parietal cortex.

For the large-brained and long-living denizens of land, making the right decision when the wrong one means death may be the basis of planning, which allows animals to learn from hypothetical experience before enactment.

Integration of value-weighted, memorized panoramas in basal ganglia/frontal cortex circuitry, with allocentric cognitive maps of the hippocampus and its associated cortices becomes a cognitive habit-to-plan transition as substantial as the change in ecology.

McCurry, M.R., et al (2022) **A Lagerstätte from Australia provides insight into the nature of Miocene mesic ecosystems.** SCIENCE ADVANCES 8:doi.org/10.1126/sciadv.abm1406 (available as a free pdf)

[The Miocene era was from 23 to 5.33 megayears ago.]

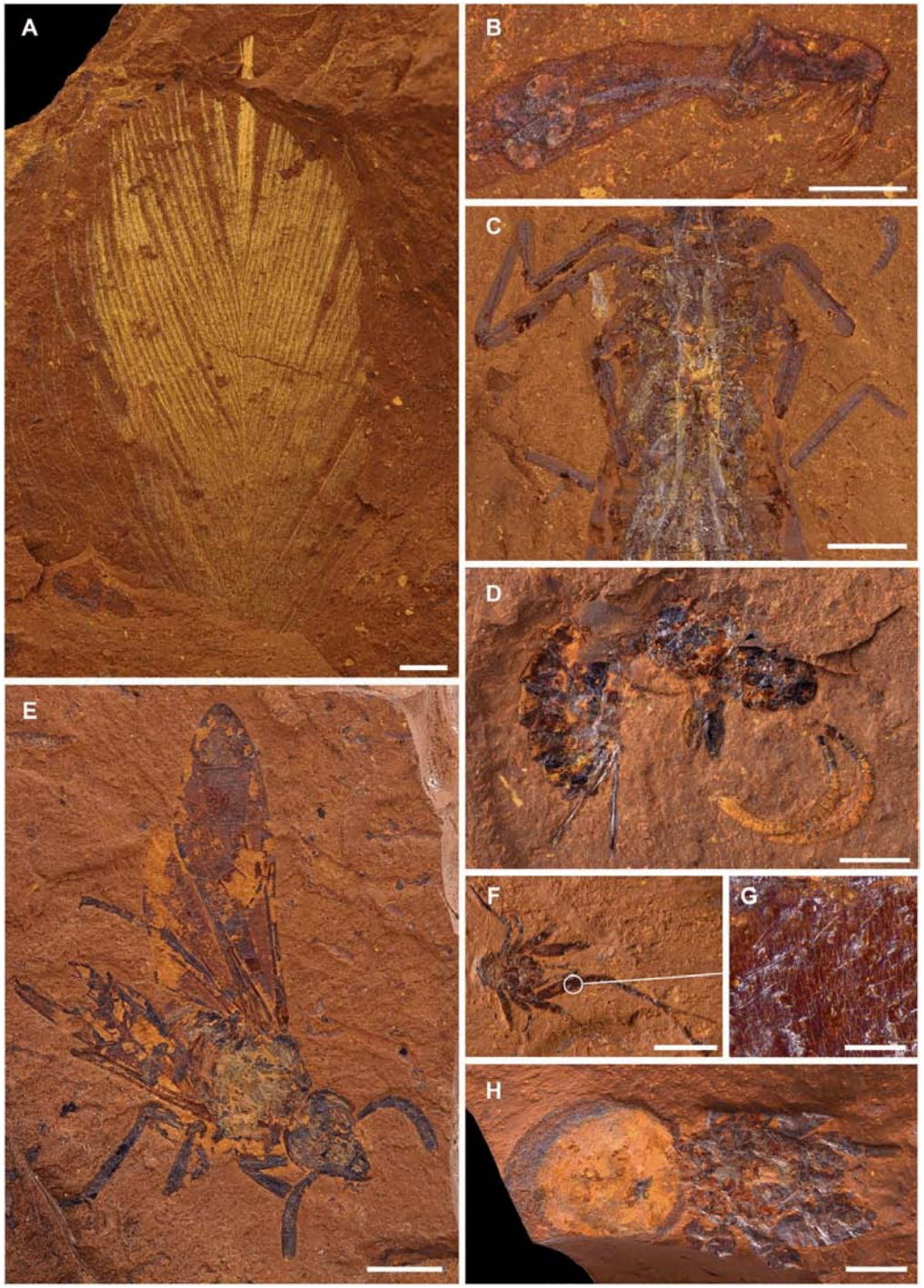
Authors' abstract: *Reduced precipitation in the Miocene triggered the geographic contraction of rainforest ecosystems around the world. In Australia, this change was particularly pronounced. Mesic rainforest ecosystems that once dominated the landscape transformed into the shrublands, grasslands, and deserts of today.*

A lack of well-preserved fossils has made it difficult to understand the nature of Australian ecosystems before the aridification. Here, we report on an exceptionally well-preserved rainforest biota from New South Wales, Australia. This Konservat-Lagerstätte hosts a rich diversity of microfossils, plants, insects, spiders, and vertebrate remains preserved in goethite.

We document evidence for several species interactions including predation, parasitism, and pollination. The fossils are indicative of an oxbow lake in a mesic rainforest and suggest that rainforest distributions have shifted since the Miocene.

The variety of fossils preserved, together with high fidelity of preservation, allows for unprecedented insights into the mesic ecosystems that dominated Australia during the Miocene.

[Images are from this paper.
(A) Feather
(B) larvae of phantom midge (Chaoborus sp.: Chaoboridae, Diptera)
(C) dragonfly naiad
(D) parasitoid wasp
(E) sawfly (Tenthredinoidea: Symphyta)
(F) tangle web spider (Theridiidae)
(G) close-up of setae on spider [setae are sensory leg hairs that pick up vibrations]
(H) mygalomorph spider (Mygalomorphae).
Scale bars, 100 micrometres (G), 750 ?m (B), 1 mm (A and D), 2 mm (E), 2.5 mm (C and F), and 5 mm (H).]



Botany.

Fornasiero, A., et al (2022) **Rice domestication.** CURRENT BIOLOGY 32:R20-R24 (available as a free pdf)

Authors' abstract: *Asian cultivated rice (Oryza sativa; is a semi-aquatic annual grass that can be grown across a wide breadth of agricultural ecosystems, from deeply flooded land to dry, hilly slopes.*

Historically, O. sativa has been divided into two major subspecies or varietal groups: japonica (or geng, 'sticky' rice found in temperate East Asia, upland areas of Southeast Asia, and high elevations in South Asia), and indica (or xian, 'non-sticky' lowland rice grown throughout tropical Asia). In addition to Asian rice, the genus Oryza contains one additional domesticated species: African rice (Oryza glaberrima.

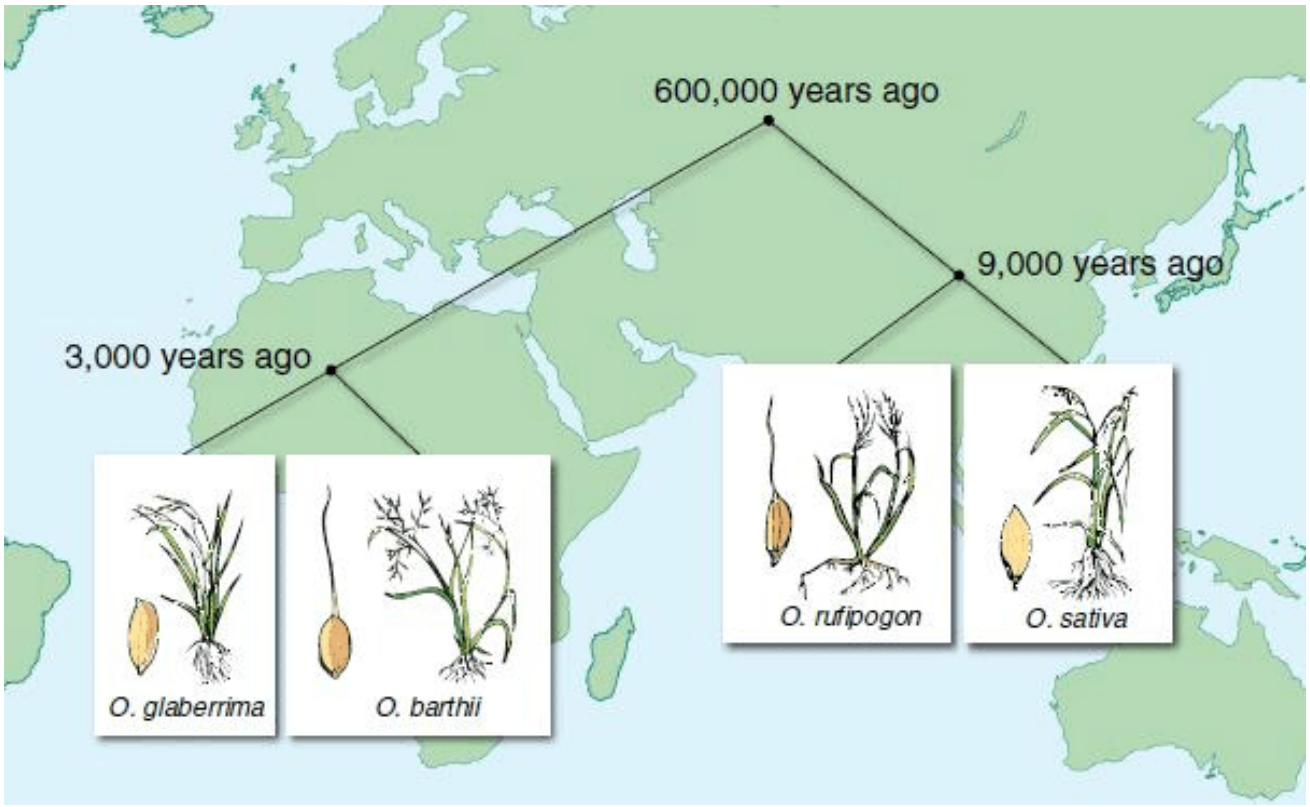
Asian cultivated rice was domesticated from the wild rice species Oryza rufi pogon. The domestication process began around 9,000 years ago in China, possibly in the Yangtze valley.

There, early communities selected for rice plants with beneficial traits, such as enhanced seed/fruit size, better flavor, and resistance to diseases, pests, and environmental stresses. The saving of selected O. rufi pogon seed and subsequent cultivation led to the evolution of progenitors of japonica varieties.

These early japonica cultivars were subsequently spread southward and eastwards in Asia, and crossed with local populations of O. rufi pogon. Recurrent rounds of crossing and selection led to the introduction of critical genes that control key domestication traits into the genome of precursors of indica varieties.

One of the most important of these traits is the loss of the seed shattering habit, which increases the number of seeds that the plant retains, allowing farmers to more easily harvest the grain.

[Image is from this paper.]



Firmin, A., et al (2022) **Mixotrophy in aquatic plants, an overlooked ability.** TRENDS IN PLANT SCIENCE 27:doi.org/10.1016/j.tplants.2021.08.011 (available as a free pdf)

[Embryophytes are seed plants. 'troph' means to eat or use as nutrition. Plants are normally autotrophs, meaning they get their carbon from photosynthesis. Carnivorous plants are mixotrophs, meaning they get additional carbon by snapping up animals. As this paper demonstrates, aquatic plants, while not carnivorous, absorb and use carbon dissolved in the water from animals and ingest microbes.]

Authors' abstract: *Aquatic embryophytes play a key role in the proper functioning of aquatic ecosystems, where carbon (inorganic and organic forms) is pivotal in biogeochemical processes. There is growing awareness that mixotrophy, the direct use of exogenous organic carbon by autotrophs, is a widespread phenomenon and that it has emerged recurrently in the evolution of many autotrophic lineages.*

Despite living in an environment providing organic matter and presenting many favourable predispositions, aquatic plants from the embryophytes, except carnivorous ones, have never been deeply investigated for mixotrophy.

Here, we address the possibility that aquatic plants may exhibit mixotrophy, a prospect overlooked by research until now, and that this may be much more widespread than imagined under the conventional paradigm of plants considered as strict autotrophs.

Altman, A., et al (2022) **Ornamental plant domestication by aesthetics-driven human cultural niche construction.** TRENDS IN PLANT SCIENCE 27:doi.org/10.1016/j.tplants.2021.09.004 (available as a free pdf)

Authors' abstract: *Unlike plants that were domesticated to secure food, the domestication and breeding of ornamental plants are driven by aesthetic values. Here, we examine the major elements of the extended evolutionary synthesis (EES) theory that bridges the gap between the biology of ornamental plant domestication and the sociocultural motivations behind it.*

We propose that it involves specific elements of cumulative cultural evolution (CCE), plant gene-human culture coevolution, and niche construction. Moreover, ornamental plant domestication represents an aesthetics-driven dimension of human niche construction that coevolved with socioeconomic changes and the adoption of new scientific technologies.

Initially functioning as symbolic and aesthetic assets, ornamental plants became globally marketed material commodities as a result of the co-dependence of human CCE and prestige-competition motivations.

The evolutionary history of flowering plants extends across ca. 125 million years. During this time, an intricate and variable assortment of more than 400,000 different plant species has developed.

It is estimated that a total of 2,500 plant species have undergone domestication worldwide, and only a small fraction of these (200 to 250 species) have been domesticated as sources of food.

A few plant species were domesticated for construction timber and firewood, for the paper industry, and for fibers and weaving. However, there are in fact more ornamental plant species cultivated today than all other agricultural and horticultural crops for food combined.

Ornamental plants were domesticated for their ornamental and 'showy' characteristics, for gardening, indoor decoration, and as cut flowers, including an increasing number of species that have been domesticated only recently.

Ecology.

Green, D.S., et al (2022) **The ecological impacts of discarded cigarette butts.** TRENDS IN ECOLOGY AND EVOLUTION 37:doi.org/10.1016/j.tree.2021.10.001

Authors' abstract: *Littered cigarette butts are increasingly recognised as a unique and pressing ecotoxicological challenge. Since 2006, over 35 investigations have been made of the impacts of cigarette butts on aquatic and terrestrial life.*

Lethal impacts appear to be the most pronounced in aquatic systems, but less than a third of studies have examined effects in terrestrial biota.

The majority (~80%) of studies have used cigarette butt leachate as opposed to the more environmentally realistic scenario of whole cigarette butts. Research on the impact of biodegradable cigarette butts is limited but suggests that they also pose a risk to the environment.

Few studies have examined the wider ecological impacts of cigarette butts on population levels or species diversity, and there have been no studies on ecosystem functioning.

Cigarette butts, one of the most littered items globally, present a unique challenge to ecosystems due to their ubiquity, persistence, and potential for harm.

Research on the impacts on terrestrial life is lagging behind. Cigarette butts can affect the growth, behaviour, and reproductive output of individual organisms in all three habitats, but research on wider effects on biodiversity and ecosystem functioning is lacking.

Serk, H., et al (2022) **Global CO_2 fertilization of *Sphagnum* peat mosses via suppression of photorespiration during the twentieth century.** SCIENTIFIC REPORTS 11:doi.org/10.1038/s41598-021-02953-1 (available as a free pdf)

[Photorespiration is the reverse of photosynthesis in that it consumes oxygen and produces CO_2. The reasons are complicated and usually occur under extreme environmental conditions.]

[Because peat does not decay, and indeed is the first step to coal via lignite, it effectively removes carbon from the environment and stores it below ground.]

Authors' abstract: *Natural peatlands contribute significantly to global carbon sequestration and storage of biomass, most of which derives from Sphagnum peat mosses.*

Atmospheric CO_2 levels have increased dramatically during the twentieth century, from 280 to >400 ppm, which has affected plant carbon dynamics. Net carbon assimilation is strongly reduced by photorespiration, a process that depends on the CO_2 to O_2 ratio.

Here we investigate the response of the photorespiration to photosynthesis ratio in Sphagnum mosses to recent CO_2 increases by comparing deuterium isotopomers of historical and contemporary Sphagnum tissues collected from 36 peat cores from five continents.

Rising CO_2 levels generally suppressed photorespiration relative to photosynthesis but the magnitude of suppression depended on the current water table depth. By estimating the changes in water table depth, temperature, and precipitation during the twentieth century, we excluded potential effects of these climate parameters on the observed isotopomer responses.

Further, we showed that the photorespiration to photosynthesis ratio varied between Sphagnum subgenera, indicating differences in their photosynthetic capacity.

The global suppression of photorespiration in Sphagnum suggests an increased net primary production potential in response to the ongoing rise in atmospheric CO_2, in particular for mire structures with intermediate water table depths.

Zoology.

Zancolli, G., et al (2022) **Convergent evolution of venom gland transcriptomes across Metazoa.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 119:doi.org/10.1073/pnas.2111392119

Authors' abstract: *On more than 100 occasions, animals have independently evolved the ability to produce and deliver potent secretions to subdue prey or predators: venom. This prompts the following question: Have animals repeatedly adopted the same genetic toolkit for venom production?*

In this study, we found, surprisingly, that the venom glands of different animal lineages had similar global gene expression patterns. Notably, groups of genes involved in protein secretion, and especially stress response pathways, had similar expression levels, revealing that many animals have come up with the same solution independently.

On the other hand, signaling and regulatory networks had lineage-specific patterns, suggesting that the way in which cells are regulated and communicate might reflect the diverse developmental origins of venom systems.

Here, we performed a comparative analysis of venom gland transcriptomes from 20 venomous species spanning the main Metazoan lineages to test whether different animals have independently adopted similar molecular mechanisms to perform the same function.

We found a strong convergence in gene expression profiles, with venom glands being more similar to each other than to any other tissue from the same species, and their differences closely mirroring the species phylogeny. Although venom glands secrete some of the fastest evolving molecules (toxins), their gene expression does not evolve faster than evolutionarily older tissues.

We found 15 venom gland-specific gene modules enriched in endoplasmic reticulum stress and unfolded protein response pathways, indicating that animals have independently adopted stress response mechanisms to cope with mass production of toxins.

This, in turn, activates regulatory networks for epithelial development, cell turnover, and maintenance, which seem composed of both convergent and lineage-specific factors, possibly reflecting the different developmental origins of venom glands.

Ogden, L.E. (2022) **The emergence of eDNA.** BIOSCIENCE 72:doi.org/10.1093/biosci/biab120 (available as a free pdf)

Author's extract: *The use of environmental DNA (eDNA) is growing across biological fields, from ecology and conservation to fisheries, environmental engineering, and public health.*

As an analysis technique, eDNA (or eRNA for viruses) capitalizes on the idea that every individual of each species leaves behind genetic traces of itself in its environment. As organisms move through time and space, they excrete urine and feces; shed tiny fragments of skin, hair, fur, feathers, slime, or mucus; deposit eggs, sperm, pollen, or seeds; and after death, leave behind scraps of decomposed tissues.

These traces can be sampled, with bits of DNA extracted and sequenced, using primers to amplify sections of interest or performing bulk analyses of pooled material using techniques known as metabarcoding and metagenomics.

Brennan, P.L.R., et al (2022) **Evidence of a functional clitoris in dolphins.** CURRENT BIOLOGY 32:R24-R26 (available as a free pdf)

Authors' extract: *In species that copulate during nonconceptive periods, such as humans and bonobos, sexual intercourse is known to be pleasurable for females.*

Dolphins also copulate throughout the year, largely to establish and maintain social bonds. In dolphins, the clitoris is positioned in the anterior aspect of the vaginal entrance, where physical contact and stimulation during copulation is likely.

Clitoral stimulation seems to be important during female-female sexual interactions in common bottlenose dolphins (Tursiops truncatus), which rub each other's clitorises using snouts, flippers, or flukes.

Determining a sexual pleasure response in animals not amenable to neurobehavioral examination is difficult, but investigation of the clitoris may elucidate evidence of functionality.

In this study, we assessed macro- and micromorphological features of the clitoris in common bottlenose dolphins to examine functional features, including erectile bodies with lacunae, extensible collagen and/or elastin fibers, and the presence and location of sensory nerves.

Our observations suggest the clitoris of dolphins has well-developed erectile spaces, is highly sensitive to tactile stimulation, and is likely functional.

Human Prehistory.

Massilani, D., et al (2022) **Microstratigraphic preservation of ancient faunal and hominin DNA in Pleistocene cave sediments.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 119:10.1073/pnas.2113666118 (available as a free pdf)

Authors' abstract: *DNA preserved in sediments has emerged as an important source of information about past ecosystems, independent of the discovery of skeletal remains.*

However, little is known about the sources of sediment DNA, the factors affecting its long-term preservation, and the extent to which it may be translocated after deposition.

Here, we show that impregnated blocks of intact sediment are excellent archives of DNA. DNA distribution is highly heterogeneous at the microscale in the cave sediment we studied, suggesting that post-depositional movement of DNA is unlikely to be a common phenomenon in cases where the stratigraphy is undisturbed.

Combining micromorphological analysis with microstratigraphic retrieval of ancient DNA therefore allows genetic information to be associated with the detailed archaeological and ecological record preserved in sediments.

Ancient DNA recovered from Pleistocene sediments represents a rich resource for the study of past hominin and environmental diversity. However, little is known about how DNA is preserved in sediments and the extent to which it may be translocated between archaeological strata.

Here, we investigate DNA preservation in 47 blocks of resin-impregnated archaeological sediment collected over the last four decades for micromorphological analyses at 13 prehistoric sites in Europe, Asia, Africa, and North America and show that such blocks can preserve DNA of hominins and other mammals.

Extensive microsampling of sediment blocks from Denisova Cave in the Altai Mountains reveals that the taxonomic composition of mammalian DNA differs drastically at the millimeter-scale and that DNA is concentrated in small particles, especially in fragments of bone and feces (coprolites), suggesting that these are substantial sources of DNA in sediments.

Three microsamples taken in close proximity in one of the blocks yielded Neanderthal DNA from at least two male individuals closely related to Denisova 5, a Neanderthal toe bone previously recovered from the same layer.

Brown, S., et al (2022) **The earliest Denisovans and their cultural adaptation.** NATURE ECOLOGY AND EVOLUTION 6:28-35

[Denisovans were related between Neanderthals and modern humans. They lived across northern Asia and down into the southeast Asian area.]

Authors' abstract: *Since the initial identification of the Denisovans a decade ago, only a handful of their physical remains have been discovered. Here we analysed ~3,800 non-diagnostic bone fragments using collagen peptide mass fingerprinting to locate new hominin remains from Denisova Cave (Siberia, Russia).*

We identified five new hominin bones, four of which contained sufficient DNA for mitochondrial analysis. Three carry mitochondrial DNA of the Denisovan type and one was found to carry mtDNA of the Neanderthal type.

The former come from the same archaeological layer near the base of the cave's sequence and are the oldest securely dated evidence of Denisovans at 200 ka (thousand years ago) (205 to 192 ka at 68.2% or 217 to 187 ka at 95% probability).

The stratigraphic context in which they were located contains a wealth of archaeological material in the form of lithics and faunal remains, allowing us to determine the material culture associated with these early hominins and explore their behavioural and environmental adaptations.

The combination of bone collagen fingerprinting and genetic analyses has so far more-than-doubled the number of hominin bones at Denisova Cave and has expanded our understanding of Denisovan and Neanderthal interactions, as well as their archaeological signatures.

Miller, J.M., and Y.V. Wang (2022) **Ostrich eggshell beads reveal 50,000-year-old social network in Africa.** NATURE 601:doi.org/10.1038/s41586-021-04227-2 (available as a free pdf)

Authors' abstract: *Humans evolved in a patchwork of semi-connected populations across Africa. Understanding when and how these groups connected is critical to interpreting our present-day biological and cultural diversity.*

Genetic analyses reveal that eastern and southern African lineages diverged sometime in the Pleistocene epoch, approximately 350 to 70 thousand years ago (ka). However, little is known about the exact timing of these interactions, the cultural context of these exchanges, or the mechanisms that drove their separation.

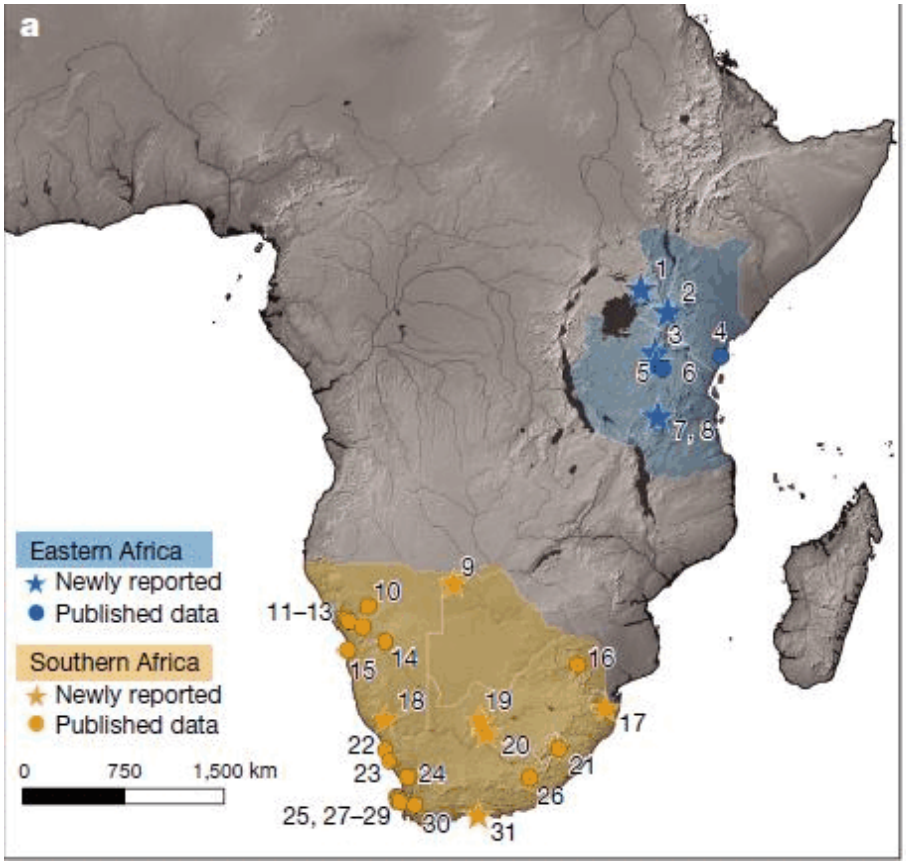
Here we compare ostrich eggshell bead variations between eastern and southern Africa to explore population dynamics over the past 50,000 years. We found that ostrich eggshell bead technology probably originated in eastern Africa and spread southward approximately 50 to 33 ka via a regional network.

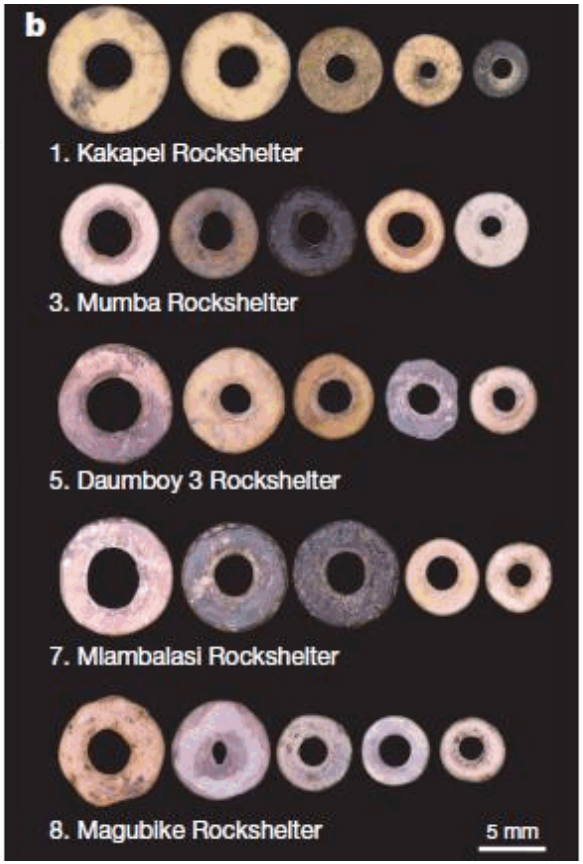
This connection breaks down approximately 33 ka, with populations remaining isolated until herders entered southern Africa after 2 ka. The timing of this disconnection broadly corresponds with the southward shift of the Intertropical Convergence Zone, which caused periodic flooding of the Zambezi River catchment (an area that connects eastern and southern Africa).

This suggests that climate exerted some influence in shaping human social contact. Our study implies a later regional divergence than predicted by genetic analyses, identifies an approximately 3,000-kilometre stylistic connection, and offers important new insights into the social dimension of ancient interactions.

The metapopulation model suggests that anatomical modernity and behavioural complexity arose within a pan-African patchwork of populations who experienced pulses of connection and isolation, possibly in response to environmental circumstances.

Research into these shifting connections is increasingly derived from DNA and ancient DNA analyses, which reveal that present-day African hunter-gatherer populations diverged into regional lineages sometime in the Pleistocene, including a deep division between southern and eastern groups approximately 350 to 70 ka.





Beginning in Marine Isotope Stage 3 (approximately 57 ka), African populations underwent substantial social reorganization. Numerous advancements appear around this time, but an important new feature is the manufacture of beads.

The systematic production of beads is a considerable labour investment, and signals the increasing scale and importance of social interactions in Marine Isotope Stage 3, perhaps relating to the growing population size and social systems evident around this time.

These societal reforms signal that the African Late Pleistocene is a crucial period for understanding the development of complex social networks. Ostrich eggshell (OES) beads are the oldest fully manufactured beads and could be key to revealing Late Pleistocene social dynamics in Africa. They emerged in eastern Africa by 52 ka, in southern Africa by 42 ka, and are still produced in some areas today.

Modern ethnographic research in Africa indicates that a finished piece of OES beadwork (for example, a beaded skirt) carries symbolic meaning. However, individual beads can also preserve social information, as every step in their production is a deliberate choice that intensifies morphological differences.

These manufacturing decisions are cultural norms that are commonly shared between neighbouring groups, while long distances reduce transmission opportunities leading to cultural variation or drift. Therefore, the characteristics of OES beads can be used as a means to reconstruct population interaction.

Previous studies linked the introduction of herding into southern Africa (approximately 2 ka) with the appearance of larger-diameter OES beads, indicating possible connections with eastern African populations, as supported by archaeological and genetic evidence.

[Images are from this paper.]

Bennett, E.A., et al (2022) **The genetic identity of the earliest human-made hybrid animals, the kungas of Syro-Mesopotamia.** SCIENCE ADVANCES 6:doi.org/10.1126/sciadv.abm0218 (available as a free pdf)

Authors' abstract: *In the third millennium BCE, urbanized, socially stratified, and literate societies appeared for the first time in Syria and northern Mesopotamia.*

Part of this "second act" of the urban revolution was the breeding and employment of an equid of high status and prestige designated a "kunga". The precise taxonomical determination of the kunga and its identification in the archaeological record have been uncertain until now.

Before the introduction of domestic horses in Mesopotamia in the late third millennium BCE, contemporary cuneiform tablets and seals document intentional breeding of highly valued equids called kungas for use in diplomacy, ceremony, and warfare.

Their precise zoological classification, however, has never been conclusively determined. Morphometric analysis of equids uncovered in rich Early Bronze Age burials at Umm el-Marra, Syria, placed them beyond the ranges reported for other known equid species.

We sequenced the genomes of one of these ~4500-year-old equids, together with an ~11,000-year-old Syrian wild ass (hemippe) from Göbekli Tepe and two of the last surviving hemippes.

We conclude that kungas were F1 hybrids between female domestic donkeys and male hemippes, thus documenting the earliest evidence of hybrid animal breeding.

Sahoglu, V., et al (2022) **Volcanic ash, victims, and tsunami debris from the Late Bronze Age Thera eruption discovered at Cesme-Baglararasi (Turkey).** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 119:doi.org/10.1073/pnas.2114213118 (available as a free pdf)

Authors' abstract: *Our study presents physical evidence that very large, damaging tsunamis arrived even in the northern Aegean, an area previously*

assumed to be affected only by ash fallout. The tsunami deposits at Cesme-Baglararasi contain the first victims (human and dog) ever identified related to the eruption and its immediate consequences.

The Late Bronze Age Thera eruption was one of the largest natural disasters witnessed in human history. Its impact, consequences, and timing have dominated the discourse of ancient Mediterranean studies for nearly a century.

Despite the eruption's high intensity (Volcanic Explosivity Index 7; Dense Rock Equivalent of 78 to 86 km) and tsunami-generating capabilities, few tsunami deposits are reported.

In contrast, descriptions of pumice, ash, and tephra deposits are widely published. This mismatch may be an artifact of interpretive capabilities, given how rapidly tsunami sedimentology has advanced in recent years.

A well-preserved volcanic ash layer and chaotic destruction horizon were identified in stratified deposits at Cesme-Baglararasi, a western Anatolian/Aegean coastal archaeological site.

To interpret these deposits, archaeological and sedimentological analysis (X-ray fluorescence spectroscopy instrumental neutron activation analysis, granulometry, micropaleontology, and radiocarbon dating) were performed.

According to the results, the archaeological site was hit by a series of strong tsunamis that caused damage and erosion, leaving behind a thick layer of debris, distinguishable by its physical, biological, and chemical signature.

An articulated human and dog skeleton discovered within the tsunami debris are in situ victims related to the Late Bronze Age Thera eruption event.

Calibrated radiocarbon ages from well-constrained, short-lived organics from within the tsunami deposit constrain the event to no earlier than 1612 BCE.

[Images are from this paper and show skeletons of those buried alive by the tsunami.]

Modern Humans.

LeDoux, J.E. (2021) **As soon as there was life, there was danger: the deep history of survival behaviours and the shallower history of consciousness.** PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY OF LONDON 377B:doi.org/10.1098/rstb.2021.0292 (available as a free pdf)

Author's abstract: *It is often said that fear is a universal innate emotion that we humans have inherited from our mammalian ancestors by virtue of having inherited conserved features of their nervous systems.*

Contrary to this common sense-based scientific point of view, I have argued that what we have inherited from our mammalian ancestors, and they from their distal vertebrate ancestors, and they from their chordate ancestors, and so forth, is not a fear circuit.

It is, instead, a defensive survival circuit that detects threats, and in response, initiates defensive survival behaviours and supporting physiological adjustments.

Seen in this light, the defensive survival circuits of humans and other mammals can be conceptualized as manifestations of an ancient survival function, the ability to detect danger and respond to it, that may in fact predate animals and their nervous systems, and perhaps may go back to the beginning of life.

Fear, on the other hand, from my perspective, is a product of cortical cognitive circuits. This conception is not just of academic interest. It also has practical implications, offering clues as to why efforts to treat problems related to fear and anxiety are not more effective, and what might make them better.

Social Media.

Huszár, F., et al (2022) **Algorithmic amplification of politics on Twitter.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 119:doi.org/10.1073/pnas.2025334119 (available as a free pdf)

Authors' abstract: *The role of social media in political discourse has been the topic of intense scholarly and public debate. Politicians and commentators from all sides allege that Twitter's algorithms amplify their opponents' voices, or silence theirs. Policy makers and researchers have thus called for increased transparency on how algorithms influence exposure to political content on the platform.*

Based on a massive-scale experiment involving millions of Twitter users, a fine-grained analysis of political parties in seven countries, and 6.2 million news articles shared in the United States, this study carries out the most comprehensive audit of an algorithmic recommender system and its effects on political content.

Results unveil that the political right enjoys higher amplification compared to the political left. Content on Twitter's home timeline is selected and ordered by personalization algorithms. By consistently ranking certain content higher, these algorithms may amplify some messages while reducing the visibility of others.

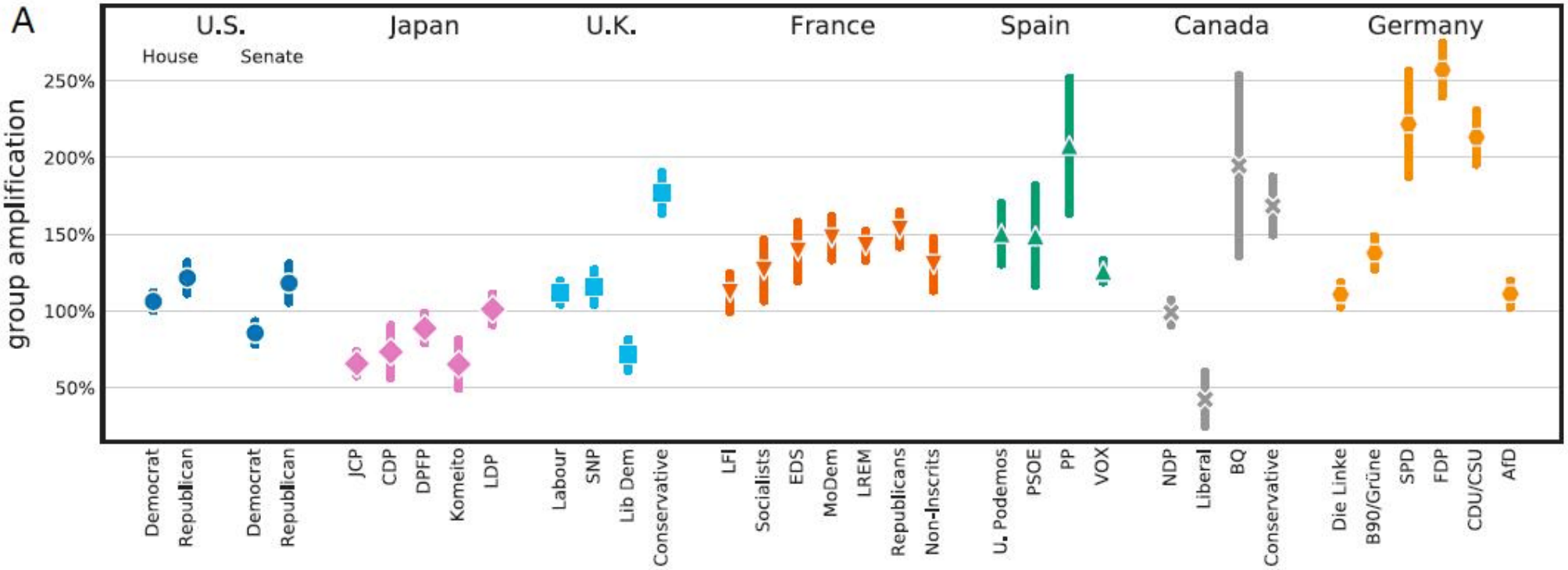
We provide quantitative evidence from a long-running, massive-scale randomized experiment on the Twitter platform that committed a randomized control group including nearly 2 million daily active accounts to a reverse-chronological content feed free of algorithmic personalization.

We present two sets of findings. First, we studied tweets by elected legislators from major political parties in seven countries. Our results reveal a remarkably consistent trend: In six out of seven countries studied, the mainstream political right enjoys higher algorithmic amplification than the mainstream political left.

Consistent with this overall trend, our second set of findings studying the USA media landscape revealed that algorithmic amplification favors right-leaning news sources.

We further looked at whether algorithms amplify far-left and far-right political groups more than moderate ones; contrary to prevailing public belief, we did not find evidence to support this hypothesis.

[Chart is from this paper. In the Canada section, BQ is Bloc Quebecois, a separatist party. NDP is the New Democratic Party, which is labour-socialist.]



Johannes, N., et al (2022) **No effect of different types of media on well-being.** SCIENTIFIC REPORTS 12:doi.org/10.1038/s41598-021-03218-7 (available as a free pdf)

Authors' abstract: *It is often assumed that traditional forms of media such as books enhance well-being, whereas new media do not. However, we lack evidence for such claims and media research is mainly focused on how much time people spend with a medium, but not whether someone used a medium or not.*

We explored the effect of media use during one week on well-being at the end of the week, differentiating time spent with a medium and use versus nonuse, over a wide range of different media types: music, TV, films, video games, (e-)books, (digital) magazines, and audiobooks.

Results from a six-week longitudinal study representative of the UK population 16 years and older (N = 2159) showed that effects were generally small. Between-person relations but rarely within-person effects; mostly for use versus nonuse and not time spent with a medium; and on affective well-being, not life satisfaction.

Groh, M., et al (2022) **Deepfake detection by human crowds, machines, and machine-informed crowds.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 119:doi.org/10.1073/pnas.2110013119 (available as a free pdf)

Authors' abstract: *The recent emergence of deepfake videos raises theoretical and practical questions. Are humans or the leading machine learning model more capable of detecting algorithmic visual manipulations of videos? How should content moderation systems be designed to detect and flag video-based misinformation?*

We present data showing that ordinary humans perform in the range of the leading machine learning model on a large set of minimal context videos. While we find that a system integrating human and model predictions is more accurate than either humans or the model alone, we show inaccurate model predictions often lead humans to incorrectly update their responses.

Finally, we demonstrate that specialized face processing and the ability to consider context may specially equip humans for deepfake detection.

The recent emergence of machine-manipulated media raises an important societal question: How can we know whether a video that we watch is real or fake? In two online studies with 15,016 participants, we present authentic videos and deepfakes and ask participants to identify which is which.

We compare the performance of ordinary human observers with the leading computer vision deepfake detection model and find them similarly accurate, while making different kinds of mistakes. Together, participants with access to the model's prediction are more accurate than either alone, but inaccurate model predictions often decrease participants' accuracy.

To probe the relative strengths and weaknesses of humans and machines as detectors of deepfakes, we examine human and machine performance across video-level features, and we evaluate the impact of preregistered randomized interventions on deepfake detection.

We find that manipulations designed to disrupt visual processing of faces hinder human participants' performance while mostly not affecting the model's performance, suggesting a role for specialized cognitive capacities in explaining human deepfake detection performance.

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