OPUNTIA 499

Late April 2021

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: A magpie scavenges for food along the south bank of the Bow River in the Inglewood district of Calgary. I took this photo on April 14, a lovely spring day.

AS I STROLLED OUT ONE DAY 2021-04-17

photos by Dale Speirs

Below: Glenmore Reservoir. The ice was still on the water, albeit a thin sheet that wouldn't support anything heavier than a magpie.

Above right: Elbow River, looking downstream from the Glenmore dam.

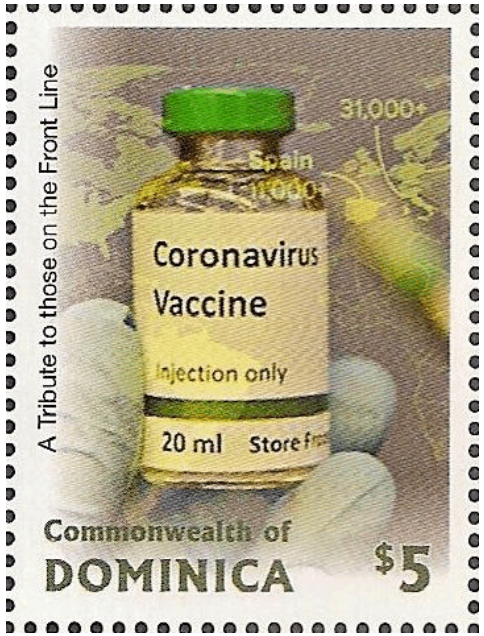
Bottom right: *Populus balsamifera*, a common tree along the riverbanks of southern Alberta, was just starting to bud out its flower spikes.

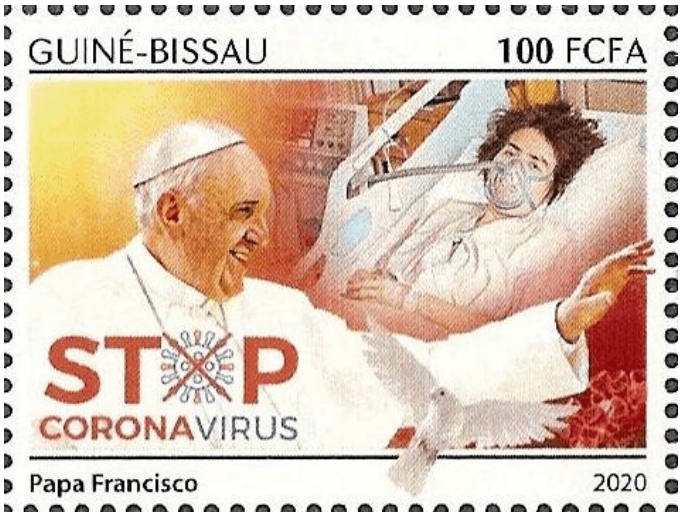
CURRENT EVENTS: PART 18
by Dale Speirs

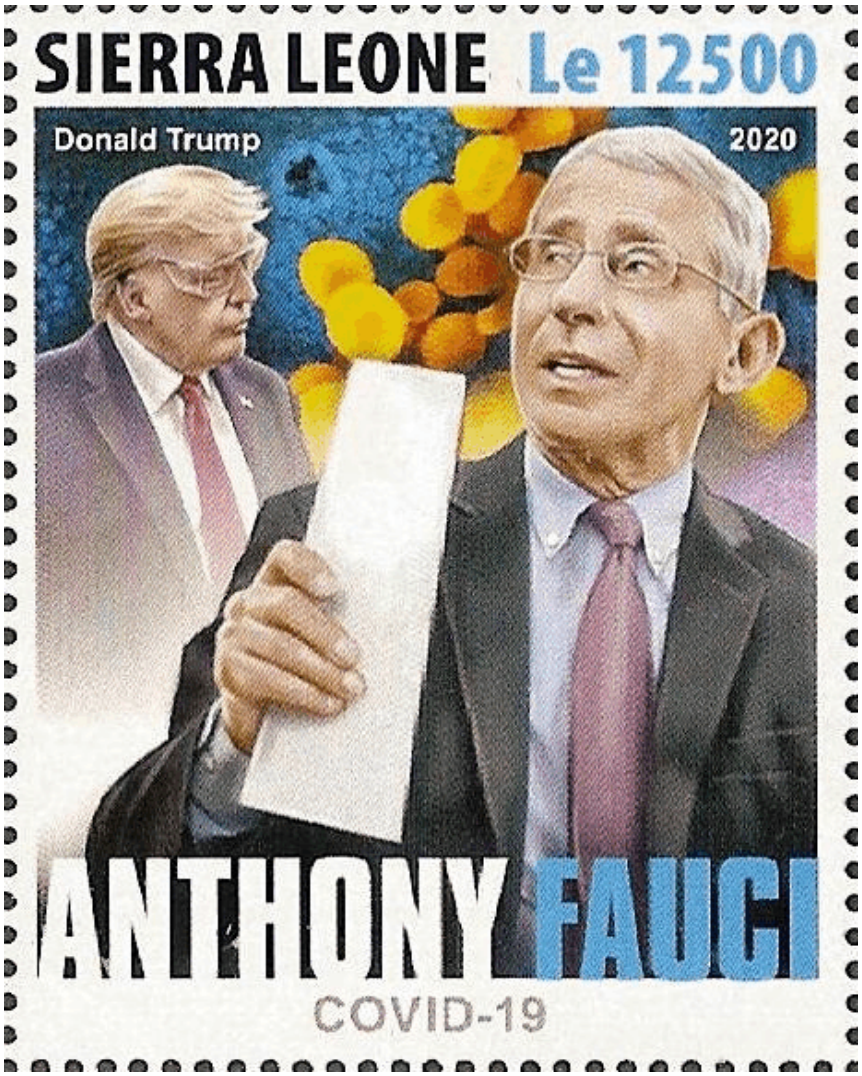
[Parts 1 to 17 appeared in OPUNTIAs #474, 475, 479, 480, 483, 484, and 488 to 498.]

Philately.

Just bought another batch of COVID-19 stamps for my collection. Stamps not illustrated to same scale or at actual size.







This sheetlet will probably be funniest for my American readers. I have enlarged the relevant stamp at below left.

Not directly connected to COVID-19, but the sheetlet at left is good background material.

Seen In The COVID-19 Literature.

As of April 20, Canada had 1,139,036 cases of COVID-19, with 23,713 deaths and 10,481,418 vaccinations. Canada's population is about 38,000,000. We have a long way to go to herd immunity, which is 80% of the population.

Davies, N.G., et al (2021) **Estimated transmissibility and impact of SARS-CoV-2 lineage B.1.1.7 in England.** SCIENCE 372:doi.org/10.1126/science.abg3055 (available as a free pdf)

Authors' abstract: *A severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) variant, VOC 202012/01 (lineage B.1.1.7), emerged in southeast England in September 2020 and is rapidly spreading toward fixation. Using a variety of statistical and dynamic modeling approaches, we estimate that this variant has a 43 to 90% higher reproduction number than preexisting variants.*

A fitted two-strain dynamic transmission model shows that VOC 202012/01 will lead to large resurgences of COVID-19 cases. Without stringent control measures, including limited closure of educational institutions and a greatly accelerated vaccine rollout, COVID-19 hospitalizations and deaths across England in the first 6 months of 2021 were projected to exceed those in 2020. VOC 202012/01 has spread globally and exhibits a similar transmission increase (59 to 74%) in Denmark, Switzerland, and the United States.

VOC 202012/01 is defined by 17 mutations (14 non-synonymous point mutations and three deletions), of which eight are in the spike protein, which mediates SARS-CoV-2 attachment and entry into human cells.

Rabb, N., et al (2021) **No evidence that collective-good appeals best promote COVID-related health behaviors.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 118:doi.org/10.1073/pnas.2100662118 (available as a free pdf)

Authors' extracts: *Public health emergencies require collective effort, so motivating individual contributions with community appeals is intuitive and rhetorically uncontroversial. Unfortunately, we have found no direct evidence that collective-good appeals work for vaccinations and considerable related evidence suggesting they should not.*

COVID-19 behavioral studies show no effect of such appeals on intended social distancing or self-reported staying at home, a small effect on intended mask-wearing that vanished with demographic controls, and a reverse effect, self and family appeals faring better than community appeals, for intended staying at home and real information seeking (choosing to read Centers for Disease Control and Prevention guidelines).

The balance of evidence suggests, counterintuitively, that common-good appeals have limited utility. Although our data cannot show whether they are better than no message at all, we caution against relying on them to encourage high-cost behaviors like vaccination. Health message interventions may be most successful by appealing to the well-being of people's families.

Ogden, Ruth (2021) **Distortions to the passage of time during England's second national lockdown: A role for depression.** PLOS ONE 16:doi.org/10.1371/journal.pone.0250412 (available as a free pdf)

Author's abstract: *In attempts to control the spread of the COVID-19 virus, many governments have resorted to imposing national lockdowns on their citizens. Previous research has demonstrated the passage of time becomes distorted for many people during these lockdowns. To date, research has only examined how time was experienced early in initial lockdowns.*

The current study examined whether distortions to the passage of time were also present later into the global pandemic. An online questionnaire was used to collect passage of time judgments for the day, week and 8 month period since the first UK lockdown. In addition, measures of affect, social satisfaction, task-load, compliance and health status were also recorded.

The results show that over 80% of people reported experiencing distortion to the passage of time during the second English lockdown in comparison with normal. Depression, satisfaction with social interaction and shielding status were found to be significant predictors of temporal distortion.

A slower passage of time was associated with greater depression, shielding and greater dissatisfaction with social interactions. Feeling like it was longer than 8 months since the UK's first lockdown was associated with greater depression, increased dissatisfaction with social interaction and greater change of life as a result of lockdown.

The results suggest that distortions to the passage of time are an enduring feature of lockdown life and that different factors predict temporal experience during different points in lockdown.

Joint Public Policy Committee: The Society for the Study of Evolution and The American Society of Naturalists (2021) **The virus evolves: Four public health priorities for reducing the evolutionary potential of SARS-CoV-2.** BIOSCIENCE 71:doi.org/10.1093/biosci/biab037 (available as a free pdf)

Extracts: *These dangerous consequences of SARS-CoV-2 evolution are looming, but rapid viral evolution is not inevitable. Fundamental principles of evolution provide clear guidelines for slowing down the evolutionary process.*

Reduce case counts as much as possible. One of the most well established truths of evolution is that adaptive change is more likely when populations are larger. This means that a drastic reduction in infections will not only reduce illness and save lives in the face of variants that are already present, but it will guard against the conditions that favor the evolution of new variants of concern, which may be more transmissible, more virulent, or more able to escape immunity ("escape variants").

Urge vaccinated people to continue mitigation measures. The emergence and spread of escape variants is favored by transmission of the virus to and from people who are immunized (whether they have been immunized by natural infection or by vaccines). Increase genomic and genetic surveillance and share data quickly on public repositories. Genomic surveillance (regular sequencing of a representative sample of cases) is essential for identifying the emergence of new variants.

Coordinate internationally. Leaving the epidemic uncontrolled anywhere leaves the global population vulnerable to the evolution of variants that can escape immunity.

Grange, Z.L., et al (2021) **Ranking the risk of animal-to-human spillover for newly discovered viruses.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 118:/doi.org/10.1073/pnas.2002324118 (available as a free pdf)

Authors' abstract: *The recent emergence and spread of zoonotic viruses, including Ebola virus and severe acute respiratory syndrome coronavirus 2, demonstrate that animal-sourced viruses are a very real threat to global public health. Virus discovery efforts have detected hundreds of new animal viruses with unknown zoonotic risk.*

We developed an open-source risk assessment to systematically evaluate novel wildlife-origin viruses in terms of their zoonotic spillover and spread potential. Our tool will help scientists and governments assess and communicate risk, informing national disease prioritization, prevention, and control actions.

The resulting watchlist of potential pathogens will identify targets for new virus countermeasure initiatives, which can reduce the economic and health impacts of emerging diseases.

The death toll and economic loss resulting from the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic are stark reminders that we are vulnerable to zoonotic viral threats. Strategies are needed to identify and characterize animal viruses that pose the greatest risk of spillover and spread in humans and inform public health interventions.

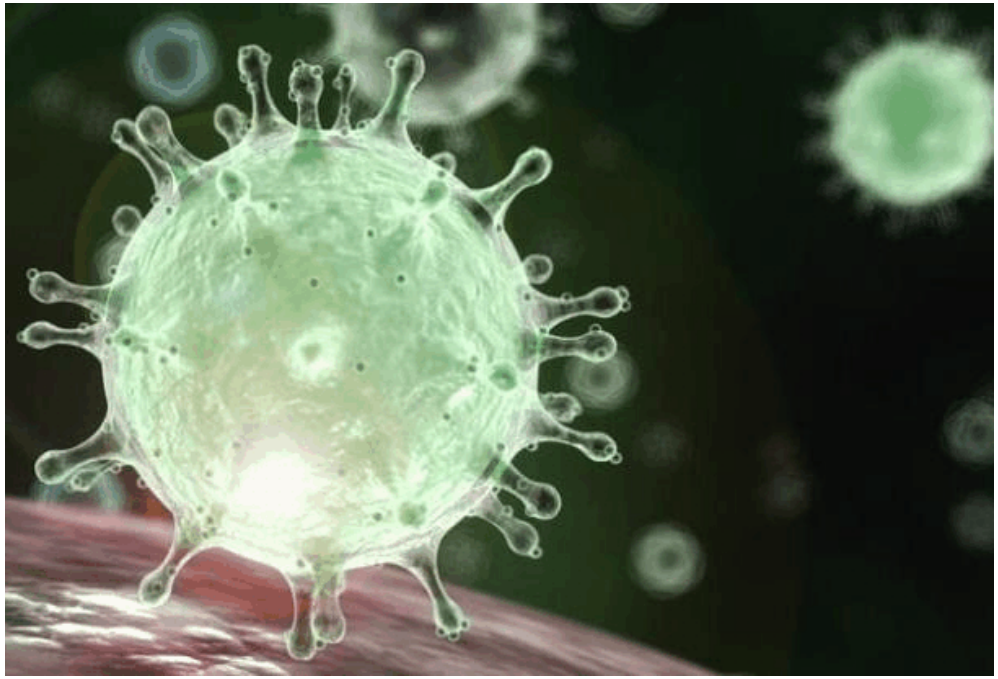
Using expert opinion and scientific evidence, we identified host, viral, and environmental risk factors contributing to zoonotic virus spillover and spread in humans.

We then developed a risk ranking framework and interactive web tool, SpillOver, that estimates a risk score for wildlife origin viruses, creating a comparative risk assessment of viruses with uncharacterized zoonotic spillover potential alongside those already known to be zoonotic.

Using data from testing 509,721 samples from 74,635 animals as part of a virus discovery project and public records of virus detections around the world, we ranked the spillover potential of 887 wildlife viruses. Validating the risk assessment, the top 12 were known zoonotic viruses, including SARS-CoV-2.

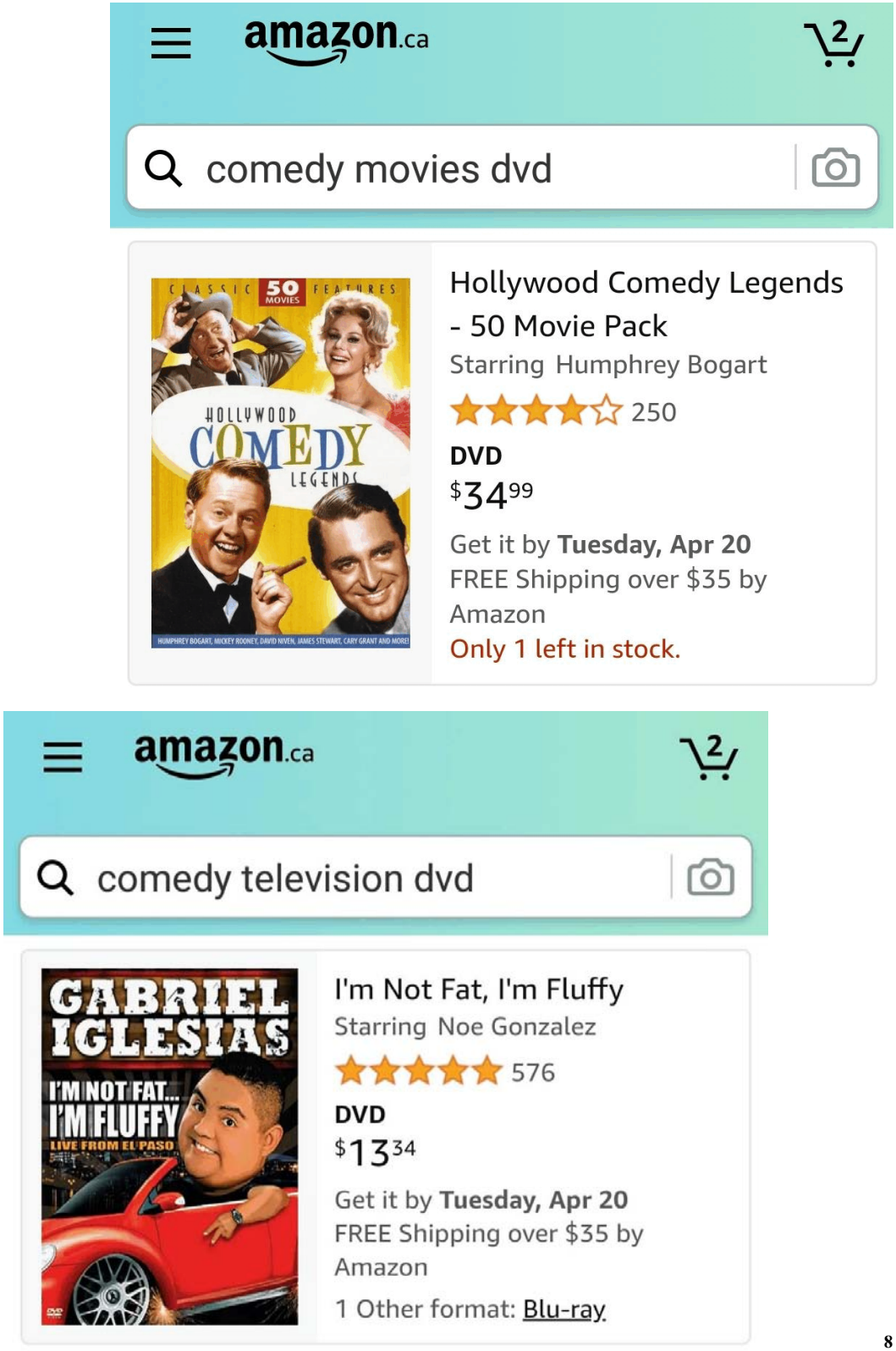
Several newly detected wildlife viruses ranked higher than known zoonotic viruses. Using a scientifically informed process, we capitalized on the recent wealth of virus discovery data to systematically identify and prioritize targets for investigation.

The publicly accessible SpillOver platform can be used by policy makers and health scientists to inform research and public health interventions for prevention and rapid control of disease outbreaks. SpillOver is a living, interactive database that can be refined over time to continue to improve the quality and public availability of information on viral threats to human health.



AS I SCROLLED OUT ONE DAY
by Dale Speirs

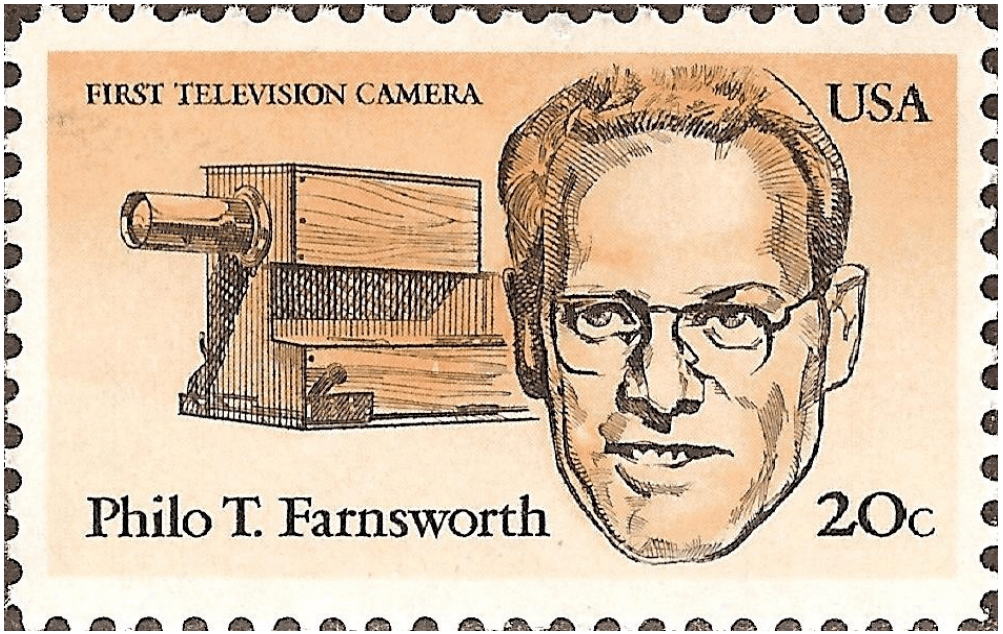
I buy my books and DVDs online, mostly from www.amazon.ca or a British outfit called Book Depository (www.bookdepository.com). Amazon uses an automated cataloging system which produces some strange results in the way it credits the stars or creators of a show. Here are some screenshots I took while scrolling through Amazon.



THE DAWN OF TELEVISION: PART 5
by Dale Speirs

[Parts 1 to 4 appeared in OPUNTIAs #309, 367, 446, and 470.]

The Baby Boomers, born between 1945 and 1965, were the first generation raised on television. What hath Farnsworth wrought?



Science Fiction Television.

"The Phantom Teleview" by Bob Olsen (1929 November, SCIENCE WONDER STORIES, available as a free pdf from www.archive.org) was accompanied by an editorial note that Bell Telephone Laboratories had just demonstrated colour television in July of that year. This issue of SWS would have reached the newsagents just as the Panic of 1929 was underway, which explained why your great-grandparents didn't have television in their homes.

But to the story. The narrator had been strolling about when he saw a poster advertising a demonstration of television, a device called Teleview. Cutting edge stuff, so he went in for a look. He had been killing time until his mother's train arrived at the station.

Pythagoras Denker was the inventor and was happy to display the Teleview. After a two-page infodump, with lots of handwaving to explain the device, Denker showed various scenes, including an hilarious battle staged in Mexico by a generalissimo who went into combat accompanied by movie cameras.

The narrator asked Denker to show his mother's train en route to the city. The Teleview tuned in just in time to catch the train wreck. It had been staged by bandits to rob the express mail.

The narrator rushed to the site to find his mother. He became enmeshed in a series of unfortunate incidents that took him to prison. No one believed him about the Teleview, and Denker was nowhere to be found.

SCIENCE WONDER STORIES never hesitated to rehash stories. A similar remote viewing television device was "Professor Diel's Ray" by Frank Brueckel Jr (1930 March). This time the inventor tuned into a bank robbery, then followed the gang to their hideout.

The narrator, a handsome young man, watched in awe as the professor telephoned the police, who raided the hideout. Diel got a $5,000 reward and the narrator got the professor's beautiful daughter.

"The Monsters" by Murray Leinster (1933 January, WEIRD TALES, available as a free pdf from www.archive.org) afflicted Manhattan with a variety of giant insects and arachnids. The blurb said they were as tall as skyscrapers, but the copy editor obviously never read through the story. As big as houses perhaps.

The good news was that the giant creatures were attacking and eating each other rather than humans. The only human casualties were from the panic. Eventually it was noticed that the giant critters were illusions, projections of some sort, that passed through solids and vice versa.

The city relaxed and began to clean up the mess from the panic. Then the second wave arrived. This time the creatures were killing and eating humans for real. The authorities and scientists surmised they were some sort of television projection. Remember that television in 1933 was still science fictional.

By triangulating the alignments of the monster outbreaks and how they moved, the source was identified as a small hill a few miles from the city. An attack

force moved in. They killed the apparent perpetrators on a shoot first and ask questions later basis.

Inside the lair they found a superscience video machine that projected the images out onto the city. Also discovered was a ransom demand that had been prepared but not yet sent. The machine was smashed beyond repair and all was well. The methodology of the machine was too complicated to summarize here but was an ingenious device.

Criminal Television.

LET GEORGE DO IT aired on radio from 1946 to 1954, sponsored by Standard Oil for its Chevron stations. The episodes are available as free mp3s from the Old Time Radio Researchers at www.otrrlibray.org

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

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

"It's A Mystery To Me" was written by David Victor and Jackson Gillis, and aired on 1950-10-16. It opened with George Valentine and Claire Brooks sitting in a deserted tavern near closing time. The bartender Joe complained business was lousy because he couldn't afford a television set.

Pause for an historical lesson. This was at the dawn of network television when few homeowners could afford a set. Taverns brought in television to attract customers. The bars that didn't mostly went out of business. Television sets weren't cheap back then, about $1,000 in 1950 currency, say $10,000 in today's depreciated currency.

The telephone rang. Since the bartender was at the other end of the bar, Valentine answered. It was a young woman asking if Marlan King was there. The answer being no, she asked Valentine to take a message. Her name was Cynthia and the message was that she couldn't see King ever again. She said she was in a hurry to go someplace and hung up.

The next morning King barged into Valentine's office. He was all atwitter about Cynthia and took her news badly. He told Valentine that if Cynthia wouldn't talk to him, then perhaps her roommate Mabel might. About then he identified himself as a mystery writer.

King was assaulted by a gangster en route to Valentine's office, who warned him away from Cynthia. They went to the nightclub where Mabel worked as a cigarette girl. The bouncer Michael was the one who had beaten King and the nightclub owner Tony waved a gun to convince Valentine to leave.

Mabel hadn't shown up for work that night, on account of being murdered in her apartment. Cynthia's body was found out on the back porch. The police picked up Tony at the airport. He said he and Cynthia were planning to fly out and elope.

The trail led back to Joe's place, where he confirmed he had sold a bottle of champagne to Tony and Cynthia, who were happy and celebrating. Lots of clues but no suspect. Valentine explained assorted loose ends to Brooksie while NYPD Lieutenant Riley looked on.

Just then a television set was delivered, much to Joe's surprise. He had previously said he couldn't afford a television set. He blurted out an inadvertent remark about something only the murderer would have known.

The twist in the epilogue was that Valentine had ordered the set to break Joe. Cynthia's engagement ring was found in Joe's pocket. He had followed Cynthia home after noticing the big stone on the ring, and during the robbery killed her. Mabel came home at the wrong time and had to die since she was a witness. Joe was intending to pawn it to buy a television set because he was desperate to keep his tavern in business. Valentine preempted him.

DRAGNET was the pioneer police procedural that set the standard for radio and later television imitators. The episodes are available as free mp3s from the Old Time Radio Researchers at www.otrrlibray.org

Jack Webb produced and starred in the series, which was based on actual cases of the Los Angeles Police Department. "*Just the facts, ma'am*" was the famous catchphrase from the show, although Webb's character Sgt. Joe Friday never actually said it exactly like that.

Unlike many police or private detective shows, gunfire was seldom heard on DRAGNET, nor was Friday slugged unconscious once per episode. Many of the episodes were non-violent crimes. The series emphasized the fact that police investigations are mostly a matter of plodding about or searching files.

"The Big Screen" aired on 1951-08-09 when television was rapidly spreading. The earliest sets were not as reliable as they later became, what with vacuum tubes constantly burning out. As a result, many citizen complaints were constantly received by the Bunco Squad about television repairmen overcharging, doing unneeded work, or faking the work completely.

This episode was a step-by-step investigation of Chaney's Video Repair. Friday and his colleagues collected the complaints, set up traps, and finally brought the culprit to justice. He got a $200 fine. Granted that was the equivalent of $2,000 in today's depreciated currency, the penalty wasn't as harsh as many would have liked.

By the 1960s, solid-state electronics began improving the reliability of television sets. I was too young to know what problems my parents may have had with their television set in the late 1950s, but in the 1960s and 1970s I don't recall we ever had problems with the colour television sets.

WORLD WIDE PARTY ON JUNE 21

Founded by Benoit Girard (Quebéc) and Franz Miklis (Austria) in 1994, the World Wide Party is held on June 21st every year. 2021 will be the 28th year of the WWP.

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

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

DIAMONDS ARE FOREVER
by Dale Speirs

A Star In The Hand ...

It is a general rule about any mystery story that if it is titled "The [name] Star", it will be about a large diamond. The diamond will be at least the size of a hen's egg. No one is going to fuss about a stone the size of a poppy seed.

ROGUE'S GALLERY aired on radio from 1945 to 1947, with a brief revival for the 1950-51 season. The episodes were written by Ray Buffum. Available as free mp3s from www.otrrlibrary.org

The gimmick of the series was that once each episode Rogue would be rendered unconscious, during which time he would have a conversation with his alter-ego Eugor (spell it backward). Slugging a detective unconscious was an old cliché even back then. By all rights, those detectives should have been drooling idiots by the end of the first season because of their weekly concussions.

"The Star Of Savoy" aired on 1946-06-23. Betty Callahan was a news reporter with whom Richard Rogue had a crush. As they were canoodling in his office, Charles Macdonell barged in as a new client. He died on the spot.

The episode paused for a commercial from the sponsor, who informed the listeners that Fitch's shampoo could be a real help to them. Not to Macdonell, who had two bullets in him. He was, or had been, a jewelry store manager. Macdonell's wife arrived moments later, and the police just after. She collapsed over his body and stayed on top of him for several moments before recovering.

Rogue began investigating and arrived at a mansion where he saw a dead body inside the ajar front door. He stepped inside and was slugged unconscious. Eugor was waiting for him but didn't offer any help, just an unnecessary recapitulation of the plot. Rogue regained consciousness to find the slugger waiting for him.

The man introduced himself as Moore, a Sydney Greenstreet impersonator if ever there was one. He demanded to know where the Star of Savoy was. Moore said Macdonell had killed the man at the front door.

The Star of Savoy was one of those plentiful egg-sized diamonds that litter the mystery genre. Moore said Macdonell had it in his overcoat, to which Rogue replied it hadn't been found on the body.

The astute listener will guess who now had the stone. Moore slugged Rogue a second time and departed, leaving the field clear for Fitch to tell the audience how its shampoo perked up tired hair.

The chase was on. Mrs Macdonell was an imposter. Rogue remembered she had handled a water glass in his office, so he took it to the police for fingerprint inspection. The prints came back as Alice Ryan, a confidence racket worker. Rogue and Callahan chased hither and yon trying to find Ryan. Moore got to her first and sent her on to the next world.

Moore had the diamond and proudly showed it off. He did some bwah-ha!-ha!-ing before Callahan snuck up behind him and screamed into his ear at point-blank range. That allowed Rogue to jump Moore. The rest was details, wrapped up in an infodump during the epilogue. Rogue and Callahan split a $5,000 reward for recovering the diamond, and Moore got the electric chair.

THE THIRD MAN aired on old-time radio for a season in 1951-52, with Orson Welles as Harry Lime. No writers were credited. The mp3s are often labeled with varied titles using the name Harry Lime. Well worth downloading as free mp3s from www.otrrlibrary.org.

The character came from Graham Greene's movie and later novel adaptation. Lime met a nasty end in the original movie. Lime was a confidence man constantly traveling throughout Europe. In the opening narration of the radio episodes, Welles told the audience that these stories were set before Lime was shot dead fleeing through the sewers of Vienna like a rat.

"The Bohemian Star" aired on 1951-09-07. Harry Lime explained in his opening remarks that the diamond in question was the size of a duck's egg, so that part was settled.

The story was set in London, England, in 1938. The diamond was part of the crown jewels of a deposed Balkans monarchist family and was being prepared for an exhibition. Bohemia is not in the Balkans but the etymology was never explained.

Lime managed to worm his way into a private briefing about the preparations. The jeweler Arvadas blabbed all the security arrangements but that didn't matter. His assistant Manuel entered the room while the interview was underway and said the paste copies had been prepared and the switch would be easy. Too late did he notice Lime.

The only thing to do was to ask Lime, at the point of a gun, to set a spell and stay a while. After rendering Lime unconscious, there then was an extended discussion about what to do with him. They decided to take him for a ride.

When Lime woke up, he was in a room with a Cockney henchman named Charlie. He returned the favour by rendering Charlie unconscious, then escaped and went in search of Arvadas. They had just made the snatch, which Lime reciprocated.

Scotland Yard detectives arrived in the nick of time. There was some double-talking but Lime managed to avoid arrest. Alas, he also avoided getting the Bohemian Star. In the epilogue, he did get a reward, so the matter wasn't a total financial loss.

YOURS TRULY, JOHNNY DOLLAR was the last old-time radio series, airing from 1949 to 1962. (Available as free mp3s from the Old Time Radio Researchers at www.otrrlibrary.org) Almost all the OTR shows had died off by 1955. Johnny Dollar was an insurance investigator based in Hartford, Connecticut. Each episode began with a claims adjustor from an insurance company ringing him up and asking him to take on a case.

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

"The Star Of Capetown Matter" was written by Robert Ryf and aired in 1956 July as a five-part serial. An insurance company had insured a golf ball sized diamond called the Star of Capetown for $150,000 (a couple of million in today's depreciated currency).

The stone had just been inherited by playboy Andrew Forbes, who treated it casually. He liked to carry it in his pocket and show it to people at random. Needless to say, the company wanted the stone kept more securely. They dispatched Johnny Dollar to Capetown, South Africa, to ride shotgun on Forbes.

The man was hosting an open party with about 60 guests and showing off the diamond. At the party, Forbes was a busy man. He dumped one girlfriend Sheila and took up with a golddigger named Helen. His amorous activities were terminated in the bedroom when someone knifed him. Needless to say the diamond was missing.

Also in attendance at the party was his sister Agatha. Dollar went on an excursion and found Julio Biak, the man who murdered Forbes, but no sign of the diamond. The question was whether Forbes had been killed for the stone or for some other reason. Biak was arrested but not with the diamond.

Sheila, Agatha, and Helen all booked passage on the passenger liner Southern Empress. Dollar barely managed to get a cabin for himself. His problem was finding the diamond before the next port of call.

Many alarums followed on board. The three women were all equally suspicious. That didn't stop Dollar from romancing one of them. A loud-mouth Texan named Ben Stacy intruded into the plot, claiming to be an old friend of Forbes. Agatha told Dollar she had never seen him before.

Someone sent a radiogram to Capetown addressed to Biak, evidently unaware of his arrest. A steward was murdered because he might have been able to identify the sender. Staterooms, including Dollar's, were ransacked. All told, many excursions aboard the excursion.

The ship docked at an African port. Ashore, Dollar was held at gunpoint by Stacy, who thought he had the diamond. That didn't work and Dollar escaped back to ship. He figured out the diamond was hidden inside a cut-glass bottle of perfume. Since diamonds have similar refractive indexes to glass, such containers were popular with smugglers.

Agatha was the culprit. She wanted the money, her brother having blown away the family fortune. Everything wrapped up in about one minute. Total expense account was $1,283.60, which included steamships both ways between New York and Capetown.

Diamonds Are Everybody's Best Friend.

BOSTON BLACKIE aired on old-time radio from 1944 to 1950, and was also a series of 14 movies. His real name was Horatio Black but everyone, including his girlfriend Mary Wesley, called him Blackie. The radio shows are leavened with humour and quips. Writers were not credited, although the actors were.

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

Blackie's nemesis was NYPD Homicide Inspector Farraday. In the early episodes of the series, Farraday would arrest Blackie on sight, then gather evidence to fit him. Over time their relationship moderated to being sparring partners. Blackie liked to barge into hot cases and race Farraday to the solution, while Farraday always had the snappiest lines.

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

"Jacques Pierre And The Diamonds" aired on 1947-01-28. The episode opened with two burglars breaking into a house, carefully explaining to each other (and the audience) what they were doing, step by step. They opened the safe and found two big diamonds, a matched pair.

Jump cut to insurance investigator Ernest Harvey talking to Boston Blackie, asking for help in recovering the diamonds. Since Blackie was an ex-jewel thief, Harvey figured, correctly, that he would have contacts in the underworld.

Blackie learned the thieves were going to sell the stones to Monsieur Jacques Pierre, because the diamonds were too hot to handle in the USA. Blackie decided to impersonate Pierre before he arrived from France.

The listeners will anticipate Hollywood French accents and will not be disappointed. Blackie arranged with Inspector Farraday to have detectives waiting outside the meeting place. Meeting with the thieves, Blackie palmed the diamonds but didn't get away with the gems. His bad accent and mediocre disguise hadn't fooled them.

The thieves caught him as he stepped out the door. They roughed him up and searched him but couldn't find the stones. They reluctantly let him go. Back

at Farraday's office, Blackie explained how he hid the diamonds in a cigar, then tossed it into the gutter just as the thieves grabbed him. He congratulated Farraday on recovering the cigar. What cigar? Uh, oh.

Meanwhile, back at the fence's shop, the real Jacques Pierre arrived. One of the thieves, named Dalton, had figured out how Blackie had done the grab and had hopped out the front door to get the cigar and the diamonds. He decided to make the sale without telling his partners. Honour among thieves and all that.

The deal was done and Pierre left. He took a taxicab whose driver was Blackie. Mary Wesley was a passenger and watched Pierre while Blackie drove. Pierre was searched but Blackie couldn't find the diamonds on him. Apparently two could play that game.

Blackie had to release him. Afterwards, Pierre telephoned Dalton. For compliance, he threatened to tell the other two thieves how they had been cut out of the deal. Pierre had slipped the diamonds into Wesley's jacket.

He and Dalton went to her apartment where they held her hostage. That was a familiar page from the play book. She was rescued in the nick of time as usual. The diamonds were recovered and the organ player provided a closing segue of music.

From ROGUE'S GALLERY was the episode "Mike Royale", also circulating as "The Message" and "Favor For A Condemned Man", aired on 1946-04-04. No Star in the title but about diamonds nonetheless. Richard Rogue had been called to the death house at the request of Mike Royale, a murderer who was about to depart this world in an electric chair.

Royale wanted his daughter to get the $15,000 reward money for the return of four giant diamonds he stole and killed a man for in the getting, something for her to live on. He gave Rogue a cryptic clue about looking for an angel to hand the stones to him. The chase began.

Rogue spoke to the prison chaplain Father Shay and told him he doubted he could succeed. Returning to his apartment, he found a woman waiting inside. She had a gun in her purse. At that point, the Fitch company interjected a commercial for their shampoo, emphasizing how important it was to have nice-smelling hair.

She wanted to know what Royale said to him, and offered to split the $100,000 the stones were worth on the black market. At that point he was slugged from behind and went off to visit Eugor. He revived to the not-so-gentle ministrations of a goon named Joe but managed to win the fight and knock him unconscious. One wonders if Joe had a conversation with Eoj.

Madge, as the woman was now identified, had left for her job at the Cherub Club as a taxi dancer. That was as good of a clue as any, so Rogue went off to the club for the next set of alarums.

A croupier told him Royale had been the club's handyman, always fixing up things. They both commented on Madge's outfit. The dancers were costumed, and she was dressed as an angel with a tiara.

Joe arrived, considerably annoyed. He pointed a gun. Before it went bang! a Fitch announcer advised male listeners that their shaving cream would preserve their skin. Back to the club, for more alarums. Rogue managed to preserve his skin.

Rogue pointed out to Joe that Madge's tiara had four large stones set in it. She said they were paste but Joe liked to verify things for himself. The police arrived in the nick of time. Unfortunately the tiara really was paste.

As Rogue walked out with the police, he suddenly noticed a sign over the door with an angel on it. It was holding glittery things in its hand. Since there were only two minutes left in the episode, the resolution was obvious.

Diamonds By The Box Full.

The old-time radio series BOX 13 aired from 1947 to 1950. This was a syndicated series sold as transcribed disks to radio stations, as a result of which the mp3s are very good quality because they were copied from disks, not as taped air checks. The show was produced by actor Alan Ladd, who also starred as Dan Holiday.

The series was about a newspaper journalist Dan Holiday who quit his job to become a freelance fiction writer. The problem was he couldn't think of plots or characters on his own initiative, which most will agree is an impediment to writing fiction. Today such people write novelizations of movies.

Box 13 was Holiday's mailing address at the newspaper. He ran an ad in the classifieds: *Adventure wanted. Will go anywhere, do anything.* He had a scatterbrained secretary named Suzy, although how he paid her was mystifying. He must have been earning good royalties from his fiction since he did not charge fees to his clients. A number of the episodes involved diamonds.

"Diamond In The Sky" was written by Charles Dore and Russell Hughes, and aired on 1948-11-21. The letter writer was a francophone William Martin who spoke with an accent that was bad even by Hollywood standards. He wanted Dan Holiday to visit Paris and retrieve the Mirabulis diamond. The gem was worth $1,000,000 and every jewel thief was after it.

They met and discussed the stone over French cigarettes so bad that Holiday could only take a couple of puffs before choking. Martin was to bring the diamond back from France and wanted Holiday to accompany him as a decoy. Martin would be targeted by the thieves. Holiday, unknown to the underworld, would actually be carrying the diamond. They pretended to be strangers to each other on the flight.

A stewardess Irene Carson befriended him in the air and on the ground. She had a knack of turning up at suspicious moments while acting innocent. Holiday was afraid that he had been rumbled. He picked up the diamond, using a French taxi driver who turned out to be a cockney from Limehouse. His English accent was every bit as bad as Martin's French accent. They were tailed by a suspicious car and from there the excursions began.

At the hotel, the swap was made. Sans diamond, Holiday went back to his room, only to be sapped unconscious. When he awoke, his room had been ransacked. His leading suspect was Carson. He tracked her down and interrogated her over lunch, but she seemed wide-eyed and innocent.

They parted ways and Holiday flew back home. He was arrested while deplaning. The real Martin was dead and had been before the whole adventure began. Police had fished his body out of the East River but hadn't been able to identify the deceased until just before the flight. Holiday had been spoofed by an imposter.

The search was on for the fake Martin. Holiday found him as Benjamin Slade, still talking with a bad accent. The search was a matter of finding the dealer who sold French cigarettes and getting the names of customers. Holiday brought along Carson as a witness to identify the fake Martin since she knew him from the plane flight.

In the epilogue, Holiday explained everything to Suzy. The diamond was still in Paris, but the Sûreté soon located it. She wondered how the thieves would have paid the income tax on the deal.

"The Professor And The Puzzle" was written by Russell Hughes and aired on 1949-0-09. The letter writer was Bob Lamb, whose fiancée Evelyn suddenly dumped him. She instead went with Ed Macklin, assistant to her uncle Professor Martin A. Gardner. Both men died in mysterious circumstances. They were mineralogists specializing in crystallography.

Lamb was baffled why Evelyn broke from him. She wouldn't explain. Dan Holiday poked around in the small college town and met with Police Chief Carson. No clues were evident. Lamb was arrested for Macklin's murder. Holiday had difficulty in contacting Evelyn but eventually succeeded.

He found her at home trying unsuccessfully to burn some papers in a backyard incinerator. She didn't have any matches. Yes, that'll stymie the job every time. Evelyn was upset to hear about Lamb's arrest and ran off to see him. Holiday watched her leave and then strolled back to the incinerator to see what those unburned papers were.

They were the Professor's registered mail receipts for small packages of crystals, plus a partial letter carbon copy from him demanding a higher fee for some sort of work. There was also a bank deposit book for Samuel Stoner, indicating $12,000 in receipts.

Holiday took them back to his hotel room. He didn't have a chance to peruse them as a gunman walked into his room unannounced. He made Holiday burn the papers in the fireplace. That struck me as odd because I never knew hotel rooms to have fireplaces, at least not economy hotels such as Holiday rented.

After an exchange of repartee, the gunman departed. Holiday surmised that the Professor and Stoner were the same man. He had memorized the address on the papers before they were burned, then went to find the place, which was an office building. As he arrived, he saw the gunman, so he tailed him.

Holiday eavesdropped and heard the gunman demand more money from his boss for having killed the two men. Holiday got the drop on them, seized the evidence, and took them down to the police station. Only in the denouement was the evidence described.

The Professor was doing illicit diamond cutting. He re-cut and polished stolen diamonds so that fences could easily resell them. Macklin found out and blackmailed Evelyn, but one of the fences decided to clean house first.

"Dan And The Wonderful Lamp" was written by Theodore Henley and aired on 1949-03-27. The opening letter contained an engraved invitation for Dan Holiday to attend a charity bazaar at the Ogden Mannering estate. He was to wear a red carnation in his lapel. Suzie suspected the letter was sent by a huckster. Holiday corrected her; she meant hoaxer.

At the party someone slipped a note into Holiday's pocket. He was to go to one of the booths and predict the number of beans in a jar as 1,863. Each guess was $5 on a chance for a prize. He won and got an ugly lamp, which he gave to Suzie. She carried the lamp home while Holiday took the big box it came in down the street. The empty box was too big for his wastebasket. He took it home intending to toss it into his apartment building's incinerator.

That got him mugged in his apartment and rendered unconscious. The intruder ransacked his rooms but didn't take anything. Holiday rushed over to Suzie's place to check over the lamp. They disassembled it but there was nothing inside.

She suggested the lamp itself was the important item, perhaps a valuable antique. The next day Holiday took it to an antiques dealer who said the lamp was a cheap factory-made item.

About to exit the store, Holiday saw the mugger lurking outside. He turned about and sold the lamp to the dealer for $1. After leaving the store, he looped around the block and doubled back. The mugger was just leaving the store with the lamp, having paid $10 for it, according to the dealer.

The next day as Holiday strolled about, he was kidnapped by the mugger. He was ordered to tell them where the diamond was. Since he didn't know, they beat him unconscious. After waking up in a ditch, he went to the Mannering estate.

The old man found Holiday's tale incredible but double-checked the Mannering Blue diamond. The stone appeared to be still in the safe. The two discussed the matter and got onto the question of who knew the number of beans in the jar. Mannering said the jar of beans was prepared by his private secretary, who had taken the day off. A re-check verified the stone in the safe was a paste copy.

Back to Suzie's place. She mentioned that when she set up the lamp, one of its bulbs failed so she replaced it. Aha! said Holiday and the listeners. Her trash had been emptied, so a rush ensued to the city dump. They found the diamond just as the secretary arrived.

A gunfight ensued and there are no prizes for guessing who didn't survive. As a matter of curiosity, I replayed the mp3 and counted the secretary firing 13 shots in quick succession from his revolver. The police arrived and machine-gunned him. I didn't count their shots.

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

"The Winfield Diamond" was written by Robert Lippert and Frank Burt, and first aired on 1947-12-03. In the opening lines, the diamond was described as 63 carats, blue-white, and flawless. The thief could barely contain her excitement. I wasn't surprised. 63 carats would be a golf ball sized diamond.

Hildegarde Spright was Winfield's secretary. He was an invalid and half senile. (There was a running gag about shortcakes that defies summary.) Spright cased the mansion trying to find the diamond. Then the stone practically fell into her lap. Winfield decided to sell the diamond and gave her the safe location and combination. She paid a visit to it in the dark and was interrupted by the butler Ligget. He dismissed her on the spot.

She gave up, packed her suitcase, and went on her way. Then she heard on the news that the diamond had been stolen by Ligget. Yes, the butler did it. She was named as his accomplice and arrested. Ligget got away to Europe with the diamond. She was just so frustrated.

INNER SANCTUM MYSTERIES was an old-time radio mystery anthology series that aired from 1941 to 1952. (This and other episodes are available as free mp3s from www.otrrlibrary.org) The host was a smarmy man who liked to make ghoulish puns.

"Dead Man's Debt" was a 1945 episode written by Robert Newman. Danny was haunted by the voice of Stack Allen, the man he murdered. His lawyer Russell got him off on the charge of a different murder, but believed Danny was guilty of Allen's murder. Danny's girlfriend Gail thought he was innocent.

The murder was done for a diamond, which Russell asked for as payment. They dug up Allen's body and found the diamond. From there to a fence to unload the diamond. After getting the cash, Danny killed the fence, took back the diamond, and emptied the safe.

Danny's colleague in crime showed up, trying to get the diamond. Danny shot him and then claimed self-defence. Russell refused the case. Gail was disillusioned. Danny tried to murder them but was killed by a twist in the plot. Russell took Gail as payment.

The twists and turns in the plot were not unreasonable, but the listener may wonder about Russell as an avenging angel. His logic, while morally correct overall, was tinted by unethical shortcuts. The end justified the means.

LITERA SCRIPTA MANET AND MAGAZINES OF YORE: PART 9
by Dale Speirs

[Parts 1 to 8 appeared in OPUNTIAs #365, 366, 368, 371, 373, 375, 379, and 388.]

Comics.

I read comic books when I was a boy but left them behind in my early teens after I learned how to speed read. Thereafter I went through a comic book in a few minutes, there not being much text. The artwork was and still is a distraction to me. A quick glance suffices. My ability to speed read is why I am able to review so many novels in this zine.

Since I retired in 2010, I was averaging a novel per day at the Calgary Public Library. The coronavirus pandemic having shut down the CPL system, I was thrown back onto to my own library. I have a few anime graphic novels and some Canadian comic books but lost interest decades ago. With Hobson's choice in my reading material, I came across a book on the history of Canadian comic books that deserves renewed attention.

CANUCK COMICS (1986) was edited by John Bell. Leading off was a history of Canadian comics. The industry had always been crippled by dumping from American comic book publishers, who could unload their surplus in Canada at little cost.

The American distributors would not take Canadian comics but didn't hesitate to swamp their neighbour in the guise of free trade. Their costs were paid for over a larger market in the USA. They then could ship comics into Canada at low cost and discounted prices and still make a profit.

Not until the currency controls of World War Two were the American comics excluded and it became profitable to produce genuine Canadian comics written and drawn by Canadian artists. To earn a living full-time, Canadian artists had to move south of the border and restyle their work as American. Superman, for example, was Canadian-born but redone by Joe Shuster for the Americans.

Counterculture comics developed in the turbulent 1960s but had the problem of poor distribution and legal oppression, the same as their American counterparts. In the 1980s, as this book went to press, another flowering of comics began.

This book was rather disorganized in its chapters. Following after the history of Canadian comics was a price guide, the title and publisher listings. The book then suddenly jumped back into history with chapters on the Anglo-American Publishing company and Quebéc comics, following by disjointed sections of various checklists.

Having said that, the book was in itself a useful part of Canadian comic book history. Since I don't follow comics, I don't know what has been done since nor do I want to know, but I do hope there have been updated books on the history of Canuck comics.

Word On The Street.

Other than job listings and real estate ads, free magazines or tabloids are not dispensed from street boxes anymore, at least not in Calgary. Up until about 2010, I regularly collected zines and independent arts and politics magazines from giveaway boxes or racks.

The Internet killed them off, as none could garner sufficient advertisement revenue to pay their costs. The youngest generation doesn't even know they existed. Their idea of communication is Twitter or Facebook. Even independent blogs are struggling to be heard above the cacophony.

I was therefore surprised to be walking down 10 Avenue SW in the Beltline district of central Calgary and see a street box for a new small press publication called Big Kitty.

From its content, it is aimed at 20-something aboriginals who are into music and art a little more modern than their tribal elders. We can only hope the magazine will survive.

THE STRUGATSKI UNIVERSE
by Dale Speirs

My favourite science fiction authors are the Russian brothers Arkadi and Boris Strugatski. I've only reviewed a few of their novels (see OPUNTIAs #9.1 and 271) because I don't like to review translations. The problem is that one never knows how faithfully the translator stayed with the original text or if he altered the mood or meaning.

However, thanks to the COVID-19 pandemic, I've been re-reading a lot of books in my library, so I'll do some additional reviews of the Strugatski brothers. Their novels, then and now, are noticeably different than the anglophone science fiction world. Worth tracking down.

They wrote in the era of the Soviet Union when direct criticism of the government would earn a quick trip to Siberia and a long stay. The advantage of science fiction was that by placing the criticisms in a fantastical world or off planet, one could not only get away with them but have the books produced by an official state publisher.

Which brings me to MONDAY BEGINS ON SATURDAY, originally published in 1966. The English translation by Leonid Renen was published in 1977 by DAW Books as part of an unauthorized series of the brothers' novels.

The protagonist was Aleksandr Ivanovich Privalov, who was driving through the fictional Russian town of Solovets somewhere in Karelia, the eastern part of Finland stolen by the Soviets during the War of Continuation and never returned. (My mother was Finnish, so us kids learned a fair bit about Suomi.)

Privalov met some hitchhikers. On learning he was a computer programmer, they invited him to join up with them at the Scientific Research Institute of Sorcery and Wizardry in the town. This was a pun in the original Russian, as the acronym of the Russian name was NIIChaVo, which sounds like the Russian word for 'nothing'.

The novel was episodic, as Privalov found his way around the institute and saw the various research projects. Some of the scientists were incompetent, others did things that were totally useless, and then there were the time-serving bureaucrats. Many characters from Russian folklore and fairy tales appear.

Among the research units were these departments: Predictions, The Meaning Of Life, Linear Happiness, and of course a Technical Help Desk. The bureaucrats were clock watchers who did the minimum if that, and couldn't understand the scientists who worked every weekend because they enjoyed their work so much. (Hence the title of the book.)

The scientists could quickly produce duplicates of themselves to do the boring work in the laboratory. Privalov sometimes had difficulty sorting out who was who.

So they took it as a working hypothesis that happiness lay in gaining perpetually new insights into the unknown and the meaning of life was to be found in the same process. Every man is a magus in his inner soul, but he becomes one only when he begins to think less about himself and more about others ...

One showboater created an artificial man who would be the new ideal in the future Soviet world. It ate incessantly and was fed huge quantities of food, growing immensely fat until it exploded, splattering the laboratory with shredded flesh and offal.

Another group believed they had solved the cause of the Tunguska impact in 1908. Not a comet colliding with Siberia as we now believe, but time-traveling aliens who took off from there, the spacecraft blowing out megatonnes of energy and making the launch look like an impact.

The institute's archives had book shelves kilometres long. One set of books, published in 3.5 size font, was a list of all humans and ape-men who had ever lived up until the last edition in the late 1700s. The first entry was: *Pithecanthropus Ayyoukh (Born 2 Aug. 96543 BC, died 13 Jan. 96522 BC ... Drilled the first hole in a stone; devoured by a cave bear on one of the hunts.)*

The novel is a good parody not only of the Soviet era, but, it must be said, scientific research in just about every university or research institute in the world. Anyone who has ever gotten a science degree will recognize the archetypes of the institute.

VIOLATING THE SQUARE-CUBE LAW: PART 4
by Dale Speirs

[Parts 1 to 3 appeared in OPUNTIAs #254, 328, and 471.]

Insects.

WEIRD TALES readers always enjoyed giant animal stories. Issues are available as free pdfs from www.archive.org

The 1931 June issue had a story "Moth" by G.R. Malloch which began with British air defence commanders on the alert after two giant aircraft were reported flying over England in a suspicious manner.

The story followed the regular routine. The initial belief, then a change of heart after a disaster involving three bus loads of passengers. The giant caterpillars eating up forests clinched the matter. They were the size and length of railroad trains and were invulnerable to small-arms fire.

Spectators rushed to the sites, hoping for a glimpse and an after-dinner story. They didn't have smartphone selfies in those days, but the basic human nature of rubbernecking hasn't changed. Artillery field pieces and bombers worked okay in the countryside, although the smell of hundreds of dead giant caterpillars decaying was off-putting.

Before the authorities could relax, fresh eggs hatched in London. The city was invaded and of course bombing and artillery were out of the question. The solution was plaster, spraying the caterpillars with it to plug up their breathing pores (insects don't have lungs).

Only England had been afflicted and no explanation was forthcoming as to how they originated. Had this story been written in the 1950s the cause would have been blamed on atomic radiation, and today climate change would be blamed.

"The City Of Crawling Death" by Hugh B. Cave (1932 July, WEIRD TALES) was set in darkest Amazonia. Giant ants ruled but they were not the blindly instinctive type. They had intelligence and could plan.

An expedition to their village had the usual excitement one associates with ants the size of horses. The Professor, and of course there was a professor, had a device that in the last minute worked. From its beam of light, the queen ant was dissolved into green goo.

What was more difficult to believe was that the rest of the nest then also dissolved into goo despite no actual contact with the beam. Not to worry though, for it was not the end of the ants. There was an outlier village of them who remained aloof from the combat. They would breed, and someday come down the river.

"Faceted Eyes" by E.L. Ross (1935 October, ASTOUNDING, available as a free pdf from www.archive.org) was another giant insect story but it did have one twist that I wish other square-cube stories and movies had adopted. The giant insect produced in this story, because the mad scientist could, escaped and went on a rampage, because it could.

The monster was armour-plated and bullets bounced off it. For once, someone pointed out the obvious: aim for the eyes. The blinded animal huddled in a corner, unable to move, and was put out of its misery by dropping a steel beam on its head.

You've all seen the B-movies where dinosaurs run astray. The military are called out and line up with rifles. Totally useless of course. I always thought if I was the company lieutenant I'd tell the soldiers to stop spraying bullets about and aim for the eyes. If the dinosaur opened its mouth to roar, then aim down the throat. Fire a phosphorus grenade down its throat, and it will be writhing in pain on the ground instead of snapping up humans too stupid to run.

"Let The Ants Try" by James MacCreigh (1949 Winter, PLANET STORIES, available as a free pdf from www.gutenberg.org) was an early entry in the radioactive mutation stories. Dr Salva Gordy made his way back to his hometown of Detroit after the Three Hour War of 1960.

In the ruins, he restarted his life as a hermit but was soon joined by an drifter John de Terry. They observed the changes in wildlife around them and noticed that mutant ants had developed lungs to breathe with, which would enable them to reach greater size. Insects are small because they don't have lungs, they breathe through trachea, which can't supply oxygen to large bodies.

Gordy had a time machine about the size of a closet. He and de Terry took some mutant ant queens back in time 40 megayears to give the new forms time

to develop. They returned to a utopian city where giant ants ruled. de Terry did not long survive and Gordy rushed to his time machine to go back and nullify what they did.

When he arrived back at the same spot, there was another time machine waiting for him. The ants were not stupid and had developed their own device to go back and stop Gordy. Which they did. Exit to the sounds of screaming.

Humans.

"A Scientist Rises" by D.W. Hall (1932 November, ASTOUNDING, available as a free pdf from www.archive.org) was about Dr Edgar Wesley. He went strolling out of his brownstone in Manhattan one day, initially 11 feet tall as he stepped out the door, then gradually growing to 4 stories tall down the park. The police broke into his laboratory to find the mechanism.

They did. The device was smashed beyond repair. More surprising was the normal-sized body of Wesley, dead by suicide. He left a suicide note which basically said there were some things man was not meant to know. Meanwhile outside his alter ego, if that was what it was, continued to grow higher than the skyscrapers.

As it did, the gigantic man gradually became transparent. It was evident that the initial mass was spread over a greater and greater area, and thus reduced its density. Finally the man was light enough to float up off the ground. As he rose into the sky, his body dissolved into atoms and dispersed on the wind.

An interesting and logical take on one of the problems of size changes. For comics fans, if The Hulk was an ordinary man made big and green, this would suggest he was light as styrofoam.

Things.

"The Day Of The Beast" by D.D. Sharp (1930 May, SCIENCE WONDER STORIES, available as free pdfs from www.archive.org) was a predictable plot. The narrator invented a formula that could increase the size of any organism. For the good of us all, in case you were wondering. Until a drop splashed on a spider, which grew and grew to man-eating size. The usual mayhem followed, with lots of screaming. Eventually it was disposed of and the narrator decided there were some things man was not meant to know.

There is an old saying in the theatre that a banjo act should never be followed by another banjo act. Hugo Gernsback had no compunction of following Sharp's story with another gigantic creature act. That same issue had the story "The Horrible Transformation" by J. Stallworth Daniels, about a mad scientist who transplanted the brain of a man into a gorilla.

Next, he juiced up the man-ape with glands, lots of them. Enough to create an intelligent gorilla about one story tall. The critter was strong enough to pick up a car with one hand and shot put it down the road. It all ended in tears for the gorilla.

"The Thing In The Pond" by Paul Ernst (1934 June, ASTOUNDING) was about a blob that came to life in a pond behind Professor Weidbold's country residence. It ate things and gradually grew bigger until it cleaned the pond of any available food. Then it came ashore and began munching on the scenery, animals, and humans. Weidbold called in help, Gordon Sharpe, a big-game hunter and a good man with an elephant gun. Trouble was, the gun had no effect on the blob.

The origin of the critter came to light. About a decade ago, the Professor dismissed an unsatisfactory employee who dumped waste chemicals and experimental solutions into the pond, in lieu of proper disposal of biological hazmat materials.

In that goop was a fragment of a live chicken muscle, part of Weidbold's experiments in keeping isolated tissues alive indefinitely in various aqueous solutions. He was more successful than he knew at the time, for that fragment survived in the pond and slowly, over a decade, grew up to elephant size.

The thingy had no brain or central organization that would enable it to be killed. Firing a gun into it simply blew out pieces that began reproducing. Sharpe tried a number of tactics but they failed.

The ultimate plan was to fence the pond in, then pump in lots of sulphuric acid, as in tanker truck loads. At that point the story cut off, with the resolution implied for some future date. The story concluded:

Weidbold spread his hands in a defeated gesture. "Gordon," he said in a different tone, "I'm an old man. I have neither the money nor the energy to move to another part of the country and set up my laboratory all over again,

which I'd have to do if the people around here believed that some experiment in my laboratory really was responsible for this."

"Now you see how impossible it is that a tiny bit of flesh from the heart of a dead chicken could grow to a thing like that, don't you?"

Sharpe watched the last of the small pink fragments fold over on itself on its way to the water of Greer's Pond. The little fragment slipped sluggishly under the green scum of the surface. "We'll say it's impossible," he conceded at last.

Stories about blobs eating the world almost write themselves. "The Destroying Horde" by Donald Wandrei (1935 June, WEIRD TALES) was one such example. A university research laboratory accidently produced one-celled blobs the size of bushel baskets which got loose.

The giant amoebas absorbed humans stupid enough not to get out of the way, then fissioned after absorbing the nutrients. Bullets did not stop them. The blobs spread across the city, gobbling up humans and other animals. Eventually someone tried to burn them and succeeded. The rest was mopping up.

"Call Me Adam" by Winston Marks (1954 February, MAGAZINE OF FANTASY AND SCIENCE FICTION, available as a free pdf on www.archive.org) was narrated by an amoeba grown to the size and shape of a human by Dr Bondi. It accidently killed him but was able to land on its feet, pardon me, pseudopods, by becoming a researcher at Bondi's university. A different take on blob stories. Worth reading.

NOT FOOD COZIES
by Dale Speirs

MURDER A LA MODE (2005) by G.A. McKevett (pseudonym of Sonja Massie) was a novel in a series about private investigator Savannah Reid of southern California. She was, as the polite expression goes, plus-sized. Her weight problem was an ongoing obsession, related to her habit of eating an entire box of chocolates with each romance novel she read. She read a lot.

Lance Roman was a muscular young man who posed for many romance covers. He was the object of Reid's fantasies, which came true or at least had the potential to do so, when she got a chance to compete on the reality show MAN OF MY DREAMS. First prize was Lance Roman. She and four other women were placed into a fake castle, trying to win his heart.

The plot began moving when the body of television producer Tess Jarvis was found in the walk-in freezer, her head bashed in by a tub of Killer Fudge ice cream. Everyone thought it was just so ironic. The show must go on, so as Reid romanced, she also investigated, with the help of her boyfriend police detective Dirk Coulter.

Jarvis had her problems. An unhappy marriage, dealing with contestants trying to cheat, and busily offending her employees. Her husband hired Reid to help find the murderer, which thrilled Reid to no end. Money was almost as arousing to her as food.

Reid survived the first cut of contestants. The loser was rather nasty about it and wouldn't follow her dialogue, preferring instead to ad lib some unprintable lines. Not to worry, as that could be fixed in post-production. Some of the stunts were vicious, such as a sword fight between contestants with unblunted blades. The killer was a jealous woman who wanted Roman all to herself. The final confrontation was not at gunpoint but with a battleaxe, a real one all sharp and shiny.

EVERY BODY ON DECK (2017) had Savannah Reid and Dirk Coulter, by now her husband, taking an Alaskan cruise as bodyguards for mystery writer Natasha Van Cleef. Didn't work. While ashore, Van Cleef and her husband were killed in a car crash. Reid found the usual back stories, with family feuds, marriage troubles, literary kerfluffles, and a lunatic fan tracking Van Cleef. A day in the life of an average famous novelist. Aren't you glad your book didn't sell?

Eventually discovered was that the deceased were dead before the crash, which was staged to cover up the murder. The car was torched but no one believed it was the fuel tank. Contrary to Hollywood, crashed cars do not detonate like bombs if they hit a tree. The bodies were burned beyond recognition, but the question was were they the correct bodies?

In a word, no. Natasha had set up the accident to remove an inconvenient husband and start a new life. With all that out of the way. and a hearty meal of Alaskan fish on the cruise ship, we bid adieu to the Inside Passage.

SEEN IN THE LITERATURE

Moilanen, J., et al (2021) **Determination of strewn fields for meteorite falls.** MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 503:doi.org/10.1093/mnras/stab586 (available as a free pdf)

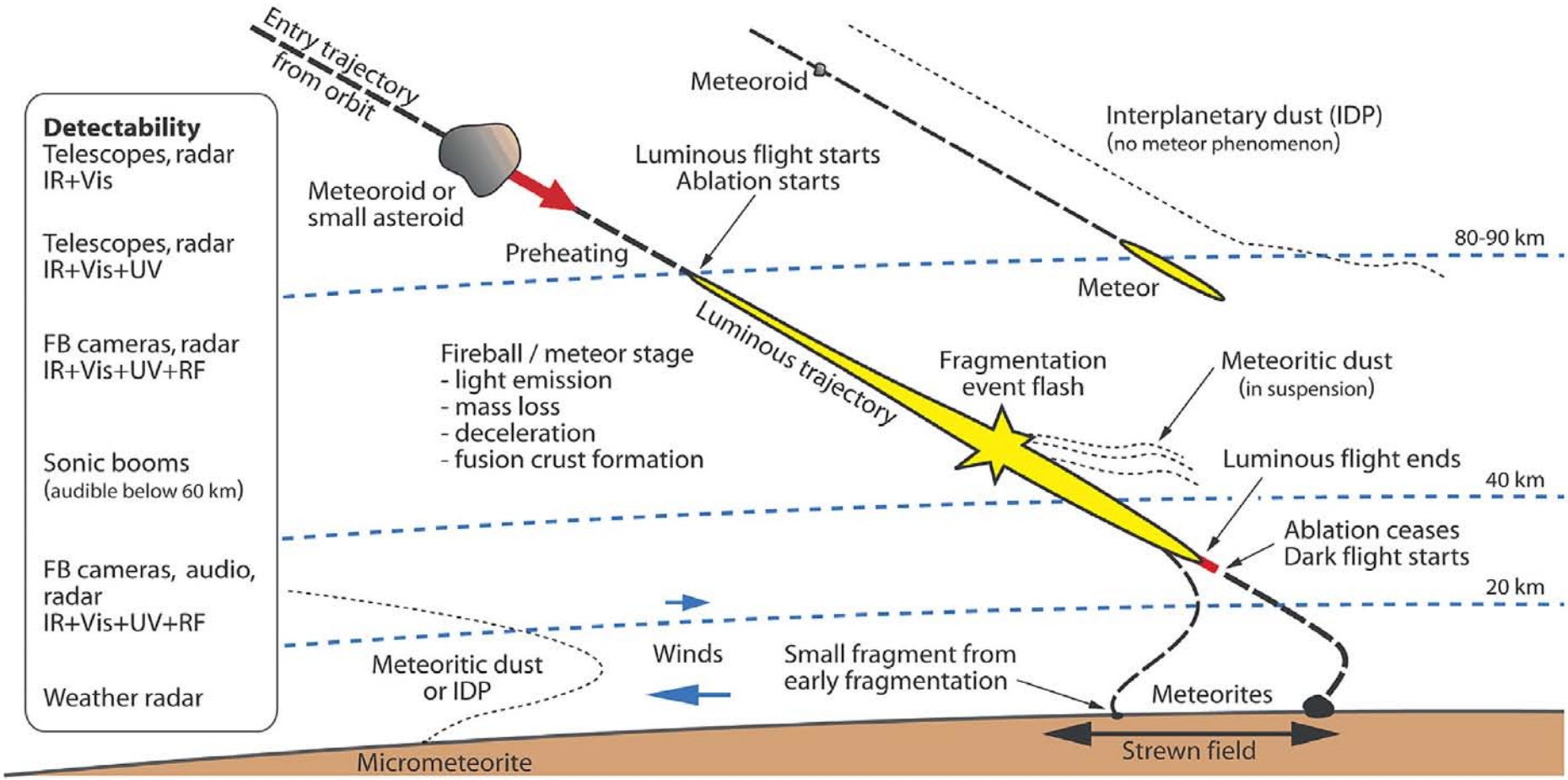
Authors' abstract: *When an object enters the atmosphere it may be detected as a meteor. A bright meteor, called a fireball, may be a sign of a meteorite fall. Instrumentally observed meteorite falls provide unique opportunities to recover and analyse unweathered planetary samples supplemented with the knowledge on the Solar system orbit they had.*

To recover a meteorite from a fireball event, it is essential that recovery teams can be directed to a well-defined search area. Until recently, simulations showing the realistic mapping of a strewn field were difficult, in particular due to the large number of unknowns not directly retrieved from the fireball observations. These unknowns include the number of fragments and their aerodynamic properties, for which the masses of the fragments need to be assumed in a traditional approach. Here, we describe a new Monte Carlo model, which has already successfully assisted in several meteorite recoveries. The model is the first of its kind as it provides an adequate representation of the processes occurring during the luminous trajectory coupled together with the dark flight.

In particular, the model comprises a novel approach to fragmentation modelling that leads to a realistic fragment mass distribution on the ground. We present strewn field simulations for the well-documented Kosice and Neuschwanstein meteorite falls, which demonstrate good matches to the observations.

We foresee that our model can be used to revise the flux of extra-terrestrial matter onto the Earth, as it provides a possibility of estimating the terminal mass of meteorite fragments reaching the ground.

[Image is from this paper.]



Poulton, S.W., et al (2021) **A 200-million-year delay in permanent atmospheric oxygenation.** NATURE 592:232-236

Authors' abstract: *The rise of atmospheric oxygen fundamentally changed the chemistry of surficial environments and the nature of Earth's habitability. Early atmospheric oxygenation occurred over a protracted period of extreme climatic instability marked by multiple global glaciations, with the initial rise of oxygen concentration to above 10^{-5} of the present atmospheric level constrained to about 2.43 billion years ago.*

Subsequent fluctuations in atmospheric oxygen levels have, however, been reported to have occurred until about 2.32 billion years ago, which represents the estimated timing of irreversible oxygenation of the atmosphere.

Here we report a high-resolution reconstruction of atmospheric and local oceanic redox conditions across the final two glaciations of the early Palaeoproterozoic era, as documented by marine sediments from the Transvaal Supergroup, South Africa.

Using multiple sulfur isotope and iron–sulfur–carbon systematics, we demonstrate continued oscillations in atmospheric oxygen levels after about 2.32 billion years ago that are linked to major perturbations in ocean redox chemistry and climate.

Oxygen levels thus fluctuated across the threshold of 10^{-5} of the present atmospheric level for about 200 million years, with permanent atmospheric oxygenation finally arriving with the Lomagundi carbon isotope excursion at about 2.22 billion years ago, some 100 million years later than currently estimated.

Jablonska, J. and D.S. Tawfik (2021) **The evolution of oxygen-utilizing enzymes suggests early biosphere oxygenation.** NATURE ECOLOGY AND EVOLUTION 5:442-448

Authors' abstract: *Production of molecular oxygen was a turning point in the Earth's history. The geological record indicates the Great Oxidation Event, which marked a permanent transition to an oxidizing atmosphere around 2.4 gigayears ago. However, the degree to which oxygen was available to life before oxygenation of the atmosphere remains unknown.*

Here, phylogenetic analysis of all known oxygen-utilizing and -producing enzymes (O_2-enzymes) indicates that oxygen became widely available to living organisms well before the Great Oxidation Event. About 60% of the O_2-enzyme families whose birth can be dated appear to have emerged at the separation of terrestrial and marine bacteria (22 families, compared to two families assigned to the last universal common ancestor).

This node, dubbed the last universal oxygen ancestor, coincides with a burst of emergence of both oxygenases and other oxidoreductases, thus suggesting a wider availability of oxygen around 3.1 Ga.

Barnes, B.D., et al (2021) **Dead clades walking are a pervasive macroevolutionary pattern.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 118:doi.org/10.1073/pnas.2019208118

[A clade is a line of species descended from the same ancestor. For example, *Homo sapiens* is the endpoint of the hominid clade.]

Authors' abstract: *"Dead clade walking" refers to fossil groups that suffer major drops in their biodiversity at a mass extinction but do not completely disappear from the fossil record. Why these groups were able to survive but not rediversify remains a relative mystery. Controls on the timing of their eventual extinction are additionally unclear. By gauging the frequency and cause of dead clades walking, we may be able to better understand how mass extinction events have shaped the evolution of animal lineages over Earth history.*

D. Jablonski coined the term "dead clades walking" (DCWs) to describe marine fossil orders that experience significant drops in genus richness during mass extinction events and never rediversify to previous levels. This phenomenon is generally interpreted as further evidence that the macroevolutionary consequences of mass extinctions can continue well past the formal boundary.

It is unclear, however, exactly how long DCWs are expected to persist after extinction events and to what degree they impact broader trends in Phanerozoic biodiversity. Here we analyze the fossil occurrences of 134 skeletonized marine invertebrate orders in the Paleobiology Database (paleobiodb.org) using a Bayesian method to identify significant change points in genus richness.

Our analysis identifies 70 orders that experience major diversity losses without recovery. Most of these taxa, however, do not fit the popular conception of DCWs as clades that narrowly survive a mass extinction event and linger for only a few stages before succumbing to extinction. The median postdrop duration of these DCW orders is long (>30 Myr), suggesting that previous studies may have underestimated the long-term taxonomic impact of mass extinction events.

More importantly, many drops in diversity without recovery are not associated with mass extinction events and occur during background extinction stages. The prevalence of DCW orders throughout both mass and background extinction intervals and across phyla (>50% of all marine invertebrate orders) suggests that the DCW pattern is a major component of macroevolutionary turnover.

Klompmaker, A.A., and N.H. Landman (2021) **Octopodoidea as predators near the end of the Mesozoic marine revolution.** BIOLOGICAL JOURNAL OF THE LINNEAN SOCIETY 132:doi.org/10.1093/biolinnean/blab001

[During the era of dinosaurs in the Mesozoic, North America was split north-south by the Western Interior Seaway, which ran along the eastern slopes of the Rocky Mountains from the Gulf of Mexico to Yukon.]

Authors' abstract: *Octopodoidea are a highly versatile and diverse group of marine predators comprising >200 species today; however, their diversity and ecology in deep time are virtually unknown. Because these soft bodied cephalopods have a low preservation potential, only a single body fossil species has been documented.*

Unlike other modern cephalopods, octopodoids leave behind a characteristic drill hole on their molluscan and crustacean prey. These traces provide a means to track their presence and behaviour in deep time. Although severely understudied, some of such holes have been documented from the Eocene to Pleistocene fossil record.

We document the oldest recognized drill holes attributed to octopodoids, found in lucinid bivalves from the Late Cretaceous (Campanian) of South Dakota, USA. These observations demonstrate that the drilling habit of these animals evolved early in the evolutionary history of Octopodoidea, ~25 Myr earlier than was previously known.

The drilled lucinids lived in cold methane seeps in the Western Interior Seaway. These predation traces have never been found in fossil seeps previously, thus adding a new predator to the food web of cold seeps. Finally, our results provide direct evidence that Octopodoidea were an integral component of the rise of shell destroying predators during the Mesozoic marine revolution.

Christenhusz, M.J.M., et al (2021) **Biogeography and genome size evolution of the oldest extant vascular plant genus, *Equisetum* (Equisetaceae).** ANNALS OF BOTANY 127:681-695

[The plant genus *Equisetum*, found in swamps and commonly known as horsetails, are the oldest veined plants still in existence. They are basically unchanged since they evolved about 350 megayears ago.

Authors' abstract: *Horsetails (Equisetum, Equisetaceae) have a nearly continuous fossil record dating back to the Carboniferous, but their phylogenetic and biogeographic patterns are still poorly understood. We use here the most extensive phylogenetic analysis to date as a framework to evaluate their age, biogeography and genome size evolution.*

DNA sequences of four plastid loci were used to estimate divergence times and investigate the biogeographic history of all extant species of Equisetum. Flow cytometry was used to study genome size evolution against the framework of phylogenetic relationships in Equisetum.

On a well-supported phylogenetic tree including all extant Equisetum species, a molecular clock calibrated with multiple fossils places the node at which the outgroup and Equisetum diverged at 343 Mya (Early Carboniferous), with the first major split among extant species occurring 170 Mya (Middle Jurassic).

These dates are older than those reported in some other recent molecular clock studies but are largely in agreement with a timeline established by fossil appearance in the geological record.

Representatives of evergreen subgenus Hippochaete have much larger genome sizes than those of deciduous subgenus Equisetum, despite their shared conserved chromosome number. Subgenus Paramochaete has an intermediate genome size and maintains the same number of chromosomes.

The first divergences among extant members of the genus coincided with the break-up of Pangaea and the resulting more humid, warmer climate. Subsequent tectonic activity most likely involved vicariance events that led to species divergences combined with some more recent, long-distance dispersal events. We hypothesize that differences in genome size between subgenera may be related to the number of sperm flagellae.

Silvestro, D., et al (2021) **Fossil data support a pre-Cretaceous origin of flowering plants.** NATURE ECOLOGY AND EVOLUTION 5:449-457

Authors' abstract: *Flowering plants (angiosperms) are the most diverse of all land plants, becoming abundant in the Cretaceous and achieving dominance in the Cenozoic. However, the exact timing of their origin remains a controversial topic, with molecular clocks generally placing their origin much further back in time than the oldest unequivocal fossils.*

To resolve this discrepancy, we developed a Bayesian method to estimate the ages of angiosperm families on the basis of the fossil record (a newly compiled dataset of ~15,000 occurrences in 198 families) and their living diversity. Our results indicate that several families originated in the Jurassic, strongly rejecting a Cretaceous origin for the group.

We report a marked increase in lineage accumulation from 125 to 72 million years ago, supporting Darwin's hypothesis of a rapid Cretaceous angiosperm diversification. Our results demonstrate that a pre-Cretaceous origin of angiosperms is supported not only by molecular clock approaches but also by analyses of the fossil record that explicitly correct for incomplete sampling.

Joly, S., et al (2021) **Repeated evolution of a reproductive polyphenism in plants is strongly associated with bilateral flower symmetry.** CURRENT BIOLOGY 31:doi.org/10.1016/j.cub.2021.01.009

[Genotypes are the exact genetic code, while phenotypes are the expression of that code during development. The phenotype is what produces individual variability.]

Authors' abstract: *Cleistogamous plants produce open flowers and also closed ones that self-fertilize. Cleistogamy evolves more readily in species with bilateral flower symmetry. Species with bilateral flower symmetry are less autofertile. Cleistogamy could have evolved as a reproductive assurance mechanism.*

Polyphenisms are a special type of phenotypic plasticity in which the products of development are not continuous but instead are separate and distinct phenotypes produced in the same genetic background.

One of the most widespread polyphenisms in the flowering plants is cleistogamy, in which the same individual plant produces both open, cross-pollinated flowers as well as highly reduced and closed, self-pollinated (cleistogamous) flowers.

Cleistogamy is not a rare evolutionary phenomenon. It has evolved independently at least 41 times. But what favors the evolution of cleistogamy is still largely unknown.

Darwin proposed a hypothesis that has never been properly tested. He observed that cleistogamy is more common in taxa with bilaterally symmetric (zygomorphic) flowers than in those with radially symmetric (actinomorphic) flowers.

Moreover, Darwin suggested that cleistogamous flowers help to ensure pollination, which he postulated is less certain in zygomorphic taxa that rely on more specialized groups of pollinators.

Here, we combined the largest datasets on floral symmetry and cleistogamy and used phylogenetic approaches to show that cleistogamy is indeed disproportionately associated with zygomorphic flowers and that zygomorphic species are more likely to evolve cleistogamy than actinomorphic species.

We also show that zygomorphic species are less capable of autonomous open-flower self pollination (lower autofertility), suggesting that selection of cleistogamy via reproductive assurance in zygomorphic taxa could help account for Darwin's observation. Our results provide support for the hypothesis that polyphenisms are favored when organisms encounter contrasting environments.

Baird, A.S., et al (2021) **Developmental and biophysical determinants of grass leaf size worldwide.** NATURE 592:242-247

[Most people don't know that grasses are angiosperms, that is, flowering plants. They evolved to rely on wind pollination, so they don't have showy flowers. Their flowers are small and clustered in spikes. Grasses are the most important food crops worldwide, whether indirectly as pasture for livestock, or directly such as rice, wheat, corn, barley, rye, and oats.]

[There are two types of angiosperms, monocots (which includes grasses) and dicots (broad leaved plants, referred to below as eudicotyledons).]

Authors' abstract: *One of the most notable ecological trends, described more than 2,300 years ago by Theophrastus, is the association of small leaves with dry and cold climates, which has recently been recognized for eudicotyledonous plants at a global scale.*

For eudicotyledons, this pattern has been attributed to the fact that small leaves have a thinner boundary layer that helps to avoid extreme leaf temperatures and their leaf development results in vein traits that improve water transport under cold or dry climates.

However, the global distribution of leaf size and its adaptive basis have not been tested in the grasses, which represent a diverse lineage that is distinct in leaf morphology and that contributes 33% of terrestrial primary productivity (including the bulk of crop production). Here we demonstrate that grasses have shorter and narrower leaves under colder and drier climates worldwide.

We show that small grass leaves have thermal advantages and vein development that contrast with those of eudicotyledons, but that also explain the abundance of small leaves in cold and dry climates.

The worldwide distribution of leaf size in grasses exemplifies how biophysical and developmental processes result in convergence across major lineages in adaptation to climate globally, and highlights the importance of leaf size and venation architecture for grass performance in past, present and future ecosystems.

Vigouroux, R.J., et al (2021) **Bilateral visual projections exist in non-teleost bony fish and predate the emergence of tetrapods.** SCIENCE 372:doi.org/10.1126/science.abe7790

[Optic nerves from each eye split into two so that each half of the brain receives images from both eyes, rather than the left hemisphere getting only images from the left eye and the right hemisphere only from the right eye. The nerves that cross over are contralateral, while those that feed the same side of the brain are ipsilateral. This enables binocular vision.]

Authors' abstract: *In primates, visual connections are bilateral. Each eye sends neural connections to both sides of the brain. We looked at the evolutionary underpinnings of the bilateral visual system. A close look at the connections between the retina and the brain in a variety of fish species representing a span of evolutionary divergence revealed that contralateral connections seem to be universal.*

The ipsilateral connections, which add to the contralateral connections to form a bilateral visual system, arrived later in evolution but before the transition to land-dwelling animals.

Depth perception [stereoscopic or three-dimensional (3D) vision] exists in vertebrate and nonvertebrate species and has been linked to binocularity, the partial overlap of the visual fields, and to disparities of the images coming from both eyes. In mammals, the right and left sides of the brain receive visual inputs from both eyes and compute their differences to extract 3D visual information.

Mammals with front-facing eyes, such as primates and carnivores, possess a high fraction of ipsilateral fibers and therefore a higher degree of binocular overlap, whereas lateral-eyed prey mammals have a small amount of ipsilateral retinal axons and a more limited binocular overlap.

This prevalent model also assumes that ipsilateral projections evolved within amphibians first and were absent in fishes. However, isolated and often conflicting data reported the presence of ipsilateral retina connections in fishes, without any clear correlation with eye position or predatory behavior.

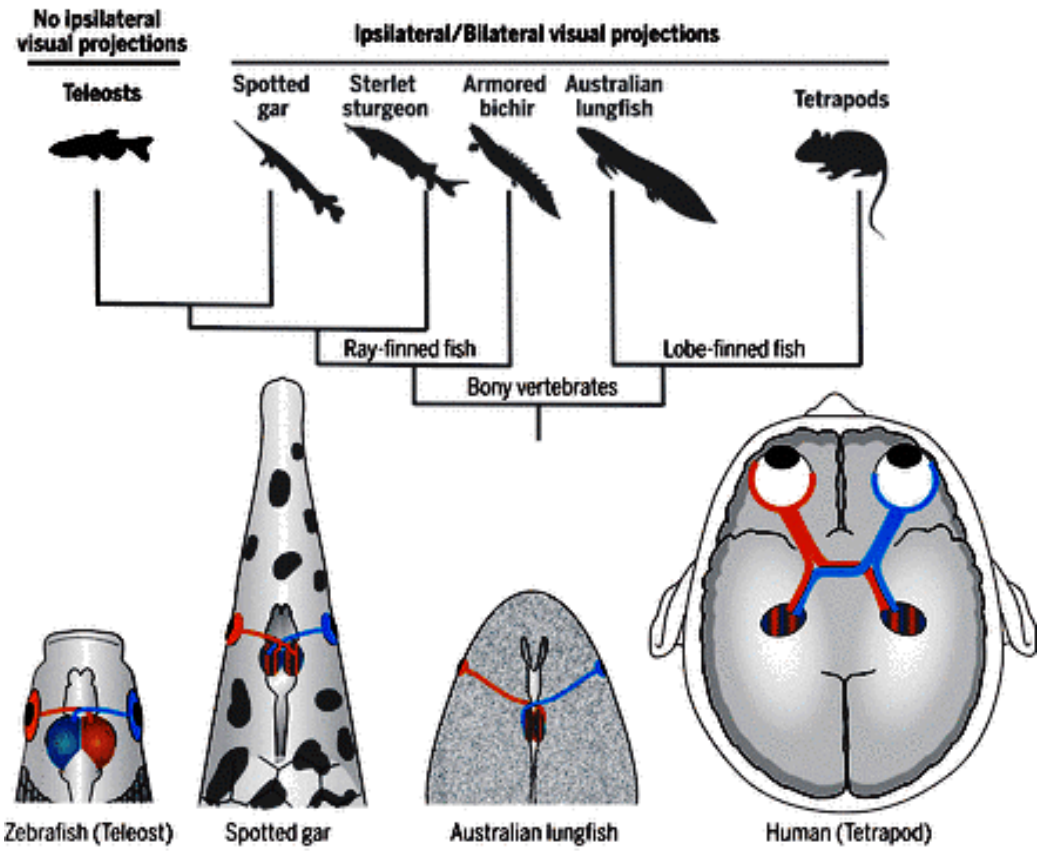
We decided to systematically investigate the presence of ipsilateral and contralateral visual projections in a panel of teleost and non-teleost fishes by

using advanced histological methods and whole-mount brain imaging. We sampled a large spectrum of fish species, varying for eye position, predatory behavior, and evolutionary history. We further evaluated in fishes the level of conservation of the genetic program that, in mammals, is thought to specify ipsilateral visual projections.

By injecting fluorescent axonal tracers in the eyes of 11 fish species and imaging their brains after optical clearing, we analyzed their patterns or retinal connectivities at high resolution. Only contralateral projections were found in most teleost fishes.

However ipsilateral projections were present in the most basally branching teleost fish and in non-teleosts. In the non-teleost spotted gar, we detected a proportion of ipsilateral fibers comparable to what was previously reported in rodents.

[Image is from this paper.]



Malone, J.R., et al (2021) **Jurassic dinosaurs on the move: Gastrolith provenance and long-distance migration.** TERRA NOVA 33:doi.org/10.1111/ter.12522

Authors' abstract: *Here, we present the detrital zircon age spectra for five red quartzite gastroliths collected from the top of the Upper Jurassic Morrison Formation in the eastern Bighorn Basin, Wyoming, USA. The detrital zircon age spectra reveal geon 17 maximum depositional ages, and age peaks that are Yavapai (geon 17), Penokean (geon 18) and Archean (>geon 25).*

The colour, texture, composition and zircon age spectra of these exoliths are indistinguishable from those of geon 16 (i.e. Baraboo interval) quartzites present in the Laurentian midcontinent more than 1,000 km to the east.

We interpret that these gastroliths were ingested by dinosaurs, most likely sauropods, in the Laurentian midcontinent and then transported in their digestive tracts to the site of deposition. These data support the hypothesis of long-distance dinosaur migration, perhaps following low energy, continental-scale drainage systems that flowed from the Appalachian highlands to the Morrison Formation depositional basin.

Marshall, C.R., et al (2021) **Absolute abundance and preservation rate of *Tyrannosaurus rex*.** SCIENCE 372:doi.org/10.1126/science.abc8300 (available as a free pdf)

Authors' abstract: *Although much can be deduced from fossils alone, estimating abundance and preservation rates of extinct species requires data from living species.*

Here, we use the relationship between population density and body mass among living species combined with our substantial knowledge of Tyrannosaurus rex to calculate population variables and preservation rates for postjuvenile T. rex.

We estimate that its abundance at any one time was ~20,000 individuals, that it persisted for ~127,000 generations, and that the total number of T. rex that ever lived was ~2.5 billion individuals, with a fossil recovery rate of 1 per ~80 million individuals or 1 per 16,000 individuals where its fossils are most abundant.

The uncertainties in these values span more than two orders of magnitude, largely because of the variance in the density-body mass relationship rather than variance in the paleobiological input variables.

Ponce de León, M.S., et al (2021) **The primitive brain of early *Homo*.** SCIENCE 372:doi.org/10.1126/science.aaz0032 (available as a free pdf)

Authors' abstract: *The brains of modern humans differ from those of great apes in size, shape, and cortical organization, notably in frontal lobe areas involved in complex cognitive tasks, such as social cognition, tool use, and language. When these differences arose during human evolution is a question of ongoing debate.*

Here, we show that the brains of early Homo from Africa and Western Asia (Dmanisi) retained a primitive, great ape-like organization of the frontal lobe. By contrast, African Homo younger than 1.5 million years ago, as well as all Southeast Asian Homo erectus, exhibited a more derived, humanlike brain organization.

Frontal lobe reorganization, once considered a hallmark of earliest Homo in Africa, thus evolved comparatively late, and long after Homo first dispersed from Africa.

Wilkins, J., et al (2021) **Innovative Homo sapiens behaviours 105,000 years ago in a wetter Kalahari.** NATURE 592:248-252

Authors' abstract: *The archaeological record of Africa provides the earliest evidence for the emergence of the complex symbolic and technological behaviours that characterize Homo sapiens.*

The coastal setting of many archaeological sites of the Late Pleistocene epoch, and the abundant shellfish remains recovered from them, has led to a dominant narrative in which modern human origins in southern Africa are intrinsically tied to the coast and marine resources, and behavioural innovations in the interior lag behind.

However, stratified Late Pleistocene sites with good preservation and robust chronologies are rare in the interior of southern Africa, and the coastal hypothesis therefore remains untested. Here we show that early human innovations that are similar to those dated to around 105 thousand years ago (ka) in coastal southern Africa existed at around the same time among humans who lived over 600 km inland.

We report evidence for the intentional collection of non-utilitarian objects (calcite crystals) and ostrich eggshell from excavations of a stratified rockshelter deposit in the southern Kalahari Basin, which we date by optically stimulated luminescence to around 105 ka. Uranium–thorium dating of relict tufa deposits indicates sporadic periods of substantial volumes of fresh, flowing water; the oldest of these episodes is dated to between 110 and 100 ka and is coeval with the archaeological deposit.

Our results suggest that behavioural innovations among humans in the interior of southern Africa did not lag behind those of populations near the coast, and that these innovations may have developed within a wet savannah environment.

Yamagata, K., et al (2021) **Signs of biological activities of 28,000-year-old mammoth nuclei in mouse oocytes visualized by live-cell imaging.** SCIENTIFIC REPORTS 9:doi.org/10.1038/s41598-019-40546-1 (available as a free pdf)

Authors' abstract: *The 28,000-year-old remains of a woolly mammoth, named 'Yuka', were found in Siberian permafrost. Here we recovered the less-damaged nucleus-like structures from the remains and visualised their dynamics in living mouse oocytes after nuclear transfer.*

Proteomic analyses demonstrated the presence of nuclear components in the remains. Nucleus-like structures found in the tissue homogenate were histone- and lamin-positive by immunostaining. In the reconstructed oocytes, the mammoth nuclei showed the spindle assembly, histone incorporation and partial nuclear formation; however, the full activation of nuclei for cleavage was not confirmed.

DNA damage levels, which varied among the nuclei, were comparable to those of frozen-thawed mouse sperm and were reduced in some reconstructed oocytes. Our work provides a platform to evaluate the biological activities of nuclei in extinct animal species.

Fundamental studies on woolly mammoth (Mammuthus primigenius) genes, including whole genome analyses, led to the reconstitution of mammoth haemoglobin with cold tolerance and to an understanding of the expression of mammoth-specific coat colour and temperature-sensitive channels.

Moreover, proteomic analyses have shown the presence of proteins in the remains. Meanwhile, the investigation of biological activities of nuclei isolated from the remains using means of nuclear transfer (NT) approach is still in progress. Our initial attempt of NT using 15,000-year-old mammoth tissues resulted in no nuclear reorganisation in mouse oocytes, possibly owing to the technological limitations at that time and the inappropriate state of the frozen mammoth tissues.

In the present study, the combination of NT and less-invasive live-cell imaging, previously developed by us, and excavation of other remains of the woolly mammoth from the Siberian permafrost, named 'Yuka' led us to study the biological activities of mammoth nuclei. Radiocarbon dating suggested that Yuka mammoth was 28,140 (±230) years old.

The authenticity of our tissue samples after such a long frozen period was confirmed by whole-genome sequencing. Genomic DNA libraries of the Yuka mammoth remains were constructed using Phusion polymerase, which provides efficient amplification with high fidelity, excluding post-mortem damage (C-to-T or G-to-A substitutions).

[Image is from this paper and shows Yuka's head.]

Castro e Silva, M.A., et al (2021) **Deep genetic affinity between coastal Pacific and Amazonian natives evidenced by Australasian ancestry.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 118:doi.org/10.1073/pnas.2025739118

Authors' abstract: *Different models have been proposed to elucidate the origins of the founding populations of America, along with the number of migratory waves and routes used by these first explorers. Settlements, both along the Pacific coast and on land, have been evidenced in genetic and archeological studies. However, the number of migratory waves and the origin of immigrants are still controversial topics.*

Here, we show the Australasian genetic signal is present in the Pacific coast region, indicating a more widespread signal distribution within South America and implicating an ancient contact between Pacific and Amazonian dwellers. We demonstrate that the Australasian population contribution was introduced in South America through the Pacific coastal route before the formation of the Amazonian branch, likely in the ancient coastal Pacific/Amazonian population.

In addition, we detected a significant amount of interpopulation and intrapopulation variation in this genetic signal in South America. This study elucidates the genetic relationships of different ancestral components in the initial settlement of South America and proposes that the migratory route used by migrants who carried the Australasian ancestry led to the absence of this signal in the populations of Central and North America.

Valle, S., et al (2021) **What can the abundance of Grey Parrots on Príncipe Island tell us about large parrot conservation?** JOURNAL OF TROPICAL ECOLOGY 36:doi.org/10.1017/S0266467421000031

Authors' abstract: *While populations of the Endangered Grey Parrot Psittacus erithacus have collapsed across its range, the species remains remarkably abundant on the island of Príncipe, Gulf of Guinea. We examine how aspects of its ecology interplay with local environmental conditions, to inform conservation strategies for this species and other large parrots.*

On Príncipe, parrots breed in large trees of common species, with nest densities (42 ± 34 km-2) greatly exceeding those for any comparably sized parrot. Productivity is high (1.9 chicks per cavity), probably reflecting the absence of

nest competitors and predators. Food sources are abundant and much of the island is inaccessible to trappers, so many nests are successful each year.

Historically harvest has involved taking only chicks from trees in a few traditional patches. These conditions have combined to allow Grey Parrots to thrive on Príncipe, while elsewhere nest trees are timber targets, nest competition and nest predation are likely to be more intense, trapping is indiscriminate, and few areas remain unexploited by trappers.

Preservation of large trees as breeding refugia, and vigilance against the indiscriminate trapping of adult birds, are identified as key conditions to stabilize and recover mainland Grey Parrot populations and indeed large parrots generally, given their very similar ecological traits and anthropogenic circumstances.

Capriles, J.M., et al (2021) **Pre-Columbian transregional captive rearing of Amazonian parrots in the Atacama Desert.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 118:doi.org/10.1073/pnas.2020020118

Authors' abstract: *The brightly colored feathers of macaws, amazons, and other neotropical parrots were one of the most important symbols of wealth, power, and sacredness in the pre-Columbian Americas. Andean highland and coastal societies imported these exotic goods from Amazonian tropical forests by little understood mechanisms of exchange.*

The study of 27 complete and partially mummified and skeletonized remains of at least six species of parrots from five archaeological sites in the Atacama Desert of northern Chile provides evidence that capturing, transporting, and keeping macaws, amazons, and conures as pets was part of this provisioning system, likely motivated by their significance for producing and representing relational wealth.

The feathers of tropical birds were one of the most significant symbols of economic, social, and sacred status in the pre-Columbian Americas. In the Andes, finely produced clothing and textiles containing multicolored feathers of tropical parrots materialized power, prestige, and distinction and were particularly prized by political and religious elites.

Here we report 27 complete or partial remains of macaws and amazon parrots from five archaeological sites in the Atacama Desert of northern Chile to improve our understanding of their taxonomic identity, chronology, cultural context, and mechanisms of acquisition.

We conducted a multiproxy archaeometric study that included zooarchaeological analysis, isotopic dietary reconstruction, accelerated mass spectrometry radiocarbon dating, and paleogenomic analysis.

The results reveal that during the Late Intermediate Period (1100 to 1450 CE), Atacama oasis communities acquired scarlet macaws (Ara macao) and at least five additional translocated parrot species through vast exchange networks that extended more than 500 km toward the eastern Amazonian tropics.

Carbon and nitrogen stable isotopes indicate that Atacama aviculturalists sustained these birds on diets rich in marine bird guano-fertilized maize based foods. The captive rearing of these colorful, exotic, and charismatic birds served to unambiguously signal relational wealth in a context of emergent intercommunity competition.

Czerwinski, S., et al (2021) **Environmental implications of past socioeconomic events in Greater Poland during the last 1200 years. Synthesis of paleoecological and historical data.** QUATERNARY SCIENCE REVIEWS 259:doi.org/10.1016/j.quascirev.2021.106902 (available as a free pdf)

Authors' abstract: *We explored the past environmental history inferred from a fen located in northwestern Poland, in a historically important location. Pollen, plant macrofossils, micro- and macrocharcoal particles, and nonpollen palynomorphs were analyzed continuously in a 1-cm resolution, supplemented with archeological data and historical written sources.*

The last 1200-year environmental history of the fen was supported with accelerator mass spectrometry (AMS) radiocarbon (14C) dating (19 dates per 172 cm of the profile) and validated by 59 210 Pb dates.

Our research showed that primeval oakehornbeam forests near the Kazanie mire disappeared gradually, starting from 1035 ± 20 cal. yr CE, due to the economic development of the newly formed Polish (Piast) statehood. The pollen

data revealed no shortage of oak timber during the 11th century, as recorded by previous studies in the area between Poznan and Gniezno.

The Czech invasion in 1039 CE, which was associated with mass depopulation and domestic crisis, seemed to be manifested by the increase of pioneer Betula taking advantage of weaker human impact.

Substantial land-use changes started with the further development of Polish statehood between the 15th and the 16th century CE, as reflected by cultivated land, ruderal, and meadow and pasture pollen indicators, as well as the rise of microcharcoal influx.

The economy of Poland was disrupted by a noticeable socioeconomic collapse in the 17th century CE, which caused depopulation (by approximately 67.5%) and a decline in arable land (by 35%). Paleoecological data reflect this socio-environmental crisis with a decrease in all anthropogenic indicators, rapid forest regeneration, and secondary succession of pine on the abandoned land.

According to palynological data, rapid landscape transformation due to agricultural reforms and industrialization commenced in the 19th century CE and was associated with the expansion of pastures, meadows, and arable lands.

The following rapid decrease of cultivated land pollen indicators in 1940 ± 10 cal. yr CE is linked with the economic collapse after World War II and/or the implementation of new crops which produce less pollen.

Mesquita, G.P., et al (2021) **Measuring disturbance at swift breeding colonies due to the visual aspects of a drone: a quasi-experiment study.** CURRENT ZOOLOGY 67:doi.org/10.1093/cz/zoaa038 (available as a free pdf)

Authors' abstract: *There is a growing body of research indicating that drones can disturb animals. However, it is usually unclear whether the disturbance is due to visual or auditory cues. Here, we examined the effect of drone flights on the behavior of great dusky swifts Cypseloides senex and white-collared swifts Streptoprocne zonaris in two breeding sites where drone noise was obscured by environmental noise from waterfalls and any disturbance must be largely visual.*

We performed 12 experimental flights with a multirotor drone at different vertical, horizontal, and diagonal distances from the colonies. From all flights, 17% caused <1% of birds to temporarily abandon the breeding site, 50% caused half to abandon, and 33% caused more than half to abandon.

We found that the diagonal distance explained 98.9% of the variability of the disturbance percentage and while at distances >50m the disturbance percentage does not exceed 20%, at <40m the disturbance percentage increase to >60%.

We recommend that flights with a multirotor drone during the breeding period should be conducted at a distance of >50m and that recreational flights should be discouraged or conducted at larger distances (e.g. 100 m) in nesting birds areas such as waterfalls, canyons, and caves.

Ringvold, H., et al (2021) **In situ recordings of large gelatinous spheres from NE Atlantic, and the first genetic confirmation of egg mass of *Illex coindetii* (Vérany, 1839) (Cephalopoda, Mollusca).** SCIENTIFIC REPORTS 11:doi.org/10.1038/s41598-021-86164-8 (available as a free pdf)

Authors' abstract: *In total, 90 gelatinous spheres, averaging one meter in diameter, have been recorded from about 1985 to 2019 from the NE Atlantic Ocean, including the Mediterranean Sea, using citizen science. More than 50% had a dark streak through center. They were recorded from the surface to ~ 60 to 70 m depth, mainly neutrally buoyant, in temperatures between 8 and 24˚C.*

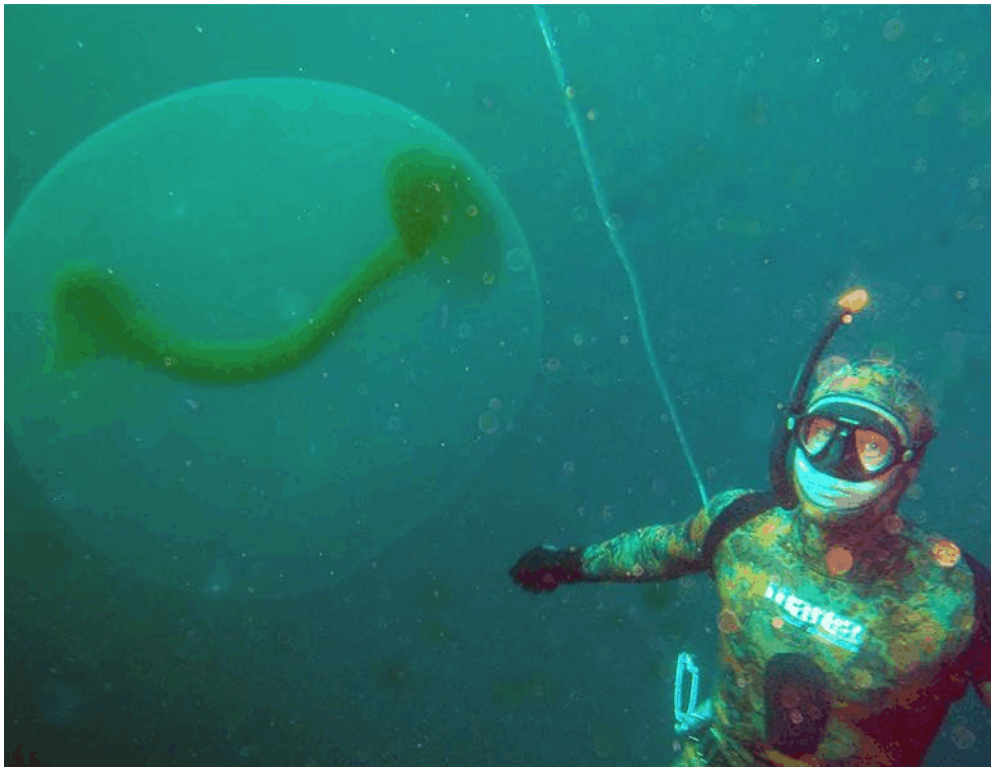
Lack of tissue samples has until now, prohibited confirmation of species. However, in 2019 scuba divers secured four tissue samples from the Norwegian coast. In the present study, DNA analysis using COI confirms species identity as the ommastrephid broadtail shortfin squid Illex coindetii (Vérany, 1839).

These are the first confirmed records from the wild. Squid embryos at different stages were found in different egg masses: (1) recently fertilized eggs (stage ~ 3), (2) organogenesis (stages ~ 17 to 19 and ~ 23), and (3) developed embryo (stage ~ 30).

Without tissue samples from each and every record for DNA corroboration we cannot be certain that all spherical egg masses are conspecific, or that the remaining 86 observed spheres belong to Illex coindetii. However, due to

similar morphology and size of these spheres, relative to the four spheres with DNA analysis, we suspect that many of them were made by I. coindetii.

[Image is from this paper.]



Carnahan, A.M., et al (2021) **Quantifying energetic costs and defining energy landscapes experienced by grizzly bears.** JOURNAL OF EXPERIMENTAL BIOLOGY 224:doi.org/10.1242/jeb.241083

Authors' abstract: *Animal movements are major determinants of energy expenditure and ultimately the cost-benefit of landscape use. Thus, we sought to understand those costs and how grizzly bears (Ursus arctos) move in mountainous landscapes.*

We trained captive grizzly bears to walk on a horizontal treadmill and up and down 10% and 20% slopes. The cost of moving upslope increased linearly with speed and slope angle, and this was more costly than moving horizontally.

The cost of downslope travel at slower speeds was greater than the cost of traveling horizontally but appeared to decrease at higher speeds. The most efficient walking speed that minimized cost per unit distance was 1.19±0.11 metres per second.

However, grizzly bears fitted with GPS collars in the Greater Yellowstone Ecosystem moved at an average velocity of 0.61±0.28 metres per second and preferred to travel on near-horizontal slopes at twice their occurrence. When traveling uphill or downhill, grizzly bears chose paths across all slopes that were ~54% less steep and costly than the maximum available slope.

The net costs of moving horizontally and uphill were the same for grizzly bears, humans and digitigrade carnivores, but those costs were 46% higher than movement costs for ungulates.

These movement costs and characteristics of landscape use determined using captive and wild grizzly bears were used to understand the strategies that grizzly bears use for preying on large ungulates and the similarities in travel between people and grizzly bears that might affect the risk of encountering each other on shared landscapes.

Fu, B., et al (2021) **The contributions of individual countries and regions to the global radiative forcing.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 118:doi.org/10.1073/pnas.2018211118

Authors' abstract: *Radiative forcing (RF) is commonly used to describe the change in net radiative flux because of external drivers. Climate change is caused by human activities of all countries, and mitigating climate change requires global joint efforts. It is important to attribute global RF to country scale.*

At present, developed countries still have greater responsibilities for climate change. Meanwhile, the contribution of developing countries has increased. It is worth noting that the emissions of developing countries include a large amount of negative RF components such as aerosols, masking RF because of

greenhouse gases significantly. However, negative RF components in developing countries will be reduced for air quality in the future, which will affect the ultimate purpose of the Paris Agreement.

In this study, we use a compact Earth system model to quantify the global RF and attribute global RF to individual countries and regions. As our evaluation, the United States, the first 15 European Union members, and China are the top three contributors, accounting for 21.9 ± 3.1%, 13.7 ± 1.6%, and 8.6 ± 7.0% of global RF in 2014, respectively.

We also find a contrast between developed countries where GHGs dominate the RF and developing countries where SLCFs including aerosols and ozone are more dominant. In developing countries, negative RF caused by aerosols largely masks the positive RF from GHGs.

As developing countries take measures to improve the air quality, their negative contributions from aerosols will likely be reduced in the future, which will in turn enhance global warming. This underlines the importance of reducing GHG emissions in parallel to avoid any detrimental consequences from air quality policies.

Fischer, E.E., et al (2021) **Decline of amateur lepidoptera collectors threatens the future of specimen-based research.** BIOSCIENCE 71:doi.org/10.1093/biosci/biaa152

Authors' abstract: *Amateur butterfly and moth collectors in the United States have procured more Lepidoptera specimens than professional scientists. The advent of large government-supported database efforts has made a quantitative examination of the impact of amateur collecting of these insects possible.*

We reviewed trends in Lepidoptera collecting since 1800, using more than 1 million United States lepidopteran specimens that have been collected into public databases. Our findings show a steep rise in the collection of specimens after World War II, followed by a short plateau and sharp decline in the late 1990s.

In contrast, the rate of observations submitted to database groups dramatically increased around 2005. Declining acquisition of Lepidoptera specimens may compromise critically important testing of contemporary and future ecological, conservation, and evolutionary hypotheses on a grand scale, particularly given documented declines in insect populations. We suggest that increasing collaboration between professional and community-based scientists could alleviate the decline in amateur-collected specimens.

Speirs: It isn't just SF fandom or stamp collectors who are worried by the declines in their hobbies.

Adams, G.S., et al (2021) **People systematically overlook subtractive changes.** NATURE 592:258-261

Authors' abstract: *Improving objects, ideas or situations, whether a designer seeks to advance technology, a writer seeks to strengthen an argument or a manager seeks to encourage desired behaviour, requires a mental search for possible changes.*

We investigated whether people are as likely to consider changes that subtract components from an object, idea or situation as they are to consider changes that add new components.

People typically consider a limited number of promising ideas in order to manage the cognitive burden of searching through all possible ideas, but this can lead them to accept adequate solutions without considering potentially superior alternatives.

Here we show that people systematically default to searching for additive transformations, and consequently overlook subtractive transformations.

Across eight experiments, participants were less likely to identify advantageous subtractive changes when the task did not (versus did) cue them to consider subtraction, when they had only one opportunity (versus several) to recognize the shortcomings of an additive search strategy or when they were under a higher (versus lower) cognitive load.

Defaulting to searches for additive changes may be one reason that people struggle to mitigate overburdened schedules, institutional red tape, and damaging effects on the planet.

Konkoly, K.R., et al (2021) **Real-time dialogue between experimenters and dreamers during REM sleep.** CURRENT BIOLOGY 31:doi.org/10.1016/j.cub.2021.01.026 (available as a free pdf)

Authors' abstract: *Dreams take us to a different reality, a hallucinatory world that feels as real as any waking experience. These often-bizarre episodes are emblematic of human sleep but have yet to be adequately explained. Retrospective dream reports are subject to distortion and forgetting, presenting a fundamental challenge for neuroscientific studies of dreaming.*

Here we show that individuals who are asleep and in the midst of a lucid dream (aware of the fact that they are currently dreaming) can perceive questions from an experimenter and provide answers using electrophysiological signals.

We implemented our procedures for two-way communication during polysomnographically verified rapid-eye-movement (REM) sleep in 36 individuals. Some had minimal prior experience with lucid dreaming, others were frequent lucid dreamers, and one was a patient with narcolepsy who had frequent lucid dreams.

During REM sleep, these individuals exhibited various capabilities, including performing veridical perceptual analysis of novel information, maintaining information in working memory, computing simple answers, and expressing volitional replies.

Their responses included distinctive eye movements and selective facial muscle contractions, constituting correctly answered questions on 29 occasions across 6 of the individuals tested.

These repeated observations of interactive dreaming, documented by four independent laboratory groups, demonstrate that phenomenological and cognitive characteristics of dreaming can be interrogated in real time.

Wyatt, P., et al (2021) **Postprandial glycaemic dips predict appetite and energy intake in healthy individuals**. NATURE METABOLISM 3:523-529

Authors' abstract: *Understanding how to modulate appetite in humans is key to developing successful weight loss interventions. Here, we showed that postprandial glucose dips 2 to 3 hours after a meal are a better predictor of postprandial self-reported hunger and subsequent energy intake than peak glucose at 0 to 2 hours and glucose incremental area under the blood glucose curve at 0 to 2 hours.*

We explore the links among postprandial glucose, appetite and subsequent energy intake in 1,070 participants from a UK exploratory and US validation cohort, who consumed 8,624 standardized meals followed by 71,715 ad-libitum meals, using continuous glucose monitors to record postprandial glycaemia.

For participants eating each of the standardized meals, the average postprandial glucose dip at 2 to 3 hours relative to baseline level predicted an increase in hunger at 2 to 3 hours, shorter time until next meal, greater energy intake at 3 to 4 hours and greater energy intake at 24 hours. Results were directionally consistent in the US validation cohort.

Wurman, J., et al (2021) **Supercell tornadoes are much stronger and wider than damage-based ratings indicate.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES 118:doi.org/10.1073/pnas.2021535118

Authors' abstract: *This study documents the actual distribution of supercell-tornado wind intensities and sizes, revealing that most are much stronger than damage surveys indicate, with >20% of tornadoes potentially capable of causing catastrophic EF-4/EF-5 damage. Additionally, supercell tornadoes are shown to be much wider than damage surveys indicate.*

Tornadoes cause damage, injury, and death when intense winds impact structures. Quantifying the strength and extent of such winds is critical to characterizing tornado hazards. Ratings of intensity and size are based nearly entirely on post-event damage surveys. It has long been suspected that these suffer low bias.

Here, using mapping of low-level tornado winds in 120 tornadoes, we prove that supercell tornadoes are typically much stronger and wider than damage surveys indicate.

Our results permit an accurate assessment of the distribution of tornado intensities and sizes and tornado wind hazards, based on actual wind-speed observations, and meaningful comparisons of the distribution of tornado intensities and sizes with theoretical predictions.

We analyze data from Doppler On Wheels (DOW) radar measurements of 120 tornadoes at the time of peak measured intensity. In striking contrast to conventional damage-based climatologies, median tornado peak wind speeds are ~60 m·s^{-1}, capable of causing significant, Enhanced Fujita Scale (EF)-2 to -3, damage, and 20% are capable of the most intense EF-4/EF-5 damage.

National Weather Service (NWS) EF/wind speed ratings are 1.2 to 1.5 categories (~20 m·s^{-1}) lower than DOW observations for tornadoes documented by both the NWS and DOWs. Median tornado diameter is 250 to 500 metres, with 10 to 15% >1 km. Wind engineering tornado-hazard-model predictions and building wind resistance standards may require upward adjustment due to the increased wind-damage risk documented here.

SIGNS, SIGNS, EVERYWHERE A SIGN
photos by Dale Speirs

Below: Seen on the Stephen Avenue Mall. Very peculiar name for a company that doesn't sell vinyl.

Seen earlier this March downtown. What is false ice?