OPUNTIA 511

Halloween 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: Taken on October 21, of *Rosa acicularis*, the Alberta wild rose, which I have growing as a hedge around the front yard at Casa Opuntia.

HALLOWEENING AROUND COWTOWN
photos by Dale Speirs

I had a Halloween cupcake, then walked off the calories looking at my neighbours' displays.


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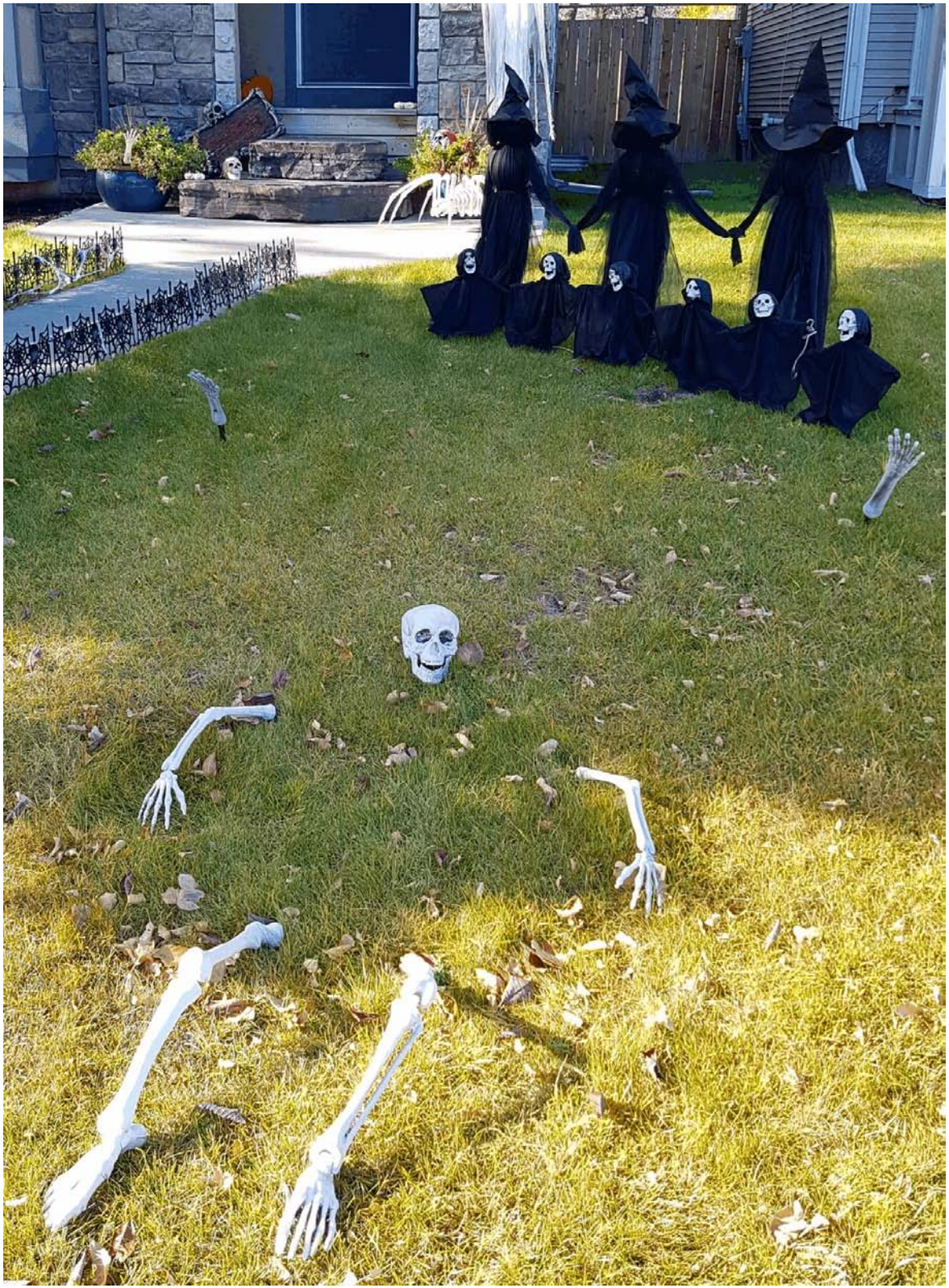
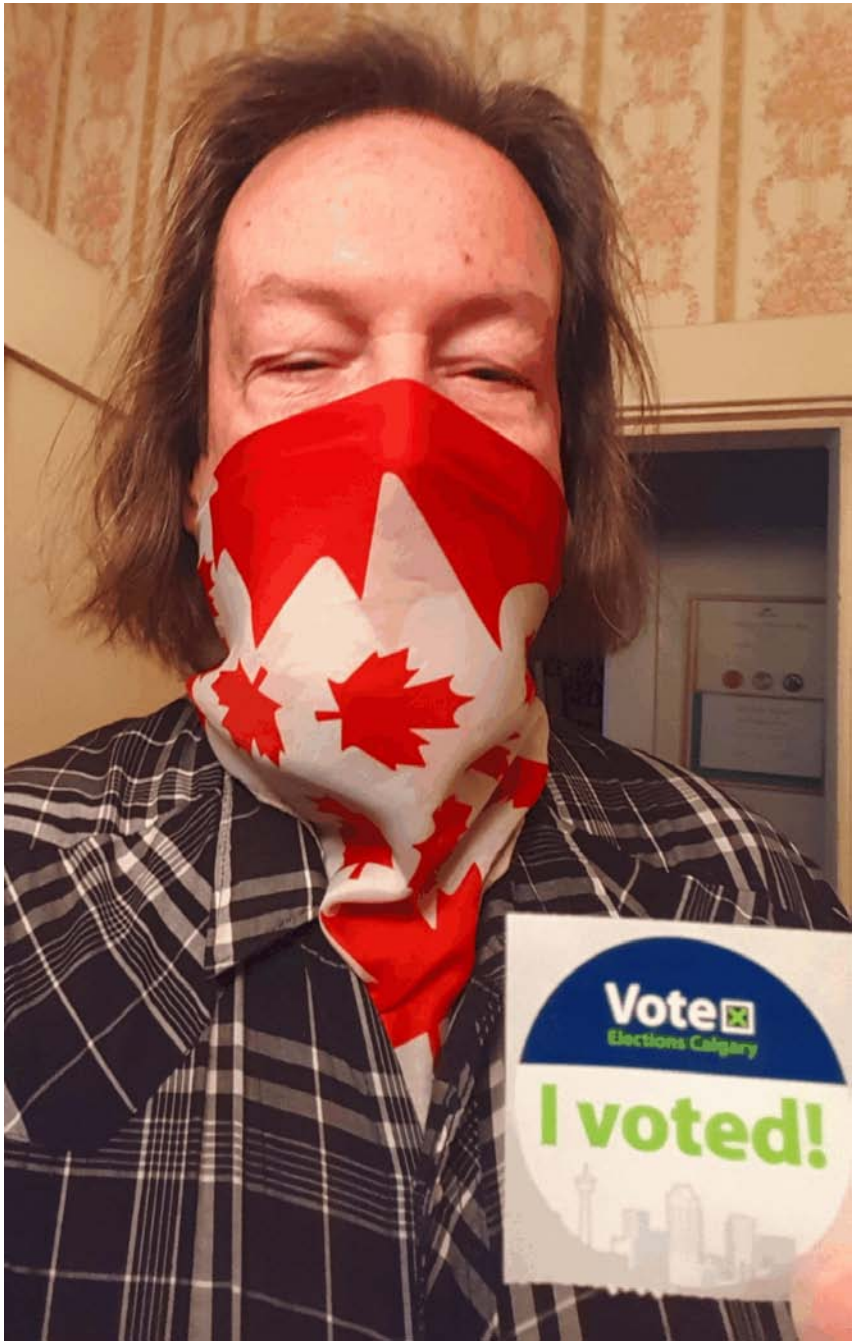


Don't forget to go to the Old Time Radio Researchers at www.otrr.org/OTRRLibrary and download a free mp3 of Orson Welles' famous performance of WAR OF THE WORLDS.

This was an episode of the Mercury Theater aired on Halloween night in 1938, which set off a national panic. Many radio stations, including one in Calgary, still air it every Halloween.

The supermarkets don't wait any more for one holiday to be over before plugging the next one. This Christmas Advent candy display was seen in my local Safeway on October 14. No doubt the Valentine Day candy will appear in early December.

On October 18, municipal elections were held province-wide in Alberta, as well as assorted referendums. For mayor, I voted for Jyoti Gondek, who won by 60,000 votes. She is Punjabi, annoying the intelligentsia in Toronto who believe Calgary is all rednecks. The joke about how Calgary and Toronto keep electing each other's mayors still holds true.



Cannabis in all forms was legalized in Canada by federal law in 2018. It can only be purchased in specialty stores under strict provincial government rules, which have the effect of dampening demand. Imagine buying your cannabis from your local DMV. That is what it's like in Canada.

All cannabis packages, and it must be in factory-sealed packages, no baggies, must have a revenue stamp on it, indicating federal excise tax was paid. I am a stamp collector but don't smoke anything or do recreational drugs. Mint stamps are not sold by the government, so collectors have to rely on puffers to carefully peel off the stamps.

The stamps are affixed on packages such that they are torn in half when the package is opened. Keeping them on the original packaging is acceptable to collectors, in the same way that postal historians collect envelopes with stamps postmarked on them.

In September, I was waiting at a bus stop across the street from a high school specializing in troubled teens, and found this empty package discarded on the ground. It became my first marijuana revenue. With any luck, there will be more finds for my stamp collection.

CURRENT EVENTS: PART 27
by Dale Speirs

[Parts 1 to 26 appeared in OPUNTIAs #474, 475, 479, 480, 483, 484, 488 to 503, and 507 to 510.]

I found this magazine on www.archive.org Available as a free pdf.

As of October 25, there were 1,702,643 cases of COVID-19 in Canada, and 28,805 deaths. 73.7% of Canadians were fully vaccinated.

Seen In The COVID-19 Literature.

Photiou, A., et al (2021) **Social status and novelty drove the spread of online information during the early stages of COVID-19.** SCIENTIFIC REPORTS 11:/doi.org/10.1038/s41598-021-99060-y (available as a free pdf)

Authors' abstract: *Access to online information has been crucial throughout the COVID-19 pandemic. We analyzed more than eight million randomly selected Twitter posts from the first wave of the pandemic to study the role of the author's social status (Health Expert or Influencer) and the informational novelty of the tweet in the diffusion of several key types of information.*

Our results show that health-related information and political discourse propagated faster than personal narratives, economy-related or travel-related news. Content novelty further accelerated the spread of these discussion themes. People trusted health experts on health-related knowledge, especially when it was novel, while influencers were more effective at propagating political discourse.

Finally, we observed a U-shaped relationship between the informational novelty and the number of retweets. Tweets with average novelty spread the least. Tweets with high novelty propagated the most, primarily when they discussed political, health, or personal information, perhaps owing to the immediacy to mobilize this information.

On the other hand, economic and travel-related information spread most when it was less novel, and people resisted sharing such information before it was duly verified.

Chakraborty, B., et al (2021) **Positive effects of COVID-19 lockdown on river water quality: evidence from River Damodar, India.** SCIENTIFIC REPORTS 11:doi.org/10.1038/s41598-021-99689-9 (available as a free pdf)

Authors' abstract: *The global economic activities were completely stopped during COVID-19 lockdown and continuous lockdown partially brought some*

positive effects for the health of the total environment. The multiple industries, cities, towns and rural people are completely depending on large tropical river Damodar (India) but in the last few decades the quality of the river water is being significantly deteriorated.

The present study attempts to investigate the river water quality (RWQ) particularly for pre-lockdown, lockdown and unlock period. We considered 20 variables per sample of RWQ data and it was analyzed using novel Modified Water Quality Index (MWQI), Trophic State Index (TSI), Heavy Metal Index (HMI) and Potential Ecological Risk Index (RI).

Principal component analysis (PCA) and Pearson's correlation (r) analysis are applied to determine the influencing variables and relationship among the river pollutants.

The results show that during lockdown 54.54% samples were brought significantly positive changes applying MWQI. During lockdown, HMI ranged from 33.96 to 117.33 with 27.27% good water quality which shows the low ecological risk of aquatic ecosystem due to low mixing of toxic metals in the river water.

Lockdown effects brought river water to oligotrophic/meso-eutrophic condition from eutrophic/hyper-eutrophic stage. Rejuvenation of river health during lockdown offers ample scope to policymakers, administrators and environmentalists for restoration of river health from huge anthropogenic stress.

Naidoo, R., et al (2021) **Socio-demographic correlates of wildlife consumption during early stages of the COVID-19 pandemic.** NATURE ECOLOGY AND EVOLUTION 5:doi.org/10.1038/s41559-021-01546-5 (available as a free pdf)

Authors' abstract: *To inform efforts at preventing future pandemics, we assessed how socio-demographic attributes correlated with wildlife consumption as COVID-19 (coronavirus disease 2019) first spread across Asia. Self-reported wildlife consumption was most strongly related to COVID-19 awareness; those with greater awareness were 11 to 24% less likely to buy wildlife products.*

A hypothetical intervention targeting increased awareness, support for wildlife market closures and reduced medical impacts of COVID-19 could halve future wildlife consumption rates across several countries and demographics.

The global COVID-19 pandemic has killed over four million people around the world and caused trillions of dollars of economic damage, but it did not arise unexpectedly. Indeed, experts had warned of this type of large-scale outbreak in the wake of other recent emerging zoonotic diseases.

While uncertainty remains regarding the specific origin of COVID-19, a key driving force of emerging infectious diseases of zoonotic origin is the trade and consumption of wildlife, in particular of high-risk taxa, or of species sold in high-risk market conditions.

While the global costs of pandemics such as COVID-19 drastically exceed the benefits of the global wildlife trade, it has nevertheless proven difficult to address large-scale wildlife consumption at local or regional scales.

This is especially true in certain Asian countries where demand for wildlife used in various traditional, cultural and economic contexts is high, and where attempts to curb illegal trade are sometimes hampered by weak wildlife trade laws, low enforcement rates and/or corruption.

The global conservation community is debating the best long-term response to COVID-19, in particular on how to reduce wildlife consumption and habitat destruction so that the probability of future pandemic emergence is reduced.

Regulatory approaches such as the closing of wildlife markets, especially those deemed high-risk, are a popular demand; however, previous examples have shown that rendering the consumption of certain goods illegal (for example, alcohol, recreational drugs) can drive existing demand underground to black markets.

Closing markets or otherwise restricting access to wildlife in situations where trade is highly localized, and/or where wildlife use is imperative for livelihoods or subsistence, also poses ethical dilemmas and trade-offs that are not easily answered.

A complement to regulatory approaches are demand reduction efforts, which seek to influence consumer preferences so that demand for wildlife is reduced,

leading to lower consumption rates. Reducing consumer demand may be a more comprehensive approach to lessening wildlife consumption, but is beset by many complications, including limited investment in research to understand what drives individuals to consume wildlife.

To address this empirical aspect of wildlife demand reduction efforts, we surveyed a total of 5,000 respondents among the general public in five countries and territories in Asia (Hong Kong SAR, Japan, Myanmar, Thailand and Vietnam), eliciting their self-reported wildlife consumption patterns, their awareness of and attitudes towards wildlife markets and COVID-19, and a variety of socio-demographic information.

Teodorescu, K., et al (2021) **Frequency of enforcement is more important than the severity of punishment in reducing violation behaviors.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 118:doi.org/10.1073/pnas.2108507118

Authors' abstract: *Ramifications of seemingly small violations, such as not adhering to COVID-19 regulations, accumulate fast with dire social consequences. The high costs of close monitoring and severe sanctions often lead policymakers to prioritize either the probability of inspection or the severity of punishments.*

Using common one-shot, descriptive settings, findings from experimental economics support the superiority of severe punishments, whereas findings from behavioral ethics highlight the role of internal rather than external enforcement. However, these settings are estranged from real-life environments in which learning about the external enforcement policy naturally occurs via repeated experience.

Using a more ecologically valid, experience-based setting, we found robust evidence for the greater effectiveness of frequent small punishments over rare severe punishments in reducing violations.

External enforcement policies aimed to reduce violations differ on two key components: the probability of inspection and the severity of the punishment. Different lines of research offer different insights regarding the relative importance of each component.

In four studies, students and Prolific crowd sourcing participants (Ntotal = 816) repeatedly faced temptations to commit violations under two enforcement policies. Controlling for expected value, we found that a policy combining a high probability of inspection with a low severity of fines (HILS) was more effective than an economically equivalent policy that combined a low probability of inspection with a high severity of fines (LIHS).

The advantage of prioritizing inspection frequency over punishment severity (HILS over LIHS) was greater for participants who, in the absence of enforcement, started out with a higher violation rate. Consistent with studies of decisions from experience, frequent enforcement with small fines was more effective than rare severe fines even when we announced the severity of the fine in advance to boost deterrence.

In addition, in line with the phenomenon of underweighting of rare events, the effect was stronger when the probability of inspection was rarer (as in most real-life inspection probabilities) and was eliminated under moderate inspection probabilities. We thus recommend that policymakers looking to effectively reduce recurring violations among noncriminal populations should consider increasing inspection rates rather than punishment severity.

Ku, D., et al (2021) **Safe traveling in public transport amid COVID-19.** SCIENCE ADVANCES 7:doi.org/10.1126/sciadv.abg3691 (available as a free pdf)

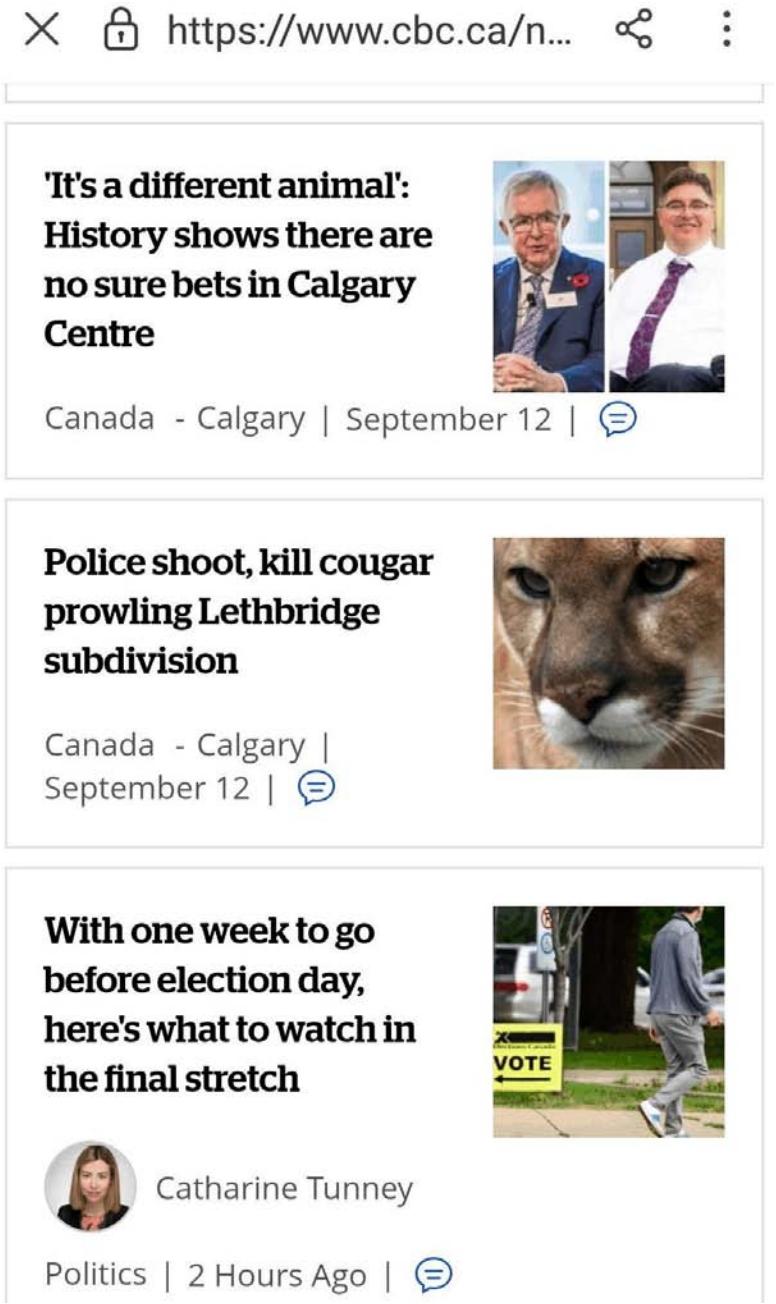
Authors' abstract: *Several intensive policies, such as mandatorily wearing masks and practicing social distancing, have been implemented in South Korea to prevent the spread of the novel coronavirus disease (COVID-19). We analyzed and measured the impact of the aforementioned policies by calculating the degree of infection exposure in public transport.*

Specifically, we simulated how passengers encounter and infect each other during their journeys in public transport by tracking movements of passengers.

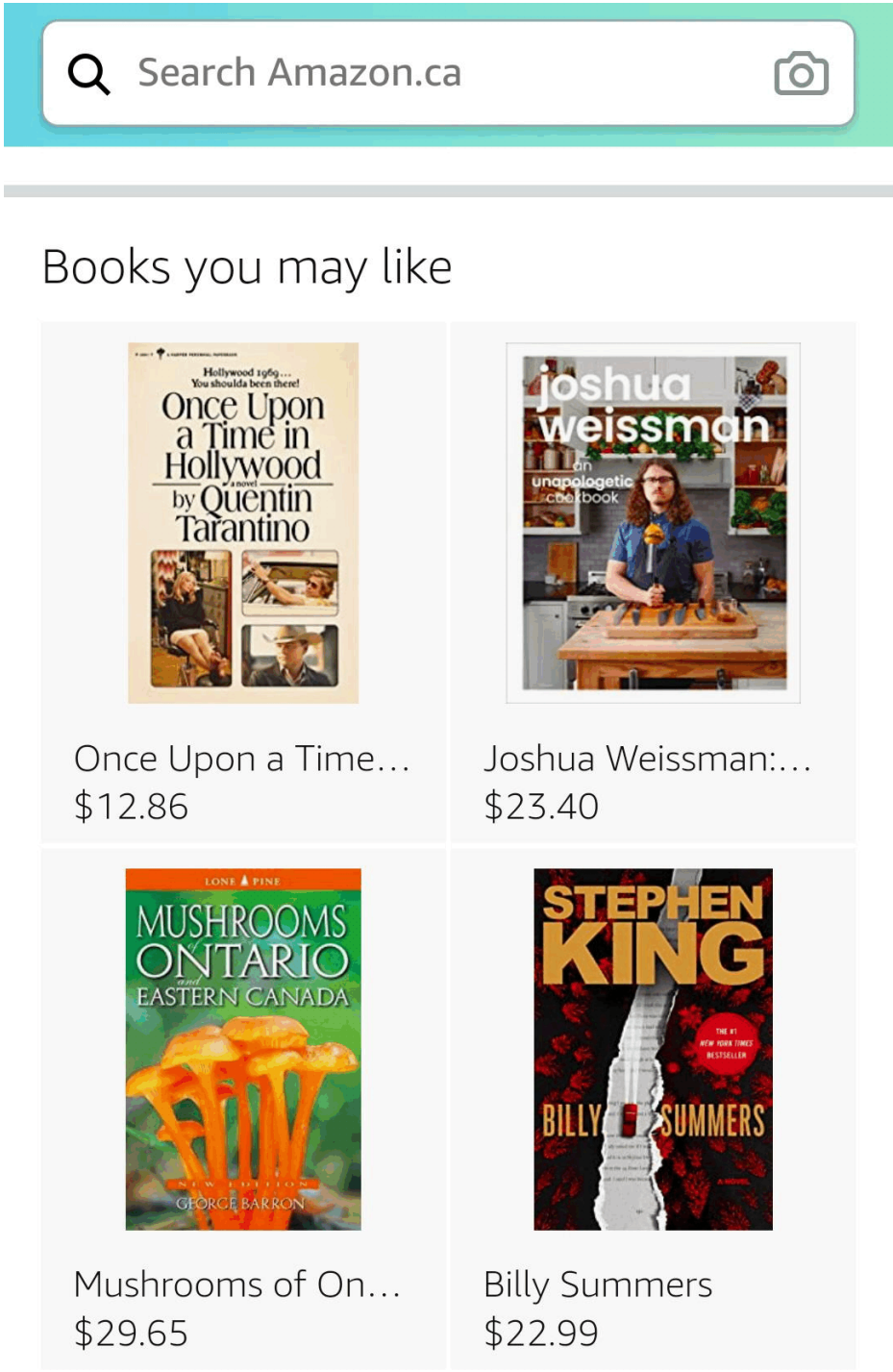
We determined that the mandatory wearing of masks exhibits effects similar to maintaining 2-metre social distancing in preventing COVID-19. Mandatory wearing of masks and practicing social distancing with masks during peak hours reduced infection rates by 93.5 and 98.1%, respectively.

ALGORITHMS, WE GOT ALGORITHMS
by Dale Speirs

I often wonder if anyone at companies like Amazon or the news networks ever checks the algorithms they use to bring each reader an individualized set of articles or recommendations. Consider these if you will, screenshots from my smartphone.



If you can figure out the logic on this screen, please advise. Since I order books regularly from Amazon, they know I live in Calgary, on the opposite side of the continent from Ontario.



HALLOWEEN FICTION: PART 4
by Dale Speirs

[Parts 1 to 3 appeared in OPUNTIAs #427, 458, and 486.]

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.otrr.org/OTRRLibrary)

"Corpse For Halloween" was written by John Roeburt and aired on 1949-10-31. Jimmy Fox had a guilty conscience. He had betrayed two fellow treasure hunters in Burma, by putting blank ammunition in their rifles while they were in tiger country. That meant the treasure they found didn't have to be divided three ways.

Jump forward through the years, to a large city on Halloween night. Fox was visited by Kavanaugh, one of his two partners, who had survived a tiger attack at the cost of losing an arm and having his face mutilated so badly that he had to wear a mask.

Kavanaugh said he wanted Fox to die the hard way, so he put out a contract among the riffraff to kill Fox on Halloween night. He said it was the one night of the year when he could go out in public. Those who saw him assumed he was in costume.

Fox spent the night fleeing from pillar to post. The rock cried out there's no hiding place here. By morning he was still alive but physically paralyzed from overwhelming fear. The men in white took him away. Kavanaugh got his revenge.

DARK DESTINY was a radio anthology series that aired during the 1942-43 season. The episodes were written by David Kogan and Robert A. Arthur, and are available as free mp3s from the Old Time Radio Researchers at www.otrr.org/OTRRLibrary

"Masquerade" aired on 1942-10-31. The date being Halloween, it was indeed set at a Halloween party in a haunted house. Three women were gossiping about their husbands to fill in some of background of the costume party. The host made a speech inviting all genuine ghosts, poltergeists, vampires, and werewolves to join them. Did I mention the liquor was flowing like water?

One adulterous couple, Helen and Jerry, spent their time in the library planning to dispose of their inconvenient spouses. The idea was that with everyone wearing masks, no one could point an accusing finger or testify in court.

The couple arranged to lure her husband Karl to the backyard quarry and send him over the edge. He interrupted their plans by unexpectedly barging into the library. He was wearing a skeleton costume and called himself Death. He pulled a gun but to no avail.

There was struggle which Karl lost. The couple now had to carry his body out to the quarry, not an easy thing without being seen. After dumping him over the cliff and tossing his gun into the pond, they went back to the party.

Helen was a quivering mess, and Jerry could barely keep her from blubbering hysterically. The host declared a seance. Nothing happened but Helen wobbled on the edge, so much so that others noticed her odd behaviour. Jerry took her outside on the terrace to calm her down.

Karl reappeared and insisted on a final dance with Helen. Jerry slugged him with a rock to make certain he would stay dead. They loaded him into his car then took him out to stage an accident. Karl reanimated in the car and grabbed the wheel. He drove them over a cliff.

In the epilogue, a police officer reported by telephone to the desk sergeant. He had found the bodies of the couple in the wreck. By coincidence, the police had been there three hours earlier for the fatal wreck of Karl's car. They had found him in his skeleton costume. He had never arrived at the Halloween party alive.

QUIET PLEASE was a radio anthology series that aired from 1947 to 1949. Episodes ranged from mystery to fantasy to weird fiction. Ernest Chappell was the narrator, assisted by one or two supporting actors. He had a rich voice that compelled attention. Some episodes are available as free mp3s from the Old Time Radio Researchers at www.otrr.org/OTRRLibrary.

"Calling All Souls" was written by Wyllis Cooper and aired on Halloween night 1948. The narrator Louis related that the previous Halloween he had been sitting in a prison cell awaiting execution for a double murder. He proclaimed his innocence but lost his final appeal to the governor. His lawyer Delbert said there was nothing more that could be done.

Waiting in the death cell, Louis began blubbering to the spirits of the victims Harris and Etta. They knew who killed them. They could free Louis if only they would testify. 13 steps up the gallows to the noose.

As the bell tolled, Louis remembered it was All Souls Night, when lost souls roamed about. He deluded himself into a graveyard where he met the ghosts of Harris, Etta, and others he had known.

Harris and Etta wouldn't tell him the name of the killer. He pleaded and argued with them. They said they were off to haunt their killer on this special night. He would have to accompany them and his soul wouldn't be allowed back into his body.

They took him to see the murderer. The listener will not be overly surprised to learn the killer was Delbert. There were only five minutes left in the episode, too late to introduce a new character, so it had to be him. They drove Delbert to hysterics, as one might expect, and made him babble a confession. Useless though, as Louis learned to his shock. He had been hanged a half hour before.

WEIRD FICTION: PART 6
by Dale Speirs

[Parts 1 to 5 appeared in OPUNTIAs #412, 458, 484, 493, and 501.]

The Squeaking Door.

INNER SANCTUM MYSTERIES was an old-time radio mystery and fantasy anthology series that aired from 1941 to 1952. (This and other episodes are available as free mp3s from www.otrr.org/OTRRLibrary) The host was a smarmy man who liked to make ghoulish puns. Each episode opened with the sound of a door slowly creaking open.

"The Bog-Oak Necklace" was written by David Driscoll and aired on 1945-04-10. This was from the series sponsored by Lipton Tea, whose spokeswoman was Mary Bennett. She constantly scolded the host Raymond for his bloodthirsty attitude. Her perky optimism during the commercials was quite the contrast to the blood and screams of the episodes.

Elderly spinster Emily Bristow had sold some land. The new owner hired a couple of men to install a water pipe. While they were digging, they found a skeleton, with a bog-oak necklace where the neck once was. I had to look up bog oak on Google. It is fossilized wood found only in peat bogs, extremely hard, and jet black. The grain of the wood is preserved and makes for beautiful jewelry.

In that rural area, there were no police, so the men took the necklace to attorney Andrew Warren. He recognized the necklace as one he had given to Daisy, his fiancée and younger sister of Emily. The story then segued to forty years prior.

Emily wanted Warren for her husband and was jealous of Daisy for usurping her. She strangled her sister and spent the next forty years haunted by her ghost. Warren knew she had done the murder and refused to speak to her since.

He took the necklace to Emily. Waving it in her face, he pushed her over the edge into complete insanity. She rushed down to the river's edge where Daisy's body had been weighted down with stones and thrown in. After an argument with Daisy's ghost, Emily went to join her sister in the next world.

A predictable plot and a routine story. It was enlivened by the squabbling between Bennett and Raymond during the commercials. She kept trying to cheer up the episode by telling listeners they should be happy by enjoying the brisk taste of Lipton Tea.

"Murder Faces East" was written by John Roeburt and aired on 1948-12-13. The narrator Steve Kavanaugh bought an oriental idol at an auction. As the bidding progressed, he noticed the idol turned to the east by itself and looked at him. He had to have it at any price and did.

After the auction, a mysterious stranger Jinn Kahn offered him a substantial profit, but Steve was obsessed with the idol. He began suffering a series of near-miss accidents. His wife Selena and her brother Howard didn't understand.

Neither did the director. Kahn's accent was Hollywood's idea of a Chinese accent, but he lived in a mosque. Yet the idol was specifically stated to be Hindu. The idol began to talk to Steve. It told him where to steal a fabulous ruby from a corpse in a local cemetery. Then it brainwashed him into murdering Selena. He didn't get away with it.

But as he sat on Death Row, all was revealed. Howard had plotted it all so he could inherit Selena's estate, an uncle conveniently having just left her $1 million. He used psychological warfare on Steve plus some dime-store magic tricks to make him think the idol was alive.

"The Magic Tile" aired on 1952-08-10, no writer credited. Catherine Bryan returned to the manor house of her mother Laura and stepfather Mark after a long absence. The family was dysfunctional, mostly on Catherine's part because she despised her stepfather and hated her mother. How sharper than a serpent's tooth, etcetera.

Catherine wanted to know how her father had died ten years ago. She brought along a Chinese tile said to give its holder the ability to talk to the dead. She was going to use it to communicate with her father. And so she did. She stared fixedly at the hypnotic design on the tile until the design suddenly vanished and opened up a space beyond. A ghost appeared and said her father had been murdered by Mark.

The parents came downstairs and overheard the accusation. Mark told Catherine that the supposed ghost was an escaped lunatic Dennis Demour who had killed her father. Just to satisfy himself, Mark telephoned the nearby asylum to determine if Demour had escaped. To his shock, he learned that Demour had died two years ago.

Much shouting in the manor. Demour's ghost returned, no more welcome than Banquo. He tormented Laura and Mark. Demour brought out the worst in Mark, who admitted killing Catherine's father. It ended badly for Mark, who departed for the next world.

The manor immediately caught fire to contribute to the climax. Catherine and Laura were the only survivors. They deserved each other.

Listening In The Dark.

LIGHTS OUT was an anthology radio series of weird fiction and fantasy that aired from 1934 to 1947.

"Alley Cat" was written by Arch Oboler and aired on 1943-01-19. Linda and Johnny Taylor had a bad marriage. She was an alcoholic opportunist who stole his money and caroused with lowlifes. In his anger, Johnny put a curse on her and turned her into an alley cat. Or so they both thought. A psychiatrist suggested they were deluded. He got a bullet from Johnny, who resented the idea that they were crazy.

Shocked at what he done, Johnny's hatred for Linda suddenly reversed. The trouble was, she wasn't a domesticated house cat but wanted to roam the alleys. Johnny became abrupt with shopkeepers and neighbours, and hid Linda from everyone. She thought she was a cat but he wasn't much saner.

A police sergeant who lived next door became inquisitive. His wife complained about the yowling of the cat. Johnny couldn't shift him. More gunfire decided the issue, including the cat.

The episode "Come To The Bank" aired on 1947-11-17, written by Arch Oboler. Miss Moss taught physics at a school where she was in love with Mr Ross, who taught psychology. He believed that if the mind was concentrated on one task 100%, then a person could do anything.

His first success was slowing his metabolism down to the point where he was able to live for a week without food and water. His next challenge was to walk through the concrete wall of a bank. He never came out the other side.

Moss was the only one who saw him go into the wall. She became hysterical and from there a short step to insanity. Three weeks later he still hadn't reappeared. Ross's disappearance was explained as him stealing her money and fleeing to parts unknown.

Her obsession only increased. She thought she could hear him moaning inside the wall. She was committed to an institution. The episode ended with her begging the listener to help her and come to the bank.

DARK FANTASY was an old-time radio anthology series with 31 episodes aired from 1941 to 1942. It is available as free mp3s from www.archive.org. Unusual for the times, it was a national show on the NBC network aired out of Oklahoma City. All the episodes were written by Scott Bishop. They were a mixture of science fiction, fantasy, weird, and twist mysteries.

"The Thing From The Darkness" aired on 1942-04-03. A pilot named Donald Firman crashed his airplane in a sandstorm and found himself in a desert settlement named Santea. Leeyana, daughter of the king of Santea, found him

and brought him in. He was temporarily blinded by the sand. He was to be sacrificed to the royal leopard, the standard treatment for outsiders. Xenophobic people the Santeans certainly were.

Firman recovered his sight just as Leeyana arrived to rescue him. She was to marry Eban, the high priest, which she did not want to do. He in turn was jealous of the pilot.

The king was a superstitious ignoramus who decided to execute both Firman and Leeyana. They were sent into a pit with the leopard. The leopard turned on the high priest. He screamed and so to the end credits. Indeed.

THE DARKNESS was a series performed by the Roger Rittner Players, available as free mp3s from www.otrr.org/OTRRLibrary. I haven't been able to find more than a few fragments of information about the series.

The show apparently aired in late 1979 on the American network National Public Radio. Rittner has his own radio company but doesn't mention the series on his website.

Each episode opened with a woman's full-throated scream. As the decibel meter sank back to normal, there followed a smarmy "*Good evening, I'm your host Claude*", a poor imitation of Raymond from the Inner Sanctum series.

"For My Next Trick" was written by Roger Rittner. The episode took place at a traveling carnival during the Great Depression. Their stage magician The Great Michael was, in a word, incompetent. His rabbit out of a hat trick didn't work, and any woman consenting to be sawed in half was taking an awful chance.

Michael Martin and his assistant Millicent Hendricks were visited by his old friend Karl, who had unfortunately seen the latest performance. Karl was in the stage props business and had supplied Michael with equipment. He told Michael, frankly and honestly, that the stage wasn't his forte, then left.

"*I'd sell my soul to do real magic*" shouted Michael. Without skipping a beat, a man appeared, all suave and polite, offering to help Michael. Introducing himself as Mr De Ville, he offered the ability to do real magic in exchange for his soul. Just sign the contract, here at the bottom.

Michael did so, De Ville bwah-ha!-ha!-ed, and the episode broke for a commercial from the Lung Association. They cared about every breath you take. Meanwhile, back at the episode, Millie rendezvoused with Karl to apprise him of recent events.

Michael could dematerialize an elephant on stage. He also bwah-ha!-ha!-ed a lot. One night De Ville appeared to collect his debt. Michael tried to disappear him but instead became him. The Devil wasn't one individual but was replaced by a new incumbent from time to time.

"Life Span" was written by Ken Girard. The story concerned 83-year-old Angela Renwick, who wanted to live forever. Southern Geriatrics was a company supposedly producing an anti-aging drug. The formula didn't work but the management were too busy trying to unload the stock before the investors caught on.

Renwick was one of the suckers, pardon me, the patients receiving the snake-oil formula. However, while the other patients were unchanged, she seemed to be improving. In fact, she was growing visibly younger.

Then she began growing hair all over her body. The serum injections were stopped but she continued to regress into an ape. They gave her a lethal injection to put her out of her misery.

Louisiana Voodoo.

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

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

THE NEW ADVENTURES OF MICHAEL SHAYNE aired on old-time radio from 1944 to 1953. The series was based on the novels by Brett Halliday, although the episodes were pastiches. From 1944 to 1948, Shayne was located in San Francisco and had a pretty secretary named Phyllis Knight. Wally Maher voiced Shayne as a relatively sedate and average detective.

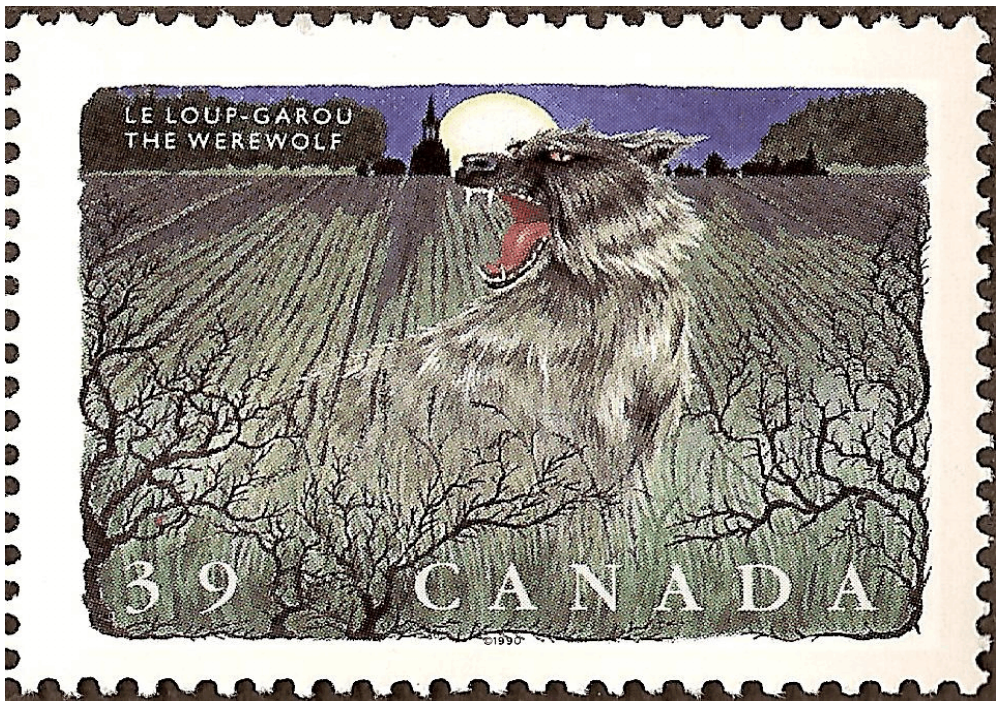
From 1948 to 1950, Shayne lived in New Orleans without a secretary. He was voiced by Jeff Chandler, who narrated the show in tones of rising hysteria, even if he was just crossing the street. That period could best be described as frenetic. Thereafter a variety of forgettable actors portrayed him.

The adventures were normally mundane detective stories, but the New Orleans episodes sometimes took advantage of the Louisiana voodoo mystique.

"The Case Of The Bayou Monster" was written by Robert Ryf and aired on 1948-11-06. Amy Forsyth was the client, who wanted Michael Shayne to come out to her bayou plantation Bon Chance. Despite its name, it was plagued by a monster once every generation.

The Cajun who took Shayne out to the bayou said the monster was a loup garou, a werewolf. At the mansion, Amy introduced Shayne to her Uncle Edward and her husband Paul. She was a strong-minded woman with no manners and a tight grip on the family purse.

The first casualty was Amy's guard dog, who got his throat slashed. Shayne went to visit Mama Cecile, the local witch woman. She unloaded various legends on him, such as the loup garou, and gloated that someday the Forsyths would be gone.



NOPD Inspector LeFevere showed up in the bayou to warn away Shayne. Amy and Paul were as about as cheerful as two people in a dentist's waiting room, as Shayne put it. That night the moans of the loup garou were heard but Shayne figured out the sound was the wind blowing over the chimney when the damper was open.

Amy was the next one to have her throat slashed. Shayne found the body and a moment later was attacked by the loup garou. Shayne won the fight to the death because he was booked for the series. He discovered it was Paul in costume, with a mask and iron claws.

Paul had revived the legend as part of a plot to get Amy's money. Shayne and LeFevere departed by boat, stopping only to do a bit of fishing.

Doorstop Weird.

THE WEIRD (2011) is a doorstop-size anthology edited by Ann and Jeff VanderMeer. The tome contains 110 stories by authors from 1908 to 2010, in chronological order. The older stories are samples from Lord Dunsany, H.P. Lovecraft, and Clark Ashton Smith. The modern stories range from George R.R. Martin to Poppy Z. Brite and on to the up-and-comers of the Millennium.

The book was 1,126 pages and should have been split into two volumes for easier reading. Granted that stories in an anthology are usually read a few at a time, but just holding the book was tiresome. The content was good but would have been better served as two books. I haven't bothered to see if it is available electronically but reading 1,126 pages on a screen would be a good way to damage one's eyesight.

The editors introduced the anthology discussing the history of modern weird fiction, which dates from the 1920s, much like modern science fiction. Just as AMAZING STORIES was the epicentre of early SF, so it was that WEIRD TALES initially defined the field.

During the war years the genre began to splinter and by the 1950s was diversified among many publishers. International authors were translated into English and thereby gained fame. Today there are many subgenres. The book contains a number of translations of little-known weird fiction, not only from non-anglophone Europe but Japan and other places in Asia. It is a good survey in both time and space. Well recommended.

Audible Weird.

THE STRANGE DR WEIRD was an anthology series that aired on radio during the 1944-45 season, written by Robert A. Arthur. It was produced by the same outfit that did THE MYSTERIOUS TRAVELER but was a 15-minute show instead of 30 minutes.

"The Dark Wings Of Death" aired on 1945-02-06. Ned and Helen Kennedy were squabbling about money, or rather the lack of it. He had been dipping into the accounts at work. The shortage was likely to be discovered sooner than later because an audit was scheduled the following week.

Ned's elderly Uncle Simon wouldn't loan him any money, so Helen suggested speeding up the inheritance. (Her voice was exactly like Mae West.) The uncle had a malignant pet raven Lucifer who made Ned very nervous. Nonetheless Helen bullied Ned into staging an accident for his uncle.

Except it didn't work out that way. Simon enraged Ned into attempting to choke him to death. Lucifer came to the rescue and pecked at Ned's face, aiming for his eyes. After the contretemps was over, Simon told Ned that Lucifer was an agent of Satan.

Ned gathered together the remnants of his dignity. "*You're sure you won't lend me the money?*", he said. A born optimist, that man. Simon told him there was $10,000 cash in his room, but he wasn't getting it. A born idiot, that one.

Simon fell asleep, with Lucifer to protect him. On his way out, Ned thoughtfully turned on the gas, then snuffed the pilot flame. He and Helen got gas masks and entered the dark apartment at midnight. When they came through the door, the raven attacked Ned.

Only he could see or hear the bird, leaving Helen confused at his strange behaviour. Ned pulled a gun and fired at the raven, forgetting the room was still full of gas fumes. KA-BOOM!

The landlady told police she had rushed to the window in time to see a raven flying away carrying the bodies of the Kennedys. The officer scoffed at her, saying the dead body of the raven had been found in the room. The only other body was Uncle Simon.

"The Knife Of Death" aired on 1945-02-20. The setting was London during the Blitz. Air raid warden Henry Hawkins found in the rubble a strange ruby-handled knife that possessed him to kill. A fellow air raid warden and his wife Millie fell to Henry's blade before the evening was over.

Corporal Mason found Henry over Millie's body and summoned two detectives from Scotland Yard. The Inspector remembered that such a knife was said to have been used by Jack the Ripper. He surmised the blade had been lost after the last victim until the bombing blasted it loose from its hiding place.

Henry babbled about the obsessive power of the knife that made him kill. The Inspector took him away and left the Detective Sergeant and the Corporal to guard the scene until the forensic squad arrived. The two men discussed the knife in skeptical voices.

Corporal Mason picked up the knife. The Sergeant was aghast and ordered him to put the knife back. Mason went berserk and stabbed him. As only two minutes remained in the episode, Dr Weird had to hastily summarize that the knife was now carefully locked up in Scotland Yard's Black Museum. It was not introduced as evidence in the trials. Henry and the Corporal swung for their respective murders.

Ghosts.

"He Woke Up Dead" was an episode of THE STRANGE DR WEIRD which aired on 1945-03-27. Brothers John and Gregory Raymond had an argument while standing on the edge of an ocean cliff. John refused Gregory the amount of $100,000 from the family trust to study spiritualism and communing with the dead. Gregory noted that he would inherit the trust if John died.

Pay no attention to that script writer jumping up and down, waving a red flag, and firing a flare gun. "*Just what can you do about it?*" were John's last words before he went over the cliff, not including the scream.

John's grown children Jack and Susan didn't believe it was an accident, and bitterly opposed Gregory's plans to convert the foundation into a school for spooks. The argument ended when Gregory tried to stalk out of the room, tripped on a rug, and cracked his head against a mantlepiece. As Jack noted, his uncle now had a chance to study the next world firsthand.

Gregory woke up in a funeral parlour. He found his body in a coffin. An elderly couple approached and showed him their bodies. They told him a guide named Mr Benedict would be coming by soon to take the three to their ultimate destination.

Gregory was shocked to learn the dead cannot communicate with the living. He had spent his life trying to prove they could. Benedict arrived and took the elderly couple to a better world. He told Gregory that his spirit was condemned to roam Earth, unseen and unheard, as a punishment for murder.

Benedict said if Gregory confessed his crime and did penance, he might be saved. So he did. The listener can instantly guess the denouement. As soon as Gregory admitted the murder, the lights snapped on and the police moved in. The scene had been staged, for Gregory had only been knocked unconscious. The bodies in the coffins were wax dummies. Nonetheless, he was so convinced he was dead that no one could make him understand he was alive.

"The Seismograph Adventure" by Arthur B. Reeve (1930 March, SCIENTIFIC DETECTIVE MONTHLY, available as a free pdf from www.archive.org) began with a young woman Mary, wife of elderly millionaire Henry Vandam. Surprisingly, it was she who died in the opening pages, of poisoning.

Henry was under the influence of psychic May Popper and her manager Howard Farrington. After Mary's death, he changed his will to favour Popper, and the plot became obvious. Scientific detective Craig Kennedy was brought in to help expose her fraud and commission of murder.

The poisoning evidence was doubtful without proof that her seances were fakery. This meant that Kennedy had to prove the ghost was a human imposter. He did so by rigging a seismograph in the Vandam mansion.

A real ghost would not trigger the instrument, but the imposter would make vibrations, even on tiptoe, that would be recorded. Popper was exposed as the fake ghost and soon would be visiting the spirit world in person.

SUSPENSE was one of the great anthology series of radio, airing from 1940 to 1962. Episodes are available as free mp3s from the Old Time Radio Researchers at www.otrr.org/OTRRLibrary The series had the distinction of being the very last old-time radio show ever aired. The episodes were a mixture of mystery, fantasy, science fiction, and weird fiction. Good listening.

"Always Room At The Top" was written by Eleanor Beeson and aired on 1947-02-20. The protagonist Helen Grant narrated the story. Jean Thornton was art director at a Madison Avenue advertising agency, who was interviewing Grant for a position. Thornton rejected her, which angered Grant.

The following morning Thornton took a dive from the 36th floor. Grant saw her from the sidewalk and heard her screaming all the way down. This was an opportunity not to be missed. Grant immediately went up to the 36th floor to apply for the vacancy while the first responders were still scraping Thornton's remains off the sidewalk.

The boss William J. Farrow was shocked but he was also desperate for someone to finish a job due that afternoon. Grant was hired. "*You're not one to let the grass grow under your feet*" said the secretary Marie. At this point, the sponsor Roma Wines interjected with a commercial that emphasized how their wines brought pleasure to more people than ever before.

Back at the ad agency, Grant got on permanent but began to have trouble with omens and portents. She began hearing Thornton's voice and her musical cigarette case. The office politics were more vicious than most places. As Farrow told her, "*Until death do us part*" wasn't just a wedding vow at the agency.

Grant began an affair with Farrow. She saw Thornton's ghost, who wasn't a ghost. The trio met in Farrow's office where all was explained. He had been dipping into the till and the books were short $250,000. When an audit was announced, Thornton got a life insurance policy for that amount, apparently without the standard suicide clause.

She then got a model who looked like her to visit her office but who left the appointment out the window instead of taking the elevator like everyone else. Thornton went into hiding and the policy paid off Farrow's shortage.

After this was all explained, Marie came into the room waving a gun. She had taped the conversation on a hidden Dictaphone. Some trouble developed, there was a scream, and Thornton went out the window for real.

Marie told Grant to forget about marrying Farrow because she was going to be the bride, and thus inherit his wealth. Grant had her own gun though, and finished off the rest of the cast. She then sat down and awaited the police.

The final commercial suggested that listeners try Roma burgundy wine with baked beans. I am not making that up.

QUIET PLEASE was a radio anthology series that aired from 1947 to 1949. Episodes ranged from mystery to fantasy to weird fiction. Ernest Chappell was the narrator, assisted by one or two supporting actors. He had a rich voice that compelled attention. Some episodes are available as free mp3s from the Old Time Radio Researchers at www.otrr.org/OTRRLibrary.

"Camera Obscura" was written by Wyllis Cooper and aired on 1947-10-13. The story began with the narrator sitting in a café, listening to a young waitress sobbing out a story about how her boyfriend Phil Vandenberg had borrowed $200 from her and then vanished.

The narrator had in fact killed Vandenberg, stolen the money, and dumped the body into the ocean. He didn't tell her of course. Later he took her on a casual date, walking out to a park that had a camera obscura. As they looked at the projected image inside the camera obscura, Vandenberg walked by, deliberately looked at the camera, then walked on. Both the viewers were shocked for different reasons. They rushed outside but he had vanished.

The narrator was a haunted man. They went back to the camera obscura and the same thing happened. This time Vandenberg mouthed the word 'murderer' and pointed at the narrator. She understood and ran away.

The narrator killed her. Now he was haunted by two ghosts. They possessed him and made him walk into the ocean. Deep into the ocean.

"Presto-Change-O, I'm Sure" was written by Wyllis Cooper and aired on 1948-08-16. The narrator Sarsfield Grenadier McCutcheon.** He had a baton that made people and animals disappear, given to him by the magician Professor Cagliostro.

A very nice thing to own and make a living with it, albeit mostly by assisting underworld characters to disappear their enemies. Cagliostro reappeared, wanting the magic wand back, but McCutcheon refused.

** He later explained his grandfather had served in the Sarsfield Grenadiers regiment and so named him.

In retaliation, Cagliostro put him in several difficult situations, particularly vis a vis his wife and girlfriend. The latter managed to get hold of the wand and do unto him what he had done to others.

McCutcheon found himself in a dungeon with no escape. With him were all the people he had disappeared over the years, all of whom had been waiting in limbo. They now had the opportunity to deal with him.

"Whence Came You" was written by Wyllis Cooper and aired on 1948-02-16. An archaeologist named Austin was in Egypt when he was approached by an old friend, newspaper reporter Abe Feldman. The latter mentioned a beautiful woman was waiting in the hotel lobby to see Austin. They went down to talk to her but she suddenly vanished.

The next day Austin went out to his dig. As was common in the Middle East, towns were built on top of the ruins of predecessor settlements, eventually producing man-made hills called tells. Austin's crew was digging down through the fourth layer of a tell into what was a necropolis.

Uncovered was a slab with a portrait of the mysterious woman from the hotel. The rock was pulled off. Feldman impulsively jumped down into the chamber. He screamed once. The slab suddenly fell back into place.

After Austin and his workers finally pulled the slab away, they found Feldman's body shredded. Nearby was an open sarcophagus with the body of a man with a hawk's head, whom Austin identified as Osiris. There was fresh blood on the beak.

The tomb was lined with paintings, one of which was the woman. An inscription in hieroglyphics translated as *Do not be afraid, Austin*, yet the words had been carved millennia ago. The slab slid back into place, trapping him and the crew inside.

There was something else moving around in the dark. The woman led Austin away into another room where she asked him to open a coffin, then vanished. The coffin had a portrait of a hawk-headed woman, Isis, the sister of Osiris.

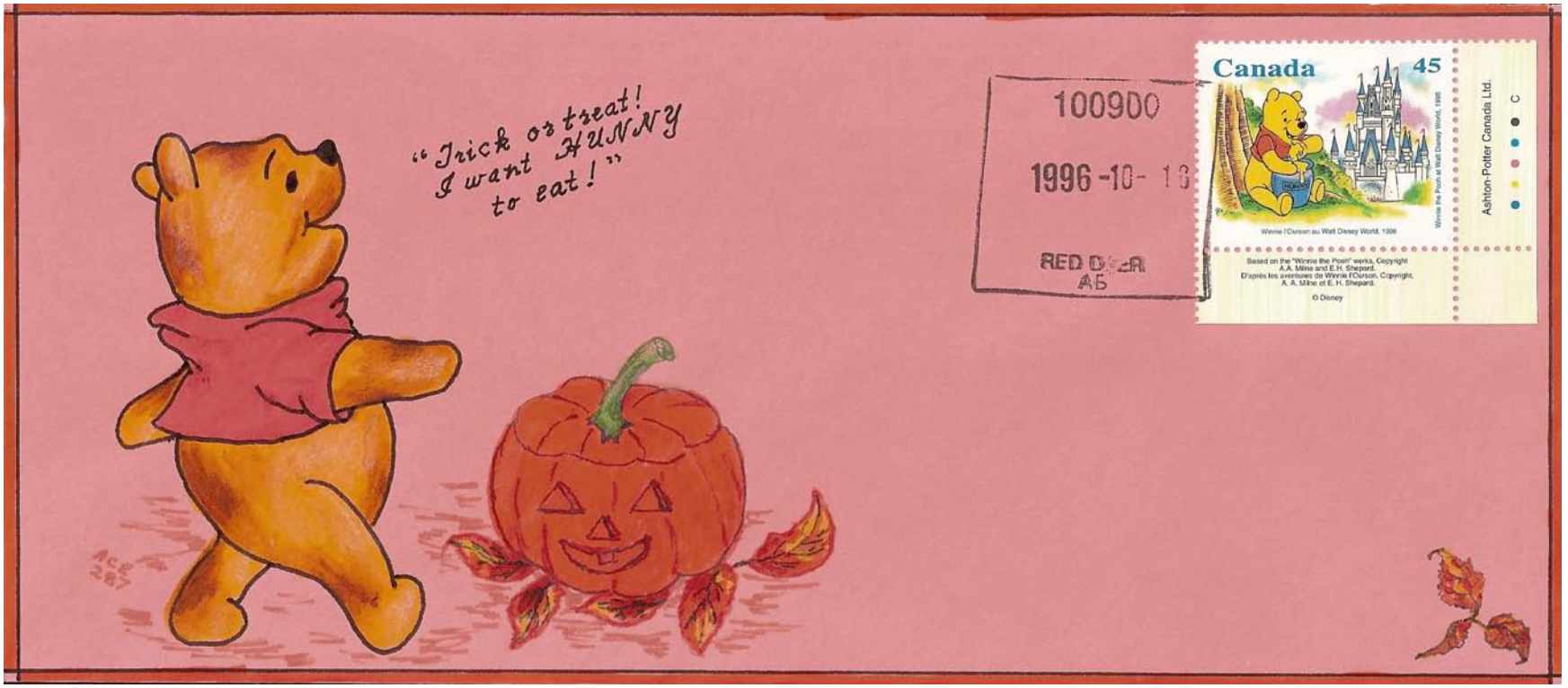
Austin sat there, thinking about whether or not to open the sarcophagus. He was afraid to.

HALLOWEEN COVERS
by Dale Speirs

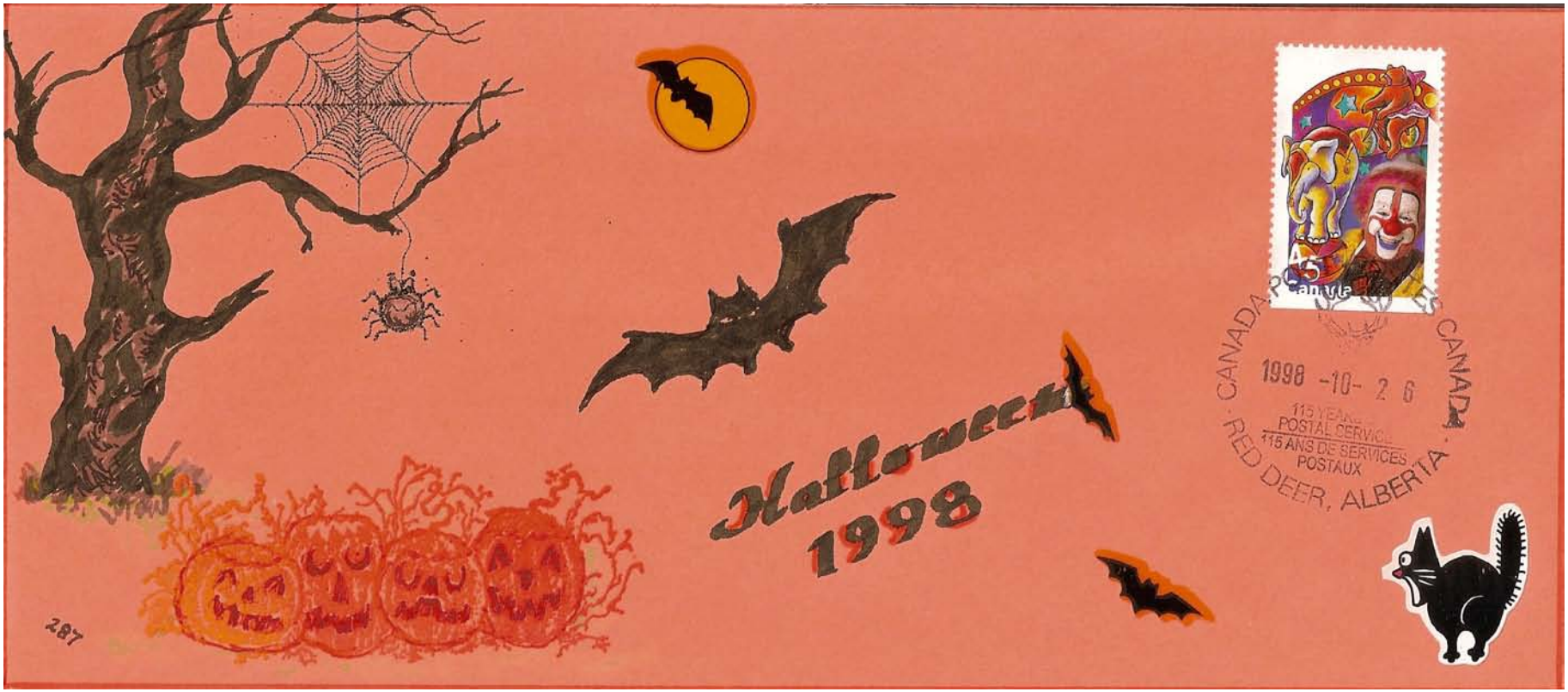
My mother Betty (1931-2002) lived in Red Deer, Alberta, about 150 km north of Calgary on Highway 2. Among her other hobbies, she was a mail artist.

After her death, I inherited her mail art collection and integrated it into my postal history collection. During the enforced leisure time of the pandemic, I've been sorting through my collection and scanning items.

Betty belonged to the Art Cover Exchange, sort of an apa for mail artists except no zines are involved, just covers. (In philatelic parlance, a cover is the combination of an envelope, stamp, postmark, and artwork.)



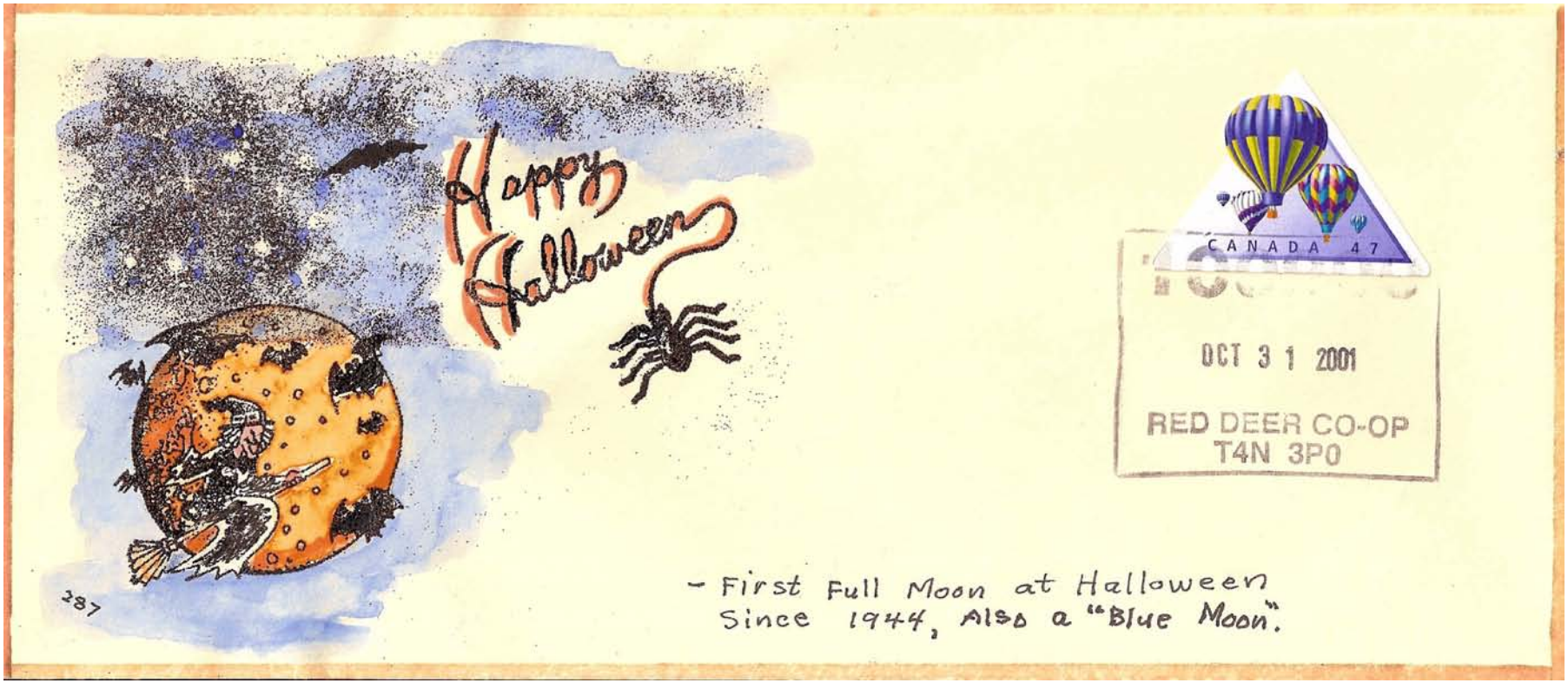
The Art Cover Exchange still exists and you can get details at: www.artcoverexchange.org My mother kept a copy of each cover she sent to ACE. Her Halloween designs are illustrated herewith.


Halloween
1998
287
CANADA POSTES CANADA
1998 -10- 26
115 YEARS OF POSTAL SERVICE
115 ANS DE SERVICES POSTAUX
RED DEER, ALBERTA


HALLOWEEN
1998
287
43 CANADA
CANADA POST · POSTES CANADA
1998 -10- 31
115 YEARS OF POSTAL SERVICE
115 ANS DE SERVICES POSTAUX
RED DEER, ALBERTA
Wild Strawberry
Fraise sauvage
CANADA
2


HAPPY HALLOWE'EN
OCT 2 1 1999
RED DEER CO-OP
T4N 3P0
Canada
Betty Speirs
4535 Moore Crescent
Red Deer, Alberta
Canada T4N 2M1


Autumn Automne
Canada 7
LE LOUP-GAROU THE WEREWOLF
39 CANADA
OCT 3 1 2000
RED DEER CO-OP
T4N 3P0
Halloween
2000



Rare event – Full Moon Halloween

MIAMI (AP) — For the first time in 46 years, this year's Halloween ghosts and goblins can trick or treat by the light of a full moon. They won't get another chance until 2020, astronomers said.

Wednesday night's full moon will look like an orange jack-o-lantern rising from the east at dusk, said Jack Horkheimer, executive director of the Miami Space Transit Planetarium.

It will appear orange at the horizon because it is seen through denser layers of the earth's atmosphere. Adding to the effect, the moon's tilt at this time of the year makes the "man in the moon" particularly visible.

Some astronomers believe jack-o-lantern carving was inspired by the rising, orange October moon, said Horkheimer, writer and host of PBS's nationally syndicated Star Gazer series for 25 years.

To make the superstitious even more jittery, a constellation associated with the some end-of-the-world beliefs will also be at the top of tonight's sky.

The Seven Sisters constellation, which looks like a small cluster of grapes, has long been a signal for the time of year to honour the dead — such as All Saints Day, Nov. 1.

According to myth, the Seven Sisters constellation is at its highest point in the sky during a great calamity, possibly the biblical flood or the sinking of Atlantis. The Aztecs and Mayans believed it would be overhead at midnight on the night the world comes to an end, Horkheimer said.

The Seven Sisters and the full moon will both be directly overhead at midnight, he said.

"It's just very nifty because it will be a very bright full moon and when it's up high like that, it will just flood the landscape with a lovely bright light," said Horkheimer.

Technically, the moment the moon will be at its fullest is 10:41 a.m. Thursday, but the moon will look virtually full when trick or treaters are out in force late tonight.

● On the Net:
Star Gazer:
http://www.jackstargazer.com

This newspaper clipping was inserted inside the above cover. The article mentioned that children would not get another chance to trick-or-treat under a full moon until 2020. Alas, they never got that chance.

LETTERS TO THE EDITOR

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

FROM: Lloyd Penney 2021-10-17
Etobicoke, Ontario

OPUNTIA 509: [Re: Calgary camelback bridge] I've noticed that old style bridges, like the Bailey bridges that were everywhere not that long ago are slowly going away. There was a huge bridge in the southeast end on Cherry Street here. I think it was a big camelback bridge, and it is slowly being replaced by something very modern looking, very expensive, and probably not as durable as what it's replacing.

[Calgary is gradually replacing all the century-old bridges and railway underpasses. See OPUNTIA #380 for an action sequence of the Zoo camelback bridge being swung over the Bow River back in 2017.]

I think [outgoing Calgary mayor] Naheed Nenshi was a great mayor and a very interesting guy. I hope there will be a place for him on a national stage, seeing he is not running for re-election. I think our municipal elections are around this time next year. We will probably get the usual group of colourful fringe candidates, but I think John Tory is a shoo-in for as long as he wants the job of mayor of Toronto.

We now have our QR codes to go with our vaccine receipts, even with Rob Ford's own dithering. He at least listened, for the QR system was originally something he didn't want to have. Such decisions are a provincial decision to make, so I can see why Trudeau didn't step in to announce any national QR system.

[A few days before your letter, the Alberta Ministry of Health converted its pdf vaccination certificate to a QR code pdf. Should have been done months ago, but better late than never.]

Still, too many old, white men fail to listen to the science they ultimately fail to understand, and resist listening to when they are used to making the decisions themselves.

[I'm not worried about anti-vaxxers. Natural selection will take care of them.]

I got my hands on STEAMPUNK MAGAZINE, and would inhabit that website for any information of inspirations. I downloaded all the issues, and would respond to it as I am doing here, with a letter of comment. They never responded in mind, however, and never did take the hint to have a letters column. Still, these mags were an enjoyable read. If you are looking for another range of steampunk magazines for a future article, I'd point out GATEHOUSE GAZETTE, edited by Nick Ottens.

My previous letter: Now freshly arrived is the chilly weather. The heat we had lasted longer than anyone expected, and it is welcome back at any time. Our mayor is looking at sidewalk patios staying permanently, and I am all for it, and so are many more.

[We had one snowfall the day before Thanksgiving, which melted quickly away. Overall a dry and mild October so far. I'm all for global warming.]

We did do our civic duty as deputy returning officers in this past federal election, and we were recently paid for the training we took, plus a 15-hour day on September 20. I think after all the recounts, the Liberals wound up with 160 seats.

OPUNTIA 510: I wish we had something like a Beakerhead festival here, we could use it. It looks like there are still events that are cancelling out because of COVID restrictions. Some festivals are here, but greatly reduced in size and scope. Looks like we might not get moving until 2022.

Cremona, Alberta had a sense of humour with their postal code. Yvonne worked for Canada Post many years ago when the postal code was first being installed. One western postal code was T0K 1Y0, and as you might imagine, some of the mail was redirected to Japan. That code has been retired.

[That postal code was T0K 0Y0 at Glenwood, a village in the Mormon diaspora of southwestern Alberta. Due to mail mis-routing, the code was soon changed to T0K 2R0. In the JOURNAL OF ALBERTA POSTAL HISTORY #14, I wrote up the postal history of this area. JAPH is available as a free pdf from the Postal History Society of Canada website. All the other issues are there as well. Go to: www.postalhistorycanada.net/php/StudyGroups/Alberta]

WHEN WORDS COLLIDE

[WWC is Calgary's annual readercon. Here are some extracts from their October newsletter. For full information, visit www.whenwordscollide.org]

What will the 2022 festival look like? As announced on our web site last August, the organizing committee is holding off until January 2022 to discuss next summer's festival.

After anticipating the end of the pandemic and a regular in-person festival for 2021, then having to change course to hold an online festival in its place, we are no longer as optimistic as we once were. We do not know if large indoor gatherings will be safe next August, if there will be attendance restrictions, if vaccine passports will be required, or if masks will be required.

There are simply too many unknowns. For now, registration is closed and we are not proceeding with any planning, including programming.

At our January 2022 meeting we will evaluate the state of the pandemic and, hopefully, have a clearer picture of what to expect. At some point prior to April 2022 we will need to decide whether to plan for WWC 2022 to be in person or, once again, online.

We do apologize for any confusion or inconvenience. Those who registered for the 2020 or 2021 in-person festivals are already registered for 2022. Your passes and banquet tickets have been carried forward.

Once we are satisfied that 2022 will be in person and that we won't be forced to have a lower attendance cap, we will re-open registration. Unfortunately, given the pandemic, that is the best we can do.

We continue to post selected recent festival sessions to our Podcast and YouTube channels:
Podcast channel:
http://whenwordscollide.libsyn.com/
YouTube channel:
www.youtube.com/channel/UCYLP-1XdcKWDyRftkL_a8lQ/

SEEN IN THE LITERATURE

Astronomy.

Schneiderman, T., et al (2021) **Carbon monoxide gas produced by a giant impact in the inner region of a young system.** NATURE 598:425-428

Authors' abstract: *Models of terrestrial planet formation predict that the final stages of planetary assembly, lasting tens of millions of years beyond the dispersal of young protoplanetary disks, are dominated by planetary collisions. It is through these giant impacts that planets like the young Earth grow to their final mass and achieve long-term stable orbital configurations.*

A key prediction is that these impacts produce debris. So far, the most compelling observational evidence for post-impact debris comes from the planetary system around the nearby 23-million-year-old A-type star HD 172555.

This system shows large amounts of fine dust with an unusually steep size distribution and atypical dust composition, previously attributed to either a hypervelocity impact or a massive asteroid belt.

Here we report the spectrally resolved detection of a carbon monoxide gas ring co-orbiting with dusty debris around HD 172555 between about six and nine astronomical units, a region analogous to the outer terrestrial planet region of our Solar System. Taken together, the dust and carbon monoxide detections favour a giant impact between large, volatile-rich bodies.

This suggests that planetary-scale collisions, analogous to the Moon-forming impact, can release large amounts of gas as well as debris, and that this gas is observable, providing a window into the composition of young planets.

Lacki, B.C. (2021) **Galactic traversability: a new concept for extragalactic SETI**. INTERNATIONAL JOURNAL OF ASTROBIOLOGY 20:doi.org/10.1017/S1473550421000252

Author's abstract: *Interstellar travel in the Milky Way is commonly thought to be a long and dangerous enterprise, but are all galaxies so hazardous? I introduce the concept of galactic traversability to address this question.*

Stellar populations are one factor in traversability, with higher stellar densities and velocity dispersions aiding rapid spread across a galaxy. The interstellar medium (ISM) is another factor, as gas, dust grains and cosmic rays all pose hazards to starfarers.

I review the current understanding of these components in different types of galaxies, and conclude that red quiescent galaxies without star formation have favourable traversability. Compact elliptical galaxies and globular clusters could be 'super-traversable', because stars are packed tightly together and there are minimal ISM hazards.

Overall, if the ISM is the major hindrance to interstellar travel, galactic traversability increases with cosmic time as gas fractions and star formation decline. Traversability is a consideration in extragalactic surveys for the Search for Extraterrestrial Intelligence.

Speirs: Science fiction writers take note.

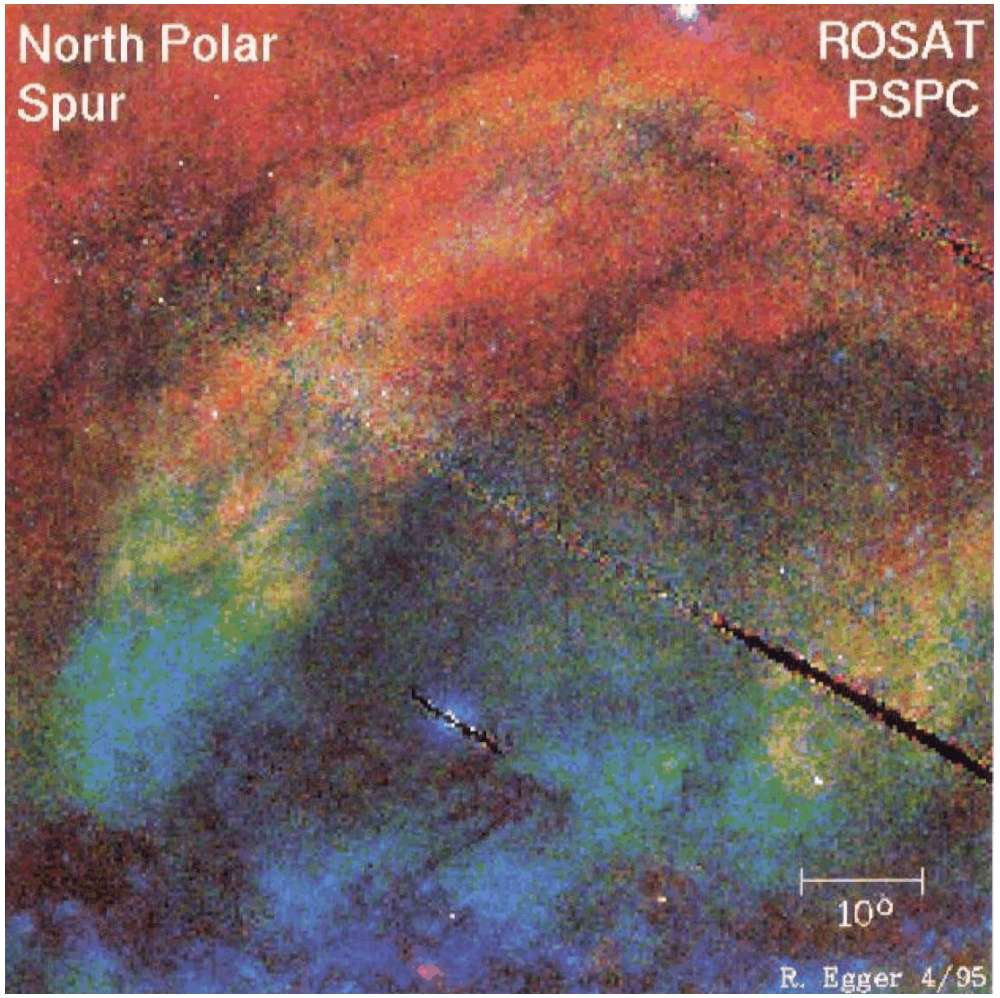
West, J.L., et al (2021) **A unified model for the Fan Region and the North Polar Spur: A bundle of filaments in the Local Galaxy.** arXiv:2109.14720v1 [astro-ph.GA] (available as a free pdf)

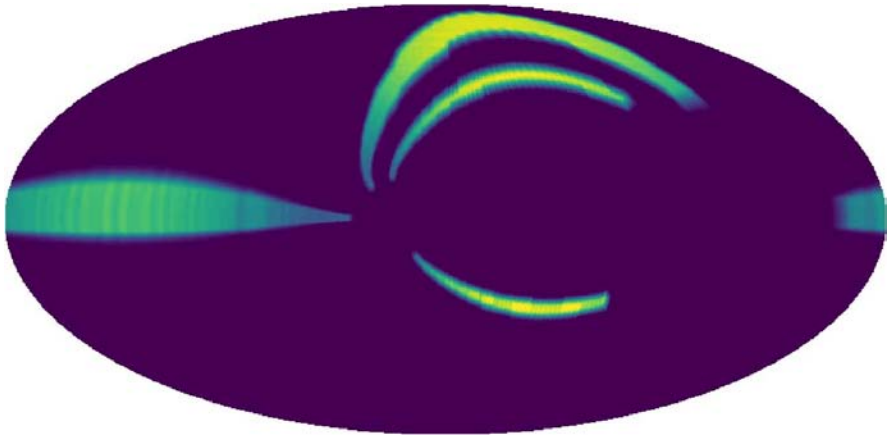
[The Solar System is currently moving through a giant magnetic tunnel visible only with radio telescopes.]

Authors' abstract: *We present a simple, unified model that can explain two of the brightest, large-scale, diffuse, polarized radio features in the sky, the North Polar Spur (NPS) and the Fan Region, along with several other prominent loops. We suggest that they are long, magnetized, and parallel filamentary structures that surround the Local arm and/or Local Bubble, in which the Sun is embedded.*

We show this model is consistent with the large number of observational studies on these regions, and is able to resolve an apparent contradiction in the literature that suggests the high latitude portion of the NPS is nearby, while lower latitude portions are more distant. Understanding the contributions of this local emission is critical to developing a complete model of the Galactic magnetic field.

[Images are from this paper and show a cross-section of the tunnel as it looks from Earth at radio wavelengths.]





Mars And Venus.

Chaffin, M.S., et al (2021) **Martian water loss to space enhanced by regional dust storms.** NATURE ASTRONOMY 5:1036-1042

Authors' abstract: *Mars has lost most of its initial water to space as atomic hydrogen and oxygen. Spacecraft measurements have determined that present-day hydrogen escape undergoes large variations with season that are inconsistent with long-standing explanations.*

The cause is incompletely understood, with likely contributions from seasonal changes in atmospheric circulation, dust activity and solar extreme ultraviolet input.

Although some modelling and indirect observational evidence suggest that dust activity can explain the seasonal trend, no previous study has been able to unambiguously distinguish seasonal from dust-driven forcing.

Here we present synoptic measurements of dust, temperature, ice, water and hydrogen on Mars during a regional dust event, demonstrating that individual dust events can boost planetary hydrogen loss by a factor of five to ten.

This regional storm occurred in the declining phase of the known seasonal trend, establishing that dust forcing can override this trend to drive enhanced escape. Because similar regional storms occur in most Mars years, these storms may be responsible for a large fraction of Martian water loss and represent an important driver of Mars atmospheric evolution.

Limaye, S.S., et al (2021) **Venus, an astrobiology target.** ASTROBIOLOGY 21:doi.org/10.1089/ast.2020.2268

Authors' abstract: *We present a case for the exploration of Venus as an astrobiology target:*
(1) investigations focused on the likelihood that liquid water existed on the surface in the past, leading to the potential for the origin and evolution of life,
(2) investigations into the potential for habitable zones within Venus' present-day clouds and Venus-like exo atmospheres,
(3) theoretical investigations into how active aerobiology may impact the radiative energy balance of Venus' clouds and Venus-like atmospheres, and
(4) application of these investigative approaches toward better understanding the atmospheric dynamics and habitability of exoplanets.

The proximity of Venus to Earth, guidance for exoplanet habitability investigations, and access to the potential cloud habitable layer and surface for prolonged in situ extended measurements together make the planet a very attractive target for near term astrobiological exploration.

Izenberg, N.R., et al (2021) **The Venus life equation.** ASTROBIOLOGY 21:doi.org/10.1089/ast.2020.2326

Authors' abstract: *Ancient Venus and Earth may have been similar in crucial ways for the development of life, such as liquid water oceans, land-ocean interfaces, favorable chemical ingredients, and energy pathways. If life ever developed on, or was transported to, early Venus from elsewhere, it might have thrived, expanded, and then survived the changes that have led to an inhospitable surface on Venus today.*

The Venus cloud layer may provide a refugium for extant life that persisted from an earlier more habitable surface environment. We introduce the Venus Life Equation (VLE), a theory and evidence-based approach to calculate the probability of extant life on Venus, L, using three primary factors of life: Origination, Robustness, and Continuity, or L =O x R x C.

We evaluate each of these factors using our current understanding of Earth and Venus environmental conditions from the Archean to the present. We find that the probability of origination of life on Venus would be similar to that of Earth, and argue that the other factors should be nonzero, comparable with other promising astrobiological targets in the solar system.

Mogul, R., et al (2021) **Potential for phototrophy in Venus' clouds.** ASTROBIOLOGY 21:doi.org/10.1089/ast.2021.0032

Authors' abstract: *We show that solar irradiances calculated across Venus' clouds support the potential for Earth-like phototrophy and that treatment of Venus' aerosols containing neutralized sulfuric acid favor a habitable zone. The phototrophic potential of Venus' atmosphere was assessed by calculating irradiances (200 to 2000 nm, 15 solar zenith angle, local noon) using a*

radiative transfer model that accounted for absorption and scattering by the major and minor atmospheric constituents.

*Comparisons to Earth's surface (46 W m^{-2}, 280 to 400 nm) suggest that Venus' middle and lower clouds receive *87% less normalized UV flux (6 to 7 W m^{-2}) across 200 to 400 nm, yet similar normalized photon flux densities (*4400 to 6200 mmol m^{-2} s^{-1}) across 350 to 1200 nm.*

Further, Venus' signature phototrophic windows and subwindows overlap with the absorption profiles of several photosynthetic pigments, especially bacteriochlorophyll b from intact cells and phycocyanin.

Therefore, Venus' light, with limited UV flux in the middle and lower clouds, is likely quite favorable for phototrophy. We additionally present interpretations to refractive index and radio occultation measures for Venus' aerosols that suggest the presence of lower sulfuric abundances and/or neutralized forms of sulfuric acid, such as ammonium bisulfate.

Under these considerations, the aerosols in Venus' middle clouds could harbor water activities (‡0.6) and buffered acidities (Hammett acidity factor, H0 -0.1 to -1.5) that lie within the limits of acidic cultivation (‡H0 -0.4) and are tantalizingly close to the limits of oxygenic photosynthesis (‡H0 0.1). Together, these photophysical and chemical considerations support a potential for phototrophy in Venus' clouds.

Turbet, M., et al (2021) **Day-night cloud asymmetry prevents early oceans on Venus but not on Earth.** NATURE 598:276-280

Authors' abstract: *Earth has had oceans for nearly four billion years and Mars had lakes and rivers 3.5 to 3.8 billion years ago. However, it is still unknown whether water has ever condensed on the surface of Venus because the planet, now completely dry, has undergone global resurfacing events that obscure most of its history.*

The conditions required for water to have initially condensed on the surface of Solar System terrestrial planets are highly uncertain, as they have so far only been studied with one-dimensional numerical climate models that cannot account for the effects of atmospheric circulation and clouds, which are key climate stabilizers.

Here we show using three-dimensional global climate model simulations of early Venus and Earth that water clouds, which preferentially form on the nightside, owing to the strong subsolar water vapour absorption, have a strong net warming effect that inhibits surface water condensation even at modest insolations (down to 325 watts per square metre, that is, 0.95 times the Earth solar constant).

This shows that water never condensed and that, consequently, oceans never formed on the surface of Venus. Furthermore, this shows that the formation of Earth's oceans required much lower insolation than today, which was made possible by the faint young Sun.

This also implies the existence of another stability state for present-day Earth: the 'steam Earth', with all the water from the oceans evaporated into the atmosphere.

Origin Of Life.

After the initial origin of life, not much happened for a gigayear as the microbes struggled to survive and spread. During this period, tectonic movement of continental plates came to an almost complete halt, and the climate remained unchanged. Geologists refer to the period as the Boring Billion. I am not making that up. Check Wikipedia for further information.

Malyshev, S.V., et al (2021) **Global implication of Mesoproterozoic (~ 1.4 Ga) magmatism within the Sette-Daban Range (Southeast Siberia).** SCIENTIFIC REPORTS 11:doi.org/10.1038/s41598-021-00010-5 (available as a free pdf)

Authors' abstract: *Mesoproterozoic is included in the time period which is called the Boring Billion (1.70 to 0.75 Ga), which was marked by an absence of glacial deposits and Sr anomaly in the seawater record, lack of massive sulfide volcanic hosted deposits and iron formations, and lack of orogenic gold.*

The paucity of new passive continental margins and abundance of unusual dry magmas such as A-type granites and anorthosites in Mesoproterozoic are discussed in terms of 'lid tectonic' hypothesis.

According to the paleomagnetic reconstructions in Mesoproterozoic, all of the continents were assembled into the supercontinent Nuna (Columbia) which were reassembled to Rodinia at the end of Mesoproterozoic.

Large Igneous Provinces (LIPs) and regional mafic dyke swarms as a component of LIPs act as a significant fingerprint for supercontinental reconstructions and their presence indicates tectonic markers of intracratonic crustal extension associated with deep-Earth dynamic processes such as mantle plumes, subduction (back-arc extension), and rifting during supercontinent break-up.

Mesoproterozoic period included several global tectonic events like break-up of Nuna and formation of Rodinia. However, although Siberia is a significant piece of both supercontinents, Mesoproterozoic time is marked by quiescence of magmatic and tectonic activity in it.

We report here a mafic dyke (named Gornostakh dyke) in the southeastern Siberian Craton dated at 1419 ± 32 Ma by LA-ICPMS U-Pb geochronology of apatite. The dyke has tholeiitic compositions with high MgO and alkaline content, low-Ti, and arc-like trace element pattern.

Due to the absence of subduction tectonics in the study area, geochemical data could be attributed to a significant contribution from metasomatically enriched subcontinental lithospheric mantle previously modified by subduction processes.

That kind of composition is common for low-Ti dykes of intraplate flood basalt provinces similar to, for example, Permian-Triassic Siberian large igneous province (LIP).

Paleogeographic reconstructions suggest that Siberia was connected to Laurentia and Baltica and their reconfiguration interrupts a prolonged tectonic quiescence in the Siberian Craton from ca. 1.88 Ga reflecting a transition from Nuna to Rodinia configuration.

Simpson, Carl (2021) **Adaptation to a viscous Snowball Earth ocean as a path to complex multicellularity.** AMERICAN NATURALIST 198:doi.org/10.5061/dryad.f1vhhmgvj (available as a free pdf)

Author's abstract: *Animals, fungi, and algae with complex multicellular bodies all evolved independently from unicellular ancestors. The early history of these major eukaryotic multicellular clades, if not their origins, co-occur with an extreme phase of global glaciations known as the Snowball Earth.*

Here, I propose that the long-term loss of low-viscosity environments due to several rounds global glaciation drove the multiple origins of complex multicellularity in eukaryotes and the subsequent radiation of complex multicellular groups into previously unoccupied niches.

In this scenario, life adapts to Snowball Earth oceans by evolving large size and faster speeds through multicellularity, which acts to compensate for high-viscosity seawater and achieve fluid flow at sufficient levels to satisfy metabolic needs.

Warm, low-viscosity seawater returned with the melting of the Snowball glaciers, and with it, by virtue of large and fast multicellular bodies, new ways of life were unveiled.

Palaeobiology.

Sun, H., et al (2021) **Exceptionally preserved hyolithids from the middle Cambrian of North China.** GEOLOGICAL MAGAZINE 158:doi.org/10.1017/S0016756821000510

[Konservat-Lagerstätte are very fine-grained rocks which preserve fossils in great detail. The *Archaeopteryx* fossils are the best known examples.]

Authors' abstract: *Hyoliths are extinct enigmatic organisms of early lophotrochozoan affinity known globally from the Palaeozoic Era and were especially diverse and abundant in the Cambrian Period. However, the commonly incomplete preservation of hyolith exoskeletons and our limited knowledge of their soft anatomy makes their ecological and biological aspects unclear.*

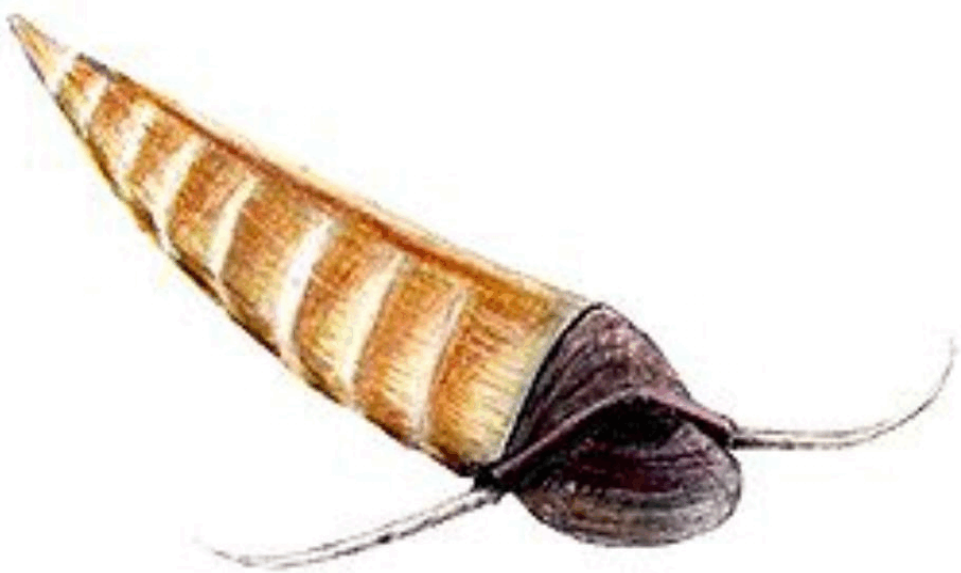
Konservat-Lagerstätte are crucial windows to unlock the mysteries of hyoliths. Here we report a new occurrence of exceptionally preserved hyolithid hyoliths from the middle Cambrian Mantou Formation (Miaolingian, Wuliuan) in Shandong Province, North China.

The preserved soft organs of the new species Novakotheca weifangensis sp. nov. include a U-shaped gut and possible pharynx, oesophagus, stomach and digestive gland, which provide significant new information for the reconstruction of the digestive system of hyolithids.

Two taphonomic modes of hyoliths described herein are recognized: soft tissue preservation through pyritization and three-dimensional shell preservation through phosphatization. Morphological variations due to different preservational pathways in the same species are revealed, highlighting the taphonomic bias on taxonomy.

The ecological association between hyoliths and small brachiopod epibionts is a direct example of species interactions, providing insights into the ecological structures and adaptability of early animals during Cambrian time.

[Image is from Wikipedia and shows the general body plan of hyoliths, not of *Novakotheca weifangensis* specifically.]



Donoghue, P.C.J., et al (2021) **The evolutionary emergence of land plants.** CURRENT BIOLOGY 31:doi.org/10.1016/j.cub.2021.07.038 (available as a free pdf)

Authors' abstract: *There can be no doubt that early land plant evolution transformed the planet but, until recently, how and when this was achieved was unclear. Coincidence in the first appearance of land plant fossils and formative shifts in atmospheric oxygen and CO_2 are an artefact of the paucity of earlier terrestrial rocks.*

Disentangling the timing of land plant body plan assembly and its impact on global biogeochemical cycles has been precluded by uncertainty concerning the relationships of bryophytes to one another and to the tracheophytes, as well as the time scale over which these events unfolded.

New genome and transcriptome sequencing projects, combined with the application of sophisticated phylogenomic modelling methods, have yielded increasing support for the Setaphyta clade of liverworts and mosses, within monophyletic bryophytes.

We consider the evolution of anatomy, genes, genomes and of development within this phylogenetic context, concluding that many vascular plant (tracheophytes) novelties were already present in a comparatively complex last common ancestor of living land plants (embryophytes).

Molecular clock analyses indicate that embryophytes emerged in a mid-Cambrian to early Ordovician interval, compatible with hypotheses on their role as geoengineers, precipitating early Palaeozoic glaciations.

The four principal lineages of living land plants are the hornworts, liverworts, mosses and the vascular plants. While the bryophytes, which comprise the first three, are superficially more similar to one another than to the vascular plants, this is largely because of their shared primitive characteristics.

The origin of trees and their complex and deep rooting systems in the Devonian, for example, is implicated in CO_2 draw down through silicate weathering resulting in middle Palaeozoic glaciation.

Matthaeus, W.J., et al (2021) **Freeze tolerance influenced forest cover and hydrology during the Pennsylvanian**. PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 118:doi.org/10.1073/pnas.2025227118

[The Pennsylvanian era was 323.2 to 299 megayears ago, part of the Carboniferous. It was ended by an ice age that gave rise to conifers and reptiles.]

Authors' abstract: *The distribution of forest cover alters Earth surface mass and energy exchange and is controlled by physiology, which determines plant environmental limits. Ancient plant physiology, therefore, likely affected vegetation-climate feedbacks.*

We combine climate modeling and ecosystem-process modeling to simulate arboreal vegetation in the late Paleozoic ice age. Based on leaf water constraints, Pangaea could have supported widespread arboreal plant growth and forest cover. However, these models do not account for the impacts of freezing on plants.

According to our interpretation, freezing would have affected plants in 59% of unglaciated land during peak glacial periods and 73% during interglacials, when more high-latitude land was unglaciated. Comparing forest cover, minimum temperatures, and paleo-locations of Pennsylvanian-aged plant fossils from the Paleobiology Database supports restriction of forest extent due to freezing.

Many genera were limited to unglaciated land where temperatures remained above -4 ˚C. Freeze-intolerance of Pennsylvanian arboreal vegetation had the potential to alter surface runoff, silicate weathering, CO_2 levels, and climate forcing.

As a bounding case, we assume total plant mortality at -4 ˚C and estimate that contracting forest cover increased net global surface runoff by up to 6.1%. Repeated freezing likely influenced freeze- and drought-tolerance evolution in lineages like the coniferophytes, which became increasingly dominant in the Permian and early Mesozoic.

Santos, A.A., et al (2021) **A Robinson Crusoe story in the fossil record: Plant-insect interactions from a Middle Jurassic ephemeral volcanic island (Eastern Spain).** PALAEOGEOGRAPHY, PALAEOCLIMATOLOGY, PALAEOECOLOGY 583:doi.org/10.1016/j.palaeo.2021.110655 (available as a free pdf)

Authors' abstract: *We present here the first record of plant-insect interactions from an ephemeral volcanic island that was placed 150 km away from the nearest continental mass. The island was formed and destroyed during the Aalenian (Middle Jurassic) in a shallow sea of the southwestern Tethyan realm corresponding today to a place located in eastern Spain.*

These plant-insect interactions were mainly documented in leaves of Cycadophytes (comprising both Cycads and Bennettitales), and they have been described and classified into different Damage Types (DTs) and Functional Feeding Groups (FFGs).

The interactions were assigned to 11 different DTs including different types of hole feeding, margin feeding, surface feeding, piercing and sucking, mining(?), and some putative ovipositional scars.

The presence of these interactions implies that the island was colonized by different groups of insects, including orders such as Coleoptera, Hemiptera, Odonata, or Lepidoptera.

The low variety and incidence of interactions comparing with other Middle Jurassic plant-insect interactions assemblages indicate that the diversity of insects was not high, possibly due to the difficulty of reaching this island by various lineages, the small size of the landmass of the island, and the limited food availability (mainly Cycadophytes).

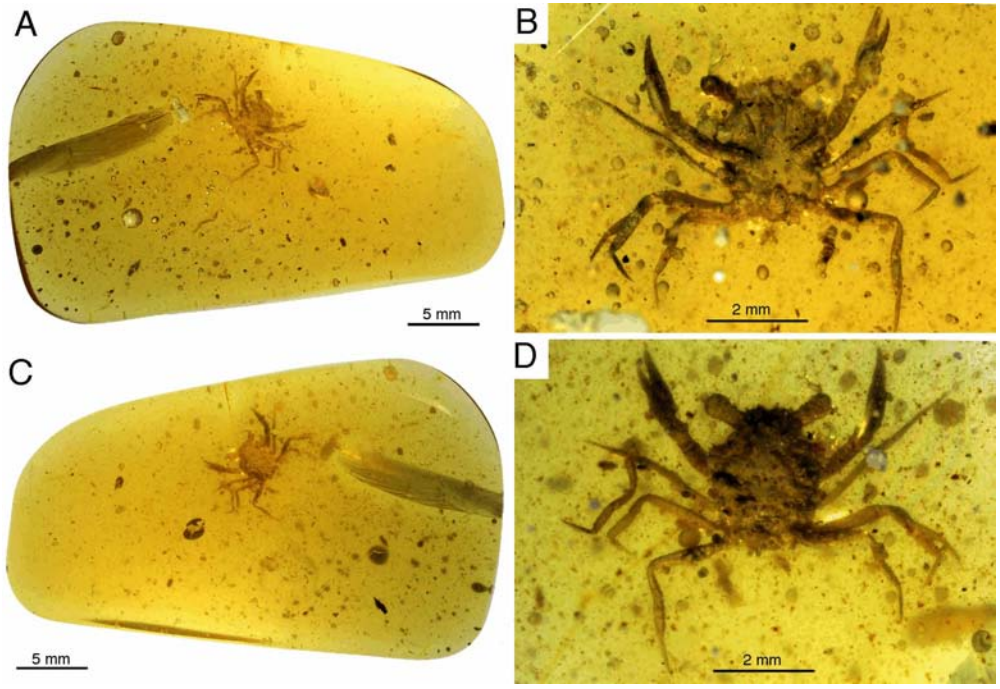
Possible colonization strategies could be by atmospheric dispersion, using floating remains of plants or pterosaurs as vectors, by active flight for Lepidoptera, or by rafting and floating in marine currents for flightless or other insects.

Luque, J., et al (2021) **Crab in amber reveals an early colonization of nonmarine environments during the Cretaceous.** SCIENCE ADVANCES 7:doi.org/10.1126/sciadv.abj5689 (available as a free pdf)

Authors' abstract: *Here, we present the first record of true crabs (Brachyura) in amber, from the Cretaceous of Myanmar [~100 to 99 million years (Ma)]. The new fossil preserves large compound eyes, delicate mouthparts, and even gills. This modern-looking crab is nested within crown Eubrachyura, or "higher" true crabs, which includes the majority of brachyuran species living today.*

The fossil appears to have been trapped in a brackish or freshwater setting near a coastal to fluvio-estuarine environment, bridging the gap between the predicted molecular divergence of nonmarine crabs (~130 Ma) and their younger fossil record (latest Cretaceous and Paleogene, ~75 to 50 Ma) while providing a reliable calibration point for molecular divergence time estimates for higher crown eubrachyurans.

[Image is from this paper.]



Dinosaurs.

[Map is from Wikipedia and shows North America as it was during the Cretaceous just before the dinosaurs became extinct.]

Pol, D., et al (2021) **Earliest evidence of herd living and age segregation amongst dinosaurs.** SCIENTIFIC REPORTS 11:doi.org/10.1038/s41598-021-99176-1 (available as a free pdf)

Authors' abstract: *Sauropodomorph dinosaurs dominated the herbivorous niches during the first 40 million years of dinosaur history (Late Triassic to Early Jurassic), yet palaeobiological factors that influenced their evolutionary success are not fully understood.*

For instance, knowledge on their behaviour is limited, although herding in sauropodomorphs has been well documented in derived sauropods from the Late Jurassic and Cretaceous.

Here we report an exceptional fossil occurrence from Patagonia that includes over 100 eggs and skeletal specimens of 80 individuals of the early sauropodomorph Mussaurus patagonicus, ranging from embryos to fully-grown adults, with an Early Jurassic age as determined by high-precision U–Pb zircon geochronology.

Most specimens were found in a restricted area and stratigraphic interval, with some articulated skeletons grouped in clusters of individuals of approximately the same age. Our new discoveries indicate the presence of social cohesion throughout life and age-segregation within a herd structure, in addition to colonial nesting behaviour.

These findings provide the earliest evidence of complex social behaviour in Dinosauria, predating previous records by at least 40 My. The presence of sociality in different sauropodomorph lineages suggests a possible Triassic origin of this behaviour, which may have influenced their early success as large terrestrial herbivores.

Thompson, M.G.W. (2021) **The oldest occurrence of brachylophosaurin hadrosaurids in Canada.** CANADIAN JOURNAL OF EARTH SCIENCES 58:993-1004

[Hadrosaurs were giant bipedal herbivorous dinosaurs. Very common in Alberta deposits.]

Author's abstract: *Hadrosaurids are a diverse and widely distributed group of ornithischian dinosaurs that are particularly well represented in the upper Campanian Dinosaur Park Formation of the Belly River Group of Alberta.*

However, the origin of this hadrosaurid diversity in Alberta is poorly understood, as the lower Campanian terrestrial deposits of the underlying Oldman and Foremost formations of the group have produced comparatively few body fossils.

Here we provide the first description of a partially articulated hadrosaurid and hadrosaurid material from a bonebed from the Foremost Formation and refer it to the brachylophosaurin Probrachylophosaurus sp. indet. The material represents the oldest occurrence of Brachylophosaurini in Alberta and the oldest known hadrosaurid diagnostic to the genus level from Canada.

In Alberta, Hadrosaurinae display a distinct pattern of replacement with the tribes Brachylophosaurini and Kritosaurini being confined to the lower to middle Campanian strata (below the marine Bearpaw Formation) and replaced above the Bearpaw Formation by members of Saurolophini (Prosaurolophus, Saurolophus) and Edmontosaurini (Edmontosaurus), with the latter clade persisting to the end of the Maastrichtian.

Although the worldwide stratigraphic distribution of the Hadrosaurinae is complex, this pattern generally holds true for northern Laramidian hadrosaurine tribes, suggesting that their pattern of evolution and replacement may be driven by some common underlying factor such as an environmental response to fluctuations in the margins of the Western Interior Seaway due to sea level change.

Joshua M.White and Matthew R.McCurry (2021) **A panda-like diprotodontid? Assessing the diet of Hulitherium tomasettii using dental complexity (Orientation Patch Count Rotated) and dental microwear texture analysis.** PALAEOGEOGRAPHY, PALAEOCLIMATOLOGY, PALAEOECOLOGY 583:doi.org/10.1016/j.palaeo.2021.110675

Authors' abstract: *Several groups of marsupial mammals have been cited as examples of functional convergence with placental mammals (e.g. Thylacinus cynocephalus (thylacine) and Canis lupis (gray wolf)), though detailed quantitative analyses have often revealed subtle differences between such groups.*

A less well known purported case of convergence is that between the extant Ailuropoda melanoleuca (giant panda) and the extinct diprotodontid marsupial, Hulitherium tomasettii from the montane rainforest of Papua New Guinea.

Because of its body weight and bizarre panda-like post-cranial morphology, H. tomasettii has been depicted as a specialist bamboo feeder. Here, we test this dietary hypothesis by using a multi-proxy approach that includes Orientation Patch Count Rotated (OPCR) and dental microwear texture analysis (DMTA).

Specifically, we compare the dental complexity and DMTA of H. tomasettii to other diprotodontids and extant herbivores with similar cranio-dental features and/or post-cranial features, including extant bamboo feeders. We show that H. tomasettii does not display the high dental complexity or DMTA attributes exhibited in extant bamboo feeding taxa.

Instead, low dental complexity and DMTA data suggest that H. tomasettii was neither adapted for consuming mechanically challenging food nor did it consume particularly tough or hard foods like the culm of bamboo, and was more akin to other diprotodontids and/or bilophodont browsers (e.g. browsing tapirs).

Our results suggest that H. tomasettii was likely a generalised browser and not a specialised bamboo feeder. Collectively, the post-cranial morphology and diet of H. tomasettii may indicate a browser that was able to take advantage of vegetation higher up in trees and/or softer bamboo leaves.

Cocker, S.L., et al (2021) **Dung analysis of the East Milford mastodons: dietary and environmental reconstructions from central Nova Scotia at about 75 ka years BP.** CANADIAN JOURNAL OF EARTH SCIENCES 58:doi.org/10.1139/cjes-2020-0164 (available as a free pdf)

Authors' abstract: *To reconstruct a mastodon diet and provide a snapshot view of environmental conditions in eastern Canada prior to the onset of the Wisconsinan glaciation, we analysed the faunal and floral components of dung associated with juvenile mastodon remains from East Milford, Nova Scotia, dated to 74.9 6 5.0 kiloyears ago cal BP.*

The diverse assemblage of pollen, nonpollen palynomorphs, plant macrofossils, and macroinvertebrate remains in the dung suggests that the mastodons lived in a spruce-dominated mixed coniferous-deciduous forest with a strong boreal aspect interspersed with wetlands rich in charophytes, sedges, cattails, bulrushes, and bryophytes.

The abundance of spruce needles and birch samaras in the dung sample is consistent with an inferred browsing behaviour, having been reported for other mammutid species previously. The limited diversity and near-absence of coprophilous fungi, such as Sporormiella, in the dung could have an impact on understanding the influence of feeding strategies on the presence of coprophilous taxa in sedimentary records, and thus interpretations of megafaunal abundance.

The dung also yielded the earliest known Canadian remains of the bark beetle Polygraphus cf. rufipennis, gemmulae of the freshwater sponge Eunapius cf. fragilis, and loricae of the rotifer Keratella cochlearis.

Campbell-Staton, S.C., et al (2021) **Ivory poaching and the rapid evolution of tusklessness in African elephants.** SCIENCE 374:483-487 (available as a free pdf)

Authors' abstract: *Understanding the evolutionary consequences of wildlife exploitation is increasingly important as harvesting becomes more efficient. We examined the impacts of ivory poaching during the Mozambican Civil War (1977 to 1992) on the evolution of African savanna elephants (Loxodonta africana) in Gorongosa National Park.*

Poaching resulted in strong selection that favored tusklessness amid a rapid population decline. Survey data revealed tusk-inheritance patterns consistent with an X chromosome-linked dominant, male-lethal trait. Whole-genome scans implicated two candidate genes with known roles in mammalian tooth development (AMELX and MEP1a), including the formation of enamel, dentin, cementum, and the periodontium.

One of these loci (AMELX) is associated with an X-linked dominant, male-lethal syndrome in humans that diminishes the growth of maxillary lateral incisors (homologous to elephant tusks). This study provides evidence for rapid, poaching-mediated selection for the loss of a prominent anatomical trait in a keystone species.

In response to heavy poaching by armed forces, African elephant populations in Gorongosa National Park declined by 90%. As the population recovered after the war, a relatively large proportion of females were born tuskless. Further exploration revealed this trait to be sex linked and related to specific genes that generated a tuskless phenotype more likely to survive in the face of poaching.

Gnanapragasam, J.J., et al (2021) **Civil war is associated with longer escape distances among Sri Lankan birds.** AMERICAN NATURALIST 198:653-659

Authors' abstract: *War influences wildlife in a variety of ways but may influence their escape responses to approaching threats, including humans, because of its effect on human populations and behavior and landscape change. We collected 1,400 flight initiation distances (FIDs) from 157 bird species in the dry zone of Sri Lanka, where civil war raged for 26 years, ending in 2009.*

Accounting for factors known to influence FIDs (phylogeny, starting distance of approaches, body mass, prevailing human density, group size, and location), we found that birds have longer FIDs in the part of the dry zone that experienced civil war.

Larger birds, often preferred by human hunters, showed greater increases in FID in the war zone, consistent with the idea that war was associated with greater hunting pressure and that larger birds experienced longer-lasting trauma or had more plastic escape behavior than smaller species.

While the mechanisms linking the war and avian escape responses remain ambiguous, wars evidently leave legacies that extend to behavioral responses in birds.

Human Prehistory.

Kirscher, U., et al (2021) **Age constraints for the Trachilos footprints from Crete.** SCIENTIFIC REPORTS 11:doi.org/10.1038/s41598-021-98618-0 (available as a free pdf)

Authors' abstract: *We present an updated time frame for the 30 metre thick late Miocene sedimentary Trachilos section from the island of Crete that contains the potentially oldest hominin footprints. The section is characterized by normal magnetic polarity.*

New and published foraminifera biostratigraphy results suggest an age of the section within the Mediterranean biozone MMi13d, younger than ~ 6.4 megayears. Calcareous nannoplankton data from sediments exposed near Trachilos and belonging to the same sub-basin indicate deposition during calcareous nannofossil biozone CN9bB, between 6.023 and 6.727 Ma.

By integrating the magneto- and biostratigraphic data we correlate the Trachilos section with normal polarity Chron C3An.1n, between 6.272 and 6.023 Ma. Using cyclostratigraphic data based on magnetic susceptibility, we constrain the Trachilos footprints age at ~ 6.05 Ma, roughly 0.35 Ma older than previously thought.

Some uncertainty remains related to an inaccessible interval of ~ 8 metre section and the possibility that the normal polarity might represent the slightly older Chron C3An.2n. Sediment accumulation rate and biostratigraphic arguments, however, stand against these points and favor a deposition during Chron C3An.1n.

Beyin, A. (2021) **The western periphery of the Red Sea as a hominin habitat and dispersal corridor: marginal or central?** JOURNAL OF WORLD PREHISTORY 34:279-316

Author's abstract: *The Western Periphery of the Red Sea (WPRS) is an important region for paleoanthropological discussions about the history of hominin dispersal out of Africa. This paper examines the existing Paleolithic evidence in the region and some key aspects of its environmental setting, with the goal of assessing its role in hominin survival and dispersals.*

The paper's chronological focus is the span 1.8 to 0.05 million years ago. Although the majority of the Paleolithic (Stone Age) sites so far documented in the region lack precise chronological control, the available evidence comprises Acheulean, Middle and Later Stone Age technocomplexes that can be broadly linked to distinct hominin settlement episodes.

Most of the documented sites appear to be related to terrestrial niche exploitation around channelized alluvial plains between the coastal zone and the eastern slopes of the Red Sea Hills, although wave erosion may have destroyed sites associated with coastal resource use.

As an extension of the East African Rift system, the WPRS mirrors the landscape features of the fossil-rich Rift Valley region, with the addition of a coastal niche. Thus, it may have posed little survival risk for hominins coming from the inland habitats, and some of the inhabitant populations may have easily dispersed toward Eurasia from there.

Larena, M., et al (2021) **Philippine Ayta possess the highest level of Denisovan ancestry in the world.** CURRENT BIOLOGY 31:doi.org/10.1016/j.cub.2021.07.022

[Denisovans were a species of humans who overlapped with Neanderthals and *Homo sapiens sapiens*, and cross-bred with both. They lived in Asia from Siberia down to Australia.]

Authors' abstract: *Multiple lines of evidence show that modern humans interbred with archaic Denisovans. Here, we report an account of shared demographic history between Australasians and Denisovans distinctively in Island Southeast Asia.*

Our analyses are based on ~2.3 million genotypes from 118 ethnic groups of the Philippines, including 25 diverse self-identified Negrito populations, along with high-coverage genomes of Australopapuans and Ayta Magbukon Negritos. We show that Ayta Magbukon possess the highest level of Denisovan ancestry in the world, 30% to 40% greater than that of Australians and Papuans, consistent with an independent admixture event into Negritos from Denisovans.

Together with the recently described Homo luzonensis, we suggest that there were multiple archaic species that inhabited the Philippines prior to the arrival of modern humans and that these archaic groups may have been genetically related.

Altogether, our findings unveil a complex intertwined history of modern and archaic humans in the Asia-Pacific region, where distinct Islander Denisovan populations differentially admixed with incoming Australasians across multiple locations and at various points in time.

Human History.

Kuitems, M., et al (2021) **Evidence for European presence in the Americas in AD 1021.** NATURE 598:doi.org/10.1038/s41586-021-03972-8 (available as a free pdf)

Authors' abstract: *Transatlantic exploration took place centuries before the crossing of Columbus. Physical evidence for early European presence in the Americas can be found in Newfoundland, Canada. However, it has thus far not been possible to determine when this activity took place.*

Here we provide evidence that the Vikings were present in Newfoundland in AD 1021. We overcome the imprecision of previous age estimates by making use of the cosmic-ray-induced upsurge in atmospheric radiocarbon concentrations in AD 993.

Our new date lays down a marker for European cognisance of the Americas, and represents the first known point at which humans encircled the globe. It also provides a definitive tie point for future research into the initial consequences of transatlantic activity, such as the transference of knowledge, and the potential exchange of genetic information, biota and pathologies.

Raposeiro, P.M., et al (2021) **Climate change facilitated the early colonization of the Azores Archipelago during medieval times.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 118:doi.org/10.1073/pnas.2108236118

Authors' abstract: *We use a diverse set of lake and landscape proxy indicators to characterize initial human occupation and its impacts on the Azores Archipelago. The occupation of these islands began between 700 and 850 CE, 700 years earlier than suggested by documentary sources.*

These early occupations caused widespread ecological and landscape disturbance and raise doubts about the islands' presumed pristine nature during Portuguese arrival.

The earliest explorers arrived at the end of the early Middle Ages, when temperatures were higher than average, and the westerly winds were weaker, facilitating arrivals to the archipelago from northeastern Europe and inhibiting exploration from southern Europe. This is consistent with archaeological and genetic research suggesting the Norse were the first to colonize the Azores Archipelago.

Humans have made such dramatic and permanent changes to Earth's landscapes that much of it is now substantially and irreversibly altered from its pre-anthropogenic state.

Remote islands, until recently isolated from humans, offer insights into how these landscapes evolved in response to human-induced perturbations. However, little is known about when and how remote systems were colonized because archaeological data and historical records are scarce and incomplete.

Here, we use a multiproxy approach to reconstruct the initial colonization and subsequent environmental impacts on the Azores Archipelago. Our reconstructions provide unambiguous evidence for widespread human disturbance of this archipelago starting between 700 and 850 Common Era (CE), ca. 700 years earlier than historical records suggest the onset of Portuguese settlement of the islands.

Settlement proceeded in three phases, during which human pressure on the terrestrial and aquatic ecosystems grew steadily (i.e., through livestock introductions, logging, and fire), resulting in irreversible changes.

Our climate models suggest that the initial colonization at the end of the early Middle Ages (500 to 900 CE) occurred in conjunction with anomalous northeasterly winds and warmer Northern Hemisphere temperatures.

These climate conditions likely inhibited exploration from southern Europe and facilitated human settlers from the northeast Atlantic. These results are consistent with recent archaeological and genetic data suggesting that the Norse were most likely the earliest settlers on the islands.

Technology.

Revell, L.E., et al (2021) **Direct radiative effects of airborne microplastics.** NATURE 598:462-467

Authors' abstract: *Microplastics are now recognized as widespread contaminants in the atmosphere, where, due to their small size and low density, they can be transported with winds around the Earth.*

Atmospheric aerosols, such as mineral dust and other types of airborne particulate matter, influence Earth's climate by absorbing and scattering radiation (direct radiative effects) and their impacts are commonly quantified with the effective radiative forcing (ERF) metric. However, the radiative effects of airborne microplastics and associated implications for global climate are unknown.

Here we present calculations of the optical properties and direct radiative effects of airborne microplastics (excluding aerosol-cloud interactions). The ERF of airborne microplastics is computed to be 0.044 ± 0.399 milliwatts per square metre in the present-day atmosphere assuming a uniform surface concentration of 1 microplastic particle per cubic metre and a vertical distribution up to 10 kilometres altitude.

However, there are large uncertainties in the geographical and vertical distribution of microplastics. Assuming that they are confined to the boundary layer, shortwave effects dominate and the microplastic ERF is approximately -0.746 ± 0.553 milliwatts per square metre.

Compared with the total ERF due to aerosol-radiation interactions (-0.71 to -0.14 watts per square metre), the microplastic ERF is small. However, plastic

production has increased rapidly over the past 70 years; without serious attempts to overhaul plastic production and waste-management practices, the abundance and ERF of airborne microplastics will continue to increase.

Gaoa, L., and H. Hu (2021) **Wind turbine icing characteristics and icing-induced power losses to utility-scale wind turbines.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 118:doi.org/10.1073/pnas.2111461118 (available as a free pdf)

Authors' abstract: *A field campaign was carried out to investigate ice accretion features on large turbine blades (50 metres in length) and to assess power output losses of utility-scale wind turbines induced by ice accretion. After a 30-hour icing incident, a high-resolution digital camera carried by an unmanned aircraft system was used to capture photographs of iced turbine blades.*

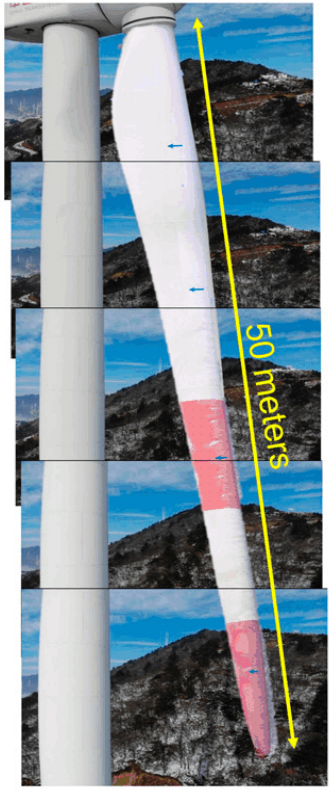
Based on the obtained pictures of the frozen blades, the ice layer thickness accreted along the blades' leading edges was determined quantitatively. While ice was found to accumulate over whole blade spans, outboard blades had more ice structures, with ice layers reaching up to 0.3 metres thick toward the blade tips.

With the turbine operating data provided by the turbines' supervisory control and data acquisition systems, icing-induced power output losses were investigated systematically.

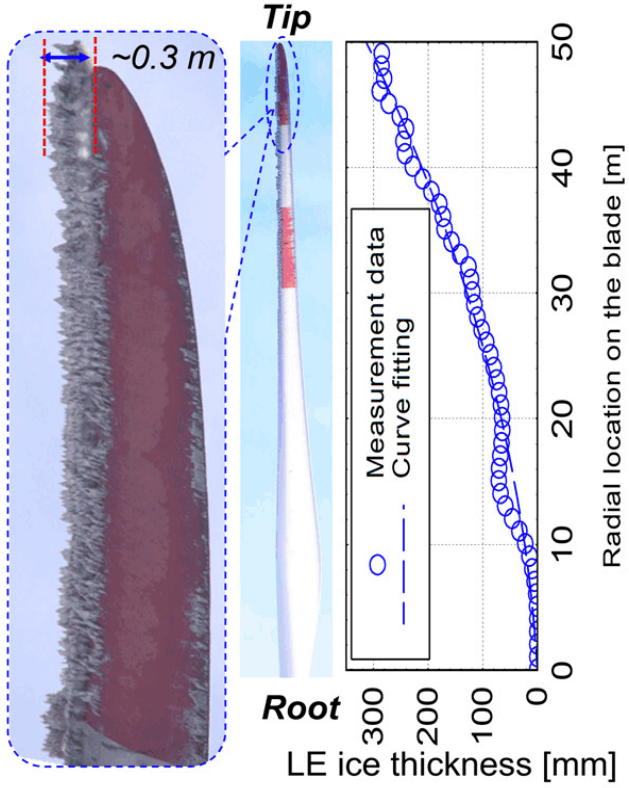
Despite the high wind, frozen turbines were discovered to rotate substantially slower and even shut down from time to time, resulting in up to 80% of icing-induced turbine power losses during the icing event.

[Images are from this paper.]

Acquisition of iced blade images with a UAS



Acquired images of an iced turbine blade



Measured thickness of the ice layer accreted along the blade leading edge (LE).