

OPUNTIA 504



Early July 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: The front yard of Chez Opuntia with purple vetch in full bloom on Canada Day. In the background is the Opuntiamobile. (Look closely at the licence plate.)

THE HEAT IS ON

by Dale Speirs

June was a relatively dry month in Calgary, with a few days of rain or showers scattered through the calendar but mostly sunny days in the high 20s temperature range. The last week of June and first week of July brought in a heat wave, with temperatures in the middle 30s. This would be laughable to those in Arizona or Texas, where summers are in the 40°C+ range, but for a mountain city like Calgary, 35°C is hot enough, thank you.

What was unusual in Calgary was that temperatures did not cool off overnight. Normally, because of our altitude, no matter hot the day is, the temperature drops down at night to 20°C or so because of radiative cooling. This time the temperatures only backed off one or two degrees overnight. I was at a Zoom meeting on June 29 where several British Columbians were present. They mentioned that both the Okanagan and Vancouver Island hit 45°C.

Meanwhile, the pandemic continued on, although daily case loads in hospitals are dropping fast as the majority of Canadians now have at least one vaccination. Nonetheless, Canada Day was muted in Calgary because of the virus, with only fireworks. The Stampede rodeo announced they would proceed July 9 to 18 with limited events, social distancing, and limited admissions. I've had my first jab but there was no way I would go into the rodeo grounds, distancing or not.

Seen at my local supermarket. As patriotic as I may be, I passed on these cakes in deference to the losing struggle with my weight control.





Well I did have these, but not the whole bag in one day.



If it's summer, then the electric scooters are out downtown. Very popular. Electric bicycles are extinct.

This year a new competitor Neuron joined the fray. The City also established parking pads to reduce problems with users leaving them scattered about in the path of pedestrians.





At left: Something to cool off with in the heat. I'm a teetotaler but when I spotted these on the Internet, I thought I'd mention them here. I suspect the beer's name does not refer to what my readers would call fanzines. At least the word is not extinct among the mundanes.

Below: Regretfully, I do not live in a crime-free neighbourhood.



FINANCIAL FICTION: PART 4

by Dale Speirs

[Parts 1 to 3 appeared in OPUNTIA's #444, 461, and 488.]

The Taxman Cometh.

LET GEORGE DO IT aired on radio from 1946 to 1954, sponsored by Standard Oil for its Chevron stations. (Available as free mp3s from www.otrrlibrary.org) The series was about George Valentine, a private investigator.

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

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

"The High Price Of A Penny" was written by David Victor and Jackson Gillis, and aired on 1950-08-14. The letter from the client was written by Amos W. Fells, a lawyer who was worried about his neighbours the Maums. He arranged for George Valentine and Claire Brooks to visit them.

Nephew Clifford Maum was not hospitable when Valentine telephoned ahead, but he decided to barge in anyway. Just before they drove up to the front gate, they found an insurance agent working along a cliff. He informed them that the police had come and gone, taking with them the bodies of the Maums. Their car had gone over the cliff. She was dead in the car but he had crawled partway up the cliff before dying.

Going down the road to the next house, Valentine and Brooksie discovered it was Fells' residence. He informed them that Clifford was the bad penny who would now inherit millions from dear old uncle. It was pointless to investigate. Since the episode was only one-third done, the listener will not be surprised that Valentine went ahead and investigated.

The police said it was an accident. Valentine drove back to the manor but passing the crash scene spotted a body, the insurance agent. That wasn't an

accident but murder. Valentine visited Clifford. The MacGuffin was a diamond bracelet, or perhaps three trout a local boy had caught. Something like that, as the listener was kept in the dark. Shots were fired and alarms were raised.

The J'accuse! meeting was a clever one, based on tax law, something not ordinarily a subject for a murder mystery. The car crash that killed the Maums, as Valentine and the insurance agent deciphered it, had his body at the steering wheel. His wife managed to crawl partway up the slope, indicating that she lived longer.

Pay attention to this part, especially if you have layabout nephews hungering after your estate. Clifford was first to discover the crash. Before going for help, he thought that if he left the scene as it was, the Maum estate would be double taxed.

Firstly, the estate would be taxed upon his uncle's death, and the remainder would go to Auntie. Since she died later, even if only by a few minutes, the estate would be taxed a second time before going to Clifford. He would be lucky to get two dimes on the dollar by the time all the probate taxes were assessed.

Clifford rearranged the bodies to make it look as if his aunt died first in the car, and the uncle later up on the slope. That way, the estate would only be taxed once as it passed directly from uncle to nephew. He murdered the insurance agent, who had figured out the bodies had been moved, something the police missed.

Clifford tried to run for it but didn't get far. Had he remained calm, the evidence would have been doubtful and the case would not be proven in court. In the epilogue, Fells twisted the knife in his capacity as a lawyer. He pointed out that in such situations where death was only a short time apart between heirs, the courts had declared that the taxman could only levy probate taxes once.

Currency.

If you want to keep physical cash for the long term, measured in decades, the rule is to keep it as physical gold or silver coins, which never lose their value to future generations. Banknotes can be made obsolete and leave your elderly

self or your heirs with worthless paper. Examples are Confederate banknotes, the South Vietnamese dong, American silver notes and pre-1933 banknotes, and Canadian paper banknotes. (Canada switched to plastic banknotes in 2011. The \$1 and \$2 banknotes were replaced by coins, known as the loonie and the toonie.)

THE UNEXPECTED was a syndicated anthology radio series that aired in 1947 and 1948, and repeated in subsequent years by stations who bought the series at a later date. The 15-minute episodes are available as free mp3s from the Old Time Radio Researchers Website at www.otrrlibrary.org The stories were like THE WHISTLER, with a twist at the end.

“Cargo Unknown” was written by Robert Lippert and Frank Burt, and first aired on 1947-08-08. The episode was narrated by Honolulu deep-sea diver Tom Stevenson. He was approached in a tavern by a sultry woman named Lorna Andrews, who hired him to retrieve \$2 million in sunken cargo.

Stevenson was suspicious because she wouldn't give details about the job. He walked out on the offer, straight into Trevor Komar, who was waiting outside the tavern, having followed Andrews there. Komar was a competitor after the same cargo. He was much more forthcoming.

Komar told Stevenson the cargo was in the wreck of the S.S. Mary Arnold, which struck a reef near Molokai Island ten years before. Andrews' husband Howard went down with the ship, along with his valuable cargo. No one knew exactly what the cargo was, other than it was stated on the bill of lading that it was worth \$2 million.

Stevenson played Lorna and Komar against each other. He finally went with her for a 10% commission. And so to the reef and into the depths. He discovered what the cargo was, millions of dollars in currency.

After the final commercial break, the epilogue revealed the twist. Stevenson resurfaced with the cash, to find Komar waving a gun and in control of the ship.

Alas for both Komar and Andrews, the currency was 1935 Chinese dollars, now worthless. Stevenson sent Andrews an invoice for US\$6,000 for the cost of the ship charter and his time. He didn't expect her to pay.

The Hidden Tax.

Central bankers like mild inflation because they get the first benefit of printing too much currency. (Or these days, typing extra zeroes on a computer keyboard.) Their publically announced targets are usually in the 2% range, which doesn't sound bad to the general public.

What the average person doesn't realize is that inflation is cumulative. If there is 2% inflation per year, then at the end of the first year \$100 requires \$102 to be equivalent in spending value.

But the following year of 2% inflation isn't another 2% on \$100, it is 2% on \$102, or \$104.4 in depreciated currency. That is why your grandparents paid 50 cents for a hamburger in the 1960s and today you pay \$5 or more.

Governments like inflation because it devalues their debts. In the 1960s, \$1 million in debt was serious money. That debt has now been inflated away and isn't even a line item. Before the Panic of 2008, the big money was \$1 billion but is now measured in trillions.

One method governments use to distract the smarter citizens from inflation is to go to war. This was the premise of “Passport To Sirius” by Robert Silverberg (1958 April, WORLDS OF IF, available as a free pdf from www.archive.org). Earth was under a wartime economic footing, fighting against the evil empire of Sirius.

David Carman was an average Earthling who could never get ahead because of constant inflation. He decided to enlist in the war, but couldn't get through the bureaucracy. He eventually learned that there was no war with Sirius. The news was fictitious, simply a ruse to keep the economic engines of Earth running. Just as the Great Depression was solved by World War Two, Earth's economy was kept going by inflating the currency with a fake war.

Banking On Trouble.

NICK CARTER, MASTER DETECTIVE aired on old-time radio from 1943 to 1955. The detective first appeared in print in 1886, predating Sherlock Holmes, and often appeared on stage and in movies. Nick Carter appeared in his own pulp magazines and dime novels, written by house authors.

Carter had boundless confidence in his ability and came across as arrogant to all, including his secretary/girlfriend Patsy Bowen. He had his own laboratory, a huge library, and kept better files than the FBI.

“An Angle On Murder” aired on 1943-10-25, written by George Gordon. John Hammel of Bankers Associates telephoned Nick Carter and asked for a rendezvous out in the street nearby. His bank had failed an audit and the accounts were short a substantial amount.

Hammel and his four partners didn't want the police involved because the publicity would start a bank run. He asked Carter for a discrete investigation. They agreed to meet in a side alley near the bank. As Carter walked to the rendezvous with a reporter named Scubby, a driver tried to run him over with a car. Since the episode still had 28 minutes to go, the attempt failed. Carter got the licence plate and sent Scubby to the DMV to get the details.

Continuing on, Carter met Hammel, who said the four partners were waiting upstairs for an emergency meeting. The two men took the elevator to the 24th floor. As they stepped out, a shot was fired down the corridor, killing Hammel.

The four partners were Tom Burdock, Amel Garrick, Robert Nelson, and Alan Cornish. They came running out of their offices at the sound of the gunshot. After a brief squabble about alibis, for the murderer was obviously one of them, a search was made.

The murder weapon was found in an umbrella stand inside the door of Cornish's office. The gun was his. He said the gun had been missing for three days but hadn't reported the theft to the police because he didn't have a permit.

Cornish panicked and ran. Carter fired a couple of warning shots but they didn't stop Cornish. Really? A professional investigator firing warning shots at a crime scene? And where did those two bullets go? The landlord would be submitting a claim for repairs to the ceiling or walls, assuming the bullets didn't ricochet and hurt someone. Note that well because the script writer didn't.

Back at the office, Carter and Patsy Bowen discussed the case. The coroner had given Carter the fatal bullet, which was peculiarly deformed, not like a normal impact. Really? For an unsolved murder case, the coroner gave away the key piece of evidence to a private individual?

Cornish later telephoned Carter and arranged a meeting. Patsy Bowen tagged along to earn her salary and because Carter needed a sounding board. Since Cornish was the obvious suspect, standard mystery story protocol was followed and he became the second murder victim. Carter and Bowen found Cornish's body hanging from a rope. It was obviously a setup by the real murderer.

At this point, Scubby re-appeared, bearing the information that the car (remember the car?) belonged to Burdock. He lived out in the boondocks of Long Island, so Carter and Scubby drove out there, sans Bowen. En route someone fired shots at them but there were still 16 minutes left in the episode so they continued on to Burdock's estate.

They let themselves into the manor via the basement and snooped around. “*We should find a staircase leading upstairs*”, said Carter in a brilliant piece of deduction. Upstairs, they eavesdropped on a conversation between Mrs Burdock (first name never given) and Garrick. She was worried because he hadn't come home from work. Carter took the opportunity to introduce himself. As they were talking, a car pulled into the driveway. Mrs Burdock went to the window and the driver took off when he saw her.

The three men piled into Scubby's car and gave chase. The other car tried to beat a train across a railroad crossing but failed. Burdock was mortally injured. In his hospital bed he gasped out a denial of everything but spun out the story. He then died before naming the culprit.

Carter went back to the bank offices and found in a desk drawer a book titled STUDIES OF VARIOUS ANGLES OF BULLETS IN FLIGHT. Sure he did. There was a steel pillar in the corridor with ricochet marks. The police missed them. Good thing Carter was on the job.

Carter summoned the two surviving partners. Garrick said it was Nelson's book. (Remember Nelson?) The two partners shouted denials at each other. Carter accused Garrick who drew a gun. Shots were exchanged but Carter was the faster draw. Garrick had stolen Cornish's gun, and had borrowed Burdock's car for the attempt on Carter's life.

That four out of the five bank partners were dead by violence would not be lost on the newspapers and radio stations. One suspects that even if the embezzlement wasn't mentioned, there would still be a lineup at the teller windows the next day as customers hastened to withdraw their deposits.

IF YOU AREN'T SQUAMOUS, THEN WHY ARE YOU TRYING TO BE ELDRITCH?: PART 16

by Dale Speirs

[Parts 1 to 15 appeared in OPUNTIA's #298, 333, 340, 352, 365, 395, 410, 415, 422, 443, 465, 480, 486, 492, and 498. Issues #22 and 63.1A have related articles on H.P. Lovecraft.]

H.P. Lovecraft died in 1937, which means that all his works are now in the public domain. As a result, the trickle of pastiches about the Cthulhu Mythos is now a flood. It would take a deep purse to keep up with all the books pouring out and I don't even try. Herewith are some of the newer publications in the Mythos.

Pastiches: Short Stories.

“The Simple Account Of Sergeant Shea, Immediately Prior To The End Of The World” by J.C. Tabler (2009 November, ARKHAM TALES, available as a free pdf from www.archive.org). The title gives away the ending but the pastiche is an interesting read.

The story is a monologue by a police officer who intercepted a Professor of Occult Studies at Miskatonic University trespassing on park land after dark. The professor was trying to observe and possibly stop a group conducting Cthulhuian rites. If they succeeded, it would mean the end of the ...

Pastiches: Crossovers.

“London After Midnight” by Ralph E. Vaughan (2017 October, MYSTERY WEEKLY MAGAZINE, available from Amazon print-on-demand) took place in Sherlock Holmes' London during the absence of Watson. The great detective's sidekick was Roger Sherrington, a specialist in the Cthulhu Mythos.

The events took place in a museum where an archaeologist named Oliphant was examining artifacts from Egypt. They had been acquired years before, were put away in a cabinet, and forgotten. Oliphant was now studying them closely and inadvertently hatched out one of Cthulhu's minions.

The result was bloody and messy. Holmes and the museum staff managed to seal the building. Sherrington was called in for advice, having known Oliphant, and able to read the language of the Elder Gods. His greatest regret was that he

would never get back the £5 that Oliphant had borrowed from him some time ago. Many alarms followed, as they usually do when the Old Ones materialized.

Assorted supporting characters went insane and/or died in sloppy fashion with blood sprayed about. The solution was magnesium bombs to burn out the critters. And the museum, but that was explained as a gas leak. A well-written double pastiche, of both Sherlockiana and the Mythos.

“The Adventure Of The Abominable Inn” by Ralph E. Vaughn (2019 October, MYSTERY WEEKLY MAGAZINE) took place during the Great Hiatus, when Holmes was presumed dead after his encounter with Professor Moriarty at the Reichenbach Falls. During this period he traveled around the world under the pseudonym of Sigurson.

The pastiche began with him on an Italian train wending its way through the mountains. It was stopped by a suspicious turn of events at a remote and desolate village. The only inn had a room whose tenants seldom survived the night.

Holmes qua Sigurson deduced the room was used for human sacrifices to a Cthulhuian tentacled beast. In exchange, the demon would leave the rest of the village alone. Knowing what was to come, he lay in wait with a bucket of kerosene and some matches.

When the creature emerged, Holmes set it on fire. The beast fled back down through tunnels to its underground lair. Accumulated natural gas detonated in its chambers, eliminating the minion of Cthulhu.

Pastiches: Anthologies.

A SECRET GUIDE TO FIGHTING ELDER GODS (2019) is an anthology of 13 pastiches edited by Jennifer Brozek. The theme was fighting Mythos critters in the modern world. Teenagers went into action in shopping malls or fought the ones summoned through the Internet. I won't review all the stories but here are a few examples.

“Away Game” by Seanan McGuire was about a high school football game between the Fighting Pumpkins visiting the undefeated Morton Black Goats. The narrative was seen from the cheerleaders' point of view. They were

captained by Jude, her perspective leaning to the ability to see odd angles and sense creatures that preferred not to be sensed.

The town of Morton had a touch of eldritch. At the playing field, the real partisans came out. Shub-Niggurath owned the school and expected to use the visitors as a sacrifice. But Jude had Yibb-Tstll on her team's side. The Pumpkins would be the first team to survive the away game.

“Pickman’s Daughter” by J.C. Koch was about Harriet Pickman, raised in the realms of the Elder Gods to be a missionary for Cthulhu on Earth. She was indeed the daughter of Richard, from the canon story by HPL. This pastiche is a whatever-happened-to sequel.

Forget what you know of Mormon or Jehovah’s Witnesses missionaries. Harriet used considerably different methods to convert her fellow teenagers into the worship of Cthulhu. She dragged an entire high school down to the realms of the Elder Gods, and not just in a figurative way.

“Us And Ours” by Premee Mohamed was about an invasion of a town by the big guy himself, Cthulhu, and his minions. Tentacles as far as the human eye could see. Some of the townsfolk put up a fight and eventually managed a successful counterattack with spells and small gods.

Others tried to warn the outside world by posting YouTube videos. Instead, they got comments by trolls that those were unbelievable SFX, obviously done by amateurs. The revolution will not be podcast.

“The Art Of Dreaming” by Josh Vogt is on the surface a clever use of modern technology by the Elder Gods to trap victims with a smartphone app. Teenagers tried it out for its ability to generate lucid dreams. Once too many times though, and they were caught in the world of tentacled creatures.

That got me to thinking about Lovecraft’s world and its influence on his writing. He died in 1937. Although broadcast radio began in the 1920s, not until the middle 1930s was it good enough to be ubiquitous. HPL just missed the full flowering of the golden age of radio in the 1940s.

Would not the Elder Gods have used radio? They could broadcast spells and thereby enslave mass audiences. Certainly in this modern era they would use the Internet to gather up acolytes and/or victims. HPL used the telephone as a

major component of one of his stories. I’m sure that had cellphones existed, he would have used apps as a plot device.

“The Tall Ones” by Stephen Ross was about a teenaged boy staying with maiden aunts on the shores of Lake Michigan. There were eldritch beasts in the waters, about which he learned from a local girl.

Her uncle was keeping the Mythos creatures informed by an Internet connection to them, using steam-powered personal computers. The ending was somewhat telegraphed with synthetic aboriginal legends. Now there’s an idea for an anthology, steampunk Mythos.

“Just Imagine” by Tim Waggoner illustrates how HPL might have written Yog-Sothothery** had there been laptops, texting, and emails in his time. A teenaged girl named Trinity was using her laptop in a coffee shop when the lurkers on the threshold blacked out the world outside the shop and demanded she let them inside. They sent threatening emails and texts, but she was made of sterner stuff and successfully defied them.

** The term Cthulhu Mythos was invented by August Derleth after HPL’s death. Lovecraft used the term Yog-Sothothery humourously to describe his concept of uncaring aliens. The Mythos was an informal shared world during his lifetime. Derleth formalized it and altered some of its tenets.

CTHULHU DEEP DOWN UNDER (2017) is an Australian anthology of ten stories edited by Steve Proposch, Christopher Sequeira, and Bryce Stevens. This was Volume 1 of Lovecraftian pastiches.

I won’t review all the stories. In particular, there was one story that verged on child pornography. Others not mentioned were more in the routine of ordinary pastiches, such as simply placing the hideouts of Cthulhu or his minions in various localities underneath the Australian parliament buildings or out in the Never-Never desert.

“A Pearl Beyond Price” by Janeen Webb was about a pearl diver who made friends with a tentacled monster from the Mythos. She lived on an island in the Indian Ocean where there was a colony of humans above and a colony of monsters below.

A Norwegian sailing ship entered the harbour, where assorted contretemps developed. The monster came to the rescue of the fair maiden and smashed the

ship. A straightforward exposition but the plot was weakened by the friendly monster. Wish fulfillment, for we all know the various Mythos creatures are indifferent at best and more likely to be angry.

“Wife To Mr Lovecraft” by Lucy Sussex was a series of postcards from Sonia after her divorce from HPL. She and her new husband were on their honeymoon at Great Barrier Reef in Australia. Fishing from the cabin cruiser, an eldritch creature with many tentacles and goat’s eyes was caught and put alive into a barrel. Something straight from the Mythos, although the alarums weren’t particularly dangerous.

“Darkness Beyond” by Jason Franks was a narrative by a lifer Alexander Aymes sent to a prison camp along the Tasmanian shore. While working as forced labour on the beach, a shoggoth came ashore briefly and set off a chain of events. The Old Ones were nigh and Aymes wanted to join them. They couldn’t be any worse than the prison.

“The Thing In The Bidet” by William Tevelein was a parody of the Mythos. The protagonist was staying in an eldritch house. The bidet was an interdimensional portal, or rather the spaces between the dimensions. In particular, the author parodies HPL’s style of writing, who overused superfluous and archaic adjectives. I’d quote some of the text but even one sentence would take several minutes to transcribe. A clever imitation.

“The Return Of ...” by Christopher Sequeira was about Howard Greene, real name Howard Phillips Lovecraft Jr. He lived in obscurity on a South Pacific island until a movie studio arrived to film a Cthulhu epic.

Junior went to a big law firm with proof that he was HPL’s son by Sonia, and therefore owned all the copyrights. What with all the reprints and pastiches over the decades, the estate was suddenly worth hundreds of millions in royalties. Most of the story was taken up by all the legal and commercial ramifications thrown into play.

The studio managed to suborn Junior into letting the movie production resume. Unfortunately it transpired that the father had not written fiction but had transcribed fact into fictional form. The real Cthulhu noticed the hubbub and appeared on the island’s shores, very annoyed. Very annoyed, as in the blood flowed like water. A good story well thought out.

“The Elder Things” by B. Michael Radburn was set in the Antarctic mountains where scientist Jack Sandford was caught in a blizzard in 2014. Somewhat improbably, his expedition was financed by Lovecraft and friends, almost all of whom lived hand to mouth. When Lovecraft died in 1937, he was almost broke.

Sandford found shelter in an ice cave where two men were. They entered the cave in 1936 but to them only three days had since passed. There were creatures out there in the whiteout, lurking at the threshold. Sandford became a host to them, their method of freedom to reach the greater world outside and fulfill Cthulhu’s destiny.

MISCELLANEOUS SCIENCE FICTION REVIEWS

by Dale Speirs

Anthologies.

A TRIBUTE TO H.G. WELLS VOLUME 2: A DARK AND BEAUTIFUL FUTURE (2019) comprised 12 non-Martian stories and pastiches. The brothers Brian and Derrick Belanger edited this anthology. I reviewed Volume 1 in OPUNTIA #503.

“Making Monsters” by Benjamin Langley was about a genetics researcher Dr Adam Pearson. He worked for a company that specialized in editing defective genes out of human embryos. He had to deal with an albino man who wanted his wife to bear him a normal son.

Pearson was willing to edit out the albino gene but not select the gender. The couple went elsewhere and found a company that would do both edits. The baby was a healthy boy but the pigmentation edit went too far. He was born invisible.

“Mr Malcolm’s Folly” by R. Michael Magnini was about the theft of the time machine by a gang who used it for a bank heist. They were pursued by a group of scientists who included Tesla, Lord Kelvin, and various other name checks from the real world.

The gang had found a reference to a bank newly-opened in the far future. The hit-and-run grab seemed easy enough. Just pop forward and materialize inside the bank after closing, then grab the gold and run. In a neat twist, the thieves came away empty-handed. The brave new world only used cryptocurrency and electronic funds transfers. No gold there, just electrons.

“The Blue Light” by Robert Stapleton was about a man Ambrose Rookwood who invented a teleportation device. He ensnared a news reporter Donald Carthwaite into a second Gunpowder Plot. A bomb was to be teleported into the House of Lords to kill the King during the opening of Parliament in 1905. Carthwaite managed to teleport Rookwood and the bomb to another place where the conspirators met their doom.

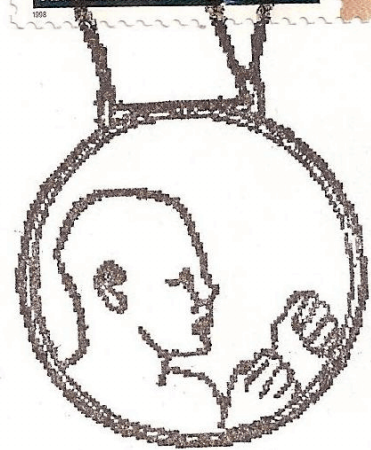
“Horse And The Hyenas” by David Turnbull was set in modern times after Dr Moreau’s beasts were liberated and then turned loose into society to fend for themselves. The narrator was a Gorilla, who, like other man-beasts of his kind, worked as bouncers and enforcers for organized crime. The Hyenas controlled half the rackets and the Swine the other half.

The action was set at a truck stop controlled by Hyenas, with Cat prostitutes, a bar tended by a two-legged centaur named Horse, and protected by Gorillas. The drama began when truck drivers began to be replaced by humanoid robots. The Hyenas saw the threat, since robots didn’t stop for food or other services. In desperation, the Hyenas hijacked a truckload of robots. That brought in the humans to recover them, using Swine as shock troops. A well-crafted story.

“Last Call On The Island” by Frances Pauli took place after the real men had left the island of Dr Moreau. The animals converted to men had been left behind, stranded with no means to escape. Three man-beasts tried to do so but could not build a seaworthy boat.

“The Ring Of Gyges” by Derrick Belanger was set in the modern era. There were none better to be spies and assassins than invisible men. The problem was what happened when a power struggle erupted between them.

“Where Ever The Fancy Takes You” by Paula Hammond was set in Victorian England at an illegal bare-knuckles fight. Two men thought they were fighting each other, only to discover they were up against an alien. The three fought to a draw and then turned the tables on the fight organizers.



HOME OF HISTORIC
POLICE GAZETTE BELT
BARE KNUCKLE BOXING
HALL OF FAME STATION
BELFAST, NEW YORK 1471
MAY 29, 2021

Normally I wouldn't have sent away for this commemorative postmark, but since I had just reviewed the boxing story, I thought why not?

“A Last Tale Before Lunch” by J.C. Raye was an extrapolation of what will happen when every automobile can be immobilized through its many computer chips when the driver offends against a traffic law. Or a bureaucrat thinks they have.

“The Voyage Of The Lunar Schooner” by C. Edward Davis was the final story in this anthology. It was the diary of an inventor’s trip to the Moon in 1906. His ego was bigger than his ship, and he boasted incessantly in his daily entries about how he would show them all, bwah-ha!-ha!.

Alas, the ship crash-landed on the far side. The narrator survived the initial impact but eventually died as his air and food ran out. Not to mention the wildlife that came after him.

All told, the anthology was a good one. Knowledge of the Wells canon is not essential but will certainly help enjoyment of the stories.

Aliens.

“The Moon Beast” by William P. Locke (1929 August, SCIENCE WONDER STORIES, available as a free pdf from www.archive.org) had a rather unusual explanation for why the Moon is a lifeless cratered body. Reports had begun to filter in from remote jungles and boreal forests about areas where the ground had been rendered sterile. All life and vegetation had vanished and the nutrients of the soil were gone.

Brave explorers went searching and soon found the cause. Giant alien beasts were roaming the remote areas sucking the life out of the land. They emitted a beam that dissolved whatever it touched and rendered the nutrients into food. The aliens had previously colonized the Moon. By fancy handwaving by one of the characters, the Moon was explained as having been habitable before the aliens ground it up for food. They were now working on Earth.



PAUL was a 2011 comedy movie written by Simon Pegg and Nick Frost. The protagonists were two British comic book fans who began the movie by attending the San Diego Comic Con. The scenes at the movie were true to life, particularly the “I’m your biggest fan” gushing to authors at the autograph session.

After the convention was over, the Brits rented an RV and toured southwest USA and up into Wyoming to visit sites associated with UFOs such as the Black Mailbox and Area 51.

Along the route they picked up an alien grey named Paul, who had escaped from Area 51 and was being pursued by FBI agents. Joining the convoy were a farmer’s daughter, her angry father trying to get her back, and some good ole boys who resented the RV bashing up their shiny new pickup truck.

Numerous alarms and excursions, most with a humorous twist, kept the audience from falling asleep. Everyone gathered at Devils Tower in Wyoming for the grand finale, the traditional mothership landing. A good movie worth viewing once.

Life On Asteroids.

“The Lichen From Eros” by Frank Belknap Long Jr (1935 November, ASTOUNDING, available as a free pdf from www.archive.org) was a report about a trip to the asteroid Eros. Astronauts discovered lichen growing on the rocks and naturally took samples inside. In the laboratory, strange things happened, as the lichen emitted beams of light and heat.

Analysis revealed the lichens were miniature cities. The denizens tried to defend themselves against the gigantic monsters that tore their city out of the ground. An interesting view of the other side’s point of view. The scientist expressed his guilt at what happened.

“Half the population were dead or dying, and the rest had abandoned hope. They no longer fought to save their little world, to repel an unfathomable invader. They set about in grim dejection and despair.”

“I broke off the tops of a few buildings, looked inside, isolated a few little figures on a separate slide and studied them. Hundreds died while I watched the city, in the space of a few minutes.”

“I never learned their source of nourishment. I tried spraying the city with vegetable and animal nutriments, fine powders. But apparently they subsisted on some alien substance drawn from the metallic soil of Eros.”

THE PHANTOM PLANET was a 1961 movie based on a story by Fred Gebhardt, available from Mill Creek Entertainment on the 50-movie DVD boxed set “Sci-Fi Classics”. The movie opened pompously with a stern narration illustrated by the Bikini Atoll hydrogen bomb and a photo of the Moon. Meteors were correctly shown as cold rocks and not fireballs but were shown constantly zooming across the screen in far greater numbers than reality.

It was the year 1980 and a spacecraft had been pulled into a forced landing on an asteroid. The only survivor was Frank Chapman. The planetoid was named Rheton by its inhabitants, who were miniature humanoids about ankle-high. They had gravity control technology that allowed them to zip about space and keep air on the asteroid’s surface, although they lived underground.

When Chapman first breathed their air, he shrank down to their size. They spoke fluent English, the usual guff about having studied Earth transmissions. The ruler Sesom had two beautiful daughters, Liara and Zetha. A young stud named Herron resented Chapman cutting in on his girl Liara, and challenged him to a duel. The romantic entanglements filled about one-third of the movie but eventually they got everything sorted out.

The Rhetoners ejected Chapman’s spaceship into deep space, where it was eventually found by the Earthlings, who began back-tracking its history. Meanwhile, the Solarites invaded. They were big ugly rubber suit monsters who wanted the secret of the gravitational control device. The invasion provided several alarums during and after the main battle, with damsels in distress and a fight to the death.

Once the excitement was over, an Earth ship arrived. Chapman expanded back up to regular size as soon as he breathed Earth oxygen. On the trip back home, portentous dialogue was soon drowned out by the orchestra.

The end credit, singular, was read out loud by a narrator for the benefit of illiterate viewers, who announced this story was only the beginning. That sounded as if a sequel was planned, more of a threat than something to look forward to.

OUT WHERE THE WEST COMMENCES: PART 8

by Dale Speirs

[Parts 1 to 7 appeared in OPUNTIA #68.1D, 356, 418, 419, 435, 446, and 478.]

The Calgary Stampede is running a half-baked rodeo this year with limited attendance and a few rodeo events. July 9 to 14, but I won’t be there. Next year for sure, after we reach herd immunity. But here are some western stories by proxy.

Weird Westerns: Television.

THE OUTER LIMITS was an anthology series that aired on television in the early 1960s, one of many such science fiction and fantasy series. It is often confused with Rod Serling’s series THE TWILIGHT ZONE. The episodes are available on DVD.

Both of these television series were crippled by budgets that would embarrass a 1950s B-movie producer, so the SFX were terrible even for that decade. The problem was that network executives gave them what would be good budgets for mundane series such as a soap opera or a mystery series. That left little for SFX, so the series had to rely on rubber suits that wouldn’t pass muster in a high-school play.

“Cry Of Silence” was an OUTER LIMITS episode that aired on 1964-10-24, written by Robert C. Dennis based on a story by Louis Charbonneau. The basic idea was a good one, that of an alien intelligence landing in a desert farming area and trying unsuccessfully to communicate with local life forms.

The alien tried to take over what appeared to be the dominant creatures, such as tumbleweeds and frogs, and was frustrated that it couldn’t get through. Nor could it understand what the humans were, since there was only one farmer and later two more. It finally gave up and returned to space.

The two main characters were a middle-aged couple Andy and Karen Thorne, played by Eddie Albert and June Havoc. Albert managed to keep a straight face through the episode, while Havoc (born Hovick, younger sister of stripper Gypsy Rose Lee) continuously over-acted. Her performance could be used in acting classes as an example of how not to do it.

The Thornes were driving on a country road and ran into car trouble where the alien was domiciled. They made their way on foot to a farmhouse where the only other human was, a farmer named Lamont.

En route, the Thornes were pursued by sentient tumbleweeds which didn't blow with the wind but propelled themselves by dragging along the ground. I am not making that up.

Andy got into a fight with one of the tumbleweeds which went for his throat. It was a credit to Albert's acting skills that he could hold a tumbleweed against his face and pretend he was fighting it without bursting into laughter.

They made a campfire and discovered the tumbleweeds were frightened by flame and retreated when approached with a burning stick. Well they would be, wouldn't they?

Farmer Lamont appeared, mainly because Karen's screaming could be heard halfway across the county, and rescued them with a fresh supply of kindling. The three made it to his farmhouse. He explained he had seen a meteorite crash onto his land a fortnight prior. All of his livestock had since disappeared, which was mighty discouraging.

The rest of the episode was taken up by gangs of tumbleweed (there's a phrase you never read before), a plague of bullfrogs, and boulders rolled at the humans by the alien. Andy hypnotized himself in the hope the alien would be able to communicate with him in a trance. The procedure failed and the alien left for home in disgust.

Lamont, being only a supporting character, didn't survive to the end credits. The Thornes did, but knew that no one would ever believe their story. They got the car going and departed, happy never again to see another tumbleweed.

Weird Westerns: Short Stories.

"The Farm Of The Unseen Hands" by John Kenneth Turner (1908 December, BLACK CAT, available as a free pdf from www.archive.org) was about a news reporter idling away his time in a rural area when he stumbled on a good story. He strayed onto a farm surrounded by a ring of sunflower fields, and saw a team of draft horses apparently ploughing a field by themselves.

He snooped around and discovered other activities. At first he thought the horses were exceedingly well trained but he noticed invisible hands pulling at the reins. A confrontation with the farmer revealed the secret. The hired hands were all ghosts, bored with nothing to do and happy to keep busy farming.

Robert E. Howard is remembered today for his sword and sorcery stories but he dabbled in other genres, albeit with a weird twist. "The Man On The Ground" appeared in the 1933 July issue of WEIRD TALES (available as a free pdf from www.archive.org).

It was for the most part about two feuding cowboys. They had always feuded and were now in a gunfight to the death out yonder in the hills. A routine western story until the end when one killed the other, then noticed his own body lying on the ground.

Each year the Cross Plains, Texas, post office issues a commemorative postmark on June 11, the anniversary of his death. I always send some SASEs for the postmarks.



The Old West.

"On Top" by Ralph Allen Lang (1933 November, WEIRD TALES) took place in the Old West town of Red Dog. There had been a dispute in the saloon over a poker game, as a result of which Shorty Baker was shot dead by Marshal Swingle. Baker and his partner Steve Craig had one of the few remaining gold claims in the vicinity that hadn't been worked out. The town was dying just as much as Baker did.

Craig figured that Swingle was a claim jumper, since if Craig died the claim would be open for refiling. That had to be done through the Marshal's Office since, as was common in many remote places, the population didn't justify a separate Land Titles Office, and local police often did most of the government paperwork.

What Craig had to do was stay alive without being run in for murder. Swingle showed up at the cemetery just as Craig finished digging Baker's grave. While gloating at the hole, Swingle caught a pickaxe from Craig and fell dead into the grave. It was a simple matter to dig the grave a bit deeper, pack Swingle under a layer of clay, and then lay Baker on top.

Why this story, with no element of weirdness, appeared in WEIRD TALES is a question that will never be answered. The editor is long dead.

The Modern West.

ROGUE'S GALLERY aired on radio from 1945 to 1947, with a brief revival for the 1950-51 season. The gimmick of the series was that once each episode Rogue would be rendered unconscious, during which time he would have a conversation with his alter-ego Eugor (spell it backward). Sometimes Eugor would offer valuable advice, most times he would just restate the plot for listeners who had tuned in late, and occasionally he was just padding to make up the time for the episode.

Slugging a detective unconscious was an old cliché even back then. By all rights, those detectives should have been drooling idiots by the end of the first season because of their weekly concussions.

"Blood On The Sand" aired on 1945-12-13, written by Ray Buffum. Richard Rogue was on a two-week vacation at the L7 Dude Ranch, trying to relax. He was helped by another tourist Lucia Logan, who certainly made the days go by more pleasantly.

An aggravation was an incident at the swimming pool when author Brian Mills resented his wife Anne receiving the attentions of another guest Tom Harding. Chairs were pushed back and harsh words were said. Rogue and Logan were reclining nearby on adjacent beach chairs. Embarrassing, and they didn't know where to look.

The next morning Rogue and Logan went horse riding. They found Harding's body, shot by a rifle sniper. Anne vouched for her husband's whereabouts at the time Harding must have died. The Deppity Dawg was useless, one file drawer short of a cabinet.

Information was revealed that Brian and Harding had been collaborating on a script that had multiple offers from Hollywood studios. They were about to clean up big. Their partnership specified that if one died, the other got his share in the play. To sweeten up the plot, Anne had been engaged to Harding before marrying Brian.

Rogue went back out to the range with Logan and did what the deputies neglected to do, locate the sniper's nest. He found some spent shells and put them in his pocket. He found another item, the identity of which was kept from the listener, and put that in a different pocket. A sniper, or rather the sniper, opened fire and pepped up the episode.

They made it back to their cabins. As Rogue entered his, someone slugged him and sent him to visit Eugor. Returning from that excursion, Rogue discovered the shells had been stolen from him, obviously the reason why he had been sapped. He still had that other item.

The Deppity Dawg arrived. While discussing the contretemps, they heard shots from the Mills cabin. They found Anne sobbing her heart out, having just shot Brian dead. She said she had told him she was going to repudiate her testimony and tell police that Brian had gone out on the range to lay in wait for Harding.

Rogue demolished her story. That other item was part of a boot heel that had broken off from her boot and matched the boot she had in her closet. He also remembered smelling her perfume just before being slugged. That was a wrap-up. By pinning the blame for Harding's death on Brian, then killing her husband in alleged self-defense, Anne would have gotten the full money from the script and her freedom to play the field. Close but not quite.

THE ZERO HOUR was an anthology series, one of several which attempted to revive radio drama in the early 1970s. Rod Serling narrated the intro and the outro in the same style as his television series, although the series was produced by Elliott Lewis. The series is available as free mp3s from the Old Time Radio Researchers at www.otrrlibrary.org

“Pigs Could Put You In The Pen” aired on 1974-05-29, written by Glenhall Taylor and starring William Shatner. The setting was a county fair where some nasties planned a heist. Gene Spencer, his wife Nancy, and their cohorts Charlie Brewster and Louie Hudson, didn’t know they had already been fingered by the law, represented by Lieutenant Jim Tyler (Shatner).

Spencer’s plan was to use a truckload of pigs to infiltrate the fair as farmers. Hudson didn’t like working with animals but Spencer assured him the pigs were okay. The horse races at the track would result in \$60,000 cash in the fair offices after the final race.

The plan was elaborated by Spencer, and that was the correct word, for it was indeed elaborate. Nancy would fake a fainting spell in front of the first-aid hut in order for Hudson to steal an ambulance as a getaway car, while Brewster drove in with the pigs and released them in front of the office. In the commotion he would run inside and grab the cash, then head for the ambulance.

The flaw was that the police picked up Brewster before the heist. Spencer substituted a reluctant Hudson as the pig man. Tyler spotted him driving the pig truck and the gaffe was blown. The Spencers fled in the ambulance but smashed up out on the highway.

The alarums multiplied. Tyler set up a dragnet. The ending was foreordained and an epilogue was hardly necessary. Shatner has an undeserved reputation for over-acting and biting ... off ... his ... words. No such thing in this episode. Actually he didn’t have a lot to do as the script plodded forward in a straight line across the flatlands.

The Alternative West.

“The Other Alternative” by Mack Reynolds (1954 February, MAGAZINE OF FANTASY AND SCIENCE FICTION, available as a free pdf on www.archive.org) was about John Smith, as he called himself, who engaged the services of a company to send him to an alternative timeline so he could kill Billy the Kid. Not our timeline, since it was impossible to travel back in time, but one of an infinite number of parallel timelines where William Bonney, alias the Kid, lived.

They gave him a gun and sent him to a timeline. When they triggered the recovery mechanism, they found themselves with Sheriff Pat Garrett. He was

mighty annoyed at Smith having killed the Kid before he had the chance, so he pointed his gun at the technicians and told them they were coming back with him to stand trial.

Comedy Tonight.

The 1960s television series BATMAN was played as a mixture of melodrama, comedy, and slapstick, basically the only way that superheroes can be played. The idea of masked vigilantes barging into police or military work is risible, much less that they would long remain anonymous or their secret headquarters unknown.

“Come Back, Shame” and “It’s How You Play The Game” were a two-part episode aired in 1966, written by Stanley Ralph Ross. The supervillain was Shame, a cowboy who came out east to Gotham City for nefarious purposes. In parody of the movie SHANE, there was a small boy who kept wandering in and out of scenes crying “*Come back, Shame*”.

Shame began by stealing high-end auto parts to build a large truck that could make 300 mph and outrun the Batmobile. His lair was in an abandoned movie studio western desert town. Much ado was made about this truck, yet a full view of it was never shown and it was never seen in action.

Following standard supervillain practice, once Shame captured Batman and Robin, instead of shooting them and being done with them, he staked them on the main street then stampeded a herd of cattle toward them. He didn’t bother to hang about and verify they were dead. Batman managed to free his hands as the herd reached them and used his cape to divert the cattle.

Afterwards, Robin said “*Holy toreador!*”. Batman corrected him and said the word was ‘matador’, pointing out that ‘toreador’ was not a Spanish word. He went on to lecture that the opera composer Bizet had invented the word for his opera CARMEN because it would scan better in the lyrics. (True fact.) Said Robin: “*Holy matador!*”

Eventually Shame revealed his plan. He was going to steal four prize Black Angus cattle worth \$300,000 each and then sell them to “*unscrupulous cattle ranchers*”. I now pause for a diatribe. Speaking as an old cowhand from the Red Deer River, albeit my father raised Charolais cattle, not Angus, it was obvious from the ensuing dialogue that the scriptwriter was a city slicker who

didn't know the difference between cows, bulls, and steers. The prize Angus cattle were inconsistently referred to as all three.



My mother Betty took this photo in 1970 of part of the Speirs herd on our ranch just north of Red Deer.

Since all cattle have to be registered and their brands identify them, no rancher would buy stolen animals for breeding purposes. Purebred cattle must have pedigree papers, including their progeny, listing the parents. Rustling is only done for slaughter, which might produce \$5,000 in beef cuts and hides per animal.

At the scene of the crime, Batman referred to the animals as bulls. A moment later, he called them steers, which are not the same thing. Steers are surplus males that were castrated as calves, to be raised for beef.

No steer would be worth \$300,000. Only breeding animals such as cows and bulls would command such a price, and that because of their pedigree. In the same conversation, Robin called them cows. The animals were only shown in brief shots with no view of their back ends, so I couldn't verify what they were.

Back to the western movie lot for the final showdown at the KO Corral at high noon. (The camera showed a clock.) There were five in the gang, each firing two revolvers. Batman carefully counted all the shots, then he and Robin went after Shame and his gang for the final fistfight.

One has to admire Batman's presence of mind to be able to count all the shots. On the other hand, one must commend the avoidance of that old cliché of all those gun battles in Hollywood where combatants regularly fire dozens of shots from a revolver.

Shame went up the river for a year. He returned in the episodes "The Great Escape" and "The Great Train Robbery", which aired in 1968 February, written by Stanley Ralph Ross.

Shame escaped from Gotham State Prison with the help of his girlfriend Calamity Jan (no 'e') and her battleaxe mother Frontier Fanny. His gang was two men. One was a supposed Mexican named Fred who spoke in a cultured English accent. The other was Chief Standing Pat, who liked to puff smoke messages with his cigar that only Calamity Jan could interpret (she knew shorthand smoke).

The first holdup was the opera house to get some ready cash. Later, through a bizarre circumstance (a lucky horseshoe fell and hit her on the head) Frontier Fanny was captured. Shame didn't particularly like his future mother-in-law, who acted as an unwanted chaperone and kept crimping his attempts to get romantic with Calamity Jan.

The usual alarms and excursions occurred but there were no elaborate death traps. Shame and his gang moved on to their next job, a train robbery. They succeeded in looting the express mail car of millions in currency. Not for long though, as the final fistfight concluded the episode.



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
Etobicoke, Ontario

2021-06-21

OPUNTIA #502: [re: geese in Calgary park] Looks like just as it is here, people and Canada geese can safely co-exist as long as they stay well away from each other. Perhaps there a lesser fear of those nasty humans on a Calgary goose's part? I would have though in the photo on page 3, the geese would already be attacking to prevent any harm to the goslings.

More great coronavirus stamps, from Togo, Andorra and Australia, among others. I had a look to see if there were philatelic societies in the Toronto area. There are so many, chapters of the Royal Philatelic Society of Canada, plus a network of clubs on www.gtapa.org. I was a member of a club in Orillia when I was a kid, and may yet return to my stamps not long from now.

[The Calgary Philatelic Society will be celebrating its centennial in April 2022, and will host a national convention September 1 to 4 that year under RPSC sanction. We are the largest local club in Canada, with about 150 members.]

I have kept to our diet, and we are now below the weights we recorded when we recovered from COVID-19. A few digestive problems for me have helped the diet along, too, but like COVID, it's not a diet I'd recommend.

Of all the old science fiction, I have always enjoyed time travel tropes, with time machines and contradictions, and timelines tied in knots. Teleportation was even more enjoyable, perhaps the more impossible, the better? I figured beaming up and down was a real time saver in Star Trek, but it did help the plot move along briskly.

Re: my previous letter: Yvonne was able to arrange for a couple of Pfizer shots for us at the Paramount Foods Arena in neighbouring Mississauga, and we will be going on Canada Day.

[My first jab was Pfizer but when it comes time for the second shot in middle July, I'm going to ask for Moderna or AstraZeneca. From what I read in the

peer-reviewed literature, two different vaccine types will provide wider protection against variants.]

OPUNTIA #503: Skyscrapers continue to rise here, too. A series of six such buildings have been built on our section of Highway 427 in Etobicoke, and a seventh has broken ground, and together will almost totally block any eastward view we have enjoyed in the 23 years we have been here. A friend says this is a continuance of the canyonization of Toronto.

[When I bought my house in 1982, I had a view of the mountains from my living room window. Long gone, as other buildings now obscure the scenery.]

[Re: licence plate photos] Years ago, Alan White put out a zine of pictures of fannish licence plates, simply taken in the parking lots of various convention hotels.

[I've done that for Calgary conventions, which see under past When Words Collide reports in this zine. One has to be careful photographing plates. Don't hold the smartphone out at arm's length and make it obvious you're taking a photograph, as this may attract the attention of hotel security. I hold the smartphone close to my face and make fake finger movements as if texting. No one looks twice.]

There are votes to hold the Worldcon in Spuzzum just about every year. The licence plate WEDGE 1 might also be owned by a Star Wars fan.

[If it wasn't for lack of hotels and a meeting place, I'd nominate Head-Smashed-In, two hours south of Calgary on Highway 2. I had to Google the Wedge reference, and learned that Wedge Antilles was the name of a minor supporting character in the Star Wars movies, a fighter pilot. I gave up on that series after the third movie and don't believe I have missed anything since.]

We spotted magpies in England when we were there two years ago now. Crow-like, but we were told that many people have pet magpies. They trust humans a little easier than do crows.

I'd read that there may be more discarded PPE masks in Canada than Tim Horton's cups.

[That I believe, judging by the littered masks on Calgary streets.]

The city of Toronto's bylaw on masks in buildings like ours say that the masks are required. I wish the word had been mandatory. Still, half the people in this building will not wear masks; they couldn't be bothered. The city has said that the bylaw is enforceable, and I have invited them to come and enforce it, but no actions has been seen, and none is anticipated.

[In Alberta, the Ministry of Health says that the only hospitalized COVID-19 patients nowadays are the unvaccinated. Natural selection in action.]

I think Calgary Mayor Naheed Nenshi will repeal the mask bylaw long before Toronto Mayor John Tory will, and I think that's a good thing. Given how often parties have been happening, combined with the childish behaviour of so many, I don't expect to be able to take off my mask until July or August. And, I may continue afterwards, for I don't trust people to do the right thing, of even something simply they are asked to do. I am sure all the mayors in this part of the country feel like frustrated babysitters.

[Mayor Nenshi has since modified the end of the mask ban on July 5 by saying they will still be required on buses, C-trains, and ride-shares.]

I hope my World Wide Party essay was a good one.

[Yes. I wish more people would celebrate the day. Unfortunately there isn't a movie tied to it like May 4. Fanzine fandom, what's left of it, has sunk into the depths of apathy.]

SEEN IN THE LITERATURE

Smith, L.C., et al (2021) **VVV-WIT-08: the giant star that blinked.** MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 505:1992-2008

Authors' abstract: *We report the serendipitous discovery of a late-type giant star that exhibited a smooth, eclipse-like drop in flux to a depth of 97 per cent. Minimum flux occurred in 2012 April and the total event duration was a few*

hundred days. Light curves in V, I, and Ks from the Optical Gravitational Lensing Experiment and VISTA Variables in the Via Lactea surveys show a remarkably achromatic event.

During 17 yr of observational coverage of this source only one such event was detected. The physical properties of the giant star itself appear somewhat unusual, which may ultimately provide a clue towards the nature of the system.

By modelling the event as an occultation by an object that is elliptical in projection with uniform transparency, we place limits on its physical size and velocity. We find that the occultation is unlikely to be due to a chance alignment with a foreground object. We consider a number of possible candidates for the occulter, which must be optically thick and possess a radius or thickness in excess of 0.25 au. None are completely satisfactory matches to all the data.

The duration, depth, and relative achromaticity of the dip mark this out as an exceptionally unusual event, whose secret has still not been fully revealed. We find two further candidates in the VVV survey and we suggest that these systems, and two previously known examples, may point to a broad class of long-period eclipsing binaries wherein a giant star is occulted by a circumsecondary disc.

Kipping, David (2021) **Formulation and resolutions of the red sky paradox.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 118:doi.org/10.1073/pnas.2026808118

Authors' abstract: *Red dwarf stars are the most numerous and long-lived stars in the cosmos, and recent exoplanet discoveries indicate an abundance of rocky, temperate planets around them. This presents an apparent paradox as to why we do not see a red dwarf in our sky. This "red sky paradox" could plausibly be random chance at the 1-in-100 level but would then come into tension with the Copernican principle.*

Three additional resolutions to the paradox are outlined, which broadly inhibit the opportunities for complex life to develop around such stars: attenuated emergence rates, truncated evolutionary windows, and/or a paucity of suitable habitats. All three appear viable given our present limited knowledge but the potential for future observational tests is explored.

Most stars in the Universe are red dwarfs. They outnumber stars like our Sun by a factor of 5 and outlive them by another factor of 20 (population-weighted mean). When combined with recent observations uncovering an abundance of temperate, rocky planets around these diminutive stars, we are faced with an apparent logical contradiction. Why do we not see a red dwarf in our sky?

To address this “red sky paradox,” we formulate a Bayesian probability function concerning the odds of finding oneself around an F/G/K-spectral type (Sun-like) star. If the development of intelligent life from prebiotic chemistry is a universally rapid and ensured process, the temporal advantage of red dwarfs dissolves, softening the red sky paradox, but exacerbating the classic Fermi paradox. Otherwise, we find that humanity appears to be a 1-in-100 outlier.

While this could be random chance (resolution I), we outline three other nonmutually exclusive resolutions (II to IV) that broadly act as filters to attenuate the suitability of red dwarfs for complex life. Future observations may be able to provide support for some of these. Notably, if surveys reveal a paucity of temperate rocky planets around the smallest (and most numerous) red dwarfs, then this would support resolution II.

As another example, if future characterization efforts were to find that red dwarf worlds have limited windows for complex life due to stellar evolution, this would support resolution III. Solving this paradox would reveal guidance for the targeting of future remote life sensing experiments and the limits of life in the cosmos.

Tarnas, J.D., et al (2021) **Earth-like habitable environments in the subsurface of Mars.** ASTROBIOLOGY 21:doi.org/10.1089/ast.2020.2386 (available as a free pdf)

Authors’ abstract: In Earth’s deep continental subsurface, where ground waters are often isolated for $>10^6$ to 10^9 years, energy released by radionuclides within rock produces oxidants and reductants that drive metabolisms of nonphotosynthetic microorganisms. Similar processes could support past and present life in the Martian subsurface.

Sulfate-reducing microorganisms are common in Earth’s deep subsurface, often using hydrogen derived directly from radiolysis of pore water and sulfate derived from oxidation of rock-matrix-hosted sulfides by radiolytically derived

oxidants. Radiolysis thus produces redox energy to support a deep biosphere in groundwaters isolated from surface substrate input for millions to billions of years on Earth.

Here, we demonstrate that radiolysis by itself could produce sufficient redox energy to sustain a habitable environment in the subsurface of present-day Mars, one in which Earth-like microorganisms could survive wherever groundwater exists.

We show that the source localities for many Martian meteorites are capable of producing sufficient redox nutrients to sustain up to millions of sulfate-reducing microbial cells per kilogram rock via radiolysis alone, comparable to cell densities observed in many regions of Earth’s deep subsurface.

Additionally, we calculate variability in supportable sulfate-reducing cell densities between the Martian meteorite source regions. Our results demonstrate that Martian subsurface groundwaters, where present, would largely be habitable for sulfate-reducing bacteria from a redox energy perspective via radiolysis alone.

We present evidence for crustal regions that could support especially high cell densities, including zones with high sulfide concentrations, which could be targeted by future subsurface exploration missions.

L. Kaltenegger, L., and J.K. Faherty (2021) **Past, present and future stars that can see Earth as a transiting exoplanet.** NATURE 594:505-507

Authors’ abstract: In the search for life in the cosmos, transiting exoplanets are currently our best targets. With thousands already detected, our search is entering a new era of discovery with upcoming large telescopes that will look for signs of life in the atmospheres of transiting worlds. Previous work has explored the zone from which Earth would be visible while transiting the Sun. However, these studies considered only the current position of stars, and did not include their changing vantage point over time.

Here we report that 1,715 stars within 100 parsecs from the Sun are in the right position to have spotted life on a transiting Earth since early human civilization (about 5,000 years ago), with an additional 319 stars entering this special vantage point in the next 5,000 years.

Among these stars are seven known exoplanet hosts, including Ross-128, which saw Earth transit the Sun in the past, and Teegarden's Star and Trappist-1, which will start to see it in 29 and 1,642 years, respectively. We found that human-made radio waves have already swept over 75 of the closest stars on our list.

Dermott, S.F., et al (2021) **Dynamical evolution of the inner asteroid belt.** MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 505:1917-1939

[Yarkovsky radiation is the daily heating of small bodies such as asteroids and meteorites by lightwave photons, which in turn cause the emission of thermal photons that kick back out and thus push the object slightly out of its orbit. The effect is extremely small, which is why your microwave oven or toaster oven doesn't go skittering across the counter every time you use it. Not until 1991 did radio telescope technology evolve far enough that it could measure the displacement of an asteroid by this effect.]

Authors' abstract: *A determination of the dynamical evolution of the asteroid belt is difficult because the asteroid belt has evolved since the time of asteroid formation through mechanisms that include:*

- (1) catastrophic collisions,*
- (2) rotational disruption,*
- (3) chaotic orbital evolution, and*
- (4) orbital evolution driven by Yarkovsky radiation forces.*

The time-scales of these loss mechanisms are uncertain and there is a need for more observational constraints. In the inner main belt (IMB), the mean size of the non-family asteroids increases with increasing inclination.

Here, we use that observation to show that all IMB asteroids originate from either the known families or from ghost families, that is, old families with dispersed orbital elements. We estimate that the average age of the asteroids in the ghost families is a factor of 1/3 less than the Yarkovsky orbital evolution time-scale.

However, this orbital evolution time-scale is a long-term average that must allow for the collisional evolution of the asteroids and for stochastic changes in their spin directions. By applying these constraints on the orbital evolution

timescales to the evolution of the size-frequency distribution of the Vesta asteroid family, we estimate that the age of this family is greater than 1.3 Gyr and could be comparable with the age of the Solar system.

By estimating the number of ghost families, we calculate that the number of asteroids that are the root sources of the meteorites and the near-Earth asteroids that originate from the IMB is about 20.

Byrne, P.K., et al (2021) **A globally fragmented and mobile lithosphere on Venus.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 118:doi.org/10.1073/pnas.2025919118

Authors' abstract: *We have identified a pattern of tectonic deformation on Venus that suggests that many of the planet's lowlands have fragmented into discrete crustal blocks, and that these blocks have moved relative to each other in the geologically recent past.*

These motions may be the result of mantle convection and, if so, constitute a style of interior-surface coupling not seen elsewhere in the inner Solar System except for continental interiors on Earth. Venus' fragmented, mobile lithosphere may offer a framework for understanding how tectonics on Earth operated in the Archean.

Venus has been thought to possess a globally continuous lithosphere, in contrast to the mosaic of mobile tectonic plates that characterizes Earth. However, the Venus surface has been extensively deformed, and convection of the underlying mantle, possibly acting in concert with a low-strength lower crust, has been suggested as a source of some surface horizontal strains.

The extent of surface mobility on Venus driven by mantle convection, however, and the style and scale of its tectonic expression have been unclear. We report a globally distributed set of crustal blocks in the Venus lowlands that show evidence for having rotated and/or moved laterally relative to one another, akin to jostling pack ice. At least some of this deformation on Venus postdates the emplacement of the locally youngest plains materials.

Lithospheric stresses calculated from interior viscous flow models consistent with long-wavelength gravity and topography are sufficient to drive brittle failure in the upper Venus crust in all areas where these blocks are present,

confirming that interior convective motion can provide a mechanism for driving deformation at the surface.

The limited but widespread lithospheric mobility of Venus, in marked contrast to the tectonic styles indicative of a static lithosphere on Mercury, the Moon, and Mars, may offer parallels to interior-surface coupling on the early Earth, when global heat flux was substantially higher, and the lithosphere generally thinner, than today.

Yalinewich, A., and M.E. Caplan (2021) **Crater morphology of primordial black hole impacts.** MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 505:doi.org/10.1093/mnrasl/slab063

Authors' abstract: In this work, we propose a novel campaign for constraining relativistically compact massive compact halo object (MACHO) dark matter, such as primordial black holes (PBHs), using the Moon as a detector. PBHs of about 10^{19} to 10^{22} grammes may be sufficiently abundant to have collided with the Moon in the history of the Solar system.

We show that the crater profiles of a PBH collision differ from traditional impactors and may be detectable in high-resolution lunar surface scans now available. Any candidates may serve as sites for in situ measurements to identify high-pressure phases of matter which may have formed near the PBH during the encounter.

While we primarily consider PBH dark matter, the discussion generalizes to the entire family of MACHO candidates with relativistic compactness. Moreover, we focus on the Moon since it has been studied well, but the same principles can be applied to other rocky bodies in our Solar system without an atmosphere.

Rasmussen, B., et al (2021) **Ancient oil as a source of carbonaceous matter in 1.88-billion-year-old Gunflint stromatolites and microfossils.** ASTROBIOLOGY 21:doi.org/10.1089/ast.2020.2376 (available as a free pdf)

Authors' abstract: Some of the best-preserved Precambrian microfossils are from the 1.88 Ga Gunflint Formation at Schreiber Beach along the northern shore of Lake Superior, Ontario, Canada. ...

The sheer abundance and detailed preservation of the carbonaceous microfossils has made the Gunflint a yardstick with which all new discoveries have been compared.

The 1.88-billion-year-old Gunflint carbonaceous microfossils are renowned for their exceptional morphological and chemical preservation, attributed to early and rapid entombment in amorphous silica. The carbonaceous matter lining and partly filling filamentous and spherical structures is interpreted to be indigenous, representing thermally altered relicts of cellular material (i.e., kerogen).

Here we show that stromatolitic black cherts from the Gunflint Formation, Schreiber Beach, Ontario, Canada, were saturated in syn-sedimentary oil. The thermally altered oil (pyrobitumen), which occurs in the stromatolites and intercolumn sediments, fills pores and fractures, and coats detrital and diagenetic grain surfaces.

The occurrence of detrital bitumen grains in the stromatolites points to the proximity of shallow seafloor oil seeps and hence the possible existence of chemosynthetic microbes degrading hydrocarbons. We suggest that hydrocarbons that migrated through the silicifying stromatolites infiltrated semi-hollow microbial molds that formed following silica nucleation on the walls or sheaths of decayed cells.

Upon heating, the hydrocarbons were transformed to nanoporous pyrobitumen, retarding silica recrystallization and enhancing detailed preservation of the carbon-rich microfossils. Hydrocarbon infiltration of silicified microbes offers a new explanation for the preservation of the Gunflint microfossils and may have played a role in the formation of some of Earth's oldest microfossils.

Benison, K.C., et al (2021) **Water activities of acid brine lakes approach the limit for life.** ASTROBIOLOGY 21:doi.org/10.1089/ast.2020.2334 (available as a free pdf)

Authors' abstract: Here, we investigate water activity for acid brines from Western Australia and Chile with pH as low as 1.4, salinities as high as 32% total dissolved solids, and complex chemical compositions. These acid brines host diverse communities of extremophilic microorganisms, including archaea, bacteria, algae, and fungi, according to metagenomic analyses.

For the most extreme brine, its water activity (0.714) was considerably lower than that of saturated (pure) NaCl brine. This study provides a thermodynamic insight into life within end-member natural waters that lie at, or possibly beyond, the very edge of habitable space on Earth.

West, C.K., et al (2021) **The Ravenscrag Butte flora: Paleoclimate and paleoecology of an early Paleocene (Danian) warm temperate deciduous forest near the vanishing inland Cannonball Seaway.** PALAEOGEOGRAPHY, PALAEOCLIMATOLOGY, PALAEOECOLOGY 576:doi.org/10.1016/j.palaeo.2021.110488

[For most of North America's existence, it was divided north-south by the Western Interior Seaway, which ran along the eastern slopes of the Rocky Mountains from the Arctic Ocean to the Gulf of Mexico. As the Rockies rose after the westbound North American tectonic plate ploughed into the Pacific Ocean plate, erosion began filling in the seaway. It closed off in the middle and then in both directions north and south as it filled up with sediments. During this process, an arm of the sea formed over what are now the Dakotas and Saskatchewan.]

Authors' abstract: *Paleocene Ravenscrag flora of Saskatchewan was influenced by the Cannonball Seaway. The flora grew at ~55° N, included 19 woody dicot taxa, all deciduous. Climate was warm, humid, MAT ~13° C, with no seasonal drought and no frost. Contemporaneous mid- to high-latitude northern floras physiognomically homogeneous. Net primary productivity estimate is similar to modern coastal forest ecosystems.*

The Ravenscrag Butte flora in southwestern Saskatchewan, Canada, provides a record of an early Paleocene (Danian) forest ecosystem that followed the K-Pg boundary event. Plant macrofossil collections were investigated to assess the paleoclimate and paleoecology of the forest.

An ensemble approach to climate analysis using leaf physiognomic and nearest living relative methods indicates that the forest grew under warm and wet temperate conditions, with mild frost-free winters, and did not experience a significant drying season, although some precipitation seasonality is indicated. Reconstructed leaf mass per area suggests that the woody broadleaf dicot flora had an entirely deciduous habit, despite temperature and precipitation conditions that were suitable for evergreen taxa.

The reconstructed climate of the Ravenscrag Butte flora is similar to modern coastal climates with proximity to an inland sea (e.g., Croatia and Slovenia on the Adriatic Sea and Georgia on the Black Sea), suggesting that the Ravenscrag Butte flora was influenced by its proximity to the western margin of the early Paleocene Cannonball Seaway.

The leaf physiognomy of the Ravenscrag Butte flora is most similar to contemporaneous fossil macrofloras from throughout western and northern North America, which suggests physiognomic homogeneity over broad latitudes during the early Paleocene, a potential consequence of vegetation reorganization after the K-Pg event.

Koslov, M.V., et al (2021) **Changes in plant collection practices from the 16th to 21st centuries: implications for the use of herbarium specimens in global change research.** ANNALS OF BOTANY 127:865-873 (available as a free pdf)

Authors' abstract: *Herbaria were recently advertised as reliable sources of information regarding historical changes in plant traits and biotic interactions. To justify the use of herbaria in global change research, we asked whether the characteristics of herbarium specimens have changed during the past centuries and whether these changes were due to shifts in plant collection practices.*

We measured nine characteristics from 515 herbarium specimens of common European trees and large shrubs collected from 1558 to 2016. We asked botanists to rank these specimens by their scientific quality, and asked artists to rank these specimens by their beauty.

Eight of 11 assessed characteristics of herbarium specimens changed significantly during the study period. The average number of leaves in plant specimens increased 3-fold, whereas the quality of specimen preparation decreased. Leaf size negatively correlated with leaf number in specimens in both among-species and within-species analyses.

The proportion of herbarium sheets containing plant reproductive structures peaked in the 1850s. The scientific value of herbarium specimens increased until the 1700s, but then did not change, whereas their aesthetic value showed no systematic trends.

Our findings strongly support the hypothesis that many characteristics of herbarium specimens have changed systematically and substantially from the 16th to 21st centuries due to changes in plant collection and preservation practices. These changes may both create patterns which could be erroneously attributed to environmental changes and obscure historical trends in plant traits.

The utmost care ought to be taken to guard against the possibility of misinterpretation of data obtained from herbarium specimens. We recommend that directional changes in characters of herbarium specimens which occurred during the past 150 to 200 years, primarily in specimen size and in the presence of reproductive structures, are accounted for when searching for the effects of past environmental changes on plant traits.

Mahe, K., et al (2021) **New scale analyses reveal centenarian African coelacanths.** CURRENT BIOLOGY 31:doi.org/10.1016/j.cub.2021.05.054 (available as a free pdf)

Authors' abstract: The extant coelacanth was discovered in 1938. Its biology and ecology remain poorly known due to the low number of specimens collected. Only two previous studies have attempted to determine its age and growth. They suggested a maximum lifespan of 20 years, placing the coelacanth among the fastest growing marine fish.

These findings are at odds with the coelacanth's other known biological features including low oxygen-extraction capacity, slow metabolism, ovoviviparity, and low fecundity, typical of fish with slow life histories and slow growth. In this study, we use polarized light microscopy to study growth on scales based on a large sample of 27 specimens.

Our results demonstrate for the first time nearly imperceptible annual calcified structures (circuli) on the scales and show that maximal age of the coelacanth was underestimated by a factor of 5. Our validation method suggests that circuli are indeed annual, thus supporting that the coelacanth is among the longest-living fish species, its lifespan being probably around 100 years.

Like deep-sea sharks with a reduced metabolism, the coelacanth has among the slowest growth for its size. Further reappraisals of age at first sexual maturity (in the range 40 to 69 years old) and gestation duration (of around 5 years)

show that the living coelacanth has one of the slowest life histories of all marine fish and possibly the longest gestation.

As long-lived species with slow life histories are extremely vulnerable to natural and anthropogenic perturbations, our results suggest that coelacanths may be more threatened than previously considered.

Lamothe, K.A., et al (2021) **Freshwater fish functional and taxonomic diversity above and below Niagara Falls.** ENVIRONMENTAL BIOLOGY OF FISH 104:637-649 (available as a free pdf)

Authors' abstract: The Niagara River, which connects two Great Lakes (Erie and Ontario) and forms a border between Canada and the United States, has experienced decades of abiotic and biotic disturbance as well as long-term restoration efforts. Given the iconic riverscape and importance as a binational fisheries resource, a biodiversity assessment of the mainstem Niagara River fish assemblage is overdue.

Here, fish assemblage and habitat data from a standardized boat electrofishing program of the Niagara River were combined with species trait data related to substrate associations, diet preferences, reproductive strategies, and body size to quantify biodiversity patterns among river sections (sites above and below Niagara Falls), seasons (spring, summer, fall), and years (2015 to 2017).

Sixty-five species were captured representing a variety of trait combinations. Significant differences in functional dispersion and divergence (i.e., functional diversity) were observed between river sections, seasons, and (or) years.

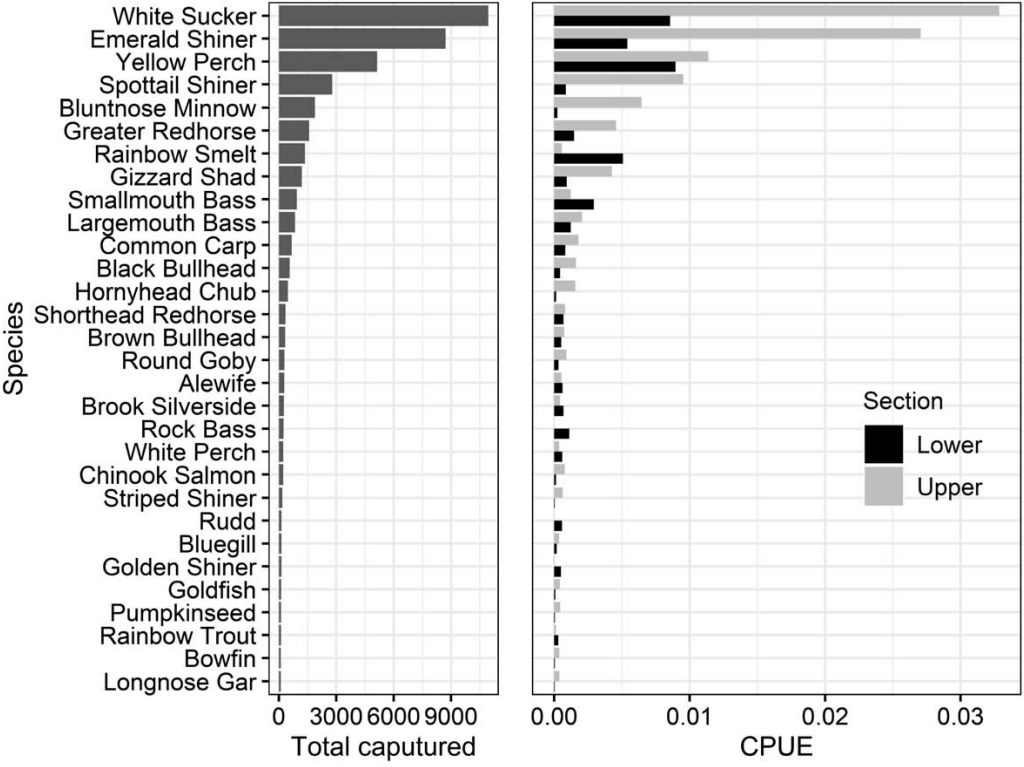
The fish community captured in the lower river in spring 2015 had both the highest average functional dispersion and divergence compared to the other seasonal sampling efforts, but relatively few fishes were captured (n = 686).

Although non-native fishes represented a small portion of the catch over the 3 years (8.6% of catch), the seasonal presence (spring and fall) of mostly introduced large-bodied salmonids expanded functional trait space in the lower river during these periods.

The importance of rare species on functional diversity metrics suggests further insight on local species detection probabilities is needed to understand if

differences in functional diversity reflect ecological patterns or are driven by sampling design.

[Charts are from this paper.]



Xu, J., et al (2021) **Magnetic sensitivity of cryptochrome 4 from a migratory songbird.** NATURE 594:535-540

Authors' abstract: *Night-migratory songbirds are remarkably proficient navigators. Flying alone and often over great distances, they use various directional cues including, crucially, a light-dependent magnetic compass. The mechanism of this compass has been suggested to rely on the quantum spin dynamics of photo-induced radical pairs in cryptochrome flavoproteins located in the retinas of the birds.*

Here we show that the photochemistry of cryptochrome 4 (CRY4) from the night-migratory European robin (*Erithacus rubecula*) is magnetically sensitive

in vitro, and more so than CRY4 from two non-migratory bird species, chicken (*Gallus gallus*) and pigeon (*Columba livia*).

Site-specific mutations of ErCRY4 reveal the roles of four successive flavin-tryptophan radical pairs in generating magnetic field effects and in stabilizing potential signalling states in a way that could enable sensing and signalling functions to be independently optimized in night-migratory birds.

Pika, S., et al (2021) **Ravens parallel great apes in physical and social cognitive skills.** SCIENTIFIC REPORTS 10:doi.org/10.1038/s41598-020-77060-8 (available as a free pdf)

Authors' abstract: *Human children show unique cognitive skills for dealing with the social world but their cognitive performance is paralleled by great apes in many tasks dealing with the physical world.*

Recent studies suggested that members of a songbird family, corvids, also evolved complex cognitive skills but a detailed understanding of the full scope of their cognition was, until now, not existent. Furthermore, relatively little is known about their cognitive development.

Here, we conducted the first systematic, quantitative large-scale assessment of physical and social cognitive performance of common ravens with a special focus on development. To do so, we fine-tuned one of the most comprehensive experimental test-batteries, the Primate Cognition Test Battery (PCTB), to raven features enabling also a direct, quantitative comparison with the cognitive performance of two great ape species.

Full-blown cognitive skills were already present at the age of four months with subadult ravens' cognitive performance appearing very similar to that of adult apes in tasks of physical (quantities, and causality) and social cognition (social learning, communication, and theory of mind).

These unprecedented findings strengthen recent assessments of ravens' general intelligence, and aid to the growing evidence that the lack of a specific cortical architecture does not hinder advanced cognitive skills. Difficulties in certain cognitive scales further emphasize the quest to develop comparative test batteries that tap into true species rather than human specific cognitive skills, and suggest that socialization of test individuals may play a crucial role.

We conclude to pay more attention to the impact of personality on cognitive output, and a currently neglected topic in animal cognition, the linkage between ontogeny and cognitive performance.

Hirshleifer, D., and J.B. Plotkin (2021) **Moonshots, investment booms, and selection bias in the transmission of cultural traits.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 118:doi.org/10.1073/pnas.2015571118 (available as a free pdf)

Authors' abstract: *What drives innovation, risk taking, and investment booms? We study these phenomena using a model of decision making by firms that make biased observations of prior returns. We assume that firms are more likely to observe large successes than small successes or failures.*

As a result, firms tend to become overly optimistic, leading to irrational booms in investment. Booms may eventually collapse, or they may last forever. We describe the cultural evolutionary sources of these effects.

Evolution of investment behavior is driven not only by copying successful strategies, but also by cognitive reasoning about which behaviors are more likely to succeed. This account provides an explanation for investment booms, merger and IPO waves, and waves of technological innovation.

Biased information about the payoffs received by others can drive innovation, risk taking, and investment booms. We study this cultural phenomenon using a model based on two premises.

The first is a tendency for large successes, and the actions that lead to them, to be more salient to onlookers than small successes or failures. The second premise is selection neglect, the failure of observers to adjust for biased observation.

In our model, each firm in sequence chooses to adopt or to reject a project that has two possible payoffs, one positive and one negative. The probability of success is higher in the high state of the world than in the low state. Each firm observes the payoffs received by past adopters before making its decision, but there is a chance that an adopter's outcome will be censored, especially if the payoff was negative.

Failure to account for biased censorship causes firms to become overly optimistic, leading to irrational booms in adoption. Booms may eventually collapse, or may last forever. We describe these effects as a form of cultural evolution, with adoption or rejection viewed as traits transmitted between firms.

Evolution here is driven not only by differential copying of successful traits, but also by cognitive reasoning about which traits are more likely to succeed, quantified using the Price Equation to decompose the effects of mutation pressure and evolutionary selection.

Sclar, E. (2021) **The infinite elasticity of air: New York City's financialization of transferable development rights.** AMERICAN JOURNAL OF ECONOMICS AND SOCIOLOGY 80:353-380

Author's abstract: *Zoning operates within institutional policy norms. Current neoliberal norms encourage land use policy aimed at attaining highest achievable real estate values. As a result, a public policy tool originally intended to protect urban society from the negative impacts of excessive intense real estate development now facilitates such development.*

This transformation is most clearly seen in the evolution of transferable development rights (TDRs) from a device intended to facilitate adjustment of unique site-specific regulatory matters into one widely used to privately appropriate socially created site values.

TDRs detach zoned development rights from site-specific locations. So, their use over ever-widening districts implies that socially created area-wide value can be privately appropriated by property owners at specific sites, property owners who typically played little or no role in the creation of such value.

In the process, these rights become financialized. This financialization encourages developers to seek further expansion in the size of the district within which these rights are fungible. In a global era of extremely low interest rates, real estate assets, which hold the promise of capital safety and above-average returns, have become exceptionally attractive portfolio holdings.

This investment environment encourages urban planners and real estate developers to further rationalize and hence financialize the ever-wider use of these rights in some of the densest urban environments in the world.

The historic experience of evolving zoning policy in New York City's central business district, Manhattan below West 59th Street, serves as an illustration of the way TDRs as a land use regulatory device have evolved to facilitate this financialization.

Speirs: Calgary also has transferable air rights for buildings. Since they don't change the overall density of a district, no one has been concerned about them. Indeed, some historical buildings in our downtown core are preserved precisely because the redevelopment rights were sold to another site. That provided funding to maintain the historical building and simultaneously protected it since no future development could take place on the site.

Scholl, M.P., et al (2021) **How market ecology explains market malfunction.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 118:/doi.org/10.1073/pnas.2015574118 (available as a free pdf)

Authors' abstract: *We develop the mathematical analogy between financial trading strategies and biological species and show how to apply standard concepts from ecology to financial markets. We analyze the interactions of stereotypical trading strategies in ecological terms, showing that they can be competitive, predator-prey, or mutualistic, depending on the wealth invested in each strategy.*

The deterministic dynamics suggest that the system should evolve toward an efficient state where all strategies make the same average returns. However, this happens slowly and the evolution is so noisy that there are large fluctuations away from the efficient state, causing bursts of volatility and extended periods where prices deviate from fundamental values.

Standard approaches to the theory of financial markets are based on equilibrium and efficiency. Here we develop an alternative based on concepts and methods developed by biologists, in which the wealth invested in a financial strategy is like the abundance of a species.

We study a toy model of a market consisting of value investors, trend followers, and noise traders. We show that the average returns of strategies are strongly density dependent; that is, they depend on the wealth invested in each strategy at any given time.

In the absence of noise, the market would slowly evolve toward an efficient equilibrium, but the statistical uncertainty in profitability (which is calibrated to match real markets) makes this noisy and uncertain. Even in the long term, the market spends extended periods of time away from perfect efficiency.

We show how core concepts from ecology, such as the community matrix and food webs, give insight into market behavior. For example, at the efficient equilibrium, all three strategies have a mutualistic relationship, meaning that an increase in the wealth of one increases the returns of the others. The wealth dynamics of the market ecosystem explain how market inefficiencies spontaneously occur and gives insight into the origins of excess price volatility and deviations of prices from fundamental values.

Royo, A.A., et al (2021) **The forest of unintended consequences: anthropogenic actions trigger the rise and fall of black cherry.** BIOSCIENCE 71:683-696 (available as a free pdf)

Authors' abstract: *The twentieth century confluence of clear-cutting, deer overabundance, and rising nitrogen deposition favored dominance by the shade-intolerant, unpalatable, and nitrogen-demanding black cherry (*Prunus serotina*) throughout the Allegheny Plateau of the eastern United States. The abundance of this species conferred unique and valuable ecological and economic benefits that shaped regional biodiversity and societies.*

Sustaining these values is increasingly difficult because black cherry, seemingly inexplicably, has experienced diminished establishment, growth, and survival in the twenty-first century. In the present article, we chronicle the change and assess underlying drivers through a literature review and new analyses.

We found negative plant-soil microbial feedback loops and lowered nitrogen deposition are biologically, temporally, and geographically consistent with observed declines. The evidence suggests that black cherry dynamics are the unintended consequence of actions and policies ostensibly unconnected to forests. We suggest that these shifts are a bellwether of impending changes to forests, economies, and ownership patterns regionally and beyond.

The declines in black cherry health and regeneration identified are no longer thought to be temporary anomalies. Instead, they may signal coming changes to ecological dynamics and economies across the Alleghenies and beyond.

Rathje, S., et al (2021) **Out-group animosity drives engagement on social media.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 118:doi.org/10.1073/pnas.2024292118 (available as a free pdf)

Authors' abstract: *Almost four billion people around the world now use social media platforms such as Facebook and Twitter, and social media is one of the primary ways people access news or receive communications from politicians. However, social media may be creating perverse incentives for divisive content because this content is particularly likely to go viral.*

We report evidence that posts about political opponents are substantially more likely to be shared on social media and that this outgroup effect is much stronger than other established predictors of social media sharing, such as emotional language.

There has been growing concern about the role social media plays in political polarization. We investigated whether out-group animosity was particularly successful at generating engagement on two of the largest social media platforms: Facebook and Twitter.

Analyzing posts from news media accounts and USA congressional members (n = 2,730,215), we found that posts about the political out-group were shared or retweeted about twice as often as posts about the in-group. Each individual term referring to the political out-group increased the odds of a social media post being shared by 67%.

Out-group language consistently emerged as the strongest predictor of shares and retweets. The average effect size of out-group language was about 4.8 times as strong as that of negative affect language and about 6.7 times as strong as that of moral-emotional language, both established predictors of social media engagement.

Language about the out-group was a very strong predictor of “angry” reactions (the most popular reactions across all datasets), and language about the in-group was a strong predictor of “love” reactions, reflecting in-group favoritism and out-group derogation.

This out-group effect was not moderated by political orientation or social media platform, but stronger effects were found among political leaders than among news media accounts.

In sum, out-group language is the strongest predictor of social media engagement across all relevant predictors measured, suggesting that social media may be creating perverse incentives for content expressing out-group animosity.

Stott, R.T., et al (2021) **Profiling DNA break sites and transcriptional changes in response to contextual fear learning.** PLOS ONE 16:doi.org/10.1371/journal.pone.0249691 (available as a free pdf)

[When you are suddenly frightened, the DNA in your brain snaps open to transcribe fright-response genes.]

Authors' abstract: *Neuronal activity generates DNA double-strand breaks (DSBs) at specific loci in vitro and this facilitates the rapid transcriptional induction of early response genes (ERGs). Physiological neuronal activity, including exposure of mice to learning behaviors, also cause the formation of DSBs, yet the distribution of these breaks and their relation to brain function remains unclear.*

Here, following contextual fear conditioning (CFC) in mice, we profiled the locations of DSBs genome-wide in the medial prefrontal cortex and hippocampus using γ H2AX ChIP-Seq. Remarkably, we found that DSB formation is widespread in the brain compared to cultured primary neurons and they are predominately involved in synaptic processes.

We observed increased DNA breaks at genes induced by CFC in neuronal and non-neuronal nuclei. Activity-regulated and proteostasis-related transcription factors appear to govern some of these gene expression changes across cell types. Finally, we find that glia but not neurons have a robust transcriptional response to glucocorticoids, and many of these genes are sites of DSBs.

Our results indicate that learning behaviors cause widespread DSB formation in the brain that are associated with experience-driven transcriptional changes across both neuronal and glial cells.