OPUNTIA 479

Late July 2020

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.

THE STAMPEDE THAT NEVER WAS

photos by Dale Speirs

The Calgary Stampede would have been July 3 to 12 this year but for the virus. Nonetheless the Stampede organization staged a few small events around the city, including drive-by pancake breakfasts and fireworks. The cover shows Stampede fiddlers in the downtown TD Square atrium on July 8. I've photographed them for past Stampede reports. They were one of the few types of performers who could wear masks and still do their act.

During Stampede, the downtown taverns normally operated 24/7. Think Mardi Gras with cowboy hats. Their patios would be filled all day, every day. Since the vast majority of office workers were working at home, the restaurants were suffering. I took the photo below at 8 Avenue SW and 4 Street. But for the virus it would have been elbow to elbow with yeehawers.

CURRENT EVENTS: PART 3

by Dale Speirs

[Parts 1 to 2 appeared in OPUNTIAs #474 and 475.]

THE ALPHA INCIDENT was a 1977 movie written by Ingrid Neumayer, and is available on the 50-movie DVD boxed set "Sci-Fi Classics" from Mill Creek Entertainment. It began with a Mars probe bringing back samples which proved to have microscopic life.

The microbes were deadly pathogens. After verification by the receiving laboratory, the bulk of the samples were shipped by train to a storage facility in Colorado. The scientists put the glass bottles into an unlocked box, but for security sent along a biochemist who only piqued the interest of the train crew.

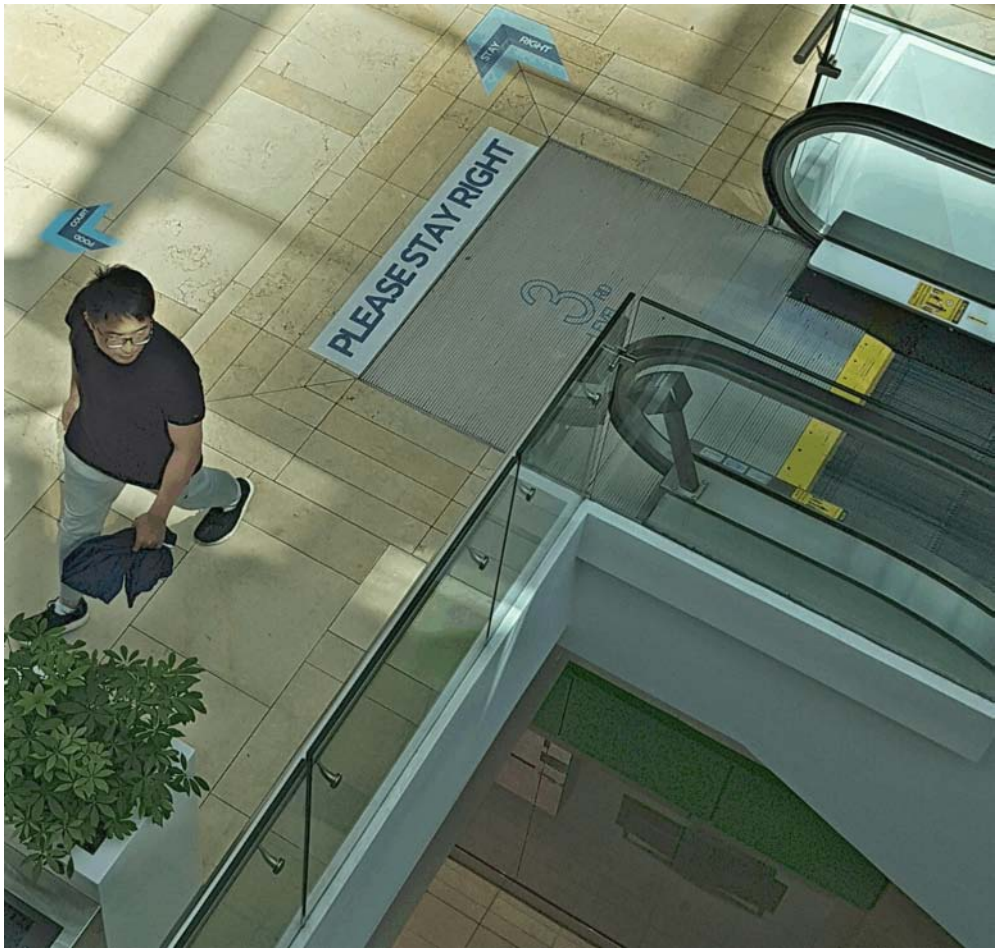
The conductor decided to snoop and see for himself what the curiosity was, and quickly managed to infect himself. The train was halted at the Moose Point siding somewhere in the mountains. There were three railroad clerks at the siding office plus the infected man, with only the biochemist to enforce the quarantine.

He told everyone to remain calm and carry on. They reacted as expected. He had to wound two of the railroad workers with his handgun to make them understand what a quarantine meant. The military sealed off the area, although the tanks seemed over-reacting. Those quarantined in the railroad office spent their time bickering with each other.

There was only one SFX. The infection made brains swell up to enormous size and blow apart the skull from the pressure. Splatter everywhere. The order from the high command was given to sterilize everything. First they delivered pills said to be the antidote but which were cyanide. That only got rid of the first man to take a pill. A woman fearing the result of infection shot herself in the head with the biochemist's gun. He in turn was electrocuted by ray guns carried by a hazmat team in environmental suits.

No one survived. Not a movie to be watched when you are feeling depressed by the COVID-19 pandemic.

Below: At the entrance to TD Square in downtown Calgary.
Bottom left: TD Square escalators.

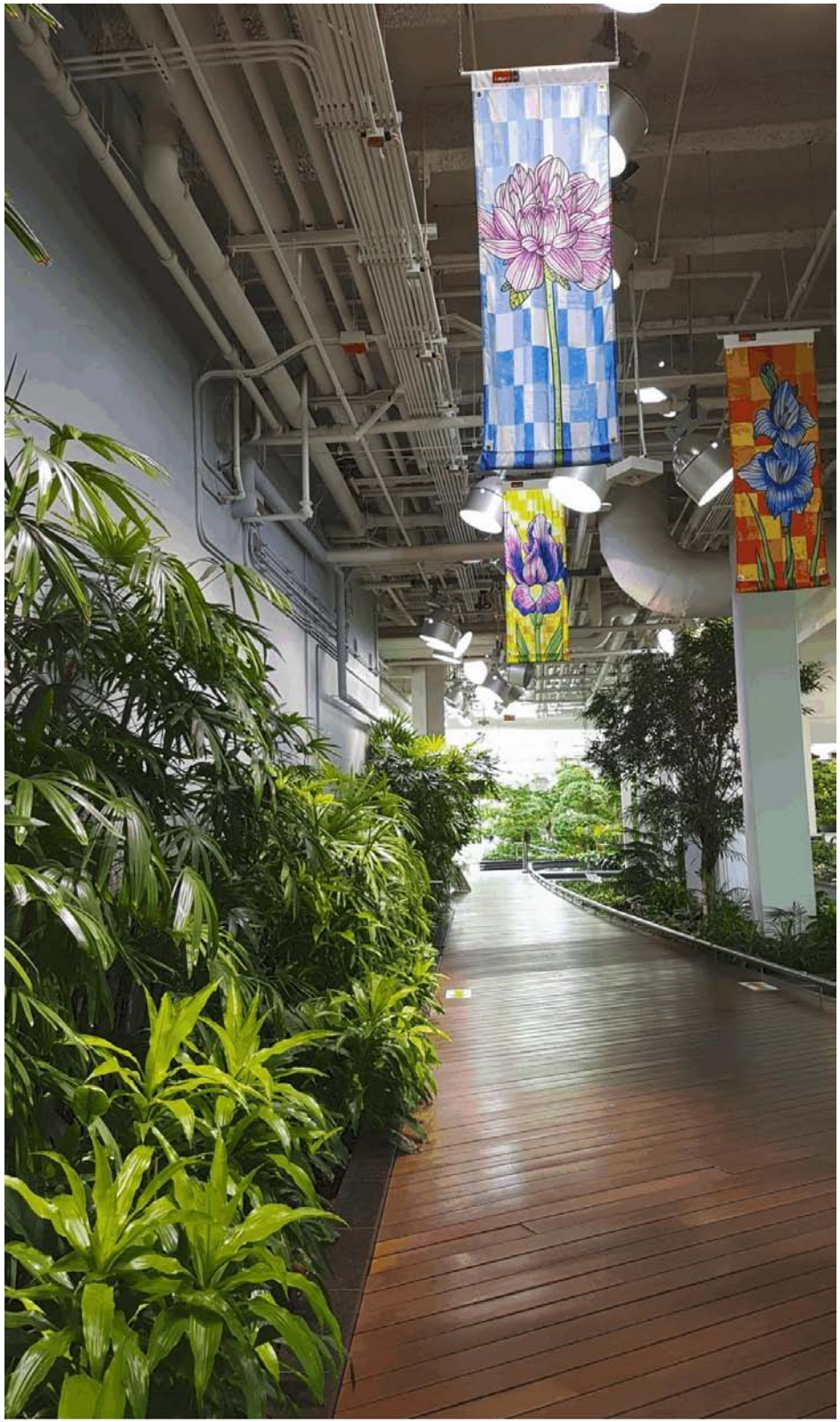


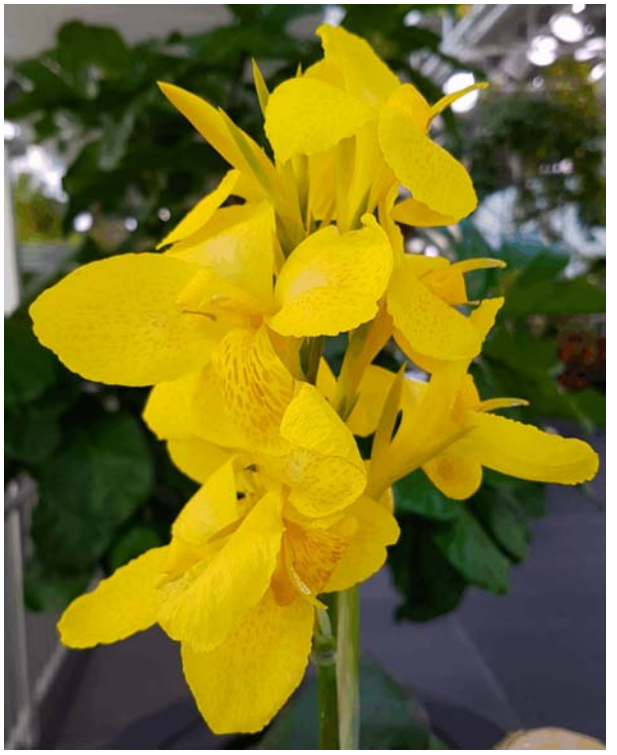
The elevator up to the atrium food court. Believe it or not, I have actually seen passengers standing with their faces into the corners. Some people will obey anything if you install an official-looking sign.

AROUND COWTOWN PARKS
photos by Dale Speirs

This page: Harley Hotchkiss Gardens in downtown Calgary at 4 Street SW and 7 Avenue, across the avenue from TD Square.

Next two pages: The Devonian Garden is Calgary's only indoor park, operated by the City of Calgary Parks Dept adjacent to the TD Square atrium complex. It was closed until July 20 because of the pandemic. Since I regularly eat next door in the food court, I noticed immediately when it opened. I went for a stroll and found it almost completely deserted. No surprise, since office workers who normally eat their bag lunches there are still scarce downtown.





ALIEN INVASIONS: PART 5
by Dale Speirs

[Parts 1 to 4 appeared in OPUNTIA #407, 424, 460, and 474.]

Alberta Aliens.

HYPER SAPIEN: PEOPLE FROM ANOTHER STAR was a 1986 movie aimed at the teenage romance market. My copy was on the 50-movie DVD boxed set "Sci-Fi Invasion" from Mill Creek Entertainment.

The reason I sat through it was that during the opening credits the mountains looked familiar to me. The movie was ostensibly set in Wyoming but all the locations were in Alberta. It didn't take long to confirm that this movie was filmed in the Bow River valley about 60 km west of Calgary on the Trans-Canada Highway. The location was the bottomlands just outside the gap where the Bow River flows out of the Rockies on its eastbound route toward Calgary, with the highway squeezing past on a ledge above the river.

Two alien children who were beautiful girl humanoids, and their three-eyed pet, visited Wyoming a la Alberta. They landed on a ranch, met the handsome young son, and basically roamed about with him having fun. Not an awful lot happened. Eventually the alien elders came to get the naughty kids and take them back into space. Parting was such sweet sorrow.

It happens that two of the most distinctive mountains in the Canadian Rockies are at the gap. Mount Yamnuska is a wedge-shaped mountain on the north side of the valley whose vertical cliffs are a popular climbing spot (and kill several climbers each year). Next to Yamnuska to the west is Loder Peak, which is the northern wall of the gap, and whose vertical face has an unusual giant oval of strata, the cross-section of a coral reef from 400 megayears ago.

Both mountains are clearly visible from the highway. I append photos of them I took in previous years. I also made screenshots from the movie for comparison. The screenshots are cropped because the foreground was just alpine meadow. Both screenshots show the aliens and Earth teenager riding dirt bikes across the meadow on the far side.

Try that in real life and the park wardens would arrest you. The land was actually part of a provincial park. Banff National Park is another 20 km further west, deep inside the front range of the Rockies. The Rocky Mountains are not a single mountain range but a dozen or so, running north-south and straddling the Alberta-British Columbia border, which is the continental divide.

Below: My photo of Loder Peak. Notice the unusual oval strata.
Bottom: Screenshot from the movie of the kids motorcycling past the peak.

Mount Yamnuska. Top photo is mine, bottom photo is screenshot. The mountain continues to kill. At right is a news report of the latest casualties in July 2020. There'll be more throughout the year.

The end credits thanked the people of Calgary, Canada, (no province mentioned), despite no city scenes in the movie. The Calgary International Airport is the nearest airport to the mountains, where the film crew and cast would have come into Canada. Perhaps the producers thought the valley was just an extension. Likely too, was that support services were all in the city.

CALGARY HERALD

Mt. Yamnuska access closed after hiker killed, two others injured in mishaps

Bill Kaufmann
Jul 12, 2020 •

Access to popular hiking and climbing site Mt. Yamnuska has been closed indefinitely after a hiker was killed and two others injured in separate mishaps on its slopes on Saturday.

Canmore RCMP say unusually large crowds in hiking areas in the Bow Valley Kananaskis Country have led to safety concerns.

Roadside Picnics.

THEY CAME FROM BEYOND SPACE was a 1967 movie written by Milton Subotsky, based on the story "The Gods Hate Kansas" by Joseph Millard. My copy is on the 50-movie DVD boxed set "Sci-Fi Classics" from Mill Creek Entertainment.

The movie was set in Cornwall, England, where a UFO crashed. A government ministry sent a team of scientists to investigate. Their leader Dr Curtis Temple was not allowed to go because he was still recovering from a car accident and just had a silver plate installed in his head. That was to make a difference because the aliens weren't able to use mind control on him.

They were, however, successful in controlling the minds of those visiting the crash site. With their control, they began directing the humans to supply materials to rebuild their spaceship. Temple had to carry on a one-man battle against the aliens, which provided many alarums and excursions. He eventually managed to gather a few sidekicks who weren't under the alien influence.

For no reason particularly well explained, if at all, the aliens introduced a plague which caused its victims to die within seconds, covered with drops of blood. An anticipation of Ebola virus perhaps. The aliens collected the bodies, flash froze them, and promised the Earthlings they would revive them at a later date.

That made no difference to the plot, so Temple and his sidekicks carried on. The countermeasure was to wear silver colanders on their heads to prevent alien mind control. Temple's group found the underground lair of the aliens which was a missile silo. Entering inside the rocket, they were trapped when it took off for the Moon.

There they greeted the alien Master. This group were humans with pasty complexions and robes in primary colours. The Master went into a long harangue about how his species was actually a form of pure energy, using flesh bodies for convenience.

They just wanted to get back to the home planet. It was all just a big misunderstanding, as they had no intention to invade and occupy. They were just there to fix a flat tire so to speak. The aliens certainly didn't act like that though.

Nonetheless, after a few more contretemps, everyone shook hands all around and all was forgiven. The movie plodded its way through the story. The script was adequate, the actors were adequate, but there was no excitement.

Other Aliens.

"Devouring Shadows" by N.J. O'Neail (1932 February, WEIRD TALES, available as a free pdf from www.archive.org) was about an invasion from the fourth dimension. Three-dimensional shadows began falling on London, England, piling up everywhere. That's all they were, just shadows, excepting they weren't flat and there was no obvious source casting them. The shadows spread to Europe, then the Americas and the rest of the world.

After accumulating everywhere, the shadows came to life and began ingesting people. Much screaming by humans. Run to the rock but it will not shelter you. The story was in the form of a narrative by the last human surviving, hoping that someone in the future would find the report.

The twist ending was that someone from the future did find the report and eventually translate it. The finders were Martians, who came to explore the dead planet, third from the Sun.

ALIEN SPECIES was a 1996 television movie written by Nancy Newbauer, available on the 20-movie DVD boxed set "Sci-Fi Fever" from Mill Creek Entertainment. Big alien saucers entered Earth orbit and launched landing craft to collect specimens, both cattle and human.

A bit later they went on the offensive and began attacking farmhouses and hick towns. Finally they scourged big cities but fired at random buildings rather than attacking obvious tactical targets. The explosions were el cheapo SFX using semi-transparent gasoline fireballs copied overtop the film negative.

The characters we were supposed to care about but mostly found annoying included some Deppity Dawgs transferring prisoners, roadside travelers swept up in the fuss, and a computer nerd. They ended up hiding in a cave that just happened to be the hiding place of the alien advance guard.

Much running about, endless screaming by the women, and many cries of "Aaaaaaaaah!" from the men. I fast-forwarded at 32X for minutes at a time. When a bullet hit an alien, it turned green and vapourized. Fair enough, because

when an alien zapped a human with its ray gun, the human turned bright green and vapourized.

The aliens were rubber suits, the defects of which were covered up by filming the cave scenes in Stygian gloom. The editing was sloppy. An example was a woman in a clean white blouse running through a tunnel . When she turned a corner a split second later, the blouse was liberally soaked in blood with no explanation as to how that happened.

It was difficult to tell who lived or died in the darkness of the tunnels. The survivors made it out of the cave, then collapsed its entrance, as if any aliens inside wouldn't be able to burn their way out with ray guns.

Next up, an alien fighter appeared in the sky but it slowly wobbled in flight, with no visible damage. It suddenly went into a power dive and crashed, detonating in a burst of fireworks. I mean actual fireworks, because the SFX were what you would see at any village fete fireworks display, excepting there were no Catherine wheels.

The strange crash made me think this was Earth bacteria killing the aliens as per H.G. Wells, but the next alien fighter buzzed around like a World War Two fighter plane in the Battle of Britain. It chased the survivors from pillar to post.

The computer nerd, using his 1996 laptop, managed to decode the alien transmissions. One of the survivors just happened to have a shoulder-fired missile in the trunk of his car. Not that surprising really, given the American propensity for bearing arms. He brought down the alien fighter with a single shot.

That scared the aliens. The mother ship recalled its fighters and departed. Since everywhere around the world the aliens were blasting away and being blasted in return, one wonders why that particular shot did the trick. The ending was left ambiguous in the obvious but fortunately vain hope of funding a sequel.

Also from the "Sci-Fi Fever" boxed set was INVASION, a television miniseries based on a novel by Robin Cook. It began with an alien starship scattering smooth shiny black rocks over Earth. When picked up and handled by humans, the rocks pricked them and injected a virus. Infected humans turned into aliens with a hive mind. Sort of a cross between pod people and the Borg.

The plum-sized rocks initiated the disease and personal contact spread the infection rapidly. No social distancing in those innocent days. The advent of infection caused painful changes, which in turn jammed the hospital emergency wards. Soon the assimilated were everywhere. The hive mind ruled the world.

A plucky band of uninfected survivors headed to an underground bunker out in the desert. They had a plan that just might work and did. They developed a vaccine and headed to an alien concentration camp, above which the alien mother ship hovered. Breaking a few vials of vaccine into the crowd caused the mother ship to implode. The planet's human population was cured within minutes. That was one heck of a vaccine.

"The Pygmy Planet" by Jack Williamson (1932 February, ASTOUNDING, available as a free pdf from www.archive.org) was an invasion of a different sort. Dr Travis Whiting, like any good mad scientist, had his own home laboratory.

He was interested in evolution, so he created a miniature planet about a metre in diameter, suspended in mid-air in his laboratory. There were two beams shining on the planet, narrowed to a pinpoint, one of which allowed him to shrink down and travel to the planet, and the other to enlarge him and bring him back.

He started a culture on the planet, who evolved at a sped-up rate, fast enough for Whiting to see evolution in action. They somehow evolved into cyborgs. What Whiting hadn't thought about was that if he could find the beams, so could the cyborgs, who used the enlarger to come up into the laboratory full size and do their own exploring.

The plot was predictable. The invasion of the cyborgs stuttered at first, a good thing. The handsome young hero was Larry Manahan, the damsel in distress was beautiful young Agnes Sterling, and the plot was obvious a page before it got there.

Lots of alarums when the couple went down to the planet to rescue Whiting. Once back in the laboratory (Whiting didn't make it), Manahan smashed the pygmy planet to prevent the cyborgs from following him. There were some things man wasn't meant to know.

THE MAN FROM MONTENEGRO: PART 21
by Dale Speirs

[Parts 1 to 20 appeared in OPUNTIAs #252, 253, 275, 278, 279, 289, 304, 307, 319, 332, 335, 337, 344, 355, 364, 365, 382, 415, 445, and 473.]

The private detective Nero Wolfe was created by Rex Stout. There was a long-running successful series of novels and short stories from 1934 until Stout's death in 1975. The original stories are referred to as the corpus, while stories by other authors are pastiches. Since Stout died relatively recently, there were few pastiches until after the Millennium.

Nero Wolfe was a morbidly obese middle-aged man who had been a dashing young buck in his birthplace of Montenegro. The Balkan Wars, which were the prelude to World War One, had sent him adrift across Europe in the service of the Serbian army. After the war he made a fortune in unexplained dealings and emigrated to New York City in 1930.

Becoming a private investigator, he engaged Archie Goodwin as his legman. Wolfe seldom left his brownstone in Manhattan, which had a rooftop greenhouse filled with orchids. He had a gourmet cook named Fritz Brenner, who along with Goodwin lived in the house. His office was on the ground floor, where many a J'accuse! meeting was held. His nemesis was NYPD Homicide Inspector Cramer, the equivalent of Inspector Lestrade.

Literary Pastiches.

THE MISADVENTURES OF NERO WOLFE (2020) was an anthology edited by Josh Pacter. The stories were sorted into three sections: pastiches, parodies, and potpourri (written in the style but not a pastiche). I won't review all the stories but will pick out a few.

The 18 selections include both reprints and original works, plus three forewords. Some of the reprints were chapters from still available novels, a waste of pages. Other reprints came from incredibly obscure sources that even in a pdf world are not available without considerable searching.

""The Red Orchid" (1947) by Thomas Narcejac was a translation extracted from his book USURPATION D'IDENTITE, which pastiched (if I may be allowed to use that word as a verb) a wide variety of fictional detectives. Taking Wolfe's world from English to French and back to English demonstrated the difficulty of translating idioms and figurative phrases.

The pastiche brought Wolfe and Goodwin out to the country for a non-existent pure red orchid flower. It was a ruse. The client was concerned about a potential murder, which turned actual in an elaborate plan. The story fluctuated between a serious pastiche and a farce, often changing at inappropriate moments.

The difficulty in reviewing translations is that one never knows who to blame or praise, the author or the translator. I suspect both can take some of the blame for this pastiche.

For comparison, the next story was a chapter from MURDER IN PASTICHE (1955) by Marion Mainwaring. A variety of detectives were parodied in this novel but in English only, so there was no translator to confuse the issue. The plot was set on a trans-Atlantic passenger ship, with nine detectives. An unpopular gossip columnist had been murdered on board, and each chapter featured a parody of a popular fictional detective.

Nero Wolfe was represented by Trajan Beare, assisted by his legman Ernie Woodbin. Despite it being a parody, Mainwaring got Stout's literary style down perfectly. Indeed, if the names were changed back to Wolfe and Goodwin, the chapter could pass for a corpus story.

From the parody section, "The Sidekick Case" (1968) by Patrick Butler was a vignette on Goodwin's sensitivity about being referred to as a sidekick. He went on at length that he was not a sidekick but a partner with Wolfe. He had his own investigator's licence and worked cases with independent action.

"The Possibly Last Case Of Tiberius Dingo" (2020) by Michael Bracken was an original story for this anthology. Jughead Badloss was the great detective's not-a-sidekick who brought in a case of a family with a really complicated genealogy. As so often happens with wealthy trust funds, someone was pruning the family tree to speed up an inheritance.

Badloss provided the break in the case when he had, ahem, a roll in the hay with one of the women. She claimed she had never had children but Badloss noted en passant during their lovemaking that she had a caesarian scar.

The best story of the potpourri section was "The Damned Doorbell Rang" (2020) by Robert Lopresti. It is a chronicle explaining why the next-door neighbours finally sold out and moved. An hilarious story.

Remember that in the corpus, Wolfe's brownstone was several times bombed or machine gunned. There were more than a few murders there, and the police frequently came and went, often blocking off the street. Then there were the callers who kept arriving for midnight J'accuse! meetings. Let's face it, Wolfe was not a good neighbour, even for Manhattan.

All told, the anthology was good reading, excepting the proviso about unnecessary reprints. It is not necessary to know the corpus, although enjoyment of the stories will be enhanced by knowing the background.

ARCHIE GOES HOME (2020) was the latest in a series of novels by Robert Goldsborough. This book, set sometime in the 1950s, took Archie Goodwin back to his old hometown in rural Ohio to visit his mother and her sister Edna. He was to look into the suspicious death of local banker Logan Mulgrew at their urging.

The Deppity Dawg said it was suicide, as Mulgrew was despondent about his wife's recent death. Few believed that because Mulgrew had been stepping out with her nurse and in any event was not known as a depressed man.

Mulgrew was the sort of person who made one wonder how he managed to live as long as he did without someone murdering him years before. His hobbies were foreclosing mortgages on farms, ruining businesses, and womanizing. His bank gave no quarter to anyone in financial trouble. He treated his employees roughly and was disliked by all who knew him.

Goodwin interviewed the local suspects. The information was recapitulated several times in case the reader forgot what happened two chapters prior, and some of the passages looked like copy-and-paste. Goodwin was able to eliminate one suspect, but was stymied.

His mother, who had visited New York City and stayed at the Wolfe brownstone, telephoned the great detective. She convinced him to make the arduous journey across the wilds of New Jersey and Pennsylvania to Ohio. Settling in at her house, he attracted all sorts of attention but went to work and contemplated the evidence as given to him by Archie.

The J'accuse! meeting was held in the living room. Wolfe resolved the problem when he realized the murder, staged to look like suicide, was carried out by two women. They designed the plan to frame the nurse.

The police and Archie had been flummoxed because they were looking for a single perpetrator, which the evidence didn't fit. The novel read well, other than some repetition.

Old-Time Radio.

Nero Wolfe aired as several different radio series from 1943 to 1951. Rex Stout received royalty cheques but farmed out the episodes to various script writers. The first two series only have one episode of each preserved, but there is a good run of the third and final series available as free mp3s from www.otrrlibrary.org. That series, THE NEW ADVENTURES OF NERO WOLFE, was considered the best because Sydney Greenstreet played Wolfe. He was typecast but was true to his character.

"A Slight Case Of Perjury", written by Gladys Williams, was a 1951-04-06 episode. Note that date for the next review further on. Tom Wilcox was the client who telephoned the Wolfe brownstone. He had just been acquitted of the murder of Keith Hanson. The conversation was terminated by the sound of a gunshot at Wilcox's end.

Fortunately the gunman missed. Displaying rare presence of mind, Wilcox dug the 32-calibre bullet out of the wall and came over to Wolfe's place. The suspicion was that the real murderer of Hanson was trying to tie off a loose thread.

Socialite Mrs Patricia Park had alibied Wilcox at the trial, swearing under oath that she had been with him at the time of the murder. Wilcox told Wolfe he had never met her, before or after the trial. Archie Goodwin visited the Park residence. Her husband Don neglected her, preferring to live off her wealth and spend his time at the racetrack. She had known and disliked Hanson, but thought Wilcox looked cute.

Her sister Marge and brother-in-law Brad were introduced into the plot as additional suspects. A MacGuffin was also added, a 32-calibre handgun owned by Don which had gone missing. After antagonizing everyone in the Park family, Goodwin wandered off.

His next stop was the Hanson place, where he had no right to snoop but neither did another intruder, who fired shots at Goodwin from a 32 pistol. He missed because Goodwin heard him coming and turned off the lights.

Wolfe sent Goodwin and Wilcox to Hanson's office to look for love letters, suspecting blackmail. They hit the jackpot, finding letters from Marge and other women, plus a hefty clip of currency. There was little time to gloat, as someone turned out the lights, slugged Goodwin, and made off with the evidence.

With ten minutes left in the episode, Wolfe held the traditional J'accuse! meeting in his office. Inspector Cramer arrived early and said all the bullets came from the same gun that killed Hanson. By way of exchange, Wolfe told him about Patricia's perjury.

The extended Park family arrived in a bunch. Wolfe worked his way through the crowd. All the Parks had motives, for Hanson had not been a stranger to any of them. Marge provided a convoluted story. Wolfe provoked the murderer. Shots were fired, not for the first time in that office. Surprisingly, no one turned off the lights. Don made the mistake of using the same 32 pistol as in all the previous shootings. When the scuffle was over, so was the episode.

"Room 304 " was the final episode of the Greenstreet series, written by Virgil Reimer and aired on 1951-04-27. It began with a telephone call from a francophone woman who wanted Goodwin to come over to her hotel room immédiatement. He asked for the address. She got as far as saying "*Room 304*" when a gunshot sounded at her end and the line went dead. So did she.

The same opening as in the episode aired at the beginning of the month. Reimer might have claimed that it was different because the caller didn't survive this time. Since the show was cancelled, I doubt that anyone cared. The entire episode played *pro forma* by a cast who were already waiting to hear from their agents for their next job.

False trouble was stirred up by having Goodwin barge into scenes without identifying himself and then interrogating people as if they were guilty. Even the Gestapo always identified themselves when they hammered on the door. In actual practice, Goodwin would have explained who he was at the beginning of the conversation and asked his questions politely. In not doing so, the other characters naturally got their hackles up, a cheap way to raise tensions unnecessarily.

Goodwin arrived at the hotel and found another man Jay Breem in the room. They inspected the body together. Breem identified her as Helen Rene. A pistol was in her hand and a bullet hole in her right temple. It couldn't have been suicide because someone had hung up the telephone.

Not bothering to notify the police, Goodwin took Breem back to the brownstone for interrogation by Wolfe. Goodwin noticed a cheque for $1,000 payable to Wolfe in Rene's purse, so he brought that along. Might as well get something out of the excitement. Little transpired from the meeting, so Breem left and Wolfe telephoned the police. He asked Inspector Cramer to hold off notifying the news media.

The next step was for Goodwin to get Rene's cancelled cheques from her bank. The banks in those days were apparently more casual than one might expect. He didn't get them but they told him her financial adviser was Mr Renfrew. Rene had been buying technical equipment for an unnamed European country. She had bought some equipment from the Arrow Laboratory Supply. Goodwin talked to a company man named Moreau, who said the equipment was drop-shipped from the factory direct to Europe. Moreau seemed an untrustworthy sort and Goodwin wondered if he had pulled a scam on Rene.

Back to the brownstone for a meeting with Renfrew, who brought along his secretary Jean Bennett. This gave Goodwin an opportunity to go into his wolf act. "*Do you always use this approach?*" she asked him but he didn't get the hint. Renfrew brought along the cancelled cheques, which legally he had no right to possess, but what the hey. Wolfe kept the cheques and asked Renfrew if Rene was left or right handed. Left, he said.

A night trip to the Arrow warehouse by Goodwin led to a roughing up that he well deserved for trespass. He saw enough to see the warehouse had only old glassware and junk instead of proper laboratory supplies.

The next day Wolfe hosted a J'accuse! meeting. All the characters were brought together and Wolfe sprayed the room with suspicion. He revealed various facts that the listener had not been told previously, always a cheat in mystery stories. There were two separate crimes. Moreau had shipped shoddy goods but denied murdering her. Renfrew had been forging cheques on her account. He pulled a gun and tried to run, but Inspector Cramer saved the cost of a trial by shooting him dead. The script played the characters, particularly Goodwin, as more boorish than the corpus.

PHILATELIC FICTION: PART 2
by Dale Speirs

[Part 1 appeared in OPUNTIA #417.]

Postage Stamps.

A pair of stamps issued on May 20 by Canada Post to commemorate the centennial of the first pre-announced scheduled radio broadcast in the world in 1920.

FIBBER MCGEE AND MOLLY was an old-time radio comedy that ran from 1935 to 1953 as a half-hour show before a live audience. It then straggled on as a 15-minute show in a studio without an audience. From 1957 to 1959 it was a 4-minute act on a radio variety show before finally being put out of its misery. The episodes were mostly written by Don Quinn.

"The One Hundred Thousand Dollar Stamp" was a 1950 episode that began with the McGees talking to Mayor LaTriva about hobbies. He mentioned that he collected stamps, which got Fibber reminiscing about his boyhood collection. Fibber mentioned that he had all kinds of strange stamps including a red six-sided one-cent stamp from somewhere in South America.

The philatelic listener will recognize immediately, as did LaTrivia, that this was a British Guiana magenta. The mayor told Fibber the stamp was worth $100,000. That triggered off a search of the McGee house for the stamp album but was fruitless. Fibber then remembered he had given it to a friend because he thought the collection was worthless.

There followed a mad rush about town, tracking the stamp album from one person to the next. The final recipient was a little girl named Teeny, who told the McGees that she had given the album to a classmate. Shortly after she had done so, the boy's family suddenly came into money, lots of it, and they had left town for points unknown.

Teeny's punch line was that as the family had driven out of town in a chauffeured limousine, they blew kisses at the post office as they went past it. A funny episode for the philatelist, although the obvious question was whatever happened to that second British Guiana magenta.

Which brings me to MURDER AT THE RACETRACK (2006), a themed anthology edited by Otto Penzler. Most of the stories were routine mysteries, readable once. There was one that stuck out though.

"Keller By A Nose" by Lawrence Block was a short story in his series about a hitman named Keller who only worked at his job when he needed money for his stamp collection. During a spell of unemployment (hitmen don't work every day) he wanted to bid at a stamp auction on a couple of rare stamps for his collection.

While at an off-track betting parlour, he saw a horse named Going Postal in the fourth race at 18 to 1 odds, so he put $2 on it to win. Alas, it finished seventh in a field of nine. Keller found out hunches didn't pay. He later bet Happy Trigger and Hit The Boss on long odds for the exacta (predicting first and second place horses). They finished in the last two places.

Keller's broker, the one who arranged the hit jobs for him, had a client who fixed horse races. In an upcoming race, the client wanted his horse to win against long odds, so he bribed all the other jockeys to slow down their horses.

Keller's job was to eliminate any jockey who beat the designated horse, as a lesson to the others to stay bought when they're bought. One of them didn't understand the principle, as a result of which Keller earned enough on the hit to buy those two rare stamps he wanted.

The story read well. Block knows how to write an infodump, as there were several on how horse betting is done. Science fiction writers would do well to follow his method, instead of the "As you know, Professor" style.

In OPUNTIA #426 I reviewed "The Man With The Third Green Eye", a 1948 episode of the old-time radio series I LOVE ADVENTURE. It was a MacGuffin story about a chase through California for a 4-cent stamp mailed from the Philippines, with a map on its back showing uranium resources.

Sometime later I listened to a 1952 episode of the radio series THE MAN CALLED X. The episode was titled "The Ha'penny Stamp", written by Sidney Marshall. As I listened, the plot seemed increasingly familiar and was confirmed when the man with the third green eye was mentioned.

This time the venue was Egypt and the stamp had details about Iranian oilfields. The train incident happened on the track to Port Said, in whose harbour the story finished up. The stamp was recovered from the man who wore a turban with a green emerald in it.

The series was a spy action-adventure aired as the Red Scare was peaking. The commercials bragged about how the USA was a beacon of liberty while neglecting to mention that wasn't true for blacks or women. The script itself was modified to make the enemies into Soviet spies. An interesting look at the paranoia of that era.

Post Offices.

CANCELLED BY MURDER (2016) by Jean Flowers (pseudonym of Camille Minichino) was about Cassie Miller, a Miss Marple in North Ashcot, Massachusetts, of which she was the postmaster. A tropical storm began this novel, shutting the post office and the entire village as gale force winds swept through. After the storm passed, fabric store owner Daisy Harmon was found dead, supposedly killed by a fallen branch.

The police said otherwise. She was dead before the killer rolled a big tree branch on top of her body to make it look accidental. Her husband Cliff asked Miller to help investigate, as he had no confidence in the village police. He had walked into the police station and found the Deppity Dawg playing solitaire on a computer.

The mail must go through, so Miller was tied to the post office during regular business hours. She did get in some sleuthing, and learned that Harmon had been feuding with Reggie and Andrea Harris, who were proposing a redevelopment project she opposed. Harmon was also about to expose an embezzler, who conveniently ran for the Canadian border after her murder.

He was caught and returned in custody to the village. The case was apparently solved, but since there were several more chapters to go, it wasn't that easy. Andrea showed up at Miller's house, gun in hand, and ranting about how unreasonable Harmon had been. Since this was a series, there are no prizes for guessing who won that confrontation.

ADDRESSED TO KILL (2017) carried on the series. Valentine's Day was nigh. A musical group hired for a dinner dance had a sudden vacancy when one of their musicians, Dennis Somerville, was shot dead in his home.

The band were all local amateurs, mostly from the community college plus a few villagers. Somerville was a professor involved in an academic feud, another member of the band was in a different college squabble, there was a romantic melodrama, and assorted family problems. Nonetheless they managed to play harmony together.

Somerville had reported threatening letters to Miller and wanted a postal inspector on the case. That became more urgent after the murder, so a handwriting expert was brought in. The letters were a red herring. Even so, Miller did identify the murderer, another professor who took bribes from students for good grades and was about to be exposed by Somerville.

The traditional trapped-by-the-killer confrontation took place in Miller's home. It was resolved when she slugged the killer unconscious with a bronze bust of Sir Rowland Hill, inventor of the postage stamp in 1840. That incident produced the greatest mystery of this novel. How many American posties have bronze busts of Sir Rowland in the real world?

The Mail Must Go Through.

"The Twenty-First Century Limited" by Paul Slachta (1929 December, AMAZING STORIES, available as a free pdf from www.archive.org) was an example of a science fiction writer who basically transplanted a mundane story into the future. This was about the struggles in 2028 of a transport company which would go bankrupt if they didn't win a mail contract from the post office for the Earth to Venus run.

It was mentioned on the first page that they had large-screen technology to bring up information by twiddling a pair of dials. In other words, a prediction of the World Wide Web. Yet the mail had to go through despite comets, fuel losses, and other hazards of space. They won the contract in a twist ending.

"The Episode Of The Sinister Inventor" by C. Daly King (1946 December, ELLERY QUEEN'S MYSTERY MAGAZINE, available as a free pdf from www.archive.org) was about two bitter rival inventors. One of them was found dead in the home of the other. It didn't look good but the accused had a Special Delivery letter from the deceased that would acquit him if the postmark and letter date held up.

The problem was an overly elaborate plot that relied on the letter having a cancel dated exactly one year prior to the murder. The year date was washed out and the police assumed it was the current year. That a murderer would wait a full year to do his deed is taking the crime of premeditated murder too far. The story was too clever by half and not believable.

"Not Snow Nor Rain" by Miriam Allen DeFord (1959 November, WORLDS OF IF, available as a free pdf from www.archive.org) chronicled a letter carrier's last day of work. Much to his annoyance his last bag of letters included a batch addressed to a seventh-floor office in a building with only six floors.

In his retirement, the thought of those letters annoyed him, so he did some investigating. The letters were questionnaires from a company offering a prize to those who completed the forms. The information requested was how the person would respond to a group of aliens landing, whether to fight them or greet them as friends. The aliens were collecting data to judge response of the general public to a planned invasion. They were going to conquer Earth and thought an understanding of how humans thought would be useful.

SHAKING ALL OVER: PART 6
by Dale Speirs

[Parts 1 to 5 appeared in OPUNTIAs #259, 326, 341, 360, and 384.]

Riste, Rangle, Og Rulle.

THE QUAKE was a 2018 Norwegian movie that was the sequel to THE WAVE, which I reviewed in OPUNTIA #367. That one was about a tsunami in Norway, a frequent problem when mountain slopes collapse into fjords and send a wall of water down the valley. Both movies were well done, subtitled in English. The SFX were top quality and easily matched anything from Hollywood.

This time around it was Oslo's turn. Norway is not in a tectonic zone, so an earthquake had to be explained. The answer was that Oslo is built on marine sediments not fully compressed into rock just yet. Natural gas seepage caused subsidence in the sediments, slowly at first, then suddenly.

The movie began three years after the tsunami. Geologist Kristian Eikjord was the hero then and was the hero now. His personal life was a mess. He was separated from his wife and his kids hated him for neglecting them in favour of his work. Eikjord was plagued with guilt over the 268 people who died in the tsunami.

With that background established, the ominous forebodings and omens began. A road tunnel under Oslofjord was shaken by an earthquake, with two lives lost. One of them was Konrad Lindblom, a geologist colleague of Eikjord. Just before his death he had sent Eikjord some information about an impending earthquake that would destroy Oslo.

Eikjord made the rounds learning about the threat and issuing predictions no one would believe. He met up with Lindblom's daughter, who became a reluctant ally. Basically though, he was a prophet without honour in his own country. The prelude was leavened with many awkward encounters between him and his estranged family.

The small alarums built up to the big snap. There were repeated power failures, broken water mains, and rats scurrying out of buildings while the scurrying was good. Oslo was not prepared for an earthquake. Skyscrapers fell against each

other. The Opera House was shaken down. Glass falling from broken windows pureed the populace out on the streets.

When the earthquake hit, the screaming began. People ran hysterically out of buildings. The Eikjord family, ran hysterically into buildings. There was the obligatory trapped in an elevator sequence in every earthquake movie.

The supporting characters were thinned out by one spectacular SFX after another. The Eikjord family made it to the epilogue, a pleasant voyage up the fjord where the tsunami had occurred. Cue the orchestra and the end credits in Norwegian. Well recommended for watching.

Bwah-Ha!-Ha! And All That.

"The Vibration" by Edwin K. Sloat (1932 December, AMAZING STORIES, available as a free pdf from www.archive.org) was a standard mad scientist story about a man named Moklov who invented a superexplosive, jovianite, with which to gain revenge against the world for real or imagined injuries.

He used the jovianite to trigger earthquakes and volcanoes at selected targets around the planet by lowering bombs into crevasses where the shock waves would reflect in certain patterns and emerge at the target's location. Not quite like the modern-day HAARP conspiracy theory but close enough. Moklov could aim the explosions to shake down a specific skyscraper.

The young hero fought his way into Moklov's base of operations. Surprisingly the heroine was not the usual screaming ninny but helped save the hero because of her own independent quick thinking. By itself, that was almost enough to elevate this story above the usual standards of pulpdom.

"The Ultra-Gamma Wave" by D.E. Winstead (1934 May, AMAZING STORIES) was about an American inventor who had his device stolen from him by Charley Ling.

The Ultra Gamma Generator produced doubletalk waves that acted at a distance to produce severe earthquakes. The narrator was surprised that the Chinese weren't all ignorant labourers as he assumed, but could handle advanced technology.

The Chinaman wanted revenge against the Japanese, and so used the device to first destroy Yokohama. He was planning further action when the narrator managed to kill him and destroy the only working device. If you don't understand why a Chinaman wanted to attack Japan, read up on the history of 1930s China.

From the mad scientist chronicles comes the "The Tunnel Man", a 1977 episode of CBS RADIO MYSTERY THEATER, written by Percy Granger. (These episodes are available as free mp3s from www.cbsrmt.com) Seismologists picked up strange and unnatural vibrations from underground, not earthquakes but something else. Shortly after, a bank vault was robbed by something that tunneled up through the bedrock, then back-filled the tunnel with hard-packed dust.

A mad scientist calling himself Mr Mole soon appeared and made his demand: $100 million dollars! The standard demand of mad scientists used to be $1 million in the 1960s, but inflation had been remorseless ever since Nixon did away with the gold standard in 1971.

Meanwhile, the seismologists were fretting about earthquakes. The planets were aligning and their combined gravitational force might yank on the fault. The authorities were worrying that the Big One would frighten away the tourists and discourage business investments. They tried to keep it quiet.

Mr Mole expounded at length to the authorities on how he would soon rule the world. He had invented a tunneling machine that moved through bedrock as easily as a submarine moved through water. It pulverized the bedrock into dust and packed the dust behind it as the mole moved forward. Mole didn't stop there though. He also invented underground torpedoes that could be fired into tectonic faults and trigger earthquakes.

The military had a countermeasure. Using high-power lasers, they melted tunnels through the bedrock aimed at the tunneling mole. The machine tried to evade, but eventually it was penned in. As the authorities celebrated, the planetary alignment occurred and made the whole thing moot.

An interesting story. The episode concentrated so much on Mr Mole that the listener forgets about the other threat that will occur naturally, thus making a neat twist ending.

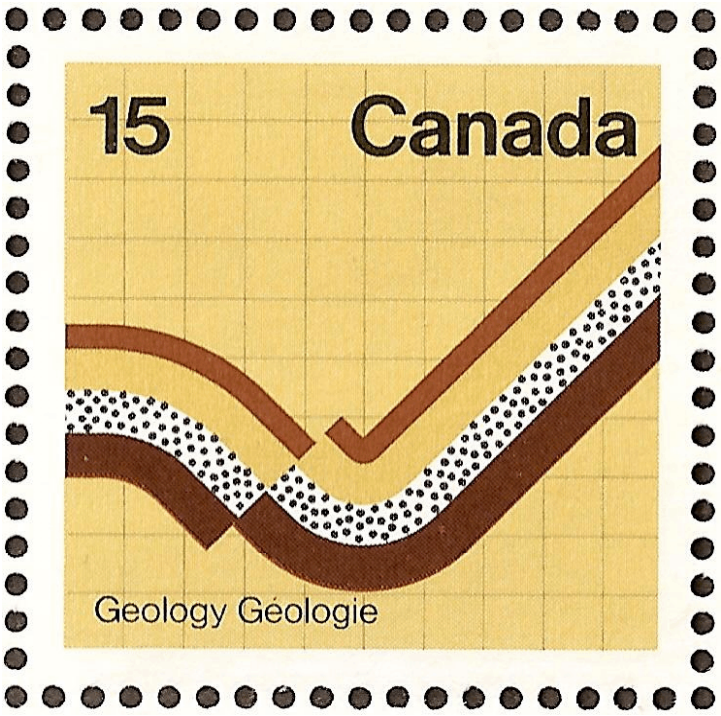
No Place To Hide.

"The Earth Brain" by Edmond Hamilton (1932 April, WEIRD TALES, available as a free pdf from www.archive.org) was based on the idea that Earth is a living organism, as indeed are all planets. Clark Landon was an explorer who roamed the planet looking for excitement.

His last trip was to the North Pole, where he found an uncharted mountain. Deep down inside it contained a giant glowing brain. Neurons of pure light ran into the bedrock and apparently permeated the planet. Landon and his fellow explorers realized that to the brain, humans were just minor skin microbes.

The brain exuded a tentacle and grabbed the explorers, then began dissecting them one by one for scientific experiments. Landon managed to reach his sidearm and emptied its clip into the brain, causing it to momentarily release him. He fled as a giant earthquake shook the pole.

Back in civilization he soon found he had little rest. Each city he visited was destroyed by an earthquake shortly after he arrived. There was no rest for him no matter where he went in the world. The brain's neurons extended everywhere. Earth tracked him remorselessly. Finally he gave up and committed suicide, at which point the pursuing earthquakes ceased.



"21931" by J.E. Keith (1936 February, AMAZING STORIES) was a far future story when human civilization had almost completed a transition to underground living to escape the aftermath of atomic war. Not everyone was in a hurry to move, on the basis that sealed buildings were just as safe and had a better view.

Earthquakes began to shake down the few remaining skyscrapers. Those below felt smug, until water began gushing through the tunnels from the ocean flowing through new cracks. The underground way of life wasn't the panacea it was thought to be.

"When The Top Wobbled" by Victor Endersby (1936 February, AMAZING STORIES) was a disaster story involving the precession of the equinoxes. Earth has a slow wobble as it rotates, just like a spinning top, except the wobble takes just under 26,000 years to complete. The geographical poles are out of alignment with the magnetic poles, which causes complications for navigators on ships and aircraft.

The premise of this story was that every fourth wobble or so, Earth would suddenly jerk and realign the geographical and magnetic poles. The problem was that the jerk would devastate human civilization, which had not existed 124,000 years ago when the last jerk occurred.

A group of scientists prepared an ark for the chosen few to survive the jerk. The usual complications arose. Few would believe until too late, and then there was a mad rush to the ark. And the rock cried out, "There's no hiding place here".

As the realignment began, the ark took a roller coaster ride. The descriptions of the disasters were fairly accurate, given that plate tectonics were unknown in 1936. The land rose up or fell, and the continents shifted rapidly. The ark crew members were based in California. They watched as a gigantic tsunami swept in over southern California and erased the cities.

The story went on a bit too long, as it related the aftermath when the pitiful few survivors tried to re-establish civilization. One point of careful thinking was that refined metals would be scarce since the tsunamis scattered countless automobiles and building I-bars into the ocean deeps.

There would be a new world being born. I might have said this would be a great disaster movie but in fact this movie has already been made, titled '2012'.

SEEN IN THE LITERATURE

Cobb, C.W. (editor) (2020) **Transition to a low-energy future.** AMERICAN JOURNAL OF ECONOMICS AND SOCIOLOGY 79:613-1057

[Speirs' comments in square brackets.]

Editor's summary of articles: *Climate change is an unprecedented challenge that is disrupting the material systems on which modern societies depend. Rising sea levels, hurricanes, disease vectors, droughts, forest fires, and ocean acidification spell disaster for a large portion of the world's population.*

They will interfere with crop production, forestry, fishing, transportation, water supply, mosquito abatement, electricity production, health care, and many other essential services. But national leaders have avoided either mitigation (cuts in emissions) or adaptation (projects to deal with the consequences) in a meaningful way. They have been crafting diplomatic language to delay a serious response.

[In every country, every politician thinks no further than the next election. If they were to organize painful policies, they would not be re-elected. The general public is all in favour of such policies as long as they aren't personally affected. Case in point: COVID-19 long-term lockdowns, mandatory wearing masks in public places, and bans of house parties or church services.]

In addition to the climate crisis, we are also suffering a second global problem: the decline of net energy to power industry and agriculture. (Net energy is the energy that remains after energy is used to extract and transmit energy.) A decline in net energy will restrict the ability of nations to resolve problems that were previously manageable. Even adaptation to climate change will be impeded by lack of net energy.

[The petroleum industry has been well aware of this for decades as conventional sources run dry. That is why shale oil, deep-sea drilling, and tar sands are the only new sources of oil, far more expensive than the old reservoirs.]

Thus far, the problem of global warming has been acknowledged, but the challenges posed by a decline in net energy have been ignored. Even most advocates of "green energy" have yet to take seriously the problem that sources of renewable energy will not serve as a full substitute for fossil fuels.

[Solar and wind power are diffuse energy sources which cannot match the convenience of petroleum. Electricity has to be generated from somewhere to recharge electric vehicles. Hydrogen and biofuels are negative energy sources that require more energy to produce them than is gained in their use.]

A fully solar-powered economy will necessarily be much smaller than a fossil fuel economy. This is the realization that stands in the way of recognizing the severity of the permanent energy crisis we now face. But the longer we hold on to the habits of a high-energy economy, the harsher will be the consequences when change is imposed by the limits of nature.

Farming was the occupation of most people during the past six millennia. That changed in the past century as urban economies absorbed most agricultural labor, even as population grew. Food production and distribution will be deeply affected as the world responds to the joint challenges of climate and energy change.

[As a farm boy who grew up in the 1960s, I watched the local market gardens being wiped out by cheap produce brought in from California or Florida because transport costs were so low. The economics are just now slowly starting to reverse, such that Albertans will eventually eat mostly Albertan produce, as they once did.]

The expectation that a small rural population can provide enough sustenance to feed a growing urban population will be overturned as rising energy costs filter through the economy, reducing mechanization and demanding more labor-intensive forms of production at shorter distances from urban areas.

[I always laugh when someone tells me they want to give up city life for the simpler way of farming. I grew up on a cattle ranch, which is the least intensive form of farming but still more hard work than any city slicker does. It's me for the simple life of the big city.]

Climate instability will add to the difficulties faced by farmers, foresters, and fishers. Without the availability of cheap fertilizers from natural gas, the importance of natural soil fertility will become more evident, and soil regeneration will become a significant aspect of an economy based on renewable energy. In addition, the distribution of food will become more decentralized, creating an advantage for cooperatives, which are currently operating in the shadows of large grocery chains.

[I doubt this. The supermarket chains are the biggest buyers of local produce, if they can find enough for their customers.]

As we move into an energy-challenged future, our ability to rely on cheap energy to create convenient ways of living will be called into question. We may need to organize our economic life on a seasonal basis, as our ancestors did. We will need to rethink daily travel and the possible substitution of local products for distant ones. In coping with these changes, it will be essential for more citizens and policy-makers to have a wide-ranging understanding of energy issues; energy provision will go beyond technical issues for engineers.

[No more cheap vacations to Cancun, Hawaii, or Myrtle Beach. The COVID-19 pandemic has clearly demonstrated that many employees can work from home. Canadian big business have already said they will probably never refill their office towers after the pandemic is over and may have most of their workers stay at home. Cuts down on the office rents, and if workers don't have to commute they can be told to take pay cuts since they don't need the extra money. The latter is already happening in Canada.]

Most motorized transportation today is powered by fossil fuels. Cities have been built or transformed with as much or more space devoted to vehicles as people. Yet a large number of trips are short enough for walking or cycling, and even much of what we call freight can be delivered by bicycle within cities.

[One word: Zoom.]

Long-distance and heavy freight is more challenging. Maritime shipping was once powered by wind, and we may need to revive such ancient technologies, though that will likely mean the annual volume of goods shipped across the oceans will drop substantially.

[An end to globalization is nigh.]

In transitioning to renewable electricity generation and distribution systems, we are likely to face many new challenges with implications for economics, politics, and organization of work and home lives. Specialists in electrical engineering will have an important role to play, but other students will need some basic knowledge of energy science, and electrical engineers will need to understand the social implications of their work.

Developing a renewable energy system will also call into question the ownership models built for electrical utilities during the past century of industrial capitalism. Solar radiation is a commons resource. Our legal traditions still retain the centuries-old framework of trusts that can be used today to set up solar commons for community benefit.

[False premise. Solar power is not a commons resource. You own the sunlight that falls on your house and the wind that blows over your roof. As a professional horticulturist, I happen to know something about this because there have been many lawsuits about trees blocking the sunlight onto someone's garden or funneling wind into a damaging flow.]

Moore, K., and N.B. Cowan (2020) **Keeping M-Earths habitable in the face of atmospheric loss by sequestering water in the mantle.** MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 496:3786-3795

Authors' abstract: *Water cycling between Earth's mantle and surface has previously been modelled and extrapolated to rocky exoplanets, but these studies neglected the host star. M-dwarf stars are more common than Sun-like stars and at least as likely to host temperate rocky planets (M-Earths).*

However, M dwarfs are active throughout their lifetimes; specifically, X-ray and extreme ultraviolet (XUV) radiation during their early evolution can cause rapid atmospheric loss on orbiting planets. The increased bolometric flux reaching M-Earths leads to warmer, moister upper atmospheres, while XUV radiation can photo-dissociate water molecules and drive hydrogen and oxygen escape to space.

Here, we present a coupled model of deep-water cycling and water loss to space on M-Earths to explore whether these planets can remain habitable despite their volatile evolution. We use a cycling parametrization accounting for the dependence of mantle degassing on seafloor pressure, the dependence of regassing on mantle temperature, and the effect of water on mantle viscosity and thermal evolution. We assume the M dwarf's XUV radiation decreases exponentially with time, and energy-limited water loss with 30 per cent efficiency.

We explore the effects of cycling and loss to space on planetary water inventories and water partitioning. Planet surfaces desiccated by loss can be

rehydrated, provided there is sufficient water sequestered in the mantle to degas once loss rates diminish at later times. For a given water loss rate, the key parameter is the mantle overturn time-scale at early times: if the mantle overturn time-scale is longer than the loss time-scale, then the planet is likely to keep some of its water.

Rooney, A.D., et al (2020) **Calibrating the co-evolution of Ediacaran life and environment.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 117:16824-16830

[A carbon isotope excursion is when the ratio of ^{13}C to ^{12}C increases. Organisms preferentially take in ^{12}C, therefore if the ratio measured in rocks increases, it means there was a greater absolute physical quantity of life. If a severe environmental change occurred and the ratio decreased, this indicated less physical mass of life.]

Authors' abstract: *Our understanding of the interactions between animal evolution, biogeochemical cycling, and global tectonics during the Ediacaran Period (635 to 541 megayears ago) is severely hampered by lack of a robust temporal framework.*

The appearance and extinction of the earliest fossil animals are hypothesized to correlate with upheavals in biogeochemical cycles, foremost the Shuram carbon isotope excursion, possibly the largest known disturbance to the global carbon cycle.

However, without age constraints on the excursion's timing and duration, its driving mechanisms, global synchroneity, and role in Ediacaran geobiological evolution cannot be evaluated. We provide radioisotopic ages for the onset and termination of the Shuram, evaluate its global synchroneity, and show that it is divorced from the rise of the earliest preserved animal ecosystems.

The rise of animals occurred during an interval of Earth history that witnessed dynamic marine redox conditions, potentially rapid plate motions, and uniquely large perturbations to global biogeochemical cycles. The largest of these perturbations, the Shuram carbon isotope excursion, has been invoked as a driving mechanism for Ediacaran environmental change, possibly linked with evolutionary innovation or extinction.

However, there are a number of controversies surrounding the Shuram, including its timing, duration, and role in the concomitant biological and biogeochemical upheavals. Here we present radioisotopic dates bracketing the Shuram on two separate paleocontinents; our results are consistent with a global and synchronous event between 574.0 ± 4.7 and 567.3 ± 3.0 Ma.

These dates support the interpretation that the Shuram is a primary and synchronous event postdating the Gaskiers glaciation. In addition, our Re-Os ages suggest that the appearance of Ediacaran macrofossils in northwestern Canada is identical, within uncertainty, to similar macrofossils from the Conception Group of Newfoundland, highlighting the coeval appearance of macroscopic metazoans across two paleocontinents.

Moreau, J.D., et al (2020) **Middle Jurassic tracks of sauropod dinosaurs in a deep karst cave in France.** JOURNAL OF VERTEBRATE PALEONTOLOGY 39:doi.org/10.1080/02724634.2019.1728286

Authors' abstract: *Although the deep galleries of natural underground cavities are difficult to access and are sometimes dangerous, they have the potential to preserve trace fossils. Here, we report on the first occurrence of sauropod dinosaur tracks inside a karstic cave. Three trackways are preserved on the roof of the Castelbouc cave 500 metres under the surface of the Causse Méjean plateau, southern France. The tracks are Bathonian in age (ca. 168 to 166 megayears ago), a crucial but still poorly known time interval in sauropod evolution.*

The three trackways yield sauropod tracks that are up to 1.25 metres long and are therefore amongst the largest known dinosaur footprints worldwide. The trackmakers are hypothesized to be titanosauriforms. Some of the tracks are extremely well preserved and show impressions of digits, digital pads, and claws. We erect the new ichnogenus and ichnospecies Occitanopodus gandi, igen. et isp. nov.

In order to characterize depositional environments, we conducted sedimentological, petrographic, and mineralogical analyses. The tracks from Castelbouc attest the presence of sauropods in proximal littoral environments during the Middle Jurassic. This discovery demonstrates the great potential of prospecting in deep karst caves that can occasionally offer larger and better preserved surfaces than outdoor outcrops.

Norell, M.A., et al (2020) **The first dinosaur egg was soft.** NATURE 583:406-410

Authors' abstract: *Calcified eggshells protect developing embryos against environmental stress and contribute to reproductive success. As modern crocodilians and birds lay hard-shelled eggs, this eggshell type has been inferred for non-avian dinosaurs.*

Known dinosaur eggshells are characterized by an innermost membrane, an overlying protein matrix containing calcite, and an outermost waxy cuticle. The calcitic eggshell consists of one or more ultrastructural layers that differ markedly among the three major dinosaur clades, as do the configurations of respiratory pores.

So far, only hadrosaurid, a few sauropodomorph and tetanuran eggshells have been discovered; the paucity of the fossil record and the lack of intermediate eggshell types challenge efforts to homologize eggshell structures across all dinosaurs.

Here we present mineralogical, organochemical and ultrastructural evidence for an originally non-biomineralized, soft-shelled nature of exceptionally preserved ornithischian Protoceratops and basal sauropodomorph Mussaurus eggs.

Statistical evaluation of in situ Raman spectra obtained for a representative set of hard- and soft-shelled, fossil and extant diapsid eggshells clusters the originally organic but secondarily phosphatized Protoceratops and the organic Mussaurus eggshells with soft, non-biomineralized eggshells.

Histology corroborates the organic composition of these soft-shelled dinosaur eggs, revealing a stratified arrangement resembling turtle soft eggshell. Through an ancestral-state reconstruction of composition and ultrastructure, we compare eggshells from Protoceratops and Mussaurus with those from other diapsids, revealing that the first dinosaur egg was soft-shelled.

The calcified, hard-shelled dinosaur egg evolved independently at least three times throughout the Mesozoic era, explaining the bias towards eggshells of derived dinosaurs in the fossil record.

Legendre, L.J., et al (2020) **A giant soft-shelled egg from the Late Cretaceous of Antarctica.** NATURE 583:411-414

Authors' abstract: *Egg size and structure reflect important constraints on the reproductive and life-history characteristics of vertebrates. More than two-thirds of all extant amniotes lay eggs.*

During the Mesozoic era (around 250 million to 65 million years ago), body sizes reached extremes; nevertheless, the largest known egg belongs to the only recently extinct elephant bird, which was roughly 66 million years younger than the last non-avian dinosaurs and giant marine reptiles.

Here we report a new type of egg discovered in nearshore marine deposits from the Late Cretaceous period (roughly 68 million years ago) of Antarctica. It exceeds all non-avian dinosaur eggs in volume and differs from them in structure. Although the elephant bird egg is slightly larger, its eggshell is roughly five times thicker and shows a substantial prismatic layer and complex pore structure.

By contrast, the new fossil, visibly collapsed and folded, presents a thin eggshell with a layered structure that lacks a prismatic layer and distinct pores, and is similar to that of most extant lizards and snakes (Lepidosauria).

The identity of the animal that laid the egg is unknown, but these preserved morphologies are consistent with the skeletal remains of mosasaurs (large marine lepidosaurs) found nearby. They are not consistent with described morphologies of dinosaur eggs of a similar size class.

Phylogenetic analyses of traits for 259 lepidosaur species plus outgroups suggest that the egg belonged to an individual that was at least 7 metres long, hypothesized to be a giant marine reptile, all clades of which have previously been proposed to show live birth.

Such a large egg with a relatively thin eggshell may reflect derived constraints associated with body shape, reproductive investment linked with gigantism, and lepidosaurian viviparity, in which a 'vestigial' egg is laid and hatches immediately.

Chiarenza, A.A., et al (2020) **Asteroid impact, not volcanism, caused the end-Cretaceous dinosaur extinction.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 117:17084-17093 (available as a free pdf)

[Two events occurred at the extinction of dinosaurs, an asteroid impact and flood lavas known as the Deccan Traps. The Deccan lavas were the largest known eruption of lava, 2 km thick and covering 500,000 km^2. They heated up Earth considerably but the question is whether they were responsible for the mass extinction, even in part.]

Authors' abstract: *We present a quantitative test of end-Cretaceous extinction scenarios and how these would have affected dinosaur habitats. Combining climate and ecological modeling tools, we demonstrate a substantial detrimental effect on dinosaur habitats caused by an impact winter scenario triggered by the Chicxulub asteroid.*

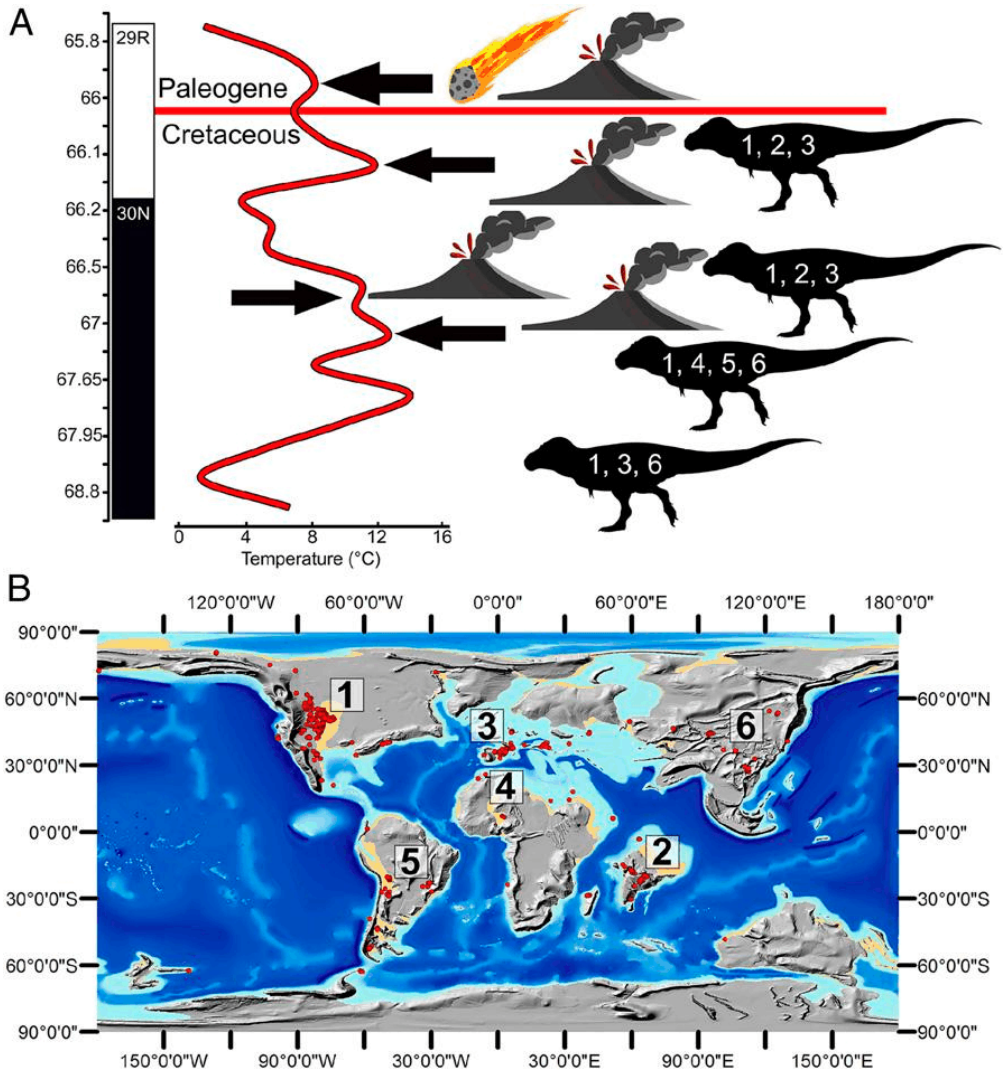
We were not able to obtain such an extinction state with several modeling scenarios of Deccan volcanism. We further show that the concomitant prolonged eruption of the Deccan traps might have acted as an ameliorating agent, buffering the negative effects on climate and global ecosystems that the asteroid impact produced at the Cretaceous-Paleogene boundary.

The Cretaceous-Paleogene mass extinction, 66 megayears ago, included the demise of non-avian dinosaurs. Intense debate has focused on the relative roles of Deccan volcanism and the Chicxulub asteroid impact as kill mechanisms for this event. Here, we combine fossil occurrence data with paleoclimate and habitat suitability models to evaluate dinosaur habitability in the wake of various asteroid impact and Deccan volcanism scenarios.

Asteroid impact models generate a prolonged cold winter that suppresses potential global dinosaur habitats. Conversely, long-term forcing from Deccan volcanism (carbon dioxide [CO_2]-induced warming) leads to increased habitat suitability.

Short-term (aerosol cooling) volcanism still allows equatorial habitability. These results support the asteroid impact as the main driver of the non-avian dinosaur extinction. By contrast, induced warming from volcanism mitigated the most extreme effects of asteroid impact, potentially reducing the extinction severity.

[Image is from this paper.]



Davis, A.L., et al (2020) **Ultra-black camouflage in deep-sea fishes.** CURRENT BIOLOGY 30:doi.org/10.1016/j.cub.2020.06.044 (available as a free pdf)

Authors' abstract: *At oceanic depths >200 m, there is little ambient sunlight, but bioluminescent organisms provide another light source that can reveal animals to visual predators and prey. Transparency and mirrored surfaces,*

common camouflage strategies under the diffuse solar illumination of shallower waters, are conspicuous when illuminated by directed bioluminescent sources due to reflection from the body surface.

Pigmentation allows animals to absorb light from bioluminescent sources, rendering them visually undetectable against the dark background of the deep sea. We present evidence suggesting pressure to reduce reflected bioluminescence led to the evolution of ultra-black skin (reflectance <0.5%) in 16 species of deep-sea fishes across seven distantly related orders.

Histological data suggest this low reflectance is mediated by a continuous layer of densely packed melanosomes in the exterior-most layer of the dermis and that this layer lacks the unpigmented gaps between pigment cells found in other darkly colored fishes.

Using finite-difference, time-domain modeling and comparisons with melanosomes found in other ectothermic vertebrates, we find the melanosomes making up the layer in these ultra-black species are optimized in size and shape to minimize reflectance. Low reflectance results from melanosomes scattering light within the layer, increasing the optical path length and therefore light absorption by the melanin.

By reducing reflectance, ultra-black fish can reduce the sighting distance of visual predators more than 6-fold compared to fish with 2% reflectance. This biological example of efficient light absorption via a simple architecture of strongly absorbing and highly scattering particles may inspire new ultra-black materials.

Gladysheva, O.G. (2020) **Swarm of fragments from the Tunguska event.** MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 496:1144-1148

Author's abstract: *The Tunguska event took place on 1908 June 30. It was accompanied by an abnormal effect on the Earth's atmosphere, manifesting itself through 'white nights'. These nights were associated with a dispersion of cosmic matter and the formation of a field of noctilucent clouds with a uniquely large size of over 10 million km^2. However, overall, the cosmic matter was scattered over a territory of around 18 million km^2.*

The most likely cause of the Tunguska event was the flux of fragments from the broken-up cometary object. The destruction of the cosmic body over Siberia, according to local inhabitants, was marked by numerous sound phenomena.

After analysing eyewitness accounts, we can conclude that there were at least two major objects at the Tunguska event. The largest object exploded over the taiga and caused damage to the forest. In addition, there were several dozen fragments of around 10 metres in size, as well as many fragments of a smaller size.

Shillito, L.M., et al (2020) **Pre-Clovis occupation of the Americas identified by human fecal biomarkers in coprolites from Paisley Caves, Oregon.** SCIENCE ADVANCES 6:eaba6404 (available as a free pdf)

Authors' abstract: *When and how people first settled in the Americas is an ongoing area of research and debate. The earliest sites typically only contain lithic artifacts that cannot be directly dated. The lack of human skeletal remains in these early contexts means that alternative sources of evidence are needed. Coprolites, and the DNA contained within them, are one such source, but unresolved issues concerning ancient DNA taphonomy and potential for contamination make this approach problematic.*

Here, we use fecal lipid biomarkers to demonstrate unequivocally that three coprolites dated to pre-Clovis are human, raise questions over the reliance on DNA methods, and present a new radiocarbon date on basketry further supporting pre-Clovis human occupation.

It is largely, but not entirely, accepted by the archaeological community that people first settled the Americas before Clovis, which was seen as the earliest technological tradition on the continent for most of the 20th century, dating to 11,500 radiocarbon years before the present (14C yr B.P.) However, many questions still remain over who the earliest settlers were, when they arrived, and what route they took.

Human occupation at Paisley Caves is now proven to 12,200 14C yr B.P. using fecal lipid biomarkers. Coprolites 194 and 280 are the oldest coprolites determined to be unequivocally human based on fecal biomarker analysis, a methodology that bypasses current uncertainties surrounding mtDNA.

These coprolites also show agreement between both mtDNA and fecal biomarker analyses. Fecal lipid biomarkers offer access to hitherto unknown (or at best, uncertain) information, adding to the growing body of evidence that is helping to build a picture of not only when and by what route people arrived but also how these people adapted to diverse landscapes across the continent.

Ioannidis, A.G., et al (2020) **Native American gene flow into Polynesia predating Easter Island settlement.** NATURE 583:572-577

Authors' abstract: *The possibility of voyaging contact between prehistoric Polynesian and Native American populations has long intrigued researchers. Proponents have pointed to the existence of New World crops, such as the sweet potato and bottle gourd, in the Polynesian archaeological record, but nowhere else outside the pre-Columbian Americas, while critics have argued that these botanical dispersals need not have been human mediated.*

The Norwegian explorer Thor Heyerdahl controversially suggested that prehistoric South American populations had an important role in the settlement of east Polynesia and particularly of Easter Island (Rapa Nui). Several limited molecular genetic studies have reached opposing conclusions, and the possibility continues to be as hotly contested today as it was when first suggested.

Here we analyse genome-wide variation in individuals from islands across Polynesia for signs of Native American admixture, analysing 807 individuals from 17 island populations and 15 Pacific coast Native American groups. We find conclusive evidence for prehistoric contact of Polynesian individuals with Native American individuals (around AD 1200) contemporaneous with the settlement of remote Oceania.

Our analyses suggest strongly that a single contact event occurred in eastern Polynesia, before the settlement of Rapa Nui, between Polynesian individuals and a Native American group most closely related to the indigenous inhabitants of present-day Colombia.

Mühlemann, B., et al (2020) **Diverse variola virus (smallpox) strains were widespread in northern Europe in the Viking Age.** SCIENCE 369:doi.org/10.1126/science.aaw8977

Authors' abstract: *Humans have a notable capacity to withstand the ravages of infectious diseases. Smallpox killed millions of people but drove Jenner's invention of vaccination, which eventually led to the annihilation of this virus, declared in 1980. To investigate the history of smallpox, Mühlemann et al. obtained high throughput shotgun sequencing data from 1,867 human remains ranging from >31,000 to 150 years ago.*

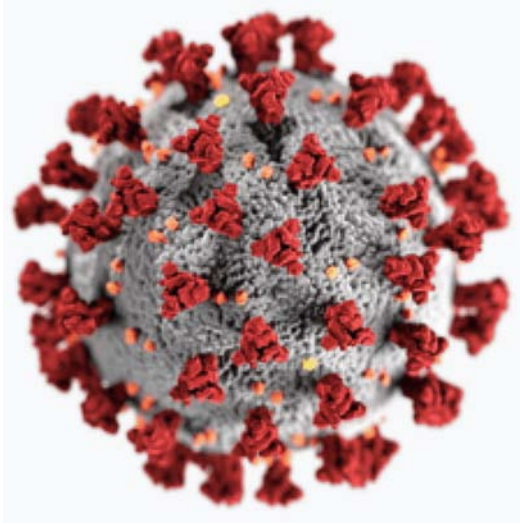
Thirteen positive samples emerged, 11 of which were northern European Viking Age people (6th to 7th century CE). Although the sequences were patchy and incomplete, four could be used to infer a phylogenetic tree. This showed distinct Viking Age lineages with multiple gene inactivations. The analysis pushes back the date of the earliest variola infection in humans by ~1000 years and reveals the existence of a previously unknown virus clade.

Variola virus (VARV), the causative agent of smallpox, is estimated to have killed between 300 million and 500 million people in the 20th century and was responsible for widespread mortality and suffering for at least several preceding centuries. Humans are the only known host of VARV, and smallpox was declared eradicated in 1980. The timeline of the emergence of smallpox in humans is unclear.

Based on sequence data up to 360 years old, the most recent common ancestor of VARV has been dated to the 16th or 17th century. This contrasts with written records of possible smallpox infections dating back at least 3,000 years and mummified remains suggestive of smallpox dating to 3,570 years ago.

The Viking Age sequences reported here push the definitive date of the earliest VARV infection in humans back by ~1,000 years. These sequences, combined with early written records of VARV epidemics in southern and western Europe, suggest a pan-European presence of smallpox from the late 6th century.

The ancient viruses are part of a previously unknown, now-extinct virus clade and were following a genotypic evolutionary path that differs from modern VARV. The reduction in gene content shows that multiple combinations of active genes have led to variola viruses capable of circulating widely within the human population.



Bonaccorsi, G., et al (2020) **Economic and social consequences of human mobility restrictions under COVID-19.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 117:15530-15535 (available as a free pdf)

Authors' abstract: *In response to the coronavirus disease 2019 (COVID-19) pandemic, several national governments have applied lockdown restrictions to reduce the infection rate. Here we perform a massive analysis on near real-time Italian mobility data provided by Facebook to investigate how lockdown strategies affect economic conditions of individuals and local governments.*

We model the change in mobility as an exogenous shock similar to a natural disaster. We identify two ways through which mobility restrictions affect Italian citizens. First, we find that the impact of lockdown is stronger in municipalities with higher fiscal capacity. Second, we find evidence of a segregation effect, since mobility contraction is stronger in municipalities in which inequality is higher and for those where individuals have lower income per capita.

Our results highlight both the social costs of lockdown and a challenge of unprecedented intensity. On the one hand, the crisis is inducing a sharp reduction of fiscal revenues for both national and local governments; on the other hand, a significant fiscal effort is needed to sustain the most fragile individuals and to mitigate the increase in poverty and inequality induced by the lockdown.

Liu, F., et al (2020) **Abrupt decline in tropospheric nitrogen dioxide over China after the outbreak of COVID-19.** SCIENCE ADVANCES 6:doi.org/10.1126/sciadv.abc2992 (available as a free pdf)

Authors' abstract: *China's policy interventions to reduce the spread of the coronavirus disease 2019 have environmental and economic impacts. Tropospheric nitrogen dioxide indicates economic activities, as nitrogen dioxide is primarily emitted from fossil fuel consumption.*

Satellite measurements show a 48% drop in tropospheric nitrogen dioxide vertical column densities from the 20 days averaged before the 2020 Lunar New Year to the 20 days averaged after. This is 21% ± 5% larger than that from 2015–2019.

We relate this reduction to two of the government's actions: the announcement of the first report in each province and the date of a province's lockdown. Both actions are associated with nearly the same magnitude of reductions. Our analysis offers insights into the unintended environmental and economic consequences through reduced economic activities.

Gonzalez-Reiche, A.S., et al (2020) **Introductions and early spread of SARS-CoV-2 in the New York City area.** SCIENCE 369:297-301 (available as a free pdf)

Authors' abstract: *New York City has emerged as one of the epicenters of the current severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic. To identify the early transmission events underlying the rapid spread of the virus in the NYC metropolitan area, we sequenced the virus that causes coronavirus disease 2019 (COVID-19) in patients seeking care at the Mount Sinai Health System.*

Phylogenetic analysis of 84 distinct SARS-CoV-2 genomes indicates multiple, independent, but isolated introductions mainly from Europe and other parts of the United States. Moreover, we found evidence for community transmission of SARS-CoV-2 as suggested by clusters of related viruses found in patients living in different neighborhoods of the city.