

OPUNTIA 474



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: Horse sculptures in front of a brand-new office building on 6 Street SW in the Beltline district of central Calgary. Construction was completed just in time for the coronavirus pandemic. Estimates are that Calgary has a 40% vacancy rate for commercial property.





CURRENT EVENTS

by Dale Speirs













I regularly check Project Gutenberg (www.gutenberg.org) for recently added books or magazines, which could be anything from antiquity to 1960s pulp magazines.

On the opening page, their Website has a What's New section, as well as a Trending section.

A JOURNAL OF THE PLAGUE YEAR (1722) by Daniel Defoe suddenly jumped into the Top Five downloads for reasons that do not need explaining. The book is available free in a variety of formats. Well recommended and still useful reading three centuries later.

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The subject was a dramatized account of the plague in London, England, which began in late 1664 and peaked the following year. The narrative was astonishingly similar to that of the COVID-19 coronavirus pandemic, which began in late 2019 and peaked the following year (we hope).

To quote Defoe: *I have set this particular down so fully, because I know not but it may be of moment to those who come after me, if they come to be brought to the same distress, and to the same manner of making their choice. Therefore I desire this account may pass with them rather for a direction to themselves to act by than a history of my actings, seeing it may not be of one farthing value to them to note what became of me.*

Litera scripta manet.

Defoe wrote of how the plague began slowly, afflicting a few people in two of London's parishes. There was an initial flutter of alarm which subsided after nothing further happened. Then the plague reappeared, but the reported burials and parishes were few.

Soon the toll began to climb. The citizens eventually realized that many deaths were deliberately obscured by claiming the victim died of some other cause. The number of burials could not be hidden whatever the cause. Parishes that normally buried 10 people a week began burying 50, then 200.

The disease spread from parish to parish. The government tried to keep a lid on the statistics, and soon no one believed them. Once it became obvious that the plague was general throughout the city, the panic began. Wealthy citizens loaded their goods into wagons and fled for their country homes. Horses were suddenly worth their weight in gold. A shortage developed because those who left the city did not return the horses.

Travelers had to obtain certificates of health before departing, as other towns would not accept them without one. Travel was restricted, and outlanders were shunned. Defoe dithered about whether to flee, as his brother did, or stay in London and shelter in place. He finally chose to stay.

Defoe noted psychological depression among those who remained. Pedestrians walked in the middle of the street to avoid contact with shopkeepers and house occupants. The plague triggered an economic collapse among the non-essential trades. Public gatherings were banned. Theatres and music halls closed.

Fraudulent preventatives and cures for the plague were peddled hither and yon. Defoe wrote: *On the other hand it is incredible and scarce to be imagined, how the posts of houses and corners of streets were plastered over with doctors' bills and papers of ignorant fellows, quacking and tampering in physic, and inviting the people to come to them for remedies, which was generally set off with such flourishes as these, viz.: 'Infallible preventive pills against the plague.' 'Neverfailing preservatives against the infection.' 'Sovereign cordials against the corruption of the air.' ... and such a number more that I cannot reckon up; and if I could, would fill a book of themselves to set them down.*

In the year of the coronavirus, we did not have such things. No indeed, because instead we had Internet social media, radio talk shows, and presidential tweets to keep us informed of infallible pills.

The London government began issuing quarantine orders against streets, not just houses, where the disease had entered. Non-essential businesses were ordered closed. Clean sanitation measures were enacted. Disinfectants were unknown then, but the constant washing with clean water certainly helped.

Defoe didn't mention toilet paper but remarked that he and many others were caught off guard without stored food. *I must here take further notice that nothing was more fatal to the inhabitants of this city than the supine negligence of the people themselves, who, during the long notice or warning they had of the visitation, made no provision for it by laying in store of provisions, or of other necessities, by which they might have lived retired and within their own houses, as I have observed others did, and who were in a great measure preserved by that caution.*

Curb-side delivery is nothing new, for during the 1665 plague the Lord Mayor caused the country people who brought provisions to be stopped in the streets leading into the town, and to sit down there with their goods, where they sold what they brought, and went immediately away.

Most of the book is taken up by anecdotes and observations of how the people reacted to the plague. Some did their best and others displayed their worst. Defoe did not pass judgement against those who failed. He wrote: *A plague is a formidable enemy, and is armed with terrors that every man is not sufficiently fortified to resist or prepared to stand the shock against.*

A
JOURNAL
OF THE
Plague Year:
BEING
Observations or Memorials,
Of the most Remarkable
OCCURRENCES,
As well
PUBLICK as PRIVATE,
Which happened in
L O N D O N
During the last
GREAT VISITATION
In 1665.

Written by a CITIZEN who continued all the
while in London. Never made publick before

L O N D O N :
Printed for E. Nutt at the Royal-Exchange; J. Roberts
in Warwick-Lane; A. Dodd without Temple-Bar;
and J. Graves in St. James's-street. 1722.

SHERLOCKIANA: PART 33
by Dale Speirs

[Part 32 appeared in OPUNTIA #470.]

The original Sherlock Holmes stories written by Sir Arthur Conan Doyle are referred to as the canon, while stories written by other authors are called pastiches.

Old-Time Radio.

Sherlock Holmes was very successful on radio. He aired on several networks with several sets of actors from 1930 to 1956, basically encompassing the entire life span of old-time radio. Basil Rathbone and Nigel Bruce had a long run, but others played the parts before and after. (These and other old-time radio shows are available as free mp3s from www.archive.org or www.otrrlibrary.org.)

“The Black Angus” was a 1946 episode. Credit was given to actors but no writer. Being an old cowhand from the Red Deer River, I downloaded this thinking it had to do with the cattle breed. Och aye, it were only the name of a Scot, d’ye ken.

The episode opened at 221B where Miss Victor, a bride jilted at the altar by her intended David Mackinnon, tearfully poured out her story. He had disappeared to Scotland without telling her. Holmes and Watson headed north on the Scottish Express.

En route, Holmes lectured Watson on the history of David’s family, going back to Wolfhound Mackinnon of the 14th Century, alleged to be a werewolf. The men down through history were a quarrelsome lot. The present-day laird, David’s father, was known as Black Angus for his bad temper.

Upon arrival, Holmes and Watson chatted with local citizens in the pub. Bad mojo up at Mackinnon Castle. Someone was killing sheep dogs, slashing their throats and leaving the corpses on the moors. Black Angus was seen galloping across the moors at night on his black horse. Scots don’t actually bwah-ha!-ha! but you get the idea.

The Baker Street duo headed up to the castle. Along the roadside they found another sheep dog with its throat torn out and human teeth marks on it. The

laird would not receive them, but David did. He was abrupt and said he wanted nothing more to do with Miss Victor. On that note, they left.

Circling round to the trades entrance, they disguised themselves as plumbers. Holmes pointed out old castles always have something wrong with the drains, a logical deduction beyond refutation. That got them inside the castle with no questions asked by the staff. Snooping about the stately pile, they confronted Black Angus, who was understandably angry at seeing the intruders.

They found him preparing to commit suicide, thinking that he had been the werewolf killing the sheep dogs. He had asked David to return rather than have an innocent woman like Miss Victor drawn in. They convinced him to allow an investigation to find out who was behind a plot to deceive him.

Searching the castle, they found the hideaway. It was a plan by a cousin named Humphries to usurp the estate. The rest of the alarms and excursions were pro forma. Humphries was run to earth. He gloated that they couldn’t convict him for anything worse than killing a few dogs.

He reckoned without an angry mob of villagers suddenly appearing outside the castle walls, waving torches about in the finest tradition of any Gothic movie you ever saw. Humphries confessed all rather than be thrown to the mob. The wedding was held with Holmes as best man. An abrupt finish.

“The Original Hamlet” aired in 1946. Holmes and Watson saw a man deliberately run down by a carriage, but he survived without harm. Holmes had an urgent appointment at Scotland Yard and didn’t stay. Watson attended the injured man and helped him up from the pavement.

Franklin Burleigh, as he was, thanked the doctor for quickly checking him over and offered him a drink at the pub across the street. “*That’s the quickest fee I ever received*” said Watson. Burleigh told him someone had pushed him. Further, it was the latest in a series of suspicious accidents that had befallen him. He attributed it to The Ghost of the Burleighs (one can hear him pronounce the capital letters).

He said he had recently inherited the Burleigh library and therein had seen the ghost. The genesis of the library dated back to Henry VIII, when it was stolen from a monastery. The abbot had resisted the thieves and been killed. the ghost’s description matched Prof Moriarty, as any Sherlockian would guess.

When Holmes was told the story, they went off to the Burleigh manor in Cornwall. Like any good manor in that district, it perched on a cliff above smugglers caves and jagged rocks. Walking to the manor, Holmes and Watson met a half-witted boy roaming the moor. Once inside the big house, Franklin's son Steven and daughter-in-law Lyla showed them the library.

The library had never been catalogued. Steven mentioned he had looked into an old folio of HAMLET which varied from the play he knew. The listener did not have to be a book collector to guess that it was a treasure, and was probably what Moriarty had been searching for.

Holmes knew the book was what is referred to as the ur-Hamlet, a play by Thomas Kyd which Shakespeare used as a basis for his version. As Holmes mentioned, no extant copy was known, so it would be priceless. (A quick Google check revealed that even today the ur-Hamlet has never been found. It is known to have existed because book reviewers in the 1600s mentioned it.)

Franklin had gone out for a hike along the cliff edge, which sent Holmes and Watson after him for fear of what Moriarty might do. Strangely, he didn't fall off the cliff but was blown apart by a bomb hidden in Franklin's lunch box. The police latched on to Lyla as the obvious suspect. She may not have been guilty of murder but the actress who played her was certainly guilty of over-acting.

After the police carted her away, Holmes told Steven that he suspected Lyla was the one who had called in Moriarty. The halfwit was probably dead as well. Holmes, Watson, and Burleigh went out to the cliff and found a path down to a cave. Therein was the ur-Hamlet and other books.

Also in the cave was Franklin, who had used the halfwit as the bomb victim so he could disappear. He hated his daughter-in-law, and the thought of her giving him grandchildren drove him to the scheme. He fell in with Moriarty for the elaborate plan. The sale of the books would allow Franklin sufficient funds to start a new life elsewhere.

Moriarty arrived but upon seeing Holmes, shot Franklin. He knew he was dying, so he grabbed the ur-Hamlet and threw himself into the sea. The loss of the one didn't matter but the other was a great tragedy.

"The Everblooming Roses" was a 1948 episode, no writer credited although everyone else was. It was set in the early 1900s after Holmes had retired to

Sussex. Watson had gone down to visit him. The vicar came tearing up to the cottage in his newfangled horseless carriage to consult with Holmes over a local mystery.

Someone had been placing fresh yellow roses on the grave of the late Lady Alfrieda every morning and ringing the bells in a nearby bell tower which had supposedly been knocked out of commission by five years prior by a lightning strike. She had been Sir Albert Bainsfield's first wife. He had replaced her with a trophy wife named May. He hadn't replaced the elderly gardener Hugo, who had maintained the yellow roses on the manor grounds that were Alfrieda's favourites.

Lady Alfrieda had drowned, supposedly a suicide. Sir Albert had been disappointed there were no children to carry on, nor had May given him any. He had a young half-brother Robert who had just returned from Canada a few weeks past.

Holmes and Watson waited out the midnight hour in the church but the roses were replenished and the bells rung without them seeing who did the deeds. The next day May told them she had been having nightmares about Lady Alfrieda.

Holmes concluded that illusionist tricks were used to pull off the stunts. May was still in danger. A few alarms later, there was a contretemps down by the old mill stream where Lady Alfrieda had died and where May almost died had Robert not saved her. Sir Albert was the guilty man but was shot dead with his own gun as he lay in wait for May.

Holmes and Watson were suspicious as to who did away with Sir Albert but were content to let the coroner bring in a verdict of accidental shooting. Not for the first time, Holmes concluded that justice had been served, in which case why bother bringing anything to court. Hugo seemed guilty, but why bother an elderly man who brought justice to the situation.

Movies.

Sherlock Holmes was popular in movies as soon as they were invented. In the canon, Holmes and Watson were young men, but because most of the actors who played them were middle-aged or even elderly, that was the impression the public had of them for decades. Since the turn of the Millennium, a number of

movies and television shows have depicted them at younger age. All the old black-and-white movies are in the public domain, and there are many DVD box sets of them available. The movies mentioned here are from a metal box set issued by Allegro Corporation, titled “Best Of Sherlock Holmes Collection”.

TERROR BY NIGHT (1946) was a pastiche movie written by Frank Gruber. It took bits and pieces of various canon stories and wedged them into an Orient Express format. The MacGuffin of the plot was a diamond called the Star of Rhodesia. For no good reason it was being taken from London to Edinburgh on the Scotch Express train.

Basil Rathbone was Sherlock Holmes again, entrusted to protect the diamond. Nigel Bruce played Dr Watson as the idiot in his usual style. Inspector Lestrade was aboard the train to provide an official presence.

Professor Moriarty was announced as “*the late and unlamented*” by Holmes. His 2-in-C Colonel Sebastian Moran was the villain of the movie. Assisting Moran was his henchwoman Vivian Vadder. Like any train mystery movie you ever saw, the supporting characters were a shifty lot, the better to spread suspicion around and keep Holmes busy detecting.

There was a fake diamond as a decoy, and both stones changed hands several times. Moran was in disguise and Vadder just vamped. Assorted murders and alarums kept everyone on the train in an agitated condition. The diamond made it safely to Edinburgh as we knew it would, although half the supporting cast didn’t.

The movie was reasonably good watching. As a standard action adventure, it moved along briskly and was entertaining enough to be worthwhile.

DRESSED TO KILL (1946) was a movie pastiche written by Leonard Lee and Frank Gerber. The original British title was SHERLOCK HOLMES AND THE SECRET CODE. For North American distribution, Universal Studios changed the title, a senseless act as the replacement title had nothing to do with the plot.

The first part of the movie was a MacGuffin chase after three music boxes, sold separately to three different buyers. Subsequently their average life expectancy dropped to zero, as someone was after the boxes. Eventually it transpired that each box contained one-third of a secret message played in musical code.

Moriarty and Moran having been disposed of in previous movies in this series, the new villainess was Hilda Courtney. She wasn’t entirely an Irene Adler but came close to her, constantly outsmarting Holmes.

The creator of the music boxes was a long-term resident in Dartmoor Prison, working in a shop that made items to be sold for charity. He had stolen from the Bank of England the printing plates for £5 banknotes, then hidden them somewhere in London before being arrested. He handmade the boxes in the prison shop and used them to communicate with Courtney and her gang.

If Courtney and her counterfeiters located the printing plates and began churning out perfect £5 notes, the economy would collapse. Nonsense of course, as in real life the Bank would simply issue a new design of currency.

Courtney solved the code first and found the plates hidden in a museum, Samuel Johnson’s house. Holmes and the police were hot on their heels and caught them just as they extracted the printing plates from behind Johnson’s bookcase.

A passable movie but the plot was way too elaborate. Too many wild premises and suppositions. This was the final movie pairing Basil Rathbone and Nigel Bruce. They were tired old men and it showed.

Television.

In 1954 and 1955, a television series SHERLOCK HOLMES was aired on NBC. It was written and produced by Sheldon Reynolds in France, where production costs were much lower. Ronald Howard was Holmes and H. Marion Crawford played Watson. Howard was relatively young and fit the canon better than the more famous Rathbone. Crawford was well into middle age but played Watson as an intelligent man, not the blithering idiot that Nigel Bruce did.

The episodes are in the public domain and therefore available in several different box sets. The collection I’ll cite here is from a metal box set issued by Allegro Corporation, titled “Best Of Sherlock Holmes Collection”.

Most of the episodes were pastiches but some were based on canon stories, however loosely. Interestingly there was some continuity between episodes when characters referred back to previous events. That was unusual for the times, as most television shows were zero-reset.

“The Case Of The Winthrop Legend” (1954) was written by Sheldon Reynolds and Harold Jack Bloom, who borrowed heavily from the canon story “The Five Orange Pips”. In this version, those who were about to die received silver coins instead of dried orange seeds.

Harvey Winthrop called upon Holmes and Watson at 221B. He explained that his older brother John had been threatened and explained the legend of the coins. John pish-poshed the idea and re-opened Winthrop Hall after a 30-year closure.

What worried Harvey was that if John died, suspicion would fall upon him for pruning the family tree to get the inheritance. Holmes wasn’t too thrilled about staying in a drafty mansion that hadn’t been inhabited in three decades, but he took the case.

John’s wife Alice was a blind woman. She and her husband looked familiar, and indeed they had played supporting parts in previous episodes. If you binge watch this series on DVD, you’ll see familiar faces playing repertoire in various episodes. They did stick to the same types of characters though. Once a lord, always a lord, once the lady of the house, always the lady, and once the sneaky shift-eyed pencil-moustache little git, etcetera.

Harvey’s fiancée Margaret ‘Peg’ Hall completed the ensemble. There were no servants lurking about the manor since the Winthrops hadn’t yet had a chance to hire any. John got his silver coin just before dinner. Just after dinner he got his neck broken in a fall down the stairs. You know what those manor house stairs are like. Once you trip, you’ll roll down them for several minutes before hitting bottom.

Holmes didn’t believe it was a fall because John’s neck was smashed by a blunt instrument, not broken. Holmes suspected Peg. Harvey broke off the engagement and told Peg he was really in love with Alice. That miffed Peg to no end because she had murdered John to get closer to the inheritance via Harvey.

Now, just when she had it within her grasp, it was yanked away from her. She told Holmes no court would convict her, with which he agreed, but reminded her that justice was often served in other ways. Peg stormed out of the drawing room and went up the stairs to her room. Alice was waiting for her at the top of the stairs, to serve her justice in the same way as John died.

“The Case Of The Royal Murder” (1955) was a pastiche written by Charles and Joseph Early. It began with Holmes and Watson relaxing on vacation in a minor Balkan kingdom. They had been invited by King Conrad to a select banquet of royalty, including Prince Stephan, son of King Johan, from a neighbouring kingdom.

Other characters included Conrad’s aide, Count Magor. Princess Antonia was Stephan’s wife. She was from a third Balkan country, of royal descent but not of the reigning line and definitely impoverished. Conrad, Stephan, and Magor had all competed for her affections in the past.

A good time was had by all, except Prince Stephan, who died after sipping from a glass of poisoned wine. His father King Johan was a belligerent man who had been spoiling for trouble. War between the two countries seemed likely, so King Conrad appealed to Holmes to solve the case.

Every cliché of Balkan life was dragged in from the early 1900s. The gypsy fortune teller who forecast doom after reading Stephan’s palm. Sword fights with rapiers. The Princess slunk about, and that is the correct verb, up to something. She was ambitious for a throne. Having lost Stephan, she made a play for Conrad, without bothering about mourning.

When Holmes told King Conrad he wasn’t there to do a coverup, the King had him and Watson arrested. “*We’re British subjects!*”, Watson indignantly shouted. Replied Count Magor, as his guards led them away, “*At the moment that is not too important.*”

They weren’t in a jail cell long and broke for freedom. After a sword fight, Magor was exposed as a spy for Prince Stephan. Magor blabbed all just as King Johan arrived to claim his son’s body. Peace in our time. The plot was predictable, although there was minor doubt as to the culprit. Watchable on a rainy Sunday afternoon with nothing else to do.

THEY SHALL MOVE OUT OF THEIR HOLES LIKE WORMS OF THE EARTH: PART 9

by Dale Speirs

[Parts 1 to 8 appeared in OPUNTIA's #307, 308, 331, 347, 390, 399, 415, and 439.]

Non-Fiction.

HOLLOW EARTH (2006) by David Standish reviewed the history of the idea that Earth might be hollow. Since human societies everywhere saw caves or deep fissures in the ground, the idea of an underworld is as old as civilization. However, the idea of a Hollow Earth is only a few centuries old, as it had to wait for the expansion of European explorers over the planet.

Rational science didn't develop until the 1600s, when natural philosophy became science and discarded alchemy, astrology, and here-be-monsters. Hollow Earths made the transition, in the absence of evidence disproving them, by relying on newborn sciences such as geology and chemistry.

The first major attempt to put Hollow Earth on a scientific basis was by Edmond Halley, after whom the comet was named. Most of Earth being known and mapped, the only terra incognita available were the North and South Poles, which is why they became so popular as entrances into the hollow world below.

The next big thing in Hollow Earth theory came in 1818, when an American named Capt. John Cleves Symmes put out a request for funds to launch an expedition to the North Pole, where he felt confident that the entrance to Hollow Earth existed. No one has been able to discover how he became interested in the idea, but he was obsessed and for that is remembered today.

In Symmes' time, the race for the Northwest Passage was underway, a shortcut between Europe and Asia over the North Pole. He was therefore treated with more respect than might have been otherwise. He published in 1820 what was not only the first Hollow Earth novel, but the first American utopia novel, SYMZONIA: VOYAGE OF DISCOVERY.

There were many crossovers between polar explorers, Hollow Earth advocates, and novelists. Edgar Allan Poe got into the act, then Jules Verne. Polar expeditions at both ends of the planet destroyed any scientific basis for Hollow Earth, due to the inconvenient fact that no openings were found.

Hollow Earths drifted into science fiction and crackpot religions. Edgar Rice Burroughs found a way around the problem by having his heroes drill down into the Hollow Earth. Cyrus R. Teed founded the Koreshan religion, which got around the problem by positing that we were the Hollow Earth and the stars and Sun were on the underside of the enveloping planet.

Ray Palmer, a pulp magazine editor, extolled the Shaver Mystery, an underground world written up by Richard S. Shaver, who seemed to believe it. Hollow Earth was a staple of B-movies. It has died out with modern geology, but was fun while it lasted.

Down Below In Fiction.

In the early 1900s many cave systems were discovered or were being explored on a more scientific basis, such as the Carlsbad Cavern of New Mexico and the Mammoth Caves of Kentucky. Those caves inspired many stories.

"The Abysmal Invaders" by Edmond Hamilton (1929-06, WEIRD TALES, available from www.archive.org as a free pdf) began with a palaeontologist Dr Walter Morton visiting an Illinois swamp and discovering the entrance to an underground civilization of lizard men and dinosaurs. That got them stirred up.

They had been using the energy of lava to sustain their world, but the surface seemed easier pickings. They swarmed out of their holes, not on worms but riding sauropods. Whatever they couldn't destroy or kill with weapons was trampled underfoot by the big beasts.

Morton and company figured the best method of stopping the invasion was at the source. After many an alarm, they managed to blow up the cave in the swamp from whence issued the lizard men. They cracked the lava containment walls so that the underground world was flooded with lava. That destroyed any hope of scientific analysis but you can't have everything.

"The Cave Of Horror" by S.P. Meek (1930 January, ASTOUNDING, available from www.archive.org as a free pdf) was set in Kentucky, where visitors to the Mammoth Cave began disappearing, usually with a scream and a trail of ichor left behind. This was bad for the tourist trade, so the U.S. Bureau of Standards sent in investigators. Yes, them. Apparently their jurisdiction extended further in those days.

The creature, and there was a creature, was invisible except in ultraviolet light. It was squamous and had a batrachian head, with a nod to Lovecraft. No tentacles though, but it was boneless, which enabled it to squeeze through a small crack into the tourist caves. A giant creature, it was nonetheless an infant. The adults, way down below somewhere, were too big to squeeze through.

Its attack failed against phosphorus grenades and cyanide gas, and it slipped back down below out of reach. The crack was sealed with bricks and mortar to prevent it or its parents from returning. Everyone agreed to hush up the story since no one would believe them. These things happen in Kentucky.

“The Troglodytes” by Fred M. Barclay (1930 September, AMAZING STORIES, available from www.archive.org as a free pdf) was about three men floating down a river on a boat tied up for the night and by chance discovered a cave along the banks. They were not in a hurry to get anywhere so they went exploring. They got down deeper than they realized, which wasn’t the trouble in itself, but did prevent an easy escape when the troglodytes got them.

The underground inhabitants were squamous. The troglodytes had technology, since they transported their three captives further down below in a vehicle, and were intelligent enough to communicate with drawings or charades.

They wrote on thin sheets of metal, had an organized society, music, religion, and did medical examinations on the men. A pidgin language was developed for communication. The troglodytes called themselves Ampu. Their domesticated animals included dinner-plate-size spiders who spun cloth.

The Ampu showed the three men their history, painted on the walls of tunnels. They were descended from surface humans, as might be expected, but had been down below long enough to have evolved scales and night vision.

The ending was rushed, as if the writer couldn’t figure out how to end his story and just went with the clichéd angry natives chasing the explorers. One lived to tell the story. The Ampu collapsed the cave entrance to ensure they would not be bothered again.

“Luvium” by A.R. McKenzie (1931 November, AMAZING STORIES) was a standard subterranean civilization discovered by a cave explorer, beautiful princess and the usual etcetera. It was, at least, not a utopian story with one of those smarmy toga-clad guides expounding on the superiority of his world.

There were the usual action-adventure type episodes, but what was moderately more interesting was that instead of living in peace and harmony, different underground cities were at war with each other. They tunneled and counter-tunneled into each other’s cities, fighting in close quarters. Breaches were sealed with big iron doors.

This got me to wondering why human scientists on the Earth’s surface hadn’t noticed the unusual seismic vibrations. With all that drilling and blasting, someone looking at seismometer charts must have wondered about the unusual waves that could not be attributed to moving earthquake faults.

“World Of The Living Dead” by Ed Earl Repp (1932 November and December, AMAZING STORIES) began as a sea story about a scientific survey ship sunk in a storm into a subterranean cave. This led to an underground world of skeleton people, actually ordinary humans whose flesh was made invisible by radium exposure.

At the point the standard lost world story was inserted with all manner of excursions and alarums, dashing young heroes, a maiden in distress, and all that. And ray guns, not to forget them. It ended as you might guess.

By now you might have realized why science fiction got a bad reputation. Prior to Hugo Gernsback, the stories were called scientific romances, were usually well written (excluding dime novels and penny dreadfuls), and often appeared in general fiction magazines.

The pulp era relied on formula but to be fair to the publishers, they were hamstrung by their readers, who gobbled up the stuff. Gresham’s Law applied to the quality of science fiction.

AMAZING STORIES continued to print variations on a theme of underground stories but any reviews of them would be repetitious. Later examples in this pulp included “The Tomb Of Time” by Richard Tooker (1933 March) and “Cavern Of Thunders” by Harl Vincent (pseudonym of Harold Vincent Schoepflin) (1933 July).

Cavemen Need Not Apply.

In a different vein, and a pun was intended here, is the story “Tunnel Number Six” by Eugene C. Derby (1897 June, THE BLACK CAT, available as a free

pdf from www.archive.org). Miners in New South Wales, Australia, were working a magnetite vein of ore when they heard a distant voice seeming to come from behind the ore, calling for help.

Digging in the direction of the voice produced nothing, yet it continued to be heard in the mine. The company had to investigate because they would otherwise not be able to find any miners to work the ore body. Learned savants came and went but found they could not explain the voice. The mine kept operating but the miners would not work the area where the voice was heard, and it became known as the Haunted Vein.

Finally a pair of engineers solved the problem. The rather improbable explanation was that the magnetite vein extended as far as Siberia, to a mine worked by the Tsar's prisoners. Somehow the voice of a prisoner trapped in a cell was transmitted along the vein to Australia. The suggestion was that it was a sort of telephonic communication, remembering that in the 1890s telephones were still cutting edge technology.

ALIEN INVASIONS: PART 4

by Dale Speirs

[Parts 1 to 3 appeared in OPUNTIA #407, 424, and 460.]

Who Goes There? Friend Or Foe?

THE HALL OF FANTASY was an old-time radio anthology series that aired for the 1952-53 season. It is available as free mp3s from www.otrrlibrary.org. The episodes were written by Richard Thorne, who also directed the episodes and often played characters. The shows were a mixture of supernatural and mystery stories.

“The Man From The Second Earth” was a 1953 episode. Carl Rasmussen was a radio astronomer who had located an unusual source of radio beams which he concluded were from an alien being. He was able to decipher the first message as a dot-dash code, and soon was conversing by voice with an alien fluent in English.

The alien said his planet was slowly dying. It was inferred they had space travel, which humans did not (true in 1953). After the final message, everyone began speculating about an imminent invasion on very flimsy evidence.

The aliens landed on Earth. There were some misunderstandings. The farmer who made First Contact out in his field was kidnapped and taken aboard the alien vessel because they wanted to keep their arrival quiet. No indication if the aliens gave the redneck an enema or extracted his DNA as they so often do in our timeline.

The alien arrived at Rasmussen's observatory. It was humanoid. “*I come in peace*”, said the alien, but the Earthlings were nervous. They settled into a house without any publicity. Not long after, the aliens were discovered to be protoplasmic shapeshifters who could and did mimic any human, including Rasmussen.

Paranoia kicked into high gear. There were many alarms and much running about hither and yon. The aliens could not assume the mimicked forms for long, which gave them away. “*But of all the planets in the universe why did they choose ours?*”, said Humphrey Bogart, pardon me, the heroine.

One of the aliens went into a long lecture about how they would rule the world. A scientist got bored listening to the speech and lit a match to smoke a cigarette. That got the interest of the alien, who had never seen fire. The match melted its hand and it rushed off. This gave the Earthlings the idea of how to stop the alien invasion by torching the house.

It also gave me pause because it was stated that the aliens came from a planet similar to Earth, which was why they wanted our planet. Yet there should have been open flame on their planet. A further question was how they built spaceships of refined metal, which would require smelters and ovens to purify and shape the metal.

But it's only sci-fi, said the producer, or probably said, so the plot continued. The house aflame stopped the aliens. Said the hero as they watched the fire consume the aliens: “*What else will come from out of the sky?*” We know the answer, of course: about twenty years of alien invasion B-movies.

Definitely Foe.

“The Dimension Terror” by Edmond Hamilton (1928 June, WEIRD TALES, available as a free pdf from www.archive.org) began with a mad scientist declaring he had found the contact point between Earth and a parallel Earth by analyzing the planet’s magnetic field. He found an anomaly where the two universes touched each other, and with a superscience machine was able to enter the other side.

Trouble was, the other side wanted to do the same thing in reverse. A species of giant beetles cast covetous eyes on our planet. They wrecked human civilization in an instant by bringing to our side an even better ultrascience machine which converted all iron into hydrogen gas.

Since iron has an atomic number of 26, this presumed that 26 atoms of hydrogen were produced for each iron atom. Where the neutrons went was anyone’s guess and certainly not the author’s, as his handwaving explanation of the ultrascience machine indicated that he thought the atom was only composed of electrons.

Be that as it may, a major flaw in the story was that while skyscrapers and machines crumbled away when their iron went poof!, humans still lived. Two of the most vital molecules in our bodies are hemoglobin and myoglobin, essential for oxygen transport and storage, both of which contain iron atoms. If the ultrascience device worked on the entire Earth at once as it did, all humans would have died within seconds. Earth has an iron core, so the entire planet would disintegrate.

Since the ultrascience machine was evidently selective, that gave the hero a chance to sneak up on the beetles, grab the machine, and point it through the contact into their world. Turnabout is fair play wasn’t just a figurative remark. The contact was broken, and both planets were left to rebuild.

“The Winged Peril” by Robert Moore Williams (1952 August, AMAZING STORIES) was about a mutant hive of bees that developed electrical stingers that could quickly recharge. This was not an unreasonable divergence since electric eels and some other animals can fire charges of electricity.

These bees were, however, alien invaders with sapient intelligence. They ganged up to free a trapped bee by cutting a hole in its prison with electrical

arcs. They also realized the best method of disabling humans was to blind them. The initial landing was near a small crevice where the alien bees began building a nest of cylinders and cubes, a miniature city.

Fortunately for the sake of humanity, the heroes managed to destroy the hive. The alien bees had no experience with poison gas fumigation. Pest control with a difference.

From the bargain bin, or at least the 50-movie DVD boxed sets put out by Mill Creek Entertainment was “The Alien Factor”, produced in 1972 but not given theatrical release until 1978. The movie was written and directed by Don Dohler, who specialized in low-budget films that made Ed Wood look good by comparison.

Many of the other movies in the box set “50 Movies Sci-Fi Invasion” are worth watching, but I never went past the first few minutes of this one until the coronavirus pandemic left me bored enough to try this film. The technical quality of the video was reasonably good and most of the SFX were passable for that era except the rubber suit monsters.

The basic plot was an alien spaceship carrying three creatures intended for a zoo crashed on Earth. The critters got loose and the local human population was steadily thinned out. The mayor wanted the news kept quiet because it would be bad for business. I guess it would. The hero finally got all of the specimens and thereby saved the world.

Most of the movie I went through at 16X speed. Anytime the characters met in an office and began explaining the plot to each other in lieu of acting or SFX, then I hit the button.

The soundtrack was experimental and electronic music, circa 1972 and nothing like today’s techno music. The music was almost entirely inappropriate to the scenes and it was obvious the film editor knew nothing about pacing. Bubbly music played during dramatic scenes, while filler and slow-paced scenes had the electronic sounds that make the viewer expect the monster to suddenly pop out of the woodwork in the next few seconds.

The actors droned like they were reading an audiobook. I had forgotten about how men wore bellbottom pants back in the 1970s. I did too. My brother inherited all of our mother’s photo albums, and this movie reminded me that the

next time I'm at his house I'll have to go through them and destroy any photos of me wearing bellbottoms.

One of the Deppity Dawgs drove the mayor around in a Volkswagen Beetle. Every so often a rubber suit came out of the bush and killed someone, or at least scared the bejesus out of them. Rifles and shotguns at point blank range didn't stop them. Pretty tough material, that rubber.

One of the monsters was filmed as a double exposure, so it was transparent. Very difficult for the supporting actor to kill it. Anyone fleeing a monster would trip over their feet at least once and fall heavily to the ground.

The end credits were blurred and out of focus. At first I thought this was sloppy film processing. Now I wonder if the actors wanted them that way on purpose. According to Wikipedia, Dohler never produced another film for eleven years. Too bad it wasn't his final movie.

The only way to watch this film is at a drinking party. I'm a teetotaler so I had to watch it sober. I suggest a drinking game. Chug every time a character trips over his feet fleeing from the monster or whenever a Deppity Dawg fires a rifle at a monster from three paces and still can't hit it.

From the same DVD box set was THE CREEPING TERROR (1963) written by Robert Silliphant and widely considered the second worst science fiction movie ever made, after PLAN 9 FROM OUTER SPACE.

Set in Angel County, California, the movie began with an alien spaceship landing in the countryside. The SFX consisted of stock footage of a Titan missile launch run backwards to look as if it were landing. On the ground it was apparently a cabin cruiser boat with a white tarp over it and a traffic cone for a nose.

The spaceship discharged an alien that looked like a giant caterpillar with a cloth body several metres long. It was obviously two or three men inside to work it like a pantomime horse.

The alien hobbled along slowly but nonetheless managed to gobble up several humans. Any of the victims could have easily sauntered out of its way. Instead they stood there like ninnies and screamed. And to think that creationists don't believe in natural selection.

Frequently a narrator explained the plot, a redundancy since the events were so predictable. Within minutes of notification, an army infantry squad arrived in a 1-ton farm truck. They consisted of a general, a sergeant, and a half-dozen privates. The lieutenant must have been on leave that weekend.

The alien had gone off in search of food, so the soldiers inspected the spacecraft. The interior was lined with voltmeters inscribed in English. Later the alien crashed a dance party in a local community hall. The dancers casually walked out of its way but instead of going for the exits, they herded together in a blind corner. The alien easily corralled them and dined at leisure.

For this movie, the drinking game could be chug-a-lugs every time the alien lumbered up to a human who could have easily walked out of the way. The alien was finally killed when a Deppity Dawg ran over it with his cruiser.

WORLD WIDE PARTY ON JUNE 21

Founded by Benoit Girard (Quebec) and Franz Miklis (Austria) in 1994, the World Wide Party is held on June 21st every year. 2020 will be the 27th year of the WWP. Mark your calendars now!

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

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

Raise a glass, publish a one-shot zine, or do a mail art project for the WWP. Let me know how you celebrated the day.

AROUND COWTOWN
photos by Dale Speirs

I’ve been taking the bus to various parts of Calgary and then walking back home through neighbourhoods that I don’t normally travel through. These mansions are in Mount Royal in central Calgary, on a long hill overlooking the downtown core to the north.

What impressed me the most about the one shown below was how many servants would be needed to keep the place clean. I would be surprised if it had fewer than ten bathrooms. The other side of the mansion has a scenic view of the downtown core. The mansion at right was directly across the street. It is a starter home by comparison. It is as deep as it is wide, which doesn’t show in the photo. It has a scenic view of the big mansion’s driveway.





The central part of Mount Royal was where the old money was, although they were replaced in the 1960s by oil money, and after the Millennium by the high-tech entrepreneurs.

These mansions are older than they look, as pride of ownership meant they were constantly refurbished.

In the Beltline district, which separates Mount Royal from the downtown core, I was startled to find part of the Internet cloud on 11 Avenue SW.



Some murals seen in the Beltline. This one was at 930 - 15 Avenue SW.



17 Avenue SW at 10 Street.



These were both in the 900 block of 16 Avenue SW.



SEEN IN THE LITERATURE

Livermore, P.W., et al (2020) **Recent north magnetic pole acceleration towards Siberia caused by flux lobe elongation.** NATURE GEOSCIENCE 13:doi.org/10.1038/s41561-020-0570-9

Authors’ abstract: *The wandering of Earth’s north magnetic pole, the location where the magnetic field points vertically downwards, has long been a topic of scientific fascination.*

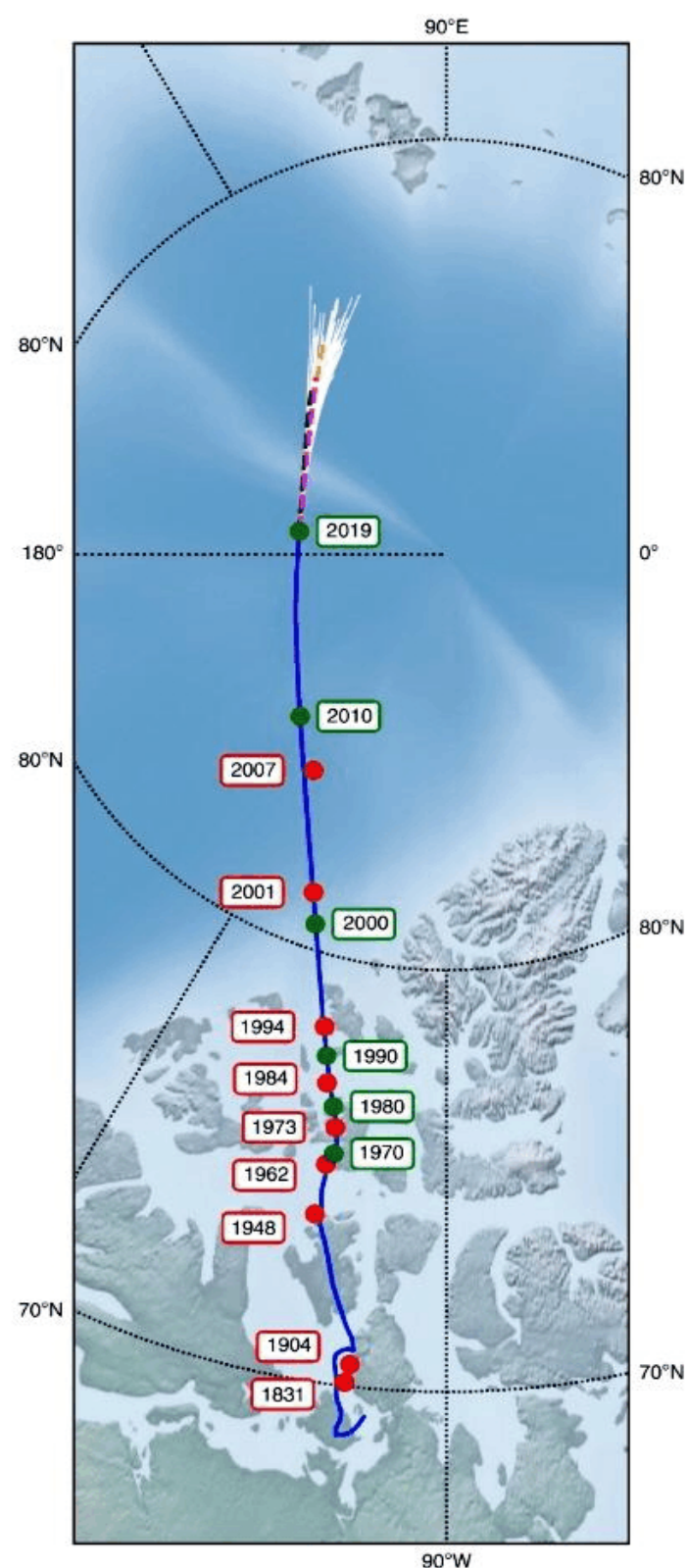
Since the first in situ measurements in 1831 of its location in the Canadian Arctic, the pole has drifted inexorably towards Siberia, accelerating between 1990 and 2005 from its historic speed of 0 to 15 km yr⁻¹ to its present speed of 50 to 60 km yr⁻¹. In late October 2017 the north magnetic pole crossed the International Date Line, passing within 390 km of the geographic pole, and is now moving southwards.

Here we show that over the last two decades the position of the north magnetic pole has been largely determined by two large-scale lobes of negative magnetic flux on the core-mantle boundary under Canada and Siberia.

Localized modeling shows that elongation of the Canadian lobe, probably caused by an alteration in the pattern of core flow between 1970 and 1999, substantially weakened its signature on Earth’s surface, causing the pole to accelerate towards Siberia.

A range of simple models that capture this process indicate that over the next decade the north magnetic pole will continue on its current trajectory, travelling a further 390 to 660 km towards Siberia.

[The map is from this paper.]



Ou, Q., et al (2020) **Evolutionary trade-off in reproduction of Cambrian arthropods.** SCIENCE ADVANCES 6:doi.org/10.1126/sciadv.aaz3376 (available as a free pdf)

Authors' abstract: *Trade-offs play a crucial role in the evolution of life-history strategies of extant organisms by shaping traits such as growth pattern, reproductive investment, and lifespan. One important trade-off is between offspring number and energy (nutrition, parental care, etc.) allocated to individual offspring.*

Exceptional Cambrian fossils allowed us to trace the earliest evidence of trade-offs in arthropod reproduction. †Chuandianella ovata, from the early Cambrian Chengjiang biota of China, brooded numerous (=100 per clutch), small (Ø, ~0.5 mm) eggs under carapace flaps. The closely related †Waptia fieldensis, from the middle Cambrian Burgess Shale of Canada, also brooded young, but carried fewer (= 26 per clutch), larger (Ø, ~2.0 mm) eggs.

The notable differences in clutch/egg sizes between these two species suggest an evolutionary trade-off between quantity and quality of offspring. The shift toward fewer, larger eggs might be an adaptive response to marine ecosystem changes through the early-middle Cambrian. We hypothesize that reproductive trade-offs might have facilitated the evolutionary success of early arthropods.

[Artwork is from this paper. The scale bar is 5 mm.]



Bonacorsi, N.K., et al (2020) **A novel reproductive strategy in an Early Devonian plant.** CURRENT BIOLOGY 30:doi.org/10.1016/j.cub.2020.03.040

Authors' abstract: *A new fossil from the Early Devonian that provides the earliest clear evidence for more advanced reproductive biology in land plants. The plant produced multiple spore size classes, which is an essential innovation necessary for all advanced plant reproductive strategies, including seeds and flowers.*

Speirs: The Devonian period was from 416 to 358 megayears ago, when life first came ashore. The first land plants were almost microscopic but rapidly evolved such things as waxy cuticles (to avoid drying out in the air), vascular systems (which allowed them to grow tall and form the first forests), true roots and leaves, and, near the end of the period, the first seed-bearing plants.

The sudden abundance of plants dropped the CO₂ levels in the atmosphere and hiked oxygen levels, which then allowed animals to colonize the land. The plants created the first soils and their root systems slowed down erosion significantly. Reproduction by spores of different sizes was a first step to seeds.

Bethania C.T. Siviero, B.C.T., et al (2020) **Skeletal trauma with implications for intra-tail mobility in Edmontosaurus annectens from a monodominant bonebed, Lance Formation (Maastrichtian), Wyoming, USA.** PALAIOS 35:201-214

Authors' abstract: *This study presents evidence of pre-mortem traumatic injury and its sequelae on multiple Edmontosaurus annectens skeletal elements recovered from a largely monodominant Cretaceous (Maastrichtian) bonebed.*

The sample consists of 3,013 specimens excavated and prepared from two quarries, of which 96 elements manifest one or more macroscopic bone abnormalities and 55 specimens display pathology attributable to physical trauma.

Evidence of traumatic pathology is strongly associated with body region, occurring disproportionately in the caudal vertebrae. Pre-mortem fractures with subsequent bone remodeling and hypertrophic ossification of caudal neural spines are present principally in the middle and mid-distal regions of the

tail, while fractures of the vertebral centra are present primarily in the distal tail region. Other skeletal regions, such as chevrons, phalanges of the manus and ribs display unambiguous evidence of healed trauma, but with less frequency than the tail.

These findings, in combination with current understanding of hadrosaurian tail biomechanics, indicate that intervertebral flexibility within the middle and mid-distal region of the tail likely rendered these caudal vertebrae more susceptible to the deleterious effects of repeated mechanical stress and subsequent trauma, potentially accompanying running locomotion and other high-impact herd interactions.

Healed fractures within the region are also suggestive of accumulated injuries due to a combination of tail usage in defense and possibly accidental bumping/trampling associated with gregarious behavior.

Ibrahim, N., et al (2020) **Tail-propelled aquatic locomotion in a theropod dinosaur.** NATURE 581:67-70

Authors' abstract: *In recent decades, intensive research on non-avian dinosaurs has strongly suggested that these animals were restricted to terrestrial environments. Historical proposals that some groups, such as sauropods and hadrosaurs, lived in aquatic environments were abandoned decades ago.*

It has recently been argued that at least some of the spinosaurids, an unusual group of large-bodied theropods of the Cretaceous era, were semi-aquatic, but this idea has been challenged on anatomical, biomechanical and taphonomic grounds, and remains controversial.

Here we present unambiguous evidence for an aquatic propulsive structure in a dinosaur, the giant theropod Spinosaurus aegyptiacus. This dinosaur has a tail with an unexpected and unique shape that consists of extremely tall neural spines and elongate chevrons, which forms a large, flexible fin-like organ capable of extensive lateral excursion.

Using a robotic flapping apparatus to measure undulatory forces in physical models of different tail shapes, we show that the tail shape of Spinosaurus produces greater thrust and efficiency in water than the tail shapes of terrestrial dinosaurs and that these measures of performance are more

comparable to those of extant aquatic vertebrates that use vertically expanded tails to generate forward propulsion while swimming. These results are consistent with the suite of adaptations for an aquatic lifestyle and piscivorous diet that have previously been documented for Spinosaurus.

Although developed to a lesser degree, aquatic adaptations are also found in other members of the spinosaurid clade, which had a near-global distribution and a stratigraphic range of more than 50 million years, pointing to a substantial invasion of aquatic environments by dinosaurs.

Fiorillo A.R., et al. (2019) **Dinosaur ichnology and sedimentology of the Chignik Formation (Upper Cretaceous), Aniakchak National Monument, southwestern Alaska; Further insights on habitat preferences of high-latitude hadrosaurs.** PLOS ONE 14:doi.org/10.1371/journal.pone.0223471 (available as a free pdf)

Authors' abstract: *While there are now numerous records of dinosaurs from Cretaceous rocks around the state of Alaska, very few fossil records of terrestrial vertebrates are known from the Mesozoic rocks of the southwestern part of the state. Here we report the new discovery of extensive occurrences of dinosaur tracks from Aniakchak National Monument of the Alaska Peninsula.*

These tracks are in the Late Cretaceous (Maastrichtian) Chignik Formation, a cyclic sequence of rocks, approximately 500 to 600 metres thick, representing shallow marine to nearshore marine environments in the lower part and continental alluvial coastal plain environments in the upper part of the section.

These rocks are part of the Peninsular Terrane and paleomagnetic reconstructions based on the volcanic rocks of this terrane suggest that the Chignik Formation was deposited at approximately its current latitude which is almost 57° N.

Recent field work in Aniakchak National Monument has revealed over 75 new track sites, dramatically increasing the dinosaur record from the Alaska Peninsula. Most of the combined record of tracks can be attributed to hadrosaurs, the plant-eating duck-billed dinosaurs. Tracks range in size from those made by full-grown adults to juveniles. Other tracks can be attributed to armored dinosaurs, meat-eating dinosaurs, and two kinds of fossil birds.

The track size of the predatory dinosaur suggests a body approximately 6 to 7 metres long, about the estimated size of the North Slope tyrannosaurid Nanuqsaurus. The larger bird tracks resemble Magnoavipes denaliensis previously described from Denali National Park, while the smaller bird tracks were made by a bird about the size of a modern Willet.

Previous interdisciplinary sedimentologic and paleontologic work in the correlative and well-known dinosaur bonebeds of the Prince Creek Formation 1400km-1500km further north in Alaska suggested that high-latitude hadrosaurs preferred distal coastal plain or lower delta plain habitats.

The ichnological record being uncovered in the Chignik Formation of southwestern Alaska is showing that the hadrosaur tracks here were also made in distal coastal and delta plain conditions.

This similarity may corroborate the habitat preference model for Cretaceous high-latitude dinosaurs proposed for the data gathered from the Prince Creek Formation, and may indicate that at least Beringian hadrosaurids had similar habitat preferences regardless of latitude.

[Image is from this paper.]



Grillo, K.M., et al (2020) **Molecular and isotopic evidence for milk, meat, and plants in prehistoric eastern African herder food systems.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 117:9793-9799

Authors' abstract: *Lipid residue analysis of archaeological ceramics provides the earliest direct chemical evidence for milk, meat, and plant consumption by pastoralist societies in eastern Africa. Data for milk in specialized pastoral systems (circa 5000 to 1200 BP) reveal changing selective pressures for lactase persistence and provide support for models of gene-culture coevolution among pastoral populations.*

The development of pastoralism transformed human diets and societies in grasslands worldwide. The long-term success of cattle herding in Africa has been sustained by dynamic food systems, consumption of a broad range of primary and secondary livestock products, and the evolution of lactase persistence (LP), which allows digestion of lactose into adulthood and enables the milk-based, high-protein, low-calorie diets characteristic of contemporary pastoralists.

Despite the presence of multiple alleles associated with LP in ancient and present-day eastern African populations, the contexts for selection for LP and the long-term development of pastoralist foodways in this region remain unclear. Pastoral Neolithic (circa 5000 to 1200 BP) faunas indicate that herders relied on cattle, sheep, and goats and some hunting, but direct information on milk consumption, plant use, and broader culinary patterns is rare.

Combined chemical and isotopic analysis of ceramic shards (n=125) from Pastoral Neolithic archaeological contexts in Kenya and Tanzania, using compound-specific $d^{13}C$ and $\delta^{13}C$ values of the major fatty acids, provides chemical evidence for milk, meat, and plant processing by ancient herding societies in eastern Africa.

These data provide the earliest direct evidence for milk product consumption and reveal a history of reliance on animal products and other nutrients, likely extracted through soups or stews, and plant foods. They document a 5,000-year temporal framework for eastern Africa pastoralist cuisines and cultural contexts for selection for alleles distinctive of LP in eastern Africa.

Raymond, C., et al (2020) **The emergence of heat and humidity too severe for human tolerance.** SCIENCE ADVANCES 6:doi.org/10.1126/sciadv.aaw1838 (available as a free pdf)

Authors' abstract: *Humans' ability to efficiently shed heat has enabled us to range over every continent, but a wet-bulb temperature (TW) of 35°C marks our upper physiological limit, and much lower values have serious health and productivity impacts.*

Climate models project the first 35°C TW occurrences by the mid-21st century. However, a comprehensive evaluation of weather station data shows that some coastal subtropical locations have already reported a TW of 35°C and that extreme humid heat overall has more than doubled in frequency since 1979.

Recent exceedances of 35°C in global maximum sea surface temperature provide further support for the validity of these dangerously high TW values. We find the most extreme humid heat is highly localized in both space and time and is correspondingly substantially underestimated in reanalysis products. Our findings thus underscore the serious challenge posed by humid heat that is more intense than previously reported and increasingly severe.

Li, R., et al (2020) **Substantial undocumented infection facilitates the rapid dissemination of novel coronavirus (SARS-CoV-2).** SCIENCE 368:489-493 (available as a free pdf)

Authors' abstract: *Estimation of the prevalence and contagiousness of undocumented novel coronavirus (severe acute respiratory syndrome, coronavirus 2 (SARS-CoV-2)) infections is critical for understanding the overall prevalence and pandemic potential of this disease.*

Here, we use observations of reported infection within China, in conjunction with mobility data, a networked dynamic metapopulation model, and Bayesian inference, to infer critical epidemiological characteristics associated with SARS-CoV-2, including the fraction of undocumented infections and their contagiousness.

We estimate that 86% of all infections were undocumented (95% credible interval (CI): 82–90%) before the 23 January 2020 travel restrictions. The transmission rate of undocumented infections per person was 55% the

transmission rate of documented infections (95% CI: 46–62%), yet, because of their greater numbers, undocumented infections were the source of 79% of the documented cases.

These findings explain the rapid geographic spread of SARS-CoV-2 and indicate that containment of this virus will be particularly challenging.

Kraemer, M.U.G., et al (2020) **The effect of human mobility and control measures on the COVID-19 epidemic in China.** SCIENCE 368:493-497 (available as a free pdf)

Authors’ abstract: *The ongoing coronavirus disease 2019 (COVID-19) outbreak expanded rapidly throughout China. Major behavioral, clinical, and state interventions were undertaken to mitigate the epidemic and prevent the persistence of the virus in human populations in China and worldwide.*

It remains unclear how these unprecedented interventions, including travel restrictions, affected COVID-19 spread in China. We used real-time mobility data from Wuhan and detailed case data including travel history to elucidate the role of case importation in transmission in cities across China and to ascertain the impact of control measures.

Early on, the spatial distribution of COVID-19 cases in China was explained well by human mobility data. After the implementation of control measures, this correlation dropped and growth rates became negative in most locations, although shifts in the demographics of reported cases were still indicative of local chains of transmission outside of Wuhan. This study shows that the drastic control measures implemented in China substantially mitigated the spread of COVID-19.

Zampieri, R., et al (2020) **Prevention and treatment of autoimmune diseases with plant virus nanoparticles.** SCIENCE ADVANCES 6:doi.org/10.1126/sciadv.aaz0295 (available as a free pdf)

Authors’ abstract: *Plant viruses are natural, self-assembling nanostructures with versatile and genetically programmable shells, making them useful in diverse applications ranging from the development of new materials to diagnostics and therapeutics.*

Here, we describe the design and synthesis of plant virus nanoparticles displaying peptides associated with two different autoimmune diseases. Using animal models, we show that the recombinant nanoparticles can prevent autoimmune diabetes and ameliorate rheumatoid arthritis.

In both cases, this effect is based on a strictly peptide-related mechanism in which the virus nanoparticle acts both as a peptide scaffold and as an adjuvant, showing an overlapping mechanism of action. This successful preclinical testing could pave the way for the development of plant viruses for the clinical treatment of human autoimmune diseases.

Osmanov, Z. (2020) **On the interstellar Von Neumann micro self-reproducing probes.** INTERNATIONAL JOURNAL OF ASTROBIOLOGY 19:220-223

Author’s abstract: *In this paper we consider efficiency of self-reproducing extraterrestrial Von-Neumann micro-scale robots and analyse the observational characteristics. By examining the natural scenario of moving in the HII clouds, it has been found that the timescale of replication might be several years and even less, making the process of observation quite promising.*

We have shown that by encountering the interstellar protons the probes might be visible at least in the infrared energy band and the corresponding luminosities might reach enormous values.