OPUNTIA 501

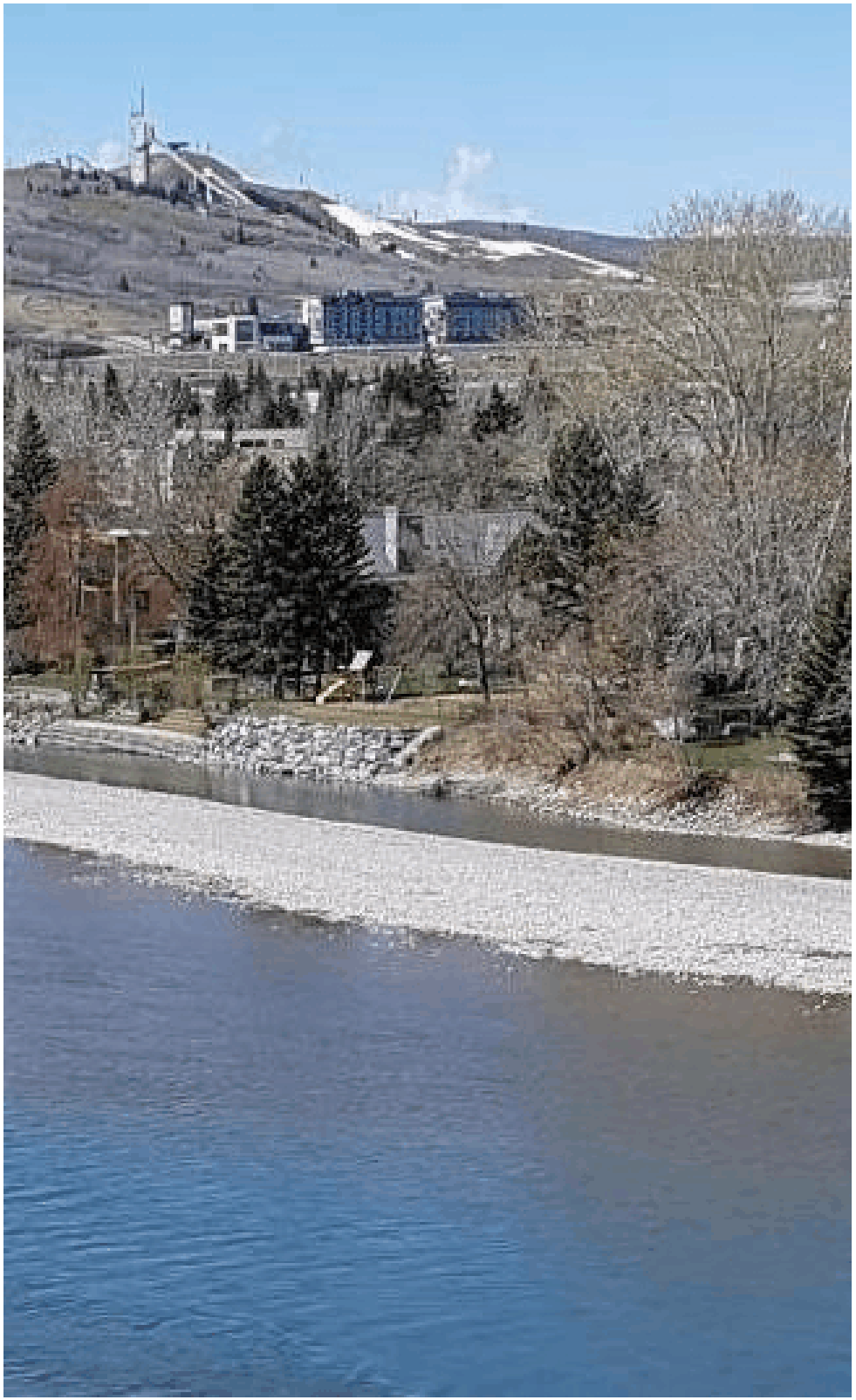
Victoria Day 2021

Opuntia is published by Dale Speirs, Calgary, Alberta. It is posted on www.efanzines.com and www.fanac.org. My e-mail address is: opuntia57@hotmail.com When sending me an emailed letter of comment, please include your name and town in the message.

BOWMONT PARK 2021-05-10
photos by Dale Speirs

Bowmont Park is a floodplain on the north bank of the Bow River in northwest Calgary, stretching many kilometres from the Montgomery district to Bowness Park, and bordered by the cliffs of Silver Springs. The cover shows a view looking upstream from Montgomery.

The photo below was taken from the same vantage point looking downstream. Bowness is on the far bank. In the distance, you can see a white patch of snow on the escarpment of the valley, where the Paskapoo ski jump is, built for the 1988 Winter Olympics. Enlargement at right.



Below: Further upstream around the bend of the river seen in the cover photo.
At right: Looking back to where the previous photos were taken from.

The floodplain is not a natural area. It was mined for gravel for a century by the Klippert family before the City of Calgary bought them out. The gravel pits were then converted to wetlands stormwater filtration ponds, views of which are shown on the next few pages.

The cattail beds at right were artificially planted.

Views looking north at the Silver Springs cliffs. You can't see it but there is an entire subdivision up over the edge of the cliffs.

The channels bring stormwater down to the settling ponds.

The primary settling pond with a giant sump in its centre that takes clean water underground and discharges it nearby. I had difficulty photographing the sump because I could only get an oblique angle.

The outflow of the sump further downstream.

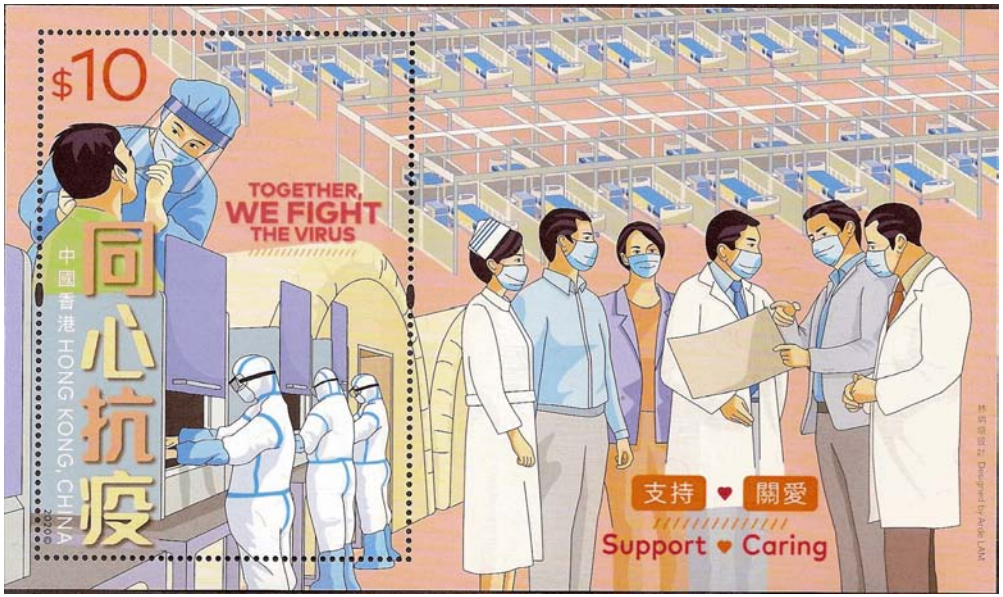
Some of the paths are allowed to flood in the spring. In August, this path would be dry.

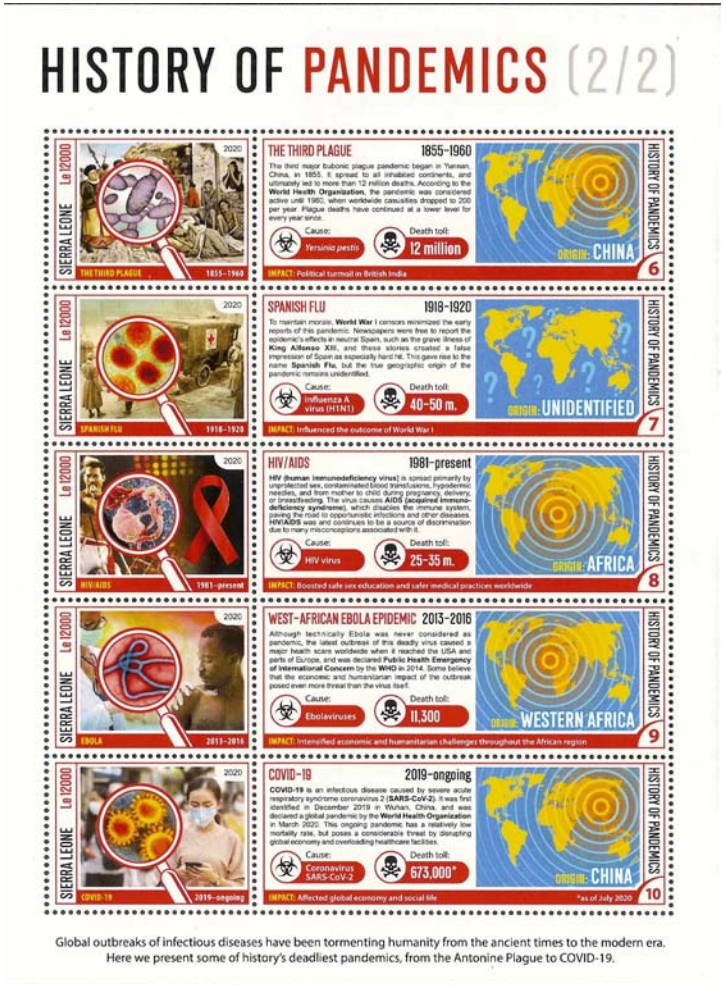
CURRENT EVENTS: PART 20
by Dale Speirs

[Parts 1 to 19 appeared in OPUNTIAs #474, 475, 479, 480, 483, 484, and 488 to 500.]

Philately.

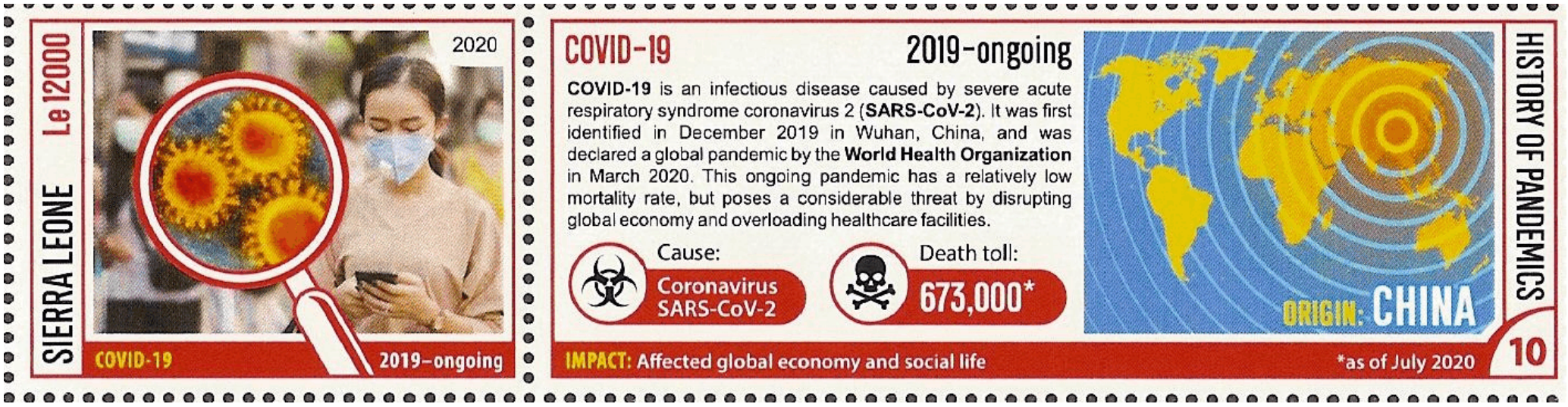
More COVID-19 stamps recently added to my collection. Stamps are not shown at actual size or to scale with each other.





Global outbreaks of infectious diseases have been tormenting humanity from the ancient times to the modern era. Here we present some of history's deadliest pandemics, from the Antonine Plague to COVID-19.

Below is an enlargement of the bottom strip from the sheetlet at right.



October 26, 2020

The bottom stamp on this strip was interesting.

COVID-19 wasn't the first outbreak that Liberia suffered through in recent years.

COVID-19 In Canada.

As of May 21, Canada had 1,352,106 cases with 25,162 deaths. Out of a population of 38,000,000 there are now 20,328,860 vaccinations, including me.

I was late getting my vaccination because I had waited to see if my regular pharmacy was giving them. Unfortunately they weren't able to make the space for a booth, so I had to book elsewhere. In Canada, vaccinations for influenza or COVID-19 are given by pharmacists, not clinics or hospitals.

COVID-19 Vaccine Post Immunization Record

CO-OP Calgary Co-op Pharmacy #6 Richmond Road
4940 Richmond Rd SW Tel: (403) 299-4489
Calgary, AB T3E 6K4 Text: (587) 871-8361
Rx: 3087390 Speirs, Dale Colin
Ms. Shariff, Farzana (Pharm) MA 14-May-2021
1 Pfizer BioNTech COVID Vaccine Adv. Age Community
AB-Advanced Age in Community
DIN: 10000002
COVID19 VACCINE-DOSE
Mfr: NO

PHARMACY STAMP:
Calgary Co-op Pharmacy #6
Richmond Road-4940 Richmond Road SW
Calgary Alberta T3E 6K4
Phone:(403) 299-4489 Fax:(403) 299-5406

FOR PATIENT RECORDS

Immunization Record

Vaccine: ☑ Pfizer–BioNTech COVID-19 vaccine ☐ Moderna COVID-19 vaccine
☐ Other: _____
Date of administration: 14-May-2021 Time of administration: 9:15
Lot number: EW0199
Expiration date: 30-Sep-2021 Deltoid: ☑ LEFT ☐ RIGHT
Dose: ☑ 1 of 2 ☐ 2 of 2

Date of second immunization: A full two doses are required to complete the series. The second dose may be administered between 21 to 120 days after the first dose.

Seen In The COVID-19 Literature.

Volz, E., et al (2021) **Assessing transmissibility of SARS-CoV-2 lineage B.1.1.7 in England.** NATURE 593:doi.org/10.1038/s41586-021-03470-x (available as a free pdf)

Authors' abstract: *The SARS-CoV-2 lineage B.1.1.7, designated variant of concern (VOC) 202012/01 by Public Health England, was first identified in the UK in late summer to early autumn 20202. Whole-genome SARS-CoV-2 sequence data collected from community-based diagnostic testing for COVID-19 show an extremely rapid expansion of the B.1.1.7 lineage during autumn 2020, suggesting that it has a selective advantage.*

Here we show that changes in VOC frequency inferred from genetic data correspond closely to changes inferred by S gene target failures (SGTF) in community-based diagnostic PCR testing. Analysis of trends in SGTF and non-SGTF case numbers in local areas across England shows that B.1.1.7 has higher transmissibility than non-VOC lineages, even if it has a different latent period or generation time.

The SGTF data indicate a transient shift in the age composition of reported cases, with cases of B.1.1.7 including a larger share of under 20-year-olds than non-VOC cases. We estimated time-varying reproduction numbers for B.1.1.7 and co-circulating lineages using SGTF and genomic data.

The best-supported models did not indicate a substantial difference in VOC transmissibility among different age groups, but all analyses agreed that B.1.1.7 has a substantial transmission advantage over other lineages, with a 50% to 100% higher reproduction number.

The SARS-CoV-2 lineage B.1.1.7 spread rapidly across England between November 2020 and January 2021. This variant possesses a large number of non-synonymous substitutions of immunological importance.

The N501Y replacement on the spike protein has been shown to increase ACE2 binding and cell infectivity in animal models, and the P618H replacement on the spike protein adjoins the furin-cleavage site. B.1.1.7 also possesses a deletion at positions 69 and 70 of the spike protein that has been associated with failure of diagnostic tests using the ThermoFisher TaqPath probe, which targets the spike protein.

Mayer, Amy (2021) **Antarctica during the pandemic.** BIOSCIENCE 71: 434-440 (available as a free pdf)

Author's extracts: *Field research in Antarctica always requires months of planning. Everyone has to go through a rigorous medical evaluation and researchers have to package up their equipment and ship it to designated ports for transport arranged by the National Science Foundation (NSF).*

Certain annual tasks, such as refueling the South Pole station, could not be skipped so they knew some people would have to be allowed onto the continent for the 2020-2021 season. The NSF determined tier one would be health and safety while maintaining infrastructure.

Tier two included science work that would be accessible with a limited amount of support staff (think fewer helicopter pilots) and would potentially be most harmed by a missing year. After that, for tier three, the skeleton crew in the field did what it could to support other research

Ancillary impacts disproportionately affect the students and postdocs. Professors have steady incomes, whereas graduate students are often tied to a specific grant with an end date.

While most Antarctic scientists were in home offices from March to October, the dark austral winter months, some workers and researchers were able to go to the field and see the pandemic unfold from the one continent that had not yet been infected.

Although everyone tried to prevent COVID-19 from arriving, in December 2020, Chile reported an outbreak on the continent.

Despite the frustration and the uncertainty, researchers report that the overall scientific integrity of most studies remains intact, and the impacts are not devastating. Funding agencies and scientists expect they will again have delays and last-minute decisions for the 2021–2022 Antarctic summer field season.

Milkman, K.L., et al (2021) **A megastudy of text-based nudges encouraging patients to get vaccinated at an upcoming doctor's appointment.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 118:doi.org/10.1073/pnas.2101165118 (available as a free pdf)

Authors' abstract: *Many Americans fail to get life-saving vaccines each year, and the availability of a vaccine for COVID-19 makes the challenge of encouraging vaccination more urgent than ever. We present a large field experiment (N = 47,306) testing 19 nudges delivered to patients via text message and designed to boost adoption of the influenza vaccine.*

Our findings suggest that text messages sent prior to a primary care visit can boost vaccination rates by an average of 5%. Overall, interventions performed better when they were 1) framed as reminders to get flu shots that were already reserved for the patient and 2) congruent with the sort of communications patients expected to receive from their healthcare provider (i.e., not surprising, casual, or interactive).

The best-performing intervention in our study reminded patients twice to get their flu shot at their upcoming doctor's appointment and indicated it was reserved for them. This successful script could be used as a template for campaigns to encourage the adoption of life-saving vaccines, including against COVID-19.

Davies, N.G., et al (2021) **Increased mortality in community-tested cases of SARS-CoV-2 lineage B.1.1.7** NATURE 593:doi.org/10.1038/s41586-021-03426-1 (available as a free pdf)

Authors' abstract: *SARS-CoV-2 lineage B.1.1.7, a variant that was first detected in the UK in September 2020, has spread to multiple countries worldwide. Several studies have established that B.1.1.7 is more transmissible than pre-existing variants, but have not identified whether it leads to any change in disease severity.*

Here we analyse a dataset that links 2,245,263 positive SARS-CoV-2 community tests and 17,452 deaths associated with COVID-19 in England from 1 November 2020 to 14 February 2021. For 1,146,534 (51%) of these tests, the presence or absence of B.1.1.7 can be identified because mutations in this lineage prevent PCR amplification of the spike (S) gene target (known as S gene target failure (SGTF)1). On the basis of 4,945 deaths with known SGTF status, we estimate that the hazard of death associated with SGTF is 55% higher than in cases without SGTF after adjustment for age, sex, ethnicity, deprivation, residence in a care home, the local authority of residence and test date.

This corresponds to the absolute risk of death for a 55 to 69-year-old man increasing from 0.6% to 0.9% within 28 days of a positive test in the community.

Correcting for mis-classification of SGTF and missingness in SGTF status, we estimate that the hazard of death associated with B.1.1.7 is 61% higher than with pre-existing variants. Our analysis suggests that B.1.1.7 is not only more transmissible than pre-existing SARS-CoV-2 variants, but may also cause more severe illness.

Gurrieri, L., et al (2021) **Alcohol narrows physical distance between strangers.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 118:/doi.org/10.1073/pnas.2101937118 (available as a free pdf)

[From the Ministry of Obvious Things comes this paper.]

Authors' abstract: *Like many infectious diseases, the principal mode of transmission for COVID-19 is direct respiration of droplets emitted during close social contact, and health officials warn that alcohol consumption may lead to decreased adherence to physical distancing guidelines.*

Governing bodies have acted to close bars before restaurants and have also specifically restricted alcohol sales, while at the same time those in the nightlife industry have labeled such actions unfounded and discriminatory.

Complicating such debates is the lack of evidence on alcohol's effects on physical distance. In the current study we employed a randomized alcohol-administration design paired with computer-vision measures, analyzing over 20,000 proximity readings derived from video to examine the effect of alcohol consumption on physical distance during social interaction.

Results indicated that alcohol caused individuals to draw significantly closer to an unfamiliar interaction partner during social exchange, reducing physical

proximity at a rate with potentially important implications for public health. In contrast, alcohol had no effect on physical distance with a familiar interaction partner.

Findings suggest that alcohol might act to overcome a natural caution people feel towards strangers and thus promote virus transmission between previously unconnected social groups.

Chossière, G.P., et al (2021) **Air pollution impacts of COVID-19-related containment measures.** SCIENCE ADVANCES 7:doi.org/10.1126/sciadv.abe1178 (available as a free pdf)

Authors' abstract: *Responses to the COVID-19 outbreak resulted in one of the largest short-term decreases in anthropogenic emissions in modern history. Using global satellite observations and ground measurements from 36 countries in Europe, North America, and East Asia, we find that lockdowns led to reductions in NO_2 concentrations globally, resulting in ~32,000 avoided premature mortalities, including ~21,000 in China.*

However, we do not find corresponding reductions in PM2.5 [fine particulate matter] and ozone globally. Using satellite measurements, we show that the disconnect between NO_2 and ozone changes stems from local chemical regimes. The COVID-related lockdowns demonstrate the need for targeted air quality policies to reduce the global burden of air pollution, especially related to secondary pollutants.

By the end of March 2020, 76% of the global population lived in countries with stay-at-home orders. Workplace closures were in place across countries that collectively generated 99% of global gross domestic product in 2018; and 92% of the global population lived in countries with school closures.

The result was an unprecedented reduction in economic activity, as measured by industrial production [-27% year-on-year (YOY) in April 2020 in the Euro area; -15% YOY in April 2020 for the United States] and by production of services [-12% YOY in March 2020 in China]. Furthermore, mobility declined abruptly both for long-distance air travel [-94% YOY in global air transport revenue passenger kilometers in April 2020] and for surface transportation [-74% in public transit in major cities and 40 to 80% reductions in car usage.

WEIRD FICTION: PART 5

by Dale Speirs

[Parts 1 to 4 appeared in OPUNTIAs #412, 458, 484, and 493.]

Ghosts.

"Waiter Number 34" by Paul Ernst (1935 July, WEIRD TALES, available as a free pdf from www.archive.org) was more a vignette than a story. Two industrialists who had profited greatly from World War One were dining at their club. They were discussing how to start a fresh war to get out of the moribund economy of the Great Depression.

The waiter who served them was new to them, although he said he had worked there before enlisting in 1916. He was skeletal with a death's head look. Towards the end of the story he told the men how he had fought at Verdun and went into graphic details about the casualties.

After perturbing them but nothing more, he walked away, went through the back door of the kitchen, and vanished. A dishwasher recognized him and nearly fainted, for he had been in the war and knew the waiter had been killed at Verdun.

In going through the old issues of WEIRD TALES, I was surprised to encounter s story by Lucy Maud Montgomery, best remembered for her Anne of Green Gables stories. "The House Party At Smoky Island" (1935 August) was set in the Muskoka resort country of southern Ontario. Among the guests were Dr Anthony Armstrong, who had been suspected of poisoning his first wife Suzette to inherit her fortune.

An unknown woman named Christine appeared at the party and began telling a story of murder, a woman dying of an unspecified disease. She made it obvious that the woman was Suzette and Christine had been her nurse.

Suzette told Anthony that she was going to change her will the next day and disinherit him. That is, of course, an excellent method of shortening one's own lifespan suddenly. Suzette died that night from chloral poisoning.

Christine went on to say that she had been in love with Anthony. She was the poisoner, not him, and she was crushed when he took a different woman for his

second wife. Christine suddenly vanished into thin air. Subsequently it was learned that she had been killed earlier that day in a traffic accident.

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

"The Man Who Came Back" was the premiere episode and aired on 1941-11-14. The episode was a standard vengeful ghost story.

The plot began with an alarum, the police having been called to a house where a masquerade party ended bloodily in murder. The officer in charge immediately got into an argument with a partygoer who refused to unmask. Instead he launched into the narrative of the story.

He was playwright Philip Blake, who had discovered a millionaire friend named Keith Grange was diddling his wife Sylvia. He went to Grange's apartment and confronted him. Grange pulled a handgun and told Blake he was about to die. After all, he was an intruder and Grange was acting in self-defense. Blake told him he would come back for revenge.

Grange shot him through the forehead, and the rest of the episode proceeded on a predictable path. Grange was acquitted, helped by Sylvia's perjury that her husband had told her he was going over to Grange's place to kill him. As Grange reminded her, that made her an accessory after the fact, so therefore she was committed to him.

Blake's ghost made its debut, invisible but with a resounding voice. After frightening Grange, the ghost said it would pick the time for its ultimate revenge: "*I'll be back, watch for me and wait*." In between spookings, Grange continued to court Sylvia. His efforts were marred by constant pranks and sabotage by the ghost. Blake was using psychological warfare.

The culmination was a grand masquerade at Grange's new mansion, adorned by Sylvia as his wife. Blake appeared as a masked man in black. He confronted Grange in the study, having put the murder gun on the desk. He told Grange there was one shell in the gun.

Grange used it, having been driven mad by the ghost's harassment. The story then jumped back to the police officer. Upon completing his rendition, the masked man vanished into thin air, leaving only a spot of blood where he had been standing.

Nothing to do with the story, but the announcer fluffed part of the end credits, and had to repeat himself. The blooper was left in the transcription.

"The Thing From The Sea" aired the following week on 1941-11-28. Hollywood actor Philip Hayward took his girlfriend Judy Johnson on a cruise on his yacht, chaperoned by her father. The latter was a director working on a script about a sea monster.

The yacht's engines stalled in the South Pacific, and the wind becalmed so they couldn't sail. Judy had a dream about a strange woman trying to take over her body. As she finished relating the story, a crewman told them a stranger was at the helm. He was a stowaway who took them to an unknown land not on the charts.

Father suddenly and conveniently remembered a story about a land ruled by a man Bool and his daughter Lana. The land sank below the waves 10,000 years ago, and now here it was risen again. The spirit of Bool had possessed the stowaway and was using his body to return home. Everyone disembarked onto the reappeared land and found an ancient city.

Lana took over Judy's body. Bool abandoned the stowaway's body and possessed the captain's body. Lana explained that if Bool managed to repossess his preserved body, evil would rule the world. She had to stop him.

The alarums that followed were as predictable as a Hollywood script. Lana died slaying Bool, restoring Judy to her body. The yacht made its way back to sea as the land collapsed back underwater. But Father got a great script out of events.

Politics By Other Means.

LIGHTS OUT was an old-time anthology radio series that aired from 1934 to 1947. Many episodes are available as free mp3s from the Old Time Radio Researchers Website at www.otrrlibrary.org. They were mostly science fiction, fantasy, and weird fiction.

"Bathysphere" was written by Arch Oboler and aired on 1943-06-29. The characters were only identified as His Excellency and the Doctor. They were on board an exploration ship, riding down into the depths in a bathysphere. As they descended, the Doctor gave a guided tour of the phosphorescent life in the blackness.

Down, down, they went, thousands of feet, on their way to breaking a depth record. His Excellency became nervous when they bumped onto the seabed. At that point, the Doctor became belligerent. He disconnected the communication lines and cut the bathysphere cable.

The Doctor told His Excellency they were going to die there. He said it was revenge for the totalitarianism of His Excellency's dictatorship. As they slowly suffocated, they debated the ethics and origins of absolute regimes. Much lecturing as they sat there in the dark.

The Doctor gloated he had won, but His Excellency pointed out that he would simply be replaced by another dictator. The conversation was interrupted when the bathyscape suddenly began lifting. The Doctor had been bluffing. His Excellency did not reform or repent as hoped but simply had the Doctor shot upon surfacing.

The context of the episode needs to be considered by the modern listener, whereas it was quite obvious to the original listeners. There were many who thought that peace was a matter of sitting down with dictators over tea and cakes for a heart-to-heart conversation.

Those who babbled that violence never solved anything had to be reminded that every war in history had been resolved by violence. Memories were still fresh of Neville Chamberlain returning home from Germany in 1938 waving a piece of paper in the air and declaring peace for our time.

There Is Always An Explanation.

CASEY, CRIME PHOTOGRAPHER aired on radio from 1943 to 1955. The series was based on novels by George Harmon Coxe. The hero was Casey, first name never given, who was a newspaper photographer. He was accompanied by reporter and girlfriend Ann Williams. The episodes were generally murder mysteries, but there was an occasional variation. (Available as free mp3s from www.otrrlibrary.org)

Played as weird fiction was the episode "The Serpent Goddess", which was written by Alonzo Deen Cole and aired on 1947-12-04. Dan Sykes and his partner Chris Johanson had returned from South America with a fortune in emeralds.

Casey and Ann Williams visited Sykes in his hotel room to get the story for their newspaper. He told them he and Johanson had sold the lesser stones for $1 million. They kept the best ones, including a pair they called The Eyes.

Sykes said they had found the stones after their plane crashed in the Peruvian jungle. The reporters said they heard different stories, such as others having found the stones and one of them dying after being suffocated by a giant anaconda with a woman's face. Another story was that Sykes and Johanson had been chased out of the jungle by the sound of drums. Both men denied those versions.

A fortnight later, Johanson was found dead in his apartment, crushed to death as if by a giant anaconda. While Casey and Williams digested that news, the sponsor Anchor Hocking Glass took the opportunity to tell listeners about the new single-use glass beer bottles.

The announcer urged listeners to insist their beer vendor only use disposable bottles. So convenient. Drink the beer and then throw away the bottle. No bother about paying a deposit or having to return the bottles. The one-way no-deposit bottle was the modern method of drinking beer, the wave of the future. Whatever happened to the future?

Getting back to the deceased, the medical examiner reported Johanson had been squeezed to death. Sykes became a nervous wreck. He broke down and told the true story. He and Johanson had been hired to fly an exiled revolutionary back to Peru when their plane crashed in the jungle.

The three men survived after finding a lost tribe who had never seen white men. The tribe were the usual superstitious lot and worshiped a snake god. The trio robbed the village temple of its emeralds, including a pair that formed the eyes of a statue of a serpent goddess. The revolutionary apparently died out there.

The middle third of the episode was taken up by the lost world story. Lots of eeriness and ghoulies going bump in the night. Coming back to modern New York City, the original narrative resumed. The betting around town was that

Sykes wouldn't survive to the end of the month. He didn't and was found crushed to death.

Casey figured out who did it. The revolutionary had not immediately died but sent his sister to get his share of the emeralds. She confessed all.

She let the deceased men pick her up for a night's fun. Once they were in his apartment, she slugged the man unconscious from behind, then wrapped a rubber tube around him, inflated it with a portable air compressor she carried in her suitcase, and squeezed him to death. Finis.

Extreme Psychology.

"The Door Of Death" by George Seibel (1908 October, THE BLACK CAT, available as a free pdf from www.archive.org) was an anticipation of Kafka. The protagonist was convinced his body was becoming metallic and he was turning into a door key.

The story was marred by being told in first-person by the narrator who died at the end of the story. His thought processes about how he was becoming a door key (the old-fashioned skeleton key type; this was 1908) followed logically step by step.

ESCAPE was a long-running anthology series on old-time radio of mystery, fantasy, and horror. The pilot episode was for a proposed series OUT OF THIS WORLD, which only had a single episode "Dead Of Night", aired on 1947-02-28.

The title and concept were re-worked into ESCAPE. This episode was written by Charles Gusman, based on an anthology movie of the same title. Only the final chapter of the movie was adapted into the radio pilot.

The story was about a ventriloquist Maxwell Frere and his dummy Toby. Frere was insanely jealous of another ventriloquist Mel, whom he thought was trying to steal Toby. Simultaneously Frere was infatuated with Mel's wife. He could only express himself through Toby, who was arrogant and boorish, while Frere was a mild-mannered milquetoast.

After a show in which Toby traded cross-talk with Mel sitting in the audience, they all met in Frere's dressing room. The gathering did not go well, and police took Frere into custody. They kept Toby in a storage locker, which caused Frere to go berserk. Eventually the master and dummy were re-united in his jail cell and resumed the catcalling and coarse behaviour.

A police psychiatrist realized that Frere was a full-blown schizophrenic with two personalities, one of which he lodged into Toby. Frere became angry at Toby and smashed him into splinters in the jail cell, trying to kill him.

Once the screaming died down, Frere appeared calmer. All seemed well until he began speaking in Toby's voice. Toby gloated that he had won, and nothing would stop him now.

The plot and concept can be traced back to a short story by Ben Hecht titled "The Rival Dummy", published in LIBERTY MAGAZINE on 1928-08-18. There have been numerous variations published as short stories. The concept of a malignant dummy was used in several television episodes during the 1950s and later by THE TWILIGHT ZONE in 1962.

From the LIGHTS OUT radio series came "The Projective Mr Drogan", written by Arch Oboler and aired on 1943-01-26. The aforesaid Drogan was drunk at a party when someone gave him a strange cocktail that knocked him out. When Drogan woke up the morning after the night before, he found he had been cursed. When he wished something out loud, it happened. Oboler obviously rewrote "The Man Who Could Work Miracles", the 1898 story by H.G. Wells.

First Drogan got angry at a slow elevator operator, causing the elevator to suddenly plummet to the basement and kill the operator. Drogan then visited his doctor, Charles Krager, to get a hangover cure. As they talked, their conversation was drowned out by an aircraft passing overhead. He angrily wished the noise would stop. The airplane suddenly crashed.

The two men walked out of the building. They had trouble crossing the street because of the heavy traffic. Drogan angrily wished that all the taxicabs in the city would be destroyed, and they were. In short order, Drogan killed two men in separate incidents because they annoyed him. They both fell dead to the ground at his command.

Krager needed no further convincing of Drogan's power. They went to the Krager residence where the doctor's wife Anne talked philosophy with Krager. Charles suggested that Drogan should try doing good. They went outside to

attempt the idea. Drogan wished a blind man could see but that didn't work. It seemed evident that the power only worked one way.

Drogan took the wrong interpretation and decided to become a world dictator. While he was ranting, the doctor gave Drogan a poisoned drink. Problem solved.

WE'LL ALL GO TOGETHER WHEN WE GO: PART 13
by Dale Speirs

[Parts 1 to 12 appeared in OPUNTIAs #249, 276, 283, 301, 312, 327, 343, 365, 417, 431, 445, and 487.]

"The Green Intelligence" by Harvey S. Aldinger (1929 November, SCIENCE WONDER STORIES, available as a free pdf from www.archive.org) began with the lab boys fooling around with a meteorite by running electricity through it. That by itself did nothing much, but when a cat came near it while the electricity was running, the meteorite emitted a green aura and then absorbed the cat's brain waves.

If the electricity was shut off, the aura vanished. Further experimentation revealed the meteorite was absorbing intelligences and getting bigger in the bargain.

An amazing fact, for which we could not immediately account, was that a small animal of great intelligence actually extended the aura farther than a large animal of small intelligence. Could it be that the intelligence of the animals caused the phenomenon?

It was hard to believe. However, we had recently perfected a very sensitive and complex device which now proved of enormous value. It had the faculty of instantly determining the location and exact power of any intelligence within a certain distance.

We placed it in the room with a piece of aura-surrounded metal, with astounding results. The instrument showed that the weird green metal had actually assimilated and taken for its own the intelligence of the deceased animals, and was literally a metal brain, an inanimate substance possessing intelligence.

You can imagine our wonder and ecstasy. We had the power to create a brain so colossally powerful that It might solve all the riddles of the universe, so omnipotent and enduring that It might solve all the problems of mankind, and yet be a slave and not a master.

With that in mind, we immediately set to work, and, using all the metal that remained potent, made the brain you see before you. We have fed It animal brain until It is the greatest intelligence in existence.

Immediately after this quote, the next chapter began. It was titled "The Monster Attacks". Since any reader could see the plot coming two pages ahead, this was not a surprise. There followed the usual alarums and excursions. The hero just happened to have a airplane nearby carrying five thermite bombs. The first four failed but the fifth one saved the world, as we knew it would.

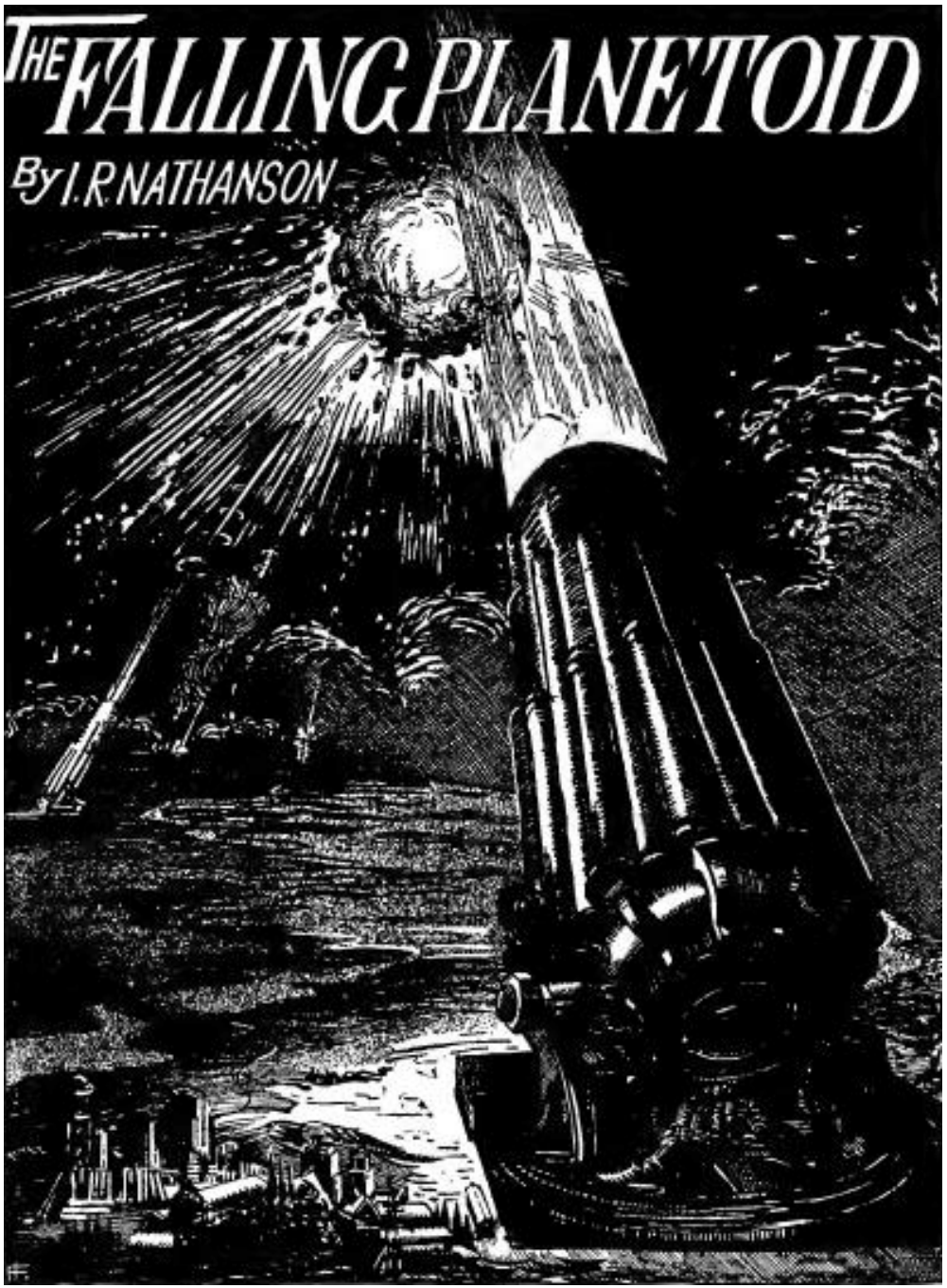
"The World Of A Hundred Men" by Walter Kateley (1930 February, SCIENCE WONDER STORIES) was set at Barringer Crater in Arizona. In the real world, extensive drilling had found lots of meteorite fragments but failed to locate a main body.

Subsequent analysis concluded that most of the meteorite vapourized or fragmented on impact about 50,000 years ago. Mining efforts were abandoned and today it is one of Arizona's most famous tourist attractions, still privately owned by the Barringer family after a century.

The story at hand was about a mining consortium who decided to get serious and really drill deep, kilometres down. After many trials and tribulations, they found a giant spacecraft buried far below. They found writings and translated them faster than any reader could believe.

The rest of the plot was about an ancient civilization whose planet had a near-miss encounter with Earth. In the process, the planet lost most of its water to Earth before passing on, leaving the inhabitants with a desiccated world. They built a spacecraft to colonize Earth and the rest was infodumps.

"The Falling Planetoid" by I.R. Nathanson (1930 April, SCIENCE WONDER STORIES) was about an inbound asteroid, 105 miles in diameter. Naturally there was panic across Earth. The story began with an infodump about asteroids, mentioning the Tunguska and Barringer impacts, then went into the panic, which bid fair to do more damage than the actual impact.



The man of the hour was Franz Heinrich Grimm, an Austrian munitions engineer. He devised a plan to build 50,000 superscience cannons which would fire a stream of projectiles into space that would intercept the asteroid and shred it to pieces. Pausing only for infodumps on ballistics and orbital dynamics, his plan was implemented, there being no better ideas.

Remember this story was published in 1930, when rocketry meant fireworks, a few German enthusiasts, and that crazy fellow Goddard. Big Bertha cannons had been used in the Great War, so the technology was doable. The constant bombardment began.

From every telescope available willing eyes, keen and intelligent, watched the results. And at last one day it came. From scores of observatories came the thrilllngly joyful announcement that the crisis had been reached and passed!

At last the cumulative effect of the millions upon millions of fifty-ton projectiles plunging against the planetoid with a velocity of many miles a second, and the still vaster force of their terrific explosions after they landed, began to respond to the immense artificial forces let loose resultant force of the aggregated blows, the giant planetoid began to respond to the immense artificial forces let loose against it; gradually, but at an ever increasing rate, it was overcoming its tendency to fall toward the earth's center.

Finally, after two long years and two months, its speed was increased to 0.85 of a mile per second, and its orbit changed into a harmless ellipse. Henceforth the planetoid would continue throughout the ages as a true satellite of the earth and not as a destructive agent. Man lost his fear of the menace and the bombardment ceased. . . .

And there was peace in the valley, and all humanity learned from its terror to unite in harmony, etcetera. Just like the COVID-19 pandemic, where everyone obeyed the wise direction of government health authorities and no one tried to take advantage of the situation. This is why it is called fiction.

"Through The Meteors" by Lowell Howard Morrow (1930 April, AIR WONDER STORIES, available as a free pdf from www.archive.org) was based on the fact that the most dangerous meteors to spacecraft are not the big ugly rocks. Those can be easily detected in time for the spacecraft to sidestep them. The problem is dust or pea sized micrometeors which can puncture a spacecraft's skin without the radar detecting them.

The premise of this story was a cloud of micrometeors surrounding Earth, effectively cutting off space travel. However, the barrier worked both ways. Alien invaders arrived to conquer Earth but found they couldn't get through the meteor screen.

In that same issue was the story "The Meteoric Magnet" by Moses Schere was about a Balkan nation with grandiose ideas of conquering the world, They built an airship (they could only afford one) equipped with a death ray and went on a rampage.

A subplot was a professor who dug a deep shaft into the Barringer Crater and discovered the main body of the meteorite, a gigantic mass of iron. As the enemy airship entered American airspace, it transpired that it would fly over the crater. The professor was a quick-thinking man and wired up electrical cables to the meteorite.

As the airship came over top, the cables were energized, turning the meteorite into a magnet. It pulled the airship down and destroyed it and its death ray. The invaders were stymied because they didn't have the money to rebuild.

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. 2021 will be the 28th year of the WWP.

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

At 21h00, face to the east and salute those who have already celebrated. Then face north, then south, and toast those in your time zone who are celebrating as you do. Finally, face west and raise a glass to those who will celebrate WWP in the next hour. Raise a glass, publish a one-shot, have a Zoom party, or do a mail art project for the WWP. Let me know how you celebrated the day.

SHERLOCKIANA: PART 37
by Dale Speirs

[Parts 32 to 36 appeared in OPUNTIAs #470, 474, 486, 492, and 496.]

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.

Pastiches: Anthologies.

SHERLOCK HOLMES AND DOCTOR WATSON: THE EARLY ADVENTURES: VOLUME 3 (2019) was an anthology of 11 pastiches edited by David Marcum. They are set between 1881 and 1883 when Holmes and Watson were young men in their 20s. I won't review them all but will mention a few stories as samples. I reviewed Volumes 1 and 2 in OPUNTIAs #492 and 496.

In his editorial foreword, Marcum emphasized that most of the canon stories took place when the pair were younger men. Only two canonical stories depict them in their 50s and 60s. The majority of films and television series used middle-aged or elderly actors to portray the duo. As a result, the general public had and still has the wrong impression about their ages.

Nigel Bruce did everlasting damage to the image of Watson, portraying him as a doddering old fool. In the canon, Watson was a battle-hardened army surgeon, retired on a disability pension after the Battle of Maiwand. He was not a blithering idiot as Bruce made him out to be nor a man easily shocked by blood and gore.

"The Mystery Of MacLean House" by Kevin Thornton began in the clichéd manner with a governess visiting 221B for help. Her master MacLean had gone to South Africa during the wars and dropped out of sight for two years before returning to the manor.

He then pensioned off all the staff and replaced them with Zulu servants. He became a recluse. One of the Zulu women was great with child. Holmes made the deduction that MacLean was the father who knew the fierce prejudice she and the child would face. The story almost crossed the line into political correctness but managed to stay reasonably plausible.

"The Adventure Of Percival Dubois" by Ian Ableson involved the disappearance of a cobbler who had the misfortune to resemble Sherlock Holmes. As a result, that similarity cost Dubois his life. The killer then doubled down by selling the corpse to a mad scientist.

Most of Holmes' investigation was off-stage, a bad habit that many pastiche writers copied from Doyle. Hiding information from the reader and springing it as a surprise in the denouement is a problem that has long afflicted mystery fiction.

"The Distressing Matter Of The Missing Dispatch Case" by Will Murray began while Holmes was away on a case in France. Watson wanted to consult his notes on a previous adventure of Holmes. He had kept his dispatch case under his bed but found it gone. The thief was a good one, leaving few traces of his intrusion.

When Holmes returned, the game was afoot. A classified ad was placed in all the newspapers referring to the box in an oblique manner. It succeeded in drawing out the thief, who kindly mailed back the box and most of the papers. The notes that were still missing pertained to a case that had embarrassed the royal family. It seemed obvious who had hired the thief. Holmes suggested to Watson that they leave well enough alone.

"The Colchester Experiment" by David Marcum brought Holmes and Watson to Colchester at the request of Nicholas Nuneaton. His rich uncle Sir Samuel Bergholt was squandering the family fortune at the manor estate, aided by a mad Serbian Anatole Lika.

Bergholt was a fanatic about the newfangled science of electricity, and also afraid of that an earthquake would shake the county. Lika was obviously an imitation of Nikola Tesla. Bergholt's plan was to generate huge amounts of electricity and ground it into the fault lines to prevent an earthquake.

Nuneaton's twin sister Nancy acted as the lady of the manor on behalf of her bachelor uncle. She was upset at seeing the family fortune dwindle and tried to sabotage the electrical equipment. When Bergholt went to use the equipment the following morning, he was electrocuted.

Holmes deduced the chain of events and declared the death was accidental since Nancy hadn't intended to kill her uncle. The experiment was never completed. In a postscript sometime later, Colchester was rocked by a major earthquake, with much property damage. I checked Wikipedia and there really was a large earthquake there in 1884.

A SHERLOCK HOLMES ALPHABET OF CASES (F TO J) was the second collection of pastiches by Roger Riccard, dated 2018. I reviewed the first volume in OPUNTIA #496.

This book led off with "The Adventure Of The Fool And His Money". Alexander Sinclair was an old comrade in arms who had served with Dr Watson in Afghanistan and was now a laird near Gretna Green in Scotland. He invited Watson to visit the Sinclair castle that Christmas. Holmes was busy with other matters, so Watson went alone.

Sinclair was hunting treasure hidden four centuries ago during the war between Scotland and England in the 1540s. One of his ancestors had left a coded message in Latin which suggested that a shadow cast from the castle on New Year's Day would point out the treasure. He asked help from Watson in deciphering the clues.

The search was unsuccessful and in the fullness of time Watson returned to London while Sinclair prepared for his forthcoming marriage to Sarah Lamont in Easter. Holmes was invited to accompany Watson to the wedding. Holmes took the opportunity to do some research into the treasure. He noted that Sinclair and Watson had correctly deciphered the clues but they got the date wrong because there had been two calendar changes since then.

Firstly, New Year's Day had been March 25 in most of Europe until the late 1500s. This date was connected to the spring equinox. January 1 was the start of the civil government year in the Roman Empire, used for record-keeping and tax collections.

The countries of Europe did not all change to January 1 at the same time. Most converted at different times during the late 1500s. Scotland didn't change over until the year 1600.

Secondly, when the calendar was reformed in 1752 by what had become a United Kingdom, eleven days were deleted. Many peasants in rural areas never heard the news, so they celebrated New Year's Day on the wrong date. This was the origin of April Fools Day. Hence the title of this pastiche.

Therefore, by adjusting for the changes, Holmes was able to correct the date for the castle's shadow to April 5, which conveniently happened to be the next day. The trio were up early next morning and located the treasure. They were delighted. So was the taxman, who took more than his fair share. Some things never change. A well-written story with a good deal of thought put into it.

"The Case Of The Gunsmith Of Sherwood" began with the kidnapping of George Burton, the aforesaid gunsmith. His wife asked Holmes to investigate.

Burton had built a silencer for a shotgun for a Colonel White, real name Wyt. It worked well enough that a gang snatched him and put him in a remote workshop to build fifty silencers for them. He asked why they didn't just approach him in his shop in the normal way of business, to which they replied that ordering so many silencers might attract attention. Logical enough.

Scotland Yard warned Watson not to make any Robin Hood jokes to the Sheriff of Nottingham, and sent the duo on their way with official blessings. Two of the gang were caught and seemed to be political activists, so the guns were not for mundane criminal activities.

Further alarums and an excursion through Sherwood Forest eventually liberated Burton. The gang were Danish, hoping to liberate Heligoland from the Kaiser's iron fist. (The island is still German territory today.)

They outwitted Holmes. Their leader Lydia Wyt made it into the Danish embassy in London, from which she could not be extracted. The story broke off there without a resolved ending, but was continued in the next volume of pastiches.

"The Mysterious Horseman" was both a sequel to the Silver Blaze canon story and a crossover with an American old-time radio show. Colonel Ross had long since put his horse Silver Blaze out to stud and had settled back into the quiet routine of a country squire.

Ross was hosting an American horse breeder Jim Reese who had brought a horse from the USA for breeding purposes. A stranger was seen stalking Reese from a distance. Holmes and Watson were asked to investigate.

Reese said he was a Texas circuit lawyer. He suspected he was being tracked by the son of a man he had prosecuted and sent to hang. Holmes busily accumulated clues and in the traditional manner withheld that information from Watson.

There was a clever twist in the ending. The stalker was disposed of in a gun battle, which was the mundane part of the plot. Reese was not who he said he was. The reader who knows old westerns will guess in the last chapter that Reese was actually John Reid, better remembered as The Lone Ranger.

"The Adventure Of The Italian Gourmet" had a predictable plot. Holmes and Watson dined at an Italian restaurant, a new experience for the latter, who had never heard of lasagne. The proprietor Giuseppe Rivano was an old friend of Holmes, who had saved his daughter Carmen from an arranged marriage gone wrong.

A food critic John Valentine gave the restaurant an undeserved vicious review. When Valentine was murdered a day later, Rivano was the obvious suspect. Holmes deduced that a sailor newly arrived from Italy was continuing an ancient vendetta, using the late Valentine as a proxy.

Holmes soon had the perpetrator in jail with deductions based on his previous case with Rivano. And so to the restaurant for a hearty plate of spaghetti and meatballs. The dessert was a final twist, a dower for Carmen, the estate of Valentine, who had no known next of kin. One suspects the estate wasn't properly probated but as Holmes observed several times previously, the law and justice are not the same thing.

"The Judgement Of Dr Watson" was the final story in this volume, and far off canon. While the plot was clever, it was too much of a mix between the characters and reality, viz, Sir Arthur Conan Doyle.

The story began with an ambitious young prosecutor named Parsons. He was out to make a name for himself by prosecuting Holmes and Watson for the break-and-enters and other crimes they had committed while solving cases. Those cases were subsequently published in THE STRAND MAGAZINE.

Parsons took those stories as fact and laid charges. After giving the duo some worrisome moments, he fell hard on two points. Firstly the stories were published as fiction, and secondly they were edited by Watson's agent Doyle and again by the STRAND editor. This left reasonable doubt and Parsons suffered an ignominious defeat.

Doyle was called to the witness stand. While Sherlockians have long enjoyed the idea that he was Watson's agent, interjecting him into the story was a mashup that simply didn't work.

Old-Time Radio.

Sherlock Holmes was very successful on radio. He aired on several networks with several sets of actors from 1930 to 1956, encompassing the entire lifespan 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.otrrlibrary.org.)

"The Case Of The Bleeding Chandelier" was written by Edith Meiser and aired on 1948-06-13. The MacGuffin of the episode was a chandelier in Mortlake Castle, made of Russian silver and said to drip blood whenever someone in the castle was about to die.

Holmes received a letter from Mort Bay in north Devonshire, sent by the widow of Samuel Pridgett, First Baron Waterhole, the late ginger beer tycoon. Lady Amelia was visiting Mortlake Castle, in contemplation of her second marriage. She found a threatening note pinned to her pillow. She appealed to Holmes for help. Off to Devonshire on the late train.

Lady Amelia met Holmes and Watson at the railway station. As they rode to the castle, she provided an infodump about the chandelier. An earlier Mortlake had dallied with a Russian princess, bringing back her and the chandelier.

Princess Sonja was not good with the hired help. When she whipped an Irish maid, the colleen laid a Gaelic curse on her. Sonja subsequently died the hard way, found hanging from the chandelier. Since then, it was said blood would drip from the chandelier whenever catastrophe was imminent.

Jumping forward in time, Lady Amelia was betrothed to Lord Roger Mortlake. She was rich and he had social rank, so it was a marriage for mutual benefit as well as love. They had known each other decades ago but his father had opposed the marriage, so instead he married a local woman named Burdock, since deceased.

Lady Amelia said she was opposed in the marriage by several people in the household, such as Roger's son James and Burdock's elderly lady in waiting. Roger's daughters and his brother Hubert were in favour of the marriage, recognizing the advantages of having money in the family.

By now it was the halfway point in the episode and the carriage party had not yet reached the castle. The infodump, still in progress, switched to the wedding rehearsal. Lady Amelia said the toasts were drunk with mead, not champagne.

This gave Holmes an opportunity to expound on how mead was made with honey, he being an amateur apiarist. Lady Amelia told him Hubert was the resident beekeeper, and the mead was produced from an ancient family recipe dating back to their Saxon ancestors.

At the 16-minute mark, something finally happened. The carriage was halted when Benjamin the driver spotted a dead sheep, its throat slashed and its blood drained. Benjamin declared there be evil afoot and the chandelier would drip blood tonight. That's alright then, as long as there weren't more infodumps.

The wedding party rehearsal concluded at a banquet table underneath the chandelier. With only four minutes left in the episode, the damned thing finally began bleeding. Screams resounded, but Holmes had brought along his chemistry kit.

Sheep's blood it was, the same as splattered on Hubert's boots, which only Holmes noticed. Hubert blabbed all. He loved Amelia and hated Roger. He had added the blood to the candles. He then dived out the window to his death, as well he might, since there was barely time left for the final commercial.

"The Adventure Of The Bloodstained Goddess" was written by Howard Merrill and aired on 1949-02-07. The client was a Chinaman named Keng Kwan, obviously portrayed by a Caucasian actor who learned his Chinese accent from watching Hollywood movies. He had journeyed from China in search of a rebel leader, a young woman named Madame Tarshi, with a view to stopping yet another revolution in the Middle Kingdom.

Keng believed Tarshi was in London and wanted Holmes to find her. Her death would end the revolution. Holmes did not attempt to search for her, believing correctly that she would find him. Her assistant Choong Fu soon arrived at 221B. He presented her side of the story. Holmes was noncommital.

Someone assassinated Choong as soon as he stepped back out into Baker Street. Holmes deduced that the opium dens of the Limehouse slum was the place to investigate, and with a nervous Watson following, off they went. Everyone met up with Madame Tarshi for assorted infodumps and J'accuse! speeches.

Holmes was swayed by her arguments and therefore pretended he hadn't found her. He proved Keng had murdered Choong and had him sent to Newgate Prison. When this episode was aired in 1949, the Communists were winning the civil war in China. The context and comparison would not have escaped the listening audience at the time.

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.

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 show episodes were zero-reset.

The episodes are in the public domain and therefore available in several different DVD box sets. The collection I'll cite here is from the set issued by St. Clair Entertainment, "Ultimate Sherlock Holmes TV".

"The Case Of The Split Ticket" was written by Lou Morheim and aired on 1955-01-10. Brian O'Casey was the desperate client. He had taken a one-third share in a sweepstakes ticket, the other thirds with Belle Rogers, a bakery shopgirl, and Albert Snow, an old friend of O'Casey. They tore the ticket into three parts so that no one could steal the prize money if they won.

The ticket paid off £8,000, say about a half million dollars in today's currency. Snow vanished from sight, leaving O'Casey in the lurch. Holmes went to the bakery where Rogers had worked, only to be informed that she had quit her job, taking with her a white wedding cake. It was an easy deduction that she and Snow had gotten married.

Snow stayed out of sight but she reappeared to O'Casey, claiming to have been a victim as well. She made a show of tearing up her third of the ticket and tossing it into a fireplace. She then asked O'Casey for his third and was about to do the same when Holmes interrupted. He grabbed it out of her hands, inspected it, and then gave it back to her.

He had palmed the ticket and substituted a portion from a losing ticket, just as she had intended to do with O'Casey's portion. Sometime later, she and Snow appeared at 221B, much chagrined when they found out they didn't have O'Casey's portion to claim the money. Watson kindly suggested that they agreed to give O'Casey half the money in lieu of him calling upon the police. Justice was served.

"The Case Of The Singing Violin" was written by Kay Krausse and aired on 1955-01-24. A young woman Betty Dunham was haunted by a ghostly violinist. Her stepfather told her fiancé that she was going insane. The marriage could not take place because he was committing her to an insane asylum. The fiancé went to 221B but was shot dead in the street before he could enter the house.

The plot seemed obvious and was. Dunham was heir to a fortune when she married. Until then her stepfather controlled the purse strings. If she died before marriage, he would inherit, her mother being dead. His plan was to kill her in the hospital with a morphine overdose but Holmes foiled him as we knew he would. A routine episode based on the canon story "The Speckled Band".

Movies.

Anchor Bay Entertainment produced a set of four made-for-television movies titled "Sherlock Holmes Collection". I reviewed the first movie THE HOUND OF THE BASKERVILLES in OPUNTIA #423. The scenery and settings were filmed in the old town district of Montreal, which gave the movies an authentic feel.

Matt Frewer starred as Holmes. If you've seen him once, you'll never forget his face. He has a huge lantern jaw and a skeletal visage that makes him look like a living skull. He played Holmes as a bit of a poofter. There was an hilarious scene in one of the movies where he grandly announced himself and received only blank stares. It turned out that not everyone read THE STRAND MAGAZINE.

THE SIGN OF FOUR (2001) screenplay was written by Joe Wiesenfeld. SIGN is a canon story, of course. The movie took some liberties with the original but not excessively so. The basic plot was the same, that of jewel thieves taking revenge against the Sholto family for their betrayal.

The major change was that the heroine Mary Morstan did not become Watson's wife but instead married Thaddeus Sholto, one of the major characters. That actually made more sense, since Watson was played by middle-aged Kenneth Welsh, whereas Sholto and Morstan were a young couple better suited to each other.

As with the 1932 movie version of SIGN (reviewed in issue #486 of this zine), this movie opened with the jewel theft in faraway Agra, India, decades prior. In the novel, Doyle buried the theft at the back end as an extended flashback, which was a mistake. Flashback scenes usually are. Both movies were correct in putting the theft at the beginning, so the viewer would not be lost in following the plot.

THE ROYAL SCANDAL (2001) was a mixture of "A Scandal In Bohemia" and "The Bruce-Partington Plans" from the canon. Joe Wiesenfeld wrote the screenplay and managed to interlink the two stories reasonably well, although the former story dominated.

Sherlock's brother Mycroft, Irene Adler, and a complicated plot illustrated all sorts of international intrigue. The German prince wanted to recover a compromising photo of him with Adler. She wanted to keep it as insurance to prevent herself from being eradicated as an inconvenient memory of the past.

She was also conspiring to pass on to the Germans secret plans that were strewn with errors. The idea was to sabotage them if they built the machines. Much chasing about, and the cobblestones of old Montreal got a good workout.

THE CASE OF THE WHITECHAPEL VAMPIRE (2002) was the fourth of these movies, a pastiche written by Rodney Gibbons. Anglican monks were dying with puncture marks in their necks. St Justinian's Abbey in Whitechapel was losing its monks fast enough that Holmes was called in to stop the hemorrhaging, pardon the pun.

Many of the monks had just returned from Guyana where they had encountered vampire bats and rabies. Dracula and Jack the Ripper were none too subtly implied. Besides the bite marks in throats, the murderer was painting slogans on the walls in blood. The culprit was eventually revealed to be a monk who had survived infection with rabies in Guyana and as a result was tetched in the head.

The first part of the movie portrayed events in a supernatural light. Eventually Holmes supplied rational explanations. The pacing of the movie was slow, with lots of talking by characters. And yes, the abbey had bats in its belfry.

ALTERNATIVE HISTORY REVIEWS: PART 11

by Dale Speirs

[Parts 1 to 10 appeared in OPUNTIA #67.1E, 68.1B, 291, 303, 304, 312, 336, 370, 453, and 470. See also the cumulative subject index of OPUNTIA for others.]

Two-Gun Bob.

BOB HOWARD: A COWBOY IN CARPATHIA (2020) by Teel James Glenn was the first novel of a projected series set in an alternative timeline. The point of divergence was that Robert E. Howard, the inventor of sword and sorcery fiction, did not commit suicide on June 11, 1936, in his home town of Cross Plains, Texas.

In our timeline, he had visited his dying mother, then went out into the hospital parking lot and shot himself in the head rather than live in a world without her. She died a day later. In the divergence, he put down the gun at the last second, got out of his car, and walked back to her hospital bed to sit with her until the final moments.

The divergence picked up the action again three months later. After helping his father settle his mother's estate, Howard decided to travel and see the world. He stayed a few weeks in New York City, then set sail for Europe, landing in England.

Being from Texas, he dressed western and thus was quite noticeable to the local citizenry. Looking to absorb some of the local colour, Howard stepped into the Hanged Man pub for a beer. The locals watched him as much as he watched them. He discovered the hard way that the English drink their beer warm.

A pub regular named William Pratt struck up a conversation. He told Howard that he had just returned to England after working in Canadian lumber camps. He had also drifted south of the border to Hollywood, where he lost the part of Frankenstein's monster to a Hungarian actor named Bella Lugosi. If you know that Pratt's stage name was Boris Karloff, then you can guess where another divergence occurred. And yes, in our timeline he really had been a Canadian lumberjack.

Pratt was employed on the Harker estate out in the English moors. He took Howard along but unbeknownst to either, the matriarch and her son were tainted by Transylvanian blood of the worst kind. The Texan ran afoul of the Harkers, mater et filius. He found himself living through sword-and-sorcery adventures which were a lot harder on his person than he imagined when typing them up as fiction. He survived the twist ending.

From England, Howard proceeded to Paris to pick up a few plot coupons. He then flew to Bucharest for the main alarums. En passant there were a few more historical divergences sprinkled in, such as a newspaper story about Heinrich Himmler, der fuhrer of the Nazi party.

Howard made his way into the back country of Romania, fighting off murderous attacks along the way. Someone didn't want him there. Nonetheless he rode into the mountain village of Stregga, where a foreboding castle loomed high above the ancient Roman road.

There were many excursions hither and yon across the Romanian and Hungarian countryside. Dracula had been revived and bwah-ha!-ha!-ed at Cowboy Bob, come to rescue the fair maiden. Six-shooters didn't work but shotguns loaded with silver shot did the job, which was what finally stopped the voivode.

A rootin' tootin' shootin' action adventure. I'm sure if this novel is successful then we will see Two-Gun Bob (as H.P. Lovecraft liked to call him) wend his way through other adventures.

SEEN IN THE LITERATURE

Kocifaj, M., et al (2021) **The proliferation of space objects is a rapidly increasing source of artificial night sky brightness.** MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 504:doi.org/10.1093/mnrasl/slab030 (available as a free pdf)

Authors' abstract: *The population of artificial satellites and space debris orbiting the Earth imposes non-negligible constraints on both space operations and ground-based optical and radio astronomy.*

The ongoing deployment of several satellite 'mega-constellations' in the 2020s represents an additional threat that raises significant concerns. The expected severity of its unwanted consequences is still under study, including radio interference and information loss by satellite streaks appearing in science images.

In this Letter, we report a new skyglow effect produced by space objects: increased night sky brightness caused by sunlight reflected and scattered by that large set of orbiting bodies whose direct radiance is a diffuse component when observed with the naked eye or with low angular resolution photometric instruments.

According to our preliminary estimates, the zenith luminance of this additional light pollution source may have already reached ~20 μcd m-2, which amounts to an approximately 10 per cent increase over the brightness of the night sky determined by natural sources of light. This is the critical limit adopted in 1979 by the International Astronomical Union for the light pollution level not to be exceeded at the sites of astronomical observatories.

Boley, A.C., and M. Byers (2021) **Satellite mega-constellations create risks in Low Earth Orbit, the atmosphere, and on Earth.** SCIENTIFIC REPORTS 11:doi.org/10.1038/s41598-021-89909-7 (available as a free pdf)

Authors' abstract: *The rapid development of mega-constellations risks multiple tragedies of the commons, including tragedies to ground-based astronomy, Earth orbit, and Earth's upper atmosphere. Moreover, the connections between the Earth and space environments are inadequately taken into account by the adoption of a consumer electronic model applied to space assets.*

For example, we point out that satellite re-entries from the Starlink mega-constellation alone could deposit more aluminum into Earth's upper atmosphere than what is done through meteoroids. They could thus become the dominant source of high-altitude alumina.

Using simple models, we also show that untracked debris will lead to potentially dangerous on-orbit collisions on a regular basis due to the large number of satellites within mega-constellation orbital shells. The total cross-section of satellites in these constellations also greatly increases the risk of impacts due to meteoroids.

De facto orbit occupation by single actors, inadequate regulatory frameworks, and the possibility of free-riding exacerbate these risks. International cooperation is urgently needed, along with a regulatory system that takes into account the effects of tens of thousands of satellites.

Companies are placing satellites into orbit at an unprecedented frequency to build 'mega-constellations' of communications satellites in Low Earth Orbit (LEO). In two years, the number of active and defunct satellites in LEO has increased by over 50%, to about 5,000 (as of 30 March 2021).

SpaceX alone is on track to add 11,000 more as it builds its Starlink mega-constellation and has already filed for permission for another 30,000 satellites with the Federal Communications Commission (FCC). Others have similar plans, including OneWeb, Amazon, Telesat, and GW, which is a Chinese state-owned company.

Bonati, I., et al, (2021) **Structure and thermal evolution of exoplanetary cores.** JOURNAL OF GEOPHYSICAL RESEARCH: PLANETS 126:doi.org/10.1029/2020JE006724 (available as a free pdf)

Authors' abstract: *Earth's magnetic field is powered by vigorous convection in its liquid metallic outer core. The presence of a magnetic field is thought to accommodate habitable surface conditions by shielding the planetary upper atmosphere from harmful solar radiation.*

The longest-lived magnetic fields are obtained for massive planets having intermediate iron contents. Iron-rich planets tend to grow fully solid cores, hindering any further magnetic activity. The presence of a small fraction of light core impurities can help prolong magnetic field lifetimes.

Most of the large rocky bodies in the solar system display evidence of past and/or current magnetic activity, driven by thermochemical convection in an electrically conducting fluid layer. The discovery of a large number of extrasolar planets motivates the search for magnetic fields beyond the solar system.

While current observations are limited to providing planetary radii and minimum masses, studying the evolution of exoplanets' magnetic fields and their interaction with the atmosphere can open new avenues for constraining interior properties from future atmospheric observations.

Here, we investigate the evolution of massive rocky planets (0.8 - 2 Earth masses) with different bulk and mantle iron contents. Starting from their temperature profiles after accretion, we determine the structure of the core and model its subsequent thermal and magnetic evolution over 5 gigayears.

We find that the planetary iron inventory and distribution strongly affect core structure, evolution, and the lifetime of a magnetic field. Planets with large bulk and mantle iron contents tend to feature large solid inner cores, which can grow up to the liquid outer core radius, shutting down any pre-existing magnetic activity. Consequently, the longest dynamo lifetimes (~ 4.25 Gyr) are obtained for massive planets with intermediate iron inventories.

The smaller inner core radii and the chemical buoyancy fluxes introduced by the presence of light impurities can extend the magnetic field lifetimes to more than 5 Gyr. While the calculated magnetic fields are too weak to be detected by ground facilities, indirect observations may provide valuable insights into exoplanetary dynamos.

Sholes, S.F., et al (2021) **Where are Mars' hypothesized ocean shorelines? Large lateral and topographic offsets between different versions of paleoshoreline maps.** JOURNAL OF GEOPHYSICAL RESEARCH: PLANETS 126:doi.org/10.1029/2020JE006486

Authors' abstract: *Mars' controversial hypothesized ocean shorelines have been found to deviate significantly from an expected equipotential surface. While multiple deformation models have been proposed to explain the wide*

range of elevations, here we show that the historical locations used in the literature and in these models vary widely.

We find that the most commonly used version of the Arabia Level does not follow the originally described contact and can deviate laterally by ~500 km in Deuteronilus Mensae. A meta-analysis of different published maps shows that, globally, the minimum lateral offsets between the locations of the putative Arabia and Deuteronilus shorelines vary by an average of 141 ± 142 km and 180 ± 177 km, respectively.

This leads to mean elevations of the Arabia Level that vary by up to 2.2 km between different mappings, and topographic ranges within each global mapping ranging from 2.7 to 7.7 km. The younger Deuteronilus Level has less topographic variation as it largely follows a formal contact (the Vastitas Borealis Formation) within the relatively flat northern plains.

Given the high variance in position (spatial and topographic) of the maps, the use of such data and conclusions based on them are potentially problematic.

Whether oceans ever existed on Mars is controversial, with support largely coming from hypothesized ancient shorelines. As with modern shorelines on Earth, possible ancient martian shorelines are expected to be approximately level, but past studies found that the two main global shoreline mappings have elevation ranges from about one to several kilometers, respectively.

Here, we remap segments of the proposed shorelines based on their original geomorphic definitions and find that modern maps vary laterally by hundreds of kilometers from our segments mapped using higher resolution data. Additionally, we compare maps of potential shorelines over time.

We find that maps are both inconsistent and inaccurate with their placement of hypothesized shorelines. Lateral offsets between different maps locally exceed a thousand kilometers. This disagreement with the poorly understood location of the potential shorelines can explain, in part, the observed elevation differences. Our results question the usefulness of putative shorelines as evidence for ancient martian oceans and implies the need for more detailed, revised mappings and scrutiny.

Speirs: The map is not the territory, as the old saying goes.

Pompidor, N., et al (2021) **Three founding ancestral genomes involved in the origin of sugarcane.** ANNALS OF BOTANY 127:doi.org/10.1093/aob/mcab008 (available as a free pdf)

[Polyploids are species which have duplicated sets of chromosomes. Most animals, including humans, are diploid (two sets) but plants commonly have three or more sets of chromosomes.]

Authors' abstract: *Interspecific hybridization, sometimes accompanied by polyploidization, is an important evolutionary process in plants and is associated with the domestication and/or diversification of some major crops, e.g. banana, citrus, date palm, rice, and wheat. Polyploids are generally divided into two categories: autopolyploids, which formed within a single species, and allopolyploids, which resulted from hybridization between two or more species.*

Modern sugarcane cultivars (Saccharum spp.) are high polyploids, aneuploids (2n = ~12x = ~120) derived from interspecific hybridizations between the domesticated sweet species Saccharum officinarum and the wild species S. spontaneum.

Sugarcane belongs to Saccharum sensu stricto, a genus composed exclusively of higher-order polyploid (>4x) species. Despite its huge economic importance, the origin of sugarcane and the evolutionary history and taxonomy of the genus Saccharum (Poaceae; Andropogoneae) and its species are largely unresolved.

To analyse the architecture and origin of such a complex genome, we analysed the sequences of all 12 hom(oe)ologous haplotypes (BAC clones) from two distinct genomic regions of a typical modern cultivar, as well as the corresponding sequence in Miscanthus sinense and Sorghum bicolor, and monitored their distribution among representatives of the Saccharum genus.

The diversity observed among haplotypes suggested the existence of three founding genomes (A, B, C) in modern cultivars, which diverged between 0.8 and 1.3 megayears ago. Two genomes (A, B) were contributed by S. officinarum; these were also found in its wild presumed ancestor S. robustum, and one genome (C) was contributed by S. spontaneum.

These results suggest that S. officinarum and S. robustum are derived from interspecific hybridization between two unknown ancestors (A and B genomes).

The A genome contributed most haplotypes (nine or ten) while the B and C genomes contributed one or two haplotypes in the regions analysed of this typical modern cultivar.

Interspecific hybridizations likely involved accessions or gametes with distinct ploidy levels and/or were followed by a series of backcrosses with the A genome. The three founding genomes were found in all S. barberi, S. sinense and modern cultivars analysed. None of the analysed accessions contained only the A genome or the B genome, suggesting that representatives of these founding genomes remain to be discovered.

Adame, M.F., et al (2021) **Mangrove sinkholes (cenotes) of the Yucatan Peninsula, a global hotspot of carbon sequestration.** BIOLOGY LETTERS 17:doi.org/10.1098/rsbl.2021.0037 (available as a free pdf)

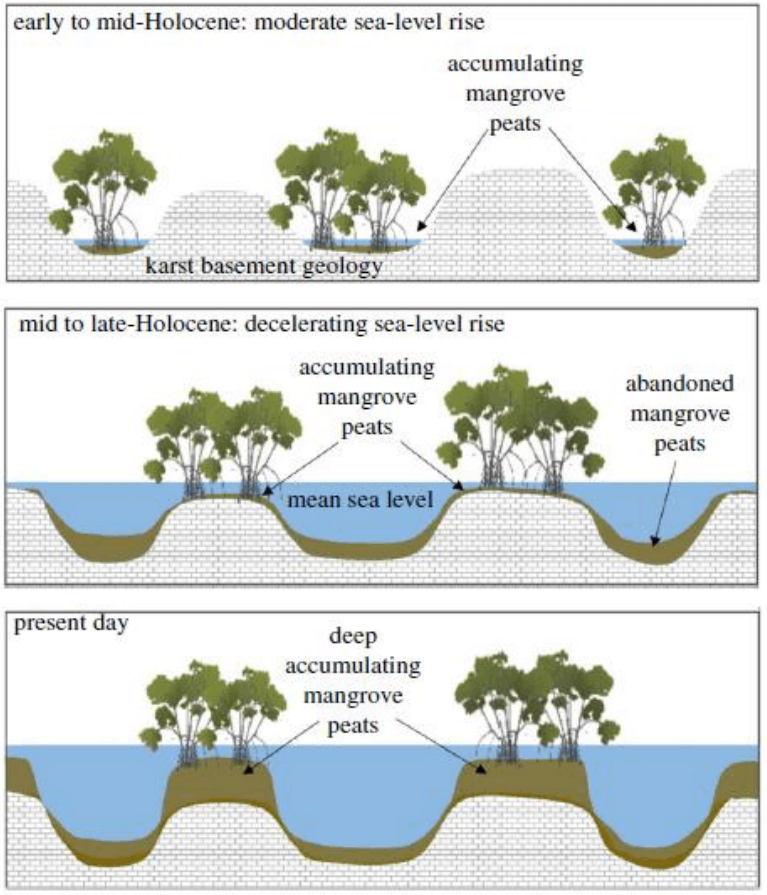
Authors' abstract: *Mangroves are among the most carbon-dense ecosystems on the planet. The capacity of mangroves to store and accumulate carbon has been assessed and reported at regional, national and global scales. However, small-scale sampling is still revealing 'hot spots' of carbon accumulation.*

This study reports one of these hotspots, with one of the largest-recorded carbon stocks in mangroves associated with sinkholes (cenotes) in the Yucatan Peninsula, Mexico. We assessed soil organic carbon (SOC) stocks, sequestration rates and carbon origin of deep peat soils (1 to 6 m). We found massive amounts of SOC up to 2792 Mg C ha-1, the highest value reported in the literature so far.

This SOC is primarily derived from highly preserved mangrove roots and has changed little since its deposition, which started over 3,220 years ago (±30 BP). Most cenotes are owned by Mayan communities and are threatened by increased tourism and the resulting extraction and pollution of groundwater.

These hot spots of carbon sequestration, albeit small in area, require adequate protection and could provide valuable financial opportunities through carbon-offsetting mechanisms and other payments for ecosystem services.

[Images are from this paper.]



Guzzon, F., et al (2021) **Seed longevity of maize conserved under germplasm bank conditions for up to 60 years.** ANNALS OF BOTANY 127:doi.org/10.1093/aob/mcab009

Authors' abstract: *The long-term conservation of seeds of plant genetic resources is of key importance for food security and preservation of agrobiodiversity. Nevertheless, there is scarce information available about seed longevity of many crops under germplasm bank conditions.*

Through germination experiments as well as the analysis of historical monitoring data, we studied the decline in viability manifested by 1,000 maize (Zea mays subsp. mays) seed accessions conserved for an average of 48 years at the CIMMYT germplasm bank, the largest maize seedbank in the world, under two cold storage conditions: an active (–3 ˚C; intended for seed distribution) and a base conservation chamber (–15 ˚C; for long-term conservation).

Seed lots stored in the active chamber had a significantly lower and more variable seed germination, averaging 81.4 %, as compared with the seed lots conserved in the base chamber, averaging 92.1 %. The average seed viability detected in this study was higher in comparison with that found in other seed longevity studies on maize conserved under similar conditions.

A significant difference was detected in seed germination and longevity estimates (e.g. p85 and p50) among accessions. Correlating seed longevity with seed traits and passport data, grain type showed the strongest correlation, with flint varieties being longer lived than floury and dent types.

The more rapid loss of seed viability detected in the active chamber suggests that the seed conservation approach, based on the storage of the same seed accessions in two chambers with different temperatures, might be counterproductive for overall long-term conservation and that base conditions should be applied in both.

The significant differences detected in seed longevity among accessions underscores that different viability monitoring and regeneration intervals should be applied to groups of accessions showing different longevity profiles.

Rich, M.K., et al (2021) **Lipid exchanges drove the evolution of mutualism during plant terrestrialization.** SCIENCE 372:doi.org/10.1126/science.abg0929

Authors' abstract: *Hundreds of millions of years ago, evolved descendants of aquatic plants began showing up on dry land. These newly terrestrialized species had to deal with increased ultraviolet light exposure, desiccation, and less accessible nutrients. We show how mutualist fungi may have helped these nascent plant lineages with adaptation to their newly challenging environment.*

Genetic and metabolic analysis of a liverwort as a representative of such plants suggests that the mutually beneficial exchange of nutrients with arbuscular mycorrhizal fungi may have been a feature of these most early land plants.

Symbiosis with arbuscular mycorrhizal fungi (AMF) improves plant nutrition in most land plants, and its contribution to the colonization of land by plants has been hypothesized. Here, we identify a conserved transcriptomic response to AMF among land plants, including the activation of lipid metabolism.

Using gain of function, we show the transfer of lipids from the liverwort Marchantia paleacea to AMF and its direct regulation by the transcription factor WRINKLED (wri). Arbuscules, the nutrient-exchange structures, were not formed in loss-of-function wri mutants in M. paleacea, leading to aborted mutualism.

Our results show the orthology of the symbiotic transfer of lipids across land plants and demonstrate that mutualism with arbuscular mycorrhizal fungi was present in the most recent ancestor of land plants 450 million years ago.

Lan-Jie Huang and Wen-Long Fu (2021) **A water drop-shaped slingshot in plants: geometry and mechanics in the explosive seed dispersal of *Orixa japonica* (Rutaceae).** ANNALS OF BOTANY 127:doi.org/10.1093/aob/mcab017

[Angiosperms are the flowering plants. A pericarp is the outer wall of a fruit. Dehiscence is the splitting open of a fruit to release the seeds. Don't confuse soft fleshy fruits for the dining table with the botanical definition, which includes dry, hard seeds with the same structure.]

Authors' abstract: *In angiosperms, many species disperse their seeds autonomously by rapid movement of the pericarp. The fruits of these species often have long rod- or long plate-shaped pericarps, which are suitable for ejecting seeds during fruit dehiscence by bending or coiling. However, here we show that fruit with a completely different shape can also rely on pericarp movement to disperse seeds explosively, as in Orixa japonica.*

During fruit dehydration, the water drop-shaped endocarp of O. japonica with sandwich structure produced two-way bending deformation and cracking, and its width increased more than three-fold before opening.

Meanwhile the same shaped exocarp with uniform structure could only produce small passive deformation under relatively large external forces. The endocarp forced the exocarp to open by hygroscopic movement before seed launching, and the exocarp provided the acceleration for seed launching through a reaction force.

Two layers of water drop-shaped pericarp in O. japonica form a structure similar to a slingshot, which launches the seed at high speed during fruit dehiscence. The results suggest that plants with explosive seed dispersal appear to have a wide variety of fruit morphology, and through a combination of different external shapes and internal structures, they are able to move rapidly using many sophisticated mechanisms.

Sherker, Z.T., et al (2021) **Pacific Great Blue Herons (*Ardea herodias fannini*) consume thousands of juvenile salmon (*Oncorhynchus* spp.).** CANADIAN JOURNAL OF ZOOLOGY 99:doi.org/10.1139/cjz-2020-0189

Authors' abstract: *An array of predators that consume juvenile salmon (genus Oncorhynchus Suckley, 1861) may account for the poor returns of adult salmon to the Salish Sea. However, the Pacific Great Blue Heron (Ardea herodias fannini Chapman, 1901) is rarely listed among the known salmon predators, despite being regularly seen near salmon streams.*

Investigating heron predation by scanning nesting sites within 35 km of three British Columbia (Canada) rivers for fecal remains containing passive integrated transponder (PIT) tags implanted in >100 000 juvenile salmon from 2008 to 2018 yielded 1205 tags, representing a minimum annual predation rate of 0.3% to 1.3% of all juvenile salmon. Most of this predation (99%) was caused by ~420 adult Pacific Great Blue Herons from three heronries. Correcting for tags defecated outside of the heronry raised the predation rates to 0.7% to 3.2%, and was as high as 6% during a year of low river flow. Predation occurs during chick-rearing in late spring and accounts for 4.1% to 8.4% of the Pacific Great Blue Heron chick diet.

Smaller salmon smolts were significantly more susceptible to Pacific Great Blue Heron predation than larger conspecifics. The proximity of heronries relative to salmon-bearing rivers is likely a good predictor of Pacific Great Blue Heron predation on local salmon runs, and can be monitored to assess coast-wide effects of Pacific Great Blue Herons on salmon recovery.

Yeager, M., et al (2021) **Lack of transgenerational effects of ionizing radiation exposure from the Chernobyl accident.** SCIENCE 372:doi.org/10.1126/science.abg2365

Authors' abstract: *We analyzed the genomes of 130 children and parents from families in which one or both parents had experienced gonadal radiation exposure related to the Chernobyl accident and the children were conceived between 1987 and 2002. Reassuringly, the authors did not find an increase in new germline mutations in this population.*

We investigated germline de novo mutations (DNMs) in children born to parents employed as cleanup workers or exposed to occupational and environmental ionizing radiation after the accident. Whole genome sequencing of 130 children (born 1987 to 2002) and their parents did not reveal an increase in the rates, distributions, or types of DNMs relative to the results of previous studies.

We find no elevation in total DNMs, regardless of cumulative preconception gonadal paternal or maternal exposure to ionizing radiation. Thus, we conclude that, over this exposure range, evidence is lacking for a substantial effect on germline DNMs in humans, suggesting minimal impact from transgenerational genetic effects.

Speirs: So much for all those Hollywood monster movies and superhero comic books.

Kawasaki, J., et al (2021) **100-My history of bornavirus infections hidden in vertebrate genomes.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 118:doi.org/10.1073/pnas.2026235118

[Bornaviruses cause encephalitis in livestock, wild mammals, and humans. It has been suggested they may be responsible for schizophrenia and affective psychoses in humans.]

Authors' abstract: *Many viral diseases have emerged in recent decades, but prehistoric viral infections remain poorly understood. In some cases, nucleotide sequences of ancient viruses, which infected ancestral animals, have been integrated into their genomes during evolution. Such "molecular fossil records" of viruses help researchers trace past viral infections.*

Here, we reconstructed the infection history of an RNA virus, the bornavirus, for approximately 100 million years in vertebrate evolution, using molecular fossils of ancient bornaviruses. Our analyses using ancient bornaviral sequences from over 100 vertebrate species genomes indicated that bornaviruses infected a broader range of host lineages during their long-term evolution than expected from extant bornaviral host ranges.

Although viruses have threatened our ancestors for millions of years, prehistoric epidemics of viruses are largely unknown. Endogenous bornavirus-like elements (EBLs) are ancient bornavirus sequences derived from the viral messenger RNAs that were reverse transcribed and inserted into animal genomes, most likely by retrotransposons. These elements can be used as molecular fossil records to trace past bornaviral infections.

In this study, we systematically identified EBLs in vertebrate genomes and revealed the history of bornavirus infections over nearly 100 My. We confirmed that ancient bornaviral infections have occurred in diverse vertebrate lineages, especially in primate ancestors.

Phylogenetic analyses indicated that primate ancestors were infected with various bornaviral lineages during evolution. EBLs in primate genomes formed clades according to their integration ages, suggesting that bornavirus lineages infected with primate ancestors had changed chronologically. However, some bornaviral lineages may have coexisted with primate ancestors and underwent repeated endogenizations for tens of millions of years.

Moreover, a bornaviral lineage that coexisted with primate ancestors also endogenized in the genomes of some ancestral bats. The habitats of these bat ancestors have been reported to overlap with the migration route of primate ancestors. These results suggest that long-term virus-host coexistence expanded the geographic distributions of the bornaviral lineage along with primate migration and may have spread their infections to these bat ancestors.

Ottaway, S., and A. Mason (2021) **Reconsidering Poor Law institutions by virtually reconstructing and reviewing an Eighteenth-Century workhouse.** HISTORICAL JOURNAL 64:doi.org/10.1017/S0018246X20000448

Authors' abstract: *There is a fine timber moulded cornice in a front room of the building that was once the House of Industry at Gressenhall, Norfolk, while along the eastern wing of the building one can still see the architectural features of an elegant open arcade. Why were such features included on a structure built to keep the poor at work, where residents spent their days making sacks, spinning, and working in the farm fields that surrounded the institution?*

Creating a digital 3D model of the 1777 House of Industry has allowed us to peel back the historical residue of the post-1834 Poor Law Union workhouse and re-engage the building's architectural features in their original context.

The resulting building's peculiarly elegant characteristics reflect the emerging ambitions and defensiveness characteristic of the newly constituted 'guardians of the poor' who constructed it, while its permeable walls indicate considerably lower barriers between the workhouse and the outside world than is generally thought.