OPUNTIA 443

Victoria Day 2019

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OTAFEST 2019

2019-05-18

photos by Dale Speirs

[Reports of previous Otafests appeared in OPUNTIAs #346, 382, and 414.]

Calgary's annual anime convention Otafest, with about 8,000 paid members, went this year on the Victoria Day weekend at the Telus Convention Centre downtown on the Stephen Avenue pedestrian mall. They don't have a big parade like the Calgary Comic Expo a month prior but the cosplayers perambulate along the mall and pose for photos. May and June are the rainy season in Alberta, so the weekend had showers and sprinkles, but nothing to keep a dedicated cosplayer away.

I don't attend this convention nor read anime, but I'm always on the lookout for zine material. Media fans and cosplayers have long since swept away the idea that zinesters and book readers are the true fans, in Calgary as in every other big city in the world. Traditional fans puff themselves up over the Worldcon, but that is a small-time convention to the hotel industry.

Taken at the Olympic Plaza, a half-block east of the Telus Convention Centre.
It wasn't as wet as it looks, just a very light sprinkle of rain.

IF YOU AREN'T SQUAMOUS,
THEN WHY ARE YOU TRYING TO BE ELDRITCH?: PART 10
by Dale Speirs

[Parts 1 to 9 appeared in OPUNTIAs #298, 333, 340, 352, 365, 395, 410, 415, and 422. Issues #22 and 63.1A have related articles on H.P. Lovecraft.]

Archiviana.

No longer do you have to pay fabulous sums for rare pulps just to read a story by a particular author such as H.P. Lovecraft. Many of these items are in a variety of formats as free downloads from either www.gutenberg.org or www.archive.org. I generally download them via wifi on my smartphone as html, then use my browser to convert them into pdfs for later reading on my laptop, which is offline.

For Lovecraftians, many issues of WEIRD TALES have been scanned specifically for HPL's stories. As with most of Lovecraft's work, the plot is ordinary. His writing ability lay in characterizing moods and surroundings, which he did well here. Since his work is now in the public domain, you will have good searching in Project Gutenberg. The front page of this Website has a section for newly scanned books and magazines, or you can use the search engine. Well recommended.

I'm not going to list every appearance by Lovecraft in WEIRD TALES, for that has been done by others. But to take an example, the 1925 January issue has his short story "The Festival". It is an early example of what our modern generation has consolidated into the Cthulhu Mythos.

The narrator had returned to the fishing village of his father, whose inhabitants were not as normal humans. It was Yuletide, and in company with them he joined an ancient ritual:

The man who had brought me now squirmed to a point directly beside the hideous flame, and made stiff ceremonial motions to the semicircle he faced. At certain stages of the ritual they did groveling obeisance, especially when he held above his head that abhorrent "Necronomicon" he had taken with him; and I shared all the obeisances because I had been summoned to this festival by the writings of my forefathers.

Then the old man made a signal to the half-seen fluteplayer in the darkness, which player thereupon changed its feeble drone to a scarce louder drone in another key; precipitating as it did so a horror unthinkable and unexpected. At this horror I sank nearly to the lichened earth, transfixed with a dread not of this nor any world, but only of the mad spaces between the stars.

Out of the unimaginable blackness beyond the gangrenous glare of that cold flame, out of the tartarean leagues through which that oily river rolled uncanny, unheard, and unsuspected, there flopped rhythmically a horde of tame, trained, hybrid winged things that no sound eye could ever wholly grasp, or sound brain ever wholly remember.

Well, you get the idea. Lovecraft was like that. The narrator collapsed and was revived much later, having been found by Arkham villagers, the normal ones that is. The story ended with an extended quote from Lovecraft's greatest invention, the grimoire that never was, the NECRONOMICON. The final sentence is a dandy: "*things have learnt to walk that ought to crawl*".

As another example, the 1938 February issue is available online, containing Lovecraft's short story "From Beyond". This is a mad scientist story about Crawford Tillinghast, who developed a machine that opened up a view of other dimensions.

The narrator was invited into the laboratory where he saw the device in action, and the nasty blobs that lurked on the threshold. Tillinghast was about to use them to kill, kill, kill, but the narrator pulled a handgun and fired it into the machine, destroying the contact with the other dimension. A good practical hero, with none of this nonsense about reversing the polarity.

THE NEW ANNOTATED H.P. LOVECRAFT (2014) is an 852-page doorstop sized hardcover edited by Leslie S. Klinger, about the size and weight of those old-time family Bibles bound in leather and boards. It presents 22 of HPL's stories in chronological order but is more than just a routine collection.

The stories are copiously annotated, not with literary or philosophical remarks but with historical notes about the world as it was when HPL was writing. Lovecraft died in 1937. The bulk of his stories that are remembered today were published in the 1920s and early 1930s. Anyone who was an adult in those decades has gone, so the modern reader will have little recognition of the context of the times.

Like all authors, HPL was influenced by what was going on around him. This would have been obvious to his readership back then, but not to those now living.

The extensive foreword by Klinger reviews the life and times of HPL. It was not intended as a definitive biography as there are several good books on that. Rather, it educates the reader as to where and whence Lovecraft came from and sets the stage for his stories.

Klinger discussed the Cthulhu Mythos, a term never used by Lovecraft himself. It was invented by his acolyte August Derleth, who published his works posthumously and helped preserve his memory. HPL did not set out to write a connected series, but did carry features forward from one story to the next. He referred to the stories, in an offhand manner, as the Arkham cycle or more jocularly as Yog-Sothothery.

Each story in this book is profusely footnoted with explanations about passing mentions or assumed backgrounds that modern readers will probably miss. Knowledge of this material makes each story more understandable in the way it was a century ago. Granted, it does slow down the reading, since every few paragraphs the reader jumps to the footnotes.

On the other hand, what's the rush? These stories are not ephemeral flash fiction or blog posts. They are soon to be centenarians, indicative of their timeless qualities. For the serious Lovecraftian this is a must-have volume. A second volume of annotated stories has been announced for September 2019.

www.fanac.org is a free Website run by a Florida science fiction club who have been scanning and posting thousands of old fanzines from the 1930s to date. If you are doing any kind of research into old-time zines, here is the place to begin. Recently they loaded an 1955 anthology called H.P. LOVECRAFT: MEMOIRS, CRITIQUES, AND BIBLIOGRAPHIES. The title says it all, and will be valuable reading for Lovecraftians. The articles were by people who knew him or corresponded with him, so historians should consider this a primary source for information about HPL and his circle.

Short Stories.

"The Litany Of Earth" by Ruthanna Emrys (2018, in the anthology WORLDS SEEN IN PASSING, edited by Irene Gallo) requires some Lovecraftian knowledge about what happened to the people of Innsmouth. This story is narrated by Aphra Marsh, one of the batrachians of that unfortunate town, who was now living in exile in San Francisco.

She worked in a bookstore, where one day a customer walked in and asked her if she had anything by Al-Hazred, nudge nudge wink wink. It was the beginning of a campaign to recruit her as an agent against some of her own people. She would not give up on her heritage that easily.

LETTERS TO LOVECRAFT (2014) is an anthology of 18 stories edited by Jesse Bullington. Each story opened with the HPL quote that inspired it, and a brief remark by the author as to what it all meant. A few stories looked at here.

"Only Unity Saves The Damned" by Nadia Bulkin veered through assorted weird fiction tropes. Zombie fan teenagers filmed a ghost and immediately posted it online as a found-footage video. You know the kind, an incompetent cameraman who couldn't focus the lens, and whose footage was so shaky it was mostly blurred images of grass, tree branches silhouetted against the sky, and feet. This story eventually wound up with druids in the bayou, and the zombies were absorbed into the trees.

"The Order Of The Haunted Wood" by Jeffrey Ford borrowed HPL's trope of a nocturnal fertility cult and modernized it with hilarious results. The cult did not intend evil but instead made money by leading the big pharmaceutical companies into the erectile dysfunction market. More profits in that, as opposed to dancing naked around a campfire.

"Lovecrafting" by Orrin Grey is a take-off on weird fiction writers who use the premise that HPL had been writing about real things. A pair of writers went looking for Lovecraft's grave in order to dig up his body. An indeterminate ending poked fun at all those clichéd endings. The story was enlivened by extracts from ever-so-earnest fan fiction set in the Mythos. It is even funnier because one can really find such pastiche fiction online.

"Glimmer In The Darkness" by Asamatsu Ken used HPL as a character in the story. It parodied those batrachian folk from Innsmouth, reading as if it were a Tom Swift adventure. The UFOs of the late 1800s that continually buzzed the New England coast were mixed in, which created HPL's inspiration for what later became the Cthulhu Mythos. Most amusing.

RADIO FICTION: PART 11
by Dale Speirs

[Parts 1 to 10 appeared in OPUNTIAs #301, 302, 310, 319, 330, 353, 370, 377, 394, and 411.]

Fixing A Hole Where The Rain Gets In.

FIBBER MCGEE AND MOLLY was one of the longest-running old-time radio series. (This and other OTR shows are available as free mp3s from www.otrrlibrary.org.) It ran from 1935 to 1953 as a half-hour show before a live audience, then straggled on as a 15-minute show in a studio without an audience in the dying years of OTR. From 1957 to 1959, it was a 4-minute act in a radio variety show before finally being put out of its misery.

The episodes were written by Don Quinn. They mostly took place in the McGee home, with a constant parade of visitors knocking at the door and coming in to do their comic routines.

In this modern era of transistorized radios, occurrences of a malfunctioning radio are almost nonexistent. If they do occur, it is cheaper to throw it out and buy a new one. Back then, and up until the early 1960s, radios had vacuum tubes, masses of wiring, capacitors, and assorted doodads that kept thousands of technicians steadily employed. A radio was a large cabinet, part of the furniture of the living room, not a handheld.

Fibber was imbued with supreme self-confidence that was not backed up by actual skills. Examples were his troubles, matched by many listeners at home, with keeping the radio in good condition. Sometimes he tried to fix it himself, other times he called in a radio repairman.

"Waiting For The Radio Repairman", written by Don Quinn, was a 1936 episode. The McGee's radio emitted a whine, no matter how Fibber tuned it. He had to step out of character a moment and tell the audience at home that it wasn't their radio out of tune, it was part of the plot.

Fibber called the radio repairman and awaited him. In the meantime, a steady stream of visitors came and went with gags that had nothing to do with the radio problem. The show's announcer Harlow Wilcox worked in a commercial for Johnson's Wax in midstream.

Molly got a call from a hospital that a lunatic has escaped and she should be on the watch. While she was thinking about that, Fibber answered the door again and found a stranger on the doorstep. It was the lunatic, but Fibber didn't know that. Thinking he was the repairman, he admitted him and told him the problem. The lunatic joyfully went at it, ripping out its guts and breaking tubes left and right.

As an in-joke, the lunatic's name was Quinn. It all got sorted out and the lunatic was carted back to the Hotel Silly, but the McGees were left with a damaged and definitely non-working radio. The repairman never did appear.

The theme was revisited in 1945. "Fixing The Radio", written by Don Quinn and Phil Leslie, had Fibber attempting to fix his radio and as usual making a mess of it. Probably he learned from his previous experience not to trust strangers with his radio. He wanted to listen to an opera singer. The radio was emitting a whistling noise, and as Fibber remarked, it was only broadcasting two of the Andrew Sisters. Fibber went to his hallway closet to get his toolbox.

This provided an opportunity for one of the most famous sound effects in OTR, his hallway closet. Every time he opened it, a loud and seemingly endless cacophony of falling objects crashed down on him. "*Gotta straighten up that closet one of these days*", he would mutter. Since he needed a tool kit to repair the radio, that provided an opportunity for the sound man to earn his pay.

During the war years, the show had introduced a new character, Alice Darling, who roomed with them. She was a young war worker employed in a local aircraft factory. Near the end of the show, when all the gags had been wrung out from Fibber's bumbling, she appeared and quickly fixed it, being experienced in assembling aircraft radios.

The oldest radio I have was bought in 1988 and still going strong. No repairman needed. I suspect though, that eventually all analogue radio transmissions will cease as the younger generation only streams online, which will render the radios so much useless junk. Hopefully not in my lifetime, but one never knows.

"Cartable Radio" was a 1948 episode written by Don Quinn and Phil Leslie. This time around, Fibber had an idea for a car radio that could easily be lifted out of the dashboard, have a battery pack snapped on to it, and then be carried about as a portable radio.

Mind you, this was in the vacuum tube era. Even the smallest portable would be heavy and definitely not a pocket radio. Today we don't even have pocket radios, but livestream on smartphones.

Fibber's prototype needed work. He could only pick up the police band, no matter how much he tinkered with it. The usual parade of regular characters came through for their gag routines. Harlow Wilcox did his Johnson's wax commercial, integrating it into the plot by noting that it enabled the commercials to be heard no matter where one went. A rather ominous and accurate prophecy when one thinks about it.

Unfortunately the available mp3 was defective in the last ten minutes. Since Fibber wasn't a millionaire in subsequent episodes, it can be presumed that the idea didn't work out.

Radio Before Its Time.

"Radio In The 1632 Universe" is a speculative fact article by Rick Boatright in the 2004 anthology GRANTVILLE GAZETTE, edited by Eric Flint. It looks at the practicability of wireless communications for Flint's time travel series about Grantville, an American town sent back into Europe in 1632 by a time warp.

Flint based it on Mannington, West Virginia, as it was in 1999. His fans have researched that town as it then was to speculate what it could and could not do with its available technology in 1632.

Boatright first discussed a general issue, the Maunder Minimum, which in our timeline occurred during the 1630s. The number of sunspots on the surface of the Sun at any given time have been counted by astronomers since the ancient Chinese and Europeans, as a result of which we have a detailed chart of the Sun's activity over many centuries. The number of sunspots began declining in the 1630s, reaching zero in the year 1640, before wobbling back up.

This mattered for Flint's 1632 series because the greater the number of sunspots, the greater the electromagnetic activity of the Sun. In turn, that would increase the density and thickness of ionization layers in the upper atmosphere of Earth. Radio transmitters use the layers to bounce their signals long distances. With few sunspots, the layers weaken. They might not disappear entirely, but longer wavelength radio would be needed.

Shortwave radio is best during high sunspot activity, so it was ineffective in the 1632 alternative history series because of the Maunder Minimum. Radio operators would need long antennas, in the order of 40 or 160 metres. Boatright pointed out that even a 40-m antenna would be difficult to build in 1632, when metal was scarce and expensive. 40 metres is about the height of a 10-story building. Cathedral towers were the only structures that could support such antennas.

The transplanted town of Grantville had cellphones. They were useless since cellphone towers relay messages via computer-controlled systems, all of which had been left behind. Even if some towers had come through, no one had the passwords or the knowledge to operate the computer system. No cellphone can connect to another without GPS and command-and-control software.

Two-way radios and CB radios work for short distances as long as spare parts are available. Batteries are an obvious problem. They might be recharged with a pedal-powered generator but not for long. After about six years of daily use, the batteries will be past recharging. Radios would then be confined to base camps and run directly from a generator.

The computer chips, transistors, and radio tubes would gradually fail. No way to make glass tubes with 1632 technology. The good news was that spark and crystal radios would be possible, as long as everyone learned Morse code, which by 1999 had mostly been forgotten.

Radio In Its Prime.

RADIO GIRLS (2016) by Sarah-Jane Stratford is a novel set in the late 1920s as broadcast radio was being born. Maisie Musgrave was the protagonist, a new secretary working for the equally new British Broadcasting Corporation. She worked her way up to a production assistant, arranging for famous people and the not-so-famous to talk on the air. She also had to weave a path between two bosses. Busy, busy, busy, taking dictation, typing letters and memos, opening the stacks of morning mail, and learning the office politics.

Musgrave was in the Talks department, where an endless variety of topics were discussed in 15-minute segments by as many different speakers. It being the 1920s, there was the usual chauvinism against women in office administration that Musgrave had to fight against.

She often lost but persevered. Since broadcast radio developed differently in Britain than in Canada and the USA, she had more entrenched bureaucrats stifling the airwaves.

With four-fifths of the novel done, by now into the early 1930s, the story suddenly turned into an action-adventure. Musgrave uncovered a scandal that linked British manufacturers to the nascent Nazi party, not quite yet in power but only steps away. Goebbels was propagandizing, and MI5 was blithering about. The novel had to follow real history, so there was no happy ending, but neither a sad one. An interesting look at life on the airwaves in the early days, especially when juxtaposed against European politics and society.

Radio Past Its Prime.

Harlan Ellison wrote a short story "Jeffty Is Five", published 1977, about a boy who didn't grow up but stayed the same age. When he listened to the radio, instead of playing contemporary shows, it only aired old-time radio series that had otherwise long since vanished. I reviewed that story in issue #301 of this zine.

The story was anticipated by "Static", a 1961 episode of the television series THE TWILIGHT ZONE. It was written by Charles Beaumont, based on a story by his colleague OCee Ritch. The episode was set in a boarding house where Ed Lindsay was one of the tenants.

He didn't like his fellow tenants spending their time watching television in the parlour, so he went into the basement and dug out an old radio for his room. It was the old-fashioned kind, the cabinet style. When he turned it on, it played old-time radio shows, but whenever he called other people into his room to listen, it only produced static.

Lindsay had a transistor radio but it played contemporary shows. No one would believe him except a woman who had an unrequited love for him. She finally heard it in his room, when the two of them reverted to the 1940s and became their younger selves again, slipping into a twilight zone.

Murder On The Air.

LIGHTS OUT was an OTR series that aired from 1934 to 1947. It was an anthology series of mystery, weird, horror, and dark fantasy. "The Coffin In Studio B" was a 1946 episode written by Wyllis Cooper. It began in a radio studio where the rehearsal for a murder mystery was not going well.

There was an interruption when a strange man who somehow got past Security arrived and revealed himself as a coffin salesman. He showed his catalogue to one of the actors. The actor protested he had no use for a coffin but the salesman persisted, so he humoured him by picking out a nice silver-plated coffin.

The salesman left and the rehearsal resumed, but ran into another block. The sound man was on vacation, and no one knew how to produce the sound of a knife stabbing into a man. The workaround was to flip open a switchblade near the microphone, fake a noisy struggle, and then have the man die by falling on the floor.

The rehearsal was concluded and a few minutes later they were live to air, for what was announced as an episode of LIGHTS OUT. Too self-referential; it may have been a fun joke but it detracted from the story. On to the play, about a hit man reporting back to his boss. (And one error, when he said he had a silencer on his revolver. Those devices only work on pistols.)

The play progressed to the knife fight. The actor holding the switchblade tripped and stabbed the other actor for real, killing him. To no listener's surprise, the plot having been obvious, the salesman returned just then to deliver the coffin the dead man had ordered earlier that night. Lights out, everybody.

The old-time radio series THE WHISTLER was aired from 1942 to 1955. This anthology series specialized in endings with twists that came back to haunt the protagonist in the last few minutes of the episode. The stories were not mysteries. The audience followed along as the protagonist planned and carried out a murder. The catch was how justice would be served, always from an unexpected direction. One of the best OTR series, and well worth downloading.

"A Brief Pause For Murder" was a 1949 episode written by Lou Huston and William Forman. It was about radio announcer Roger Wickson, who was being cuckolded by his wife Teesha. He tolerated it because she was an heiress and he wanted to continue living in the manner to which he had become accustomed. He decided to murder her after she told him she was leaving as soon as her current boyfriend got his divorce, throwing him off the gravy train. He'd rather inherit her fortune.

A serial killer was on the loose in the city, and Roger had been reporting the deaths on his hourly news spots. About the same time, a new sound engineer began work at the radio station. Roger recognized him as an ex-con who did time for stealing equipment from another radio station both worked at years ago.

Roger developed a plan. He deluded the engineer, with a touch of blackmail, into preparing a recorded station ID and spot announcement by Roger, the excuse being that Roger wanted to meet a potential new employer elsewhere while not letting the current boss know what's going on. The engineer would play the record while Roger was away, not at a job interview but strangling Teesha and making it look like the serial killer did it.

It got better. A police detective came by the station and asked Roger to record a public service announcement warning women to lock their doors and windows against the serial killer. Roger cheerfully agreed, as he knew the police would be listening for the announcement. They would hear him on the air as Teesha was dying. There was no better alibi than to have the police vouch for you.

Roger headed home and did the deed during the time he should have been at the station. He turned on the radio to hear the rest of the plan, only to be horrified by a news flash that police had caught the strangler earlier that day. The turn of events didn't totally ruin his plan, for after all there could be another murderer running amuck in the city.

It did put pressure on the second part of the plan, the recorded alibi. Rogers listened to the announcement and relaxed. All was well, and the police would be listening. Then the needle got stuck in the groove, repeating the final phrase over and over.

Nick Carter was one of the oldest private detective series, beginning in print in 1886 before Sherlock Holmes, and as NICK CARTER, MASTER DETECTIVE on radio from 1943 to 1953. Nick Carter employed his girlfriend Patsy Bowen as an assistant, who accompanied him to crime scenes. Her main role was to scream and have the plot explained to her in the epilogue.

"The Case Of The Classical Clue", written by Jim Parsons, was a 1948 episode about the murder of a millionaire in his lonely mansion high atop a mountain. Those who would inherit, or were about to be disinherited because the old man announced he was changing his will, were all supposedly away when the death occurred.

Much was made of the fact that the defunct liked listening to classical music on the radio, and immediately switched it off if anything else was aired. On the night in question, there was an early evening show of classical music, then a three-hour set of swing music, which he detested, then back to classical.

Two family members returned late at night to find the radio blaring. The old man's body was partially hidden behind a sofa. His son ran to the body and pronounced him dead from a knife to the neck.

Carter solved the case by taking accounts from those who came and went during the evening, in particular asking them about the radio. He then compared the stories with the published radio programme schedule, correlating it with whether or not someone heard it playing, and finally establishing when the man died based on what was playing on the radio.

It came down to a plan to sedate the millionaire early in the evening, go out for the night, and immediately stab his unconscious body on the return. Since the radio had been left on, this suggested the victim was still alive and healthy earlier because he would have switched off the radio when the swing music came on, then turned the radio back on later.

The timetable of events and who was where earlier in the evening was complicated, and for once justified a detailed explanation in the epilogue. It did make sense, but you have to follow closely to figure it out.

WHEN WORDS COLLIDE 2019

Calgary's annual readercon When Words Collide will be held on the weekend of August 9 to 11, 2019. The venue is the Delta South Marriott hotel on Southland Drive SE on Bonaventure Drive. A writing-centred convention, with an excellent dealer bourse where only books can be sold. My reports on previous WWCs can be found in OPUNTIAs #71, 253, 266, 282, 318, 350, 387, and 421.

The membership is capped at 750 plus volunteers and guests, and always sells out by June, as do room reservations and banquet tickets. More details from: www.whenwordscollide.org

COZY MYSTERIES: PART 8
by Dale Speirs

[Parts 1 to 7 appeared in OPUNTIAs #361, 379, 395, 398, 400, 420, and 423.]

Cozy mysteries have evolved into a standard format from their distant origin in the Miss Marple series. The book titles usually are puns. The main protagonist is an amateur sleuth who busily snoops about contaminating evidence, indirectly obstructing police, and getting into the line of fire from the murderer.

Cozy mysteries have developed a number of subgenres. There are several series involving cats, dogs, or birds. Food is popular, whether a restaurant or bakery. If there is a Website for a particular hobby or interest group, then there is probably a cozy mystery series for it.

Meow Mixed With Murder.

A thriving subgenre of cozy mysteries uses cats. There are dozens of series about cat detectives or Miss Marples whose cats help solve cases. I'm suspicious. We had cats back on the ranch, and all they did was eat and sleep. Every once in a while one of them would bring in a mouse from the fields to prove it was on the job.

An example of a feline cozy is THE CHOCOLATE CAT CAPER (2002) by JoAnna Carl (pseudonym of Eve Sandstrom). This novel was the first in a series of food cozies about Lee McKinney, later Lee Woodyard. Escaping a failed marriage in Texas, she moved back home to Warner Pier, Michigan, to work in her Aunt Nettie's shop TenHuis Chocolade.

It was the village's worse misfortune, for as the series progressed, the murder rate soared. No one was safe who knew McKinney or even just nodded hello to her. But that was later, and this was now.

The first murder was that of Clementine Ripley, an obnoxious lawyer who ordered several thousand dollars worth of custom chocolates made in the image of her show cat. She ate her final chocolate after someone spiked it with cyanide. The edible cats were moulded in white chocolate, decorated with brown chocolate to mimic the markings of Ripley's feline, named Champion Myanmar Chocolate Yonkers, a long-haired Siamese.

When McKinney delivered the chocolates, she met an old boyfriend Joe Woodyard, later in the series to become her husband. He happened to be the former Mr Clementine Ripley. The murderer was trying to make McKinney the prime suspect by planting evidence on them. Suspicion flowed like spilled chocolate milk, Ripley having antagonized much of the village before her death.

Yonkers the cat wasn't any too popular either. One of its favourite pastimes was ambushing strangers by pouncing on them. Some of its other escapades revealed clues here and there. When McKinney was trapped with the murderer, Yonkers tripped him up and saved her.

The killer's motive was a financial embezzlement he was running on Ripley, and for which he was about to be exposed. Ripley never made a new will, so Woodyard inherited her estate. Nothing was said about who got the cat.

HOW TO MOON A CAT (2011) by Rebecca M. Hale was a novel in a cat cozy series about an unnamed woman who ran an antiques shop in San Francisco. She narrated the books, which were carefully written never to reveal her name. The shop was inherited from her Uncle Oscar.

She had two cats, siblings Rupert and Isabella, who could be relied upon to sniff out clues at suitable intervals. The shop was doing poorly and the narrator only survived because the cats kept finding bundles of cash hidden by Oscar, who didn't trust banks.

The cats hadn't some up with any cash lately as this novel opened. However, Rupert discovered an item that might reveal the whereabouts of California's original Bear Flag, the actual artifact, the first flag ever made. The trail led to Nevada City, which despite its name was in California.

Away the narrator went, accompanied by her neighbour and the two cats, and followed by assorted ne'er-do-wells. Several infodumps by as many characters were provided about the Gold Rush era in California. At times this novel could be classified as weird fiction rather than a cozy. The reason why the original flag had been stolen was bizarre but well explained.

The narrator got herself into difficulty but managed to escape. The ending was convoluted but neatly tied up some of the loose threads. The final sentences also explained the title of this book.

This series is cluttered with ghosts and eldritch creatures. If H.P. Lovecraft tried to write a cozy, this would be it, but with more obsolete adjectives.

DOUBLE BOOKED FOR DEATH (2011) by Ali Brandon (pseudonym of Diane Stuckart) is the first novel in a cozy series about Darla Pettistone, late of Texas but now a Noo Yawker, where she inherited her grandaunt's bookstore in Brooklyn. It came with a big fat black cat named Hamlet, who was not entirely a credit to his species. He had a tendency to claw people and claw deep. Pettistone had the scars to prove it.

She wouldn't affect the murder statistics of the big city the way most Miss Marples decimated their villages, but she certainly did her part in amplifying the daily body count. Her first author signing books in her store was Valerie Baylor, who never made it out alive. Baylor stepped out for a smoke break and was fatally hit by a van on the street. Yet more proof that smoking is unhealthy.

There had been a protestor out front waving a picket sign. The possibility was that the two had scuffled and Baylor stumbled into the path of the van. The driver of the van was chauffeuring a group from the Lord's Blessing Church in Texas, in town to protest Baylor's sinful novels. The books were young adult ghost stories under the series title "Haunted High".

The good news was that Pettistone's bookstore rapidly sold out of Baylor's books. Her dedicated fans piled up flowers in front of the bookstore as a shrine, which got lots of television coverage and thus attracted pedestrian traffic from non-fans. It's an ill wind that blows no good.

Pettistone knew some police officers and met another during the investigations, both NYPD and hers. Hamlet made cameo appearances from time to time, either to wound another biped who tried to pet him or stir up a clue under ridiculously coincidental circumstances.

To be fair, he got blamed for some things he didn't do, such as taking books off the shelves in the store. Pettistone blamed him for that until she realized the books had been stacked vertically. Give a cat a bad name and all that. Someone had been looking for something hidden behind the books on the shelves.

The plot thickened. Baylor's books were discovered to have been ghost written by her cross-dressing brother. Their mutual literary agent was a cocaine addict who was paying for her habit by embezzling royalties and simultaneously blackmailing the brother. When the agent was threatened with exposure of her frauds and the loss of her book contracts, that triggered the events.

A NOVEL WAY TO DIE (2012) was the second installment in the series. Darla Pettistone needed extra help in the bookstore but was having problems with Hamlet, aka Genghis Cat, who had final approval of any new hires. After difficulty with the first few being slashed or bitten, he allowed the least likely candidate, a sullen goth teenager with no manners, who had been fired from his last job at a porn shop.

A contractor working on a nearby brownstone was found dead on the job site, thereby putting the plot into gear. The bookstore neighbourhood wasn't the best, even for Brooklyn. Pettistone had a knack for meeting shady guys who made her Mafia friends look positively cultured.

For once it wasn't just Miss Marple, pardon me, Pettistone who was trapped by the killer. Hamlet got himself into a mess, and barely survived. After assorted soap operas with various characters, the focus shifted to a gang of corrupt contractors using a phony building inspector scam. They had a falling out which triggered the bloodshed.

The denouement went on far too long, pages and chapters of who did what to whom and why. The good news was that Hamlet still had eight lives left after this book.

WORDS WITH FIENDS (2013) began with Hamlet feeling out of sorts. He hadn't clawed anyone in a long time and was positively benign. Pettistone hired a cat psychologist to get him out of his depression. Since she was feeling down in the dumps herself, she took up karate lessons, a useful thing considering how often she had been physically threatened while Miss Marpleing.

She should have picked a better dojo, since her sensei Tom Tomlinson became the first murder victim of this novel. Pettistone began her investigating, nevermind the police. Assorted subplots were dredged up, one of which was the possibility that Tomlinson may have had illegitimate children. A knife fight broke out at the dojo, which made the reader think that Tomlinson was a poor teacher if his students had no discipline.

Meanwhile, the cat whisperer had better luck with Hamlet, actually getting the critter to wear a harness and leash. Pettistone brought Hamlet along to a karate

tournament, where people noticed him imitating her movements. Afterwards he got away into the building somewhere.

While searching for him, Pettistone was captured by the killer. Even he remarked that she wasn't much of a martial artist. Fortunately he overlooked her cellphone and she managed to get a text out. How did we ever manage without them?

LITERALLY MURDER (2014) continued the series. Pettistone carried on with martial arts training, as well she might, considering the company she kept. Someone took a video of Hamlet imitating her movements during a karate session, which went viral on the Internet. As a result, the Florida chapter of the Feline Society of America invited them as featured guests to their cat show in Fort Lauderdale.

The FSA organizers neglected to do a Google search on Pettistone, for if they had, they would have read about the trail of bodies she left behind her in previous novels of this series. But what's done is done.

They had enough problems anyway. Protestors were picketing the convention. (I'm glad this would never happen at a science fiction convention.) Animal rights activists splashed fake blood around. Hamlet was catnapped. A competitor went ballistic when his kitty didn't win the championship it so rightfully deserved. His anger only lasted until someone killed him. The bad news was that when the body was discovered, Hamlet was next to it.

There was the usual sleuthing by the police and Pettistone. The murder was eventually traced to a condominium financing fraud carried out by the deceased and the chief FSA cat judge. There was also a failed blackmail scheme by an exhibitor who stole Hamlet to muddy the waters. Everything worked out well in the end, except for the dead and the killer.

Having left a trail of blood behind in Florida, PLOT BOILER (2015) returned the series to Brooklyn. Darla Pettistone was on the planning committee for a street party. Her main stress was the band suddenly canceling and the running around to get a replacement. Another stress was her decision to add a coffee bar to her bookstore, over the objections of George King, the owner of Perky's Coffee Shop. A giant ego, he styled himself the King of Coffee and was jealous of his turf.

His wife Livvy was selling a Kona Blue Party coffee grind mix under the table to gullible marks who thought they were buying coffee mixed with marijuana, suitable for vaping. She didn't say it was, and it actually wasn't, just catnip, herbs, and extra caffeine to make the vapers think they were getting a buzz from marijuana. Livvy sold small bags at $100 for what couldn't have been more than $1 worth of coffee grinds and herbs. Nice work if you can get it.

She got it alright. Hamlet discovered Livvy's body, most likely attracted to her by the catnip scent. He was a busy cat in this novel, for a few chapters further on he found the second corpse, that of local shopkeeper Penelope Winston. Pettistone's detective boyfriend investigated instead of recusing himself. Both women were poisoned by oleandrin in their vapes or coffee. A third woman was also sickened by it in her coffee but survived.

Pettistone did her own detecting. She had coffee with the murderer. The reader will immediately scream "Don't drink the coffee, you stupid bitch!" Pettistone noticed it tasted funny but nonetheless gulped it all down. Where's Charles Darwin when you really need him? Alas, she survived. So much for natural selection.

The murderer was getting revenge for past events with the other woman, and tried to take out Pettistone because nobody likes a Miss Marple snooping about. The killer had an oleander shrub in her garden and the rest was obvious. Hamlet was smarter than his owner, but that can be said of more than a few people I know.

TWICE TOLD TAIL (2016) began with Darla Pettistone busy with the approaching Christmas holidays boosting store business, plus her new online store, and helping her friend Connie Capello prepare for her wedding. Two complications arose. The algorithm running the online store appeared to have jacked up a copy of a Nathaniel Hawthorne book to three times its true value. More seriously, an antiques dealer named Bernard Plinski died in his store, possibly from a heart attack but possibly murder.

Events proceeded. A real live online buyer used the buy-it-now option to purchase the Hawthorne book for $800, eight times its true market value. (It was a second edition.) The Medical Examiner reported that Plinski's heart attack was induced by an attempt at suffocation, which made it murder. The police's main suspect had a past with the dealer's family, and there were unresolved issues from decades ago.

The buyer showed up to examine the Hawthorne but backed out of the deal after flipping through the book. Later the Pettistone bookstore obtained some books from the Plinski estate, including another copy of the Hawthorne book. Pettistone did her sleuthing, in between helping the bridezilla, and not necessarily including the NYPD. Hamlet ran interference using his own feline methods.

The usual Miss Marple procedures were followed, such as break-and-enter, criminal trespass, obstruction of police, contaminating evidence, and failure to maintain chain of custody of evidence. All in an amateur sleuth's day.

The Hawthorne buyer had been looking for a specific copy of the book, one that hid in its pages a secret document. The papers concerned a family trust, whose rightful heir had been cheated and the inheritance diverted to a different branch of the family.

It all came down to the usual confrontation with the killer, and Pettistone barely escaping death. Hamlet did his part with implausible and wildly coincidental actions, but after all, this is a cat cozy.

CURIOSITY THRILLED THE CAT (2011) is the first novel in a cat cozy series written by Sofie Kelly. It was about Kathleen Paulson of Mayville Heights, Minnesota. She had just taken up a job as the village librarian and also taken in two stray cats as the plot motivators.

The village's annual fete, the Wild Rose Summer Music Festival, was underway. Gregor Easton was the guest composer/conductor, and none too pleasant. Not to worry, as he died at the end of Chapter 2, slumped over a piano keyboard. He was murdered by another kind of instrument, known as the blunt.

The police suspected Paulson on the grounds that she found the body and tracked some of the blood around. She did some investigating to clear her name, assisted at strategic intervals by her cats Owen and Hercules. They seem to have magical powers at times. Or was it just her imagination?

Most of the novel was taken up by Paulson filling in the background of the village folk and their family dramas. Easton hadn't been a total stranger to the village. Some of that background involved him in his younger days. That came back to haunt him when a woman he had romanced and dumped decided to take belated revenge.

The cats were annoying at times, as cats can be. Paulson loved them anyway, although her one fear was becoming known as a cat lady.

COPYCAT KILLING (2012) began with the inundation of Mayville Heights. It had been raining cats and dogs, you'll pardon the expression, and the village artists' co-op was in danger of flooding. Kathleen Paulson helped to move everything upstairs to safety. What didn't survive the flood was Jaeger Merrill, a mask maker. He was a boor and a loudmouth but his bad behaviour ended when he was found drowned in the flooded basement.

Paulson had other problems. She managed to cut or sprain herself in several places not once but twice. Now she had a tingling in her arm and was in denial over the possibility of infection. Someone else had other problems. A washout revealed a skeleton that may have come from a 1924 smallpox epidemic, or might have been a more recent murder.

Evidence came to light that Merrill's real name was Christian Ellis. He had done hard time for art fraud in the big city. The question was if he had been planning a new scam, using Mayville Heights as a base. Since this is a cat cozy, Owen and Hercules made their mandatory appearances, mostly begging for food or attention. They did get into some mischief, and whenever the plot stalled, the cats uncovered a fresh clue to keep it moving.

Paulson solved both murders. The skeleton was past helping. Merrill's lawyer had relied on Merrill to forge documents that conveniently assisted him. When Merrill wanted a piece of the action, that precipitated the murder.

And so to the epilogue. The sun was shining, not a cloud in the sky, and Paulson had a date with a cute police detective. Who could ask for more?

FINAL CATCALL (2013) brought a theatre festival to Mayville Heights. As anyone knows who has been involved with stage plays, the drama behind the curtain is often more intense than what the audience sees.

The focal point was the director Hugh Davis, heartily disliked by all who knew him. Possible blackmail and fraud were the least of the charges against him. Someone resolved those problems by shooting him dead. Guess who found the body? But you knew that already.

Perhaps not quite as serious, if only slightly, Kathleen Paulson had problems with an ex-boyfriend showing up in town and a current boyfriend departing. You can't keep a good Miss Marple down though. She and her cats were on the case, digging out the dirt.

The cats did their part, drawing Paulson's attention to scraps of papers and other clues. Our cats back on the ranch never did that. The only thing they ever drew our attention to was their empty food dish.

Paulson eventually found a woman whose acting career had been ruined by Davis. There was the typical confrontation with the killer at the edge of a cliff, where Paulson was in imminent danger of death. With a single bound, she was free. Not just figuratively. Paulson actually bounded down the cliff to freedom.

A MIDWINTER'S TAIL (2014) started with Kathleen Paulson organizing and hosting a charity gala. The townfolk should know better by now than to let her near any of their events. But what's done is done, and what was done was poisoning a woman. Dayna Chapman, the deceased, had nut allergies, and someone spiked her chocolate candy with pistachios. She died on the banquet floor. As a friend remarked to Paulson: "*No offense, Kathleen, but worst fundraiser ever.*"

Paulson snooped about again, trying to learn who ruined her party. In a small village like Mayville Heights, families had been inter-marrying for generations, so the back stories were complicated. The cats had walk-on roles but didn't do much. The killing was to silence Chapman because she had witnessed a murder decades ago. She then fled the village but had returned just before her death.

They can only hang you once for murder, so the killer went after Paulson to keep her quiet. This time the final confrontation involved a blowtorch. No suspense, since we know Paulson will survive and continue the series. Although nominally a cat cozy, the felines were only background characters in this novel.

Pet Food Cozies.

MURDER HAS NINE LIVES (2016) by Laura Levine is a novel in a cozy series about Jaine (with an "i") Austen, a freelance writer, and her malicious feline, the sadly misnamed Prozac. Austen's biggest success was writing commercials for Toiletmasters.

As this novel opened, Prozac was doing better than Austen, having been selected as the star of the Skinny Kitty diet cat food commercials.

This being a cozy, there had to be a body, although surprisingly it didn't show up until Chapter 7. Dean Oliver, the inventor of Skinny Kitty, ate some of the cat food on camera to demonstrate its nutritional qualities. His last words were: '*I've been poisoned, you idiot.*"

There were a number of suspects. The animal casting agent he recently fired for just cause. His cousin Ian, who yearned for Oliver's wife. And, of course, Austen herself, since the police cast a wide net. To be fair to them, with 15 prior novels in this cozy series, and more than that in murders, there could be no doubt that Austen was on a watch list.

Assorted alarums and excursions came and went, mostly the non-violent kind such as fraud and infidelities. The widow was the one who poisoned Oliver. When Austen tried to do the J'accuse! routine, she ended up in a walk-in freezer with the temperature turned way down. Her escape was both far-fetched but somewhat plausible. Prozac got the ultimate accolade in our modern times, a viral video on YouTube.

KNEADING TO DIE (2013) by Liz Mugavero was the first novel in a cozy series about Kristan Connor. She lost her job in the big city but got a two year's severance pay. She moved to the village of Frog Ledge, Connecticut, and started an organic pet food store. Just what every village needs.

It didn't take long for her to get into a feud with local veterinarian Carole Morganwick, nor much longer beyond that to stumble across Morganwick's body and become the prime suspect. In self-defence, and because she was booked for the series, she began her career as a Miss Marple. Being new to the village, Connor had a lot of back stories to learn, which filled the middle half of the novel. This also meant that she inadvertently stepped on a few toes, making as many enemies and hostile neutrals as she did friends.

Part of her investigations were stymied because people seldom answered her voice mails if they were an urgent part of the plot. The veterinary clinic was then torched by an arsonist who almost certainly was the murderer. To relieve her stress, Connor played a lot of Ozzy Osbourne music. That made sense, because middle-aged women of the early 2000s would have listened to his music in their clubbing days.

Connor's stress further increased when pets began getting sick after eating her kibble. Someone was out to get her as well. The final confrontations revealed two separate plots. Morganwick had a son out of wedlock decades ago, and the father was angry at not being told. There was also a puppy mill breeding pit bulls for dog fights. All of that during the first two weeks Connor was in town.

A BISCUIT, A CASKET (2014) opened more optimistically with Connor's store, Pawsitively Organic Gourmet Pet Foods, catering a doggie costume party for Halloween. She was catering the party for the Happy Cow Dairy Farm, whose owners Hal and Emmalee Hoffman want to diversify. Beside hosting parties, the Hoffman's created a haunted corn maze to bring in customers.

Hal had a walk-on part in the previous novel but this time he didn't make it past Chapter 1. Someone speared him in the corn maze. Having settled into her role as the village's Miss Marple, Connor exposed more than a few family feuds and sharp-practice business associates in Hal's past.

There were shady doings among the farm folk. Not your Green Acres style of living, but getting way behind on the mortgage and using other less legal methods to meet the bills. Connor once more was trapped with the killer. Don't these women ever learn? It all had to do with unethical farming, land grabs, and just plain illegal stuff.

In the final struggle on a farm, Connor body-checked the murderer into a liquid manure pit where she drowned. A particularly horrible way to die. I grew up on a cattle ranch, and as a boy I heard the stories of accidental drownings like that on other farms. The novel wrapped up with dog cookie recipes, although during the story the pet food store seemed to have mostly been forgotten. But it was there, and it would be back.

THE ICING ON THE CORPSE (2015) is the third installment. The village folk haven't quite caught on yet to the fact that wherever Kristan Connor went, death soon followed. Groundhog Day was a big day for the denizens of Frog Ledge. There was a costume party where everyone dressed as a groundhog. The local critter, the equivalent of Wiarton Willie and Shubenacadie Sam, was named Lilypad, an appropriate appellation considering where it lived.

Local tradition was that each year a citizen would leave a food offering for Lilypad, Connor had the honour of supplying the kibble. What no one considered was that the groundhog was an unreliable predictor of spring weather but Connor was a very good predictor of murder. The elderly Helga Oliver was pushed down the basement stairs at the Historical Museum, which put Connor one up over Lilypad. She found that Oliver had connections to an unsolved death in 1948.

Just to muddy the waters, a television crew from CELEBRITY GHOST HUNTERS arrived in the village. The murder delighted them, as it provided an excuse to place cameras throughout the museum and speculate about ghostly legends that didn't exist until invented on the spot.

Connor dug up lots of melodrama about Oliver and her family. The woman was by no means a dear old lady but a battleaxe whose daughter-in-law loathed her with a passion, enough to finally act. The rest of the family wasn't much better, and it took several car loads of troopers to haul away all the suspects. It happens in the best of families.

In the recipes appendix, I wasn't certain if the Growlnola was for humans or dogs. No meat or cheese in it, just grains, and dogs are carnivores.

WORLD WIDE PARTY ON JUNE 21

Founded by Benoit Girard (Quebéc) and Franz Miklis (Austria) in 1994, the World Wide Party is held on June 21st every year. 2019 will be the 26th 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, have a party, or do a mail art project for the WWP. Let me know how you celebrated the day.

SEEN IN THE LITERATURE

Bartos, I., and S. Marka (2019) **A nearby neutron-star merger explains the actinide abundances in the early Solar System.** NATURE 569:85-88

[From Wikipedia: *The rapid neutron-capture process, or so-called r-process, is a set of nuclear reactions that in nuclear astrophysics is responsible for the creation of approximately half of the atomic nuclei heavier than iron; the heavy elements. The other half are produced by the s-process. The r-process usually synthesizes all of the two most neutron-rich, stable isotopes, of each heavy element.*]

Authors' abstract: *A growing body of evidence indicates that binary neutron-star mergers are the primary origin of heavy elements produced exclusively through rapid neutron capture (the 'r-process'). As neutron-star mergers occur infrequently, their deposition of radioactive isotopes into the pre-solar nebula could have been dominated by a few nearby events.*

Although short-lived r process isotopes, with half-lives shorter than 100 million years, are no longer present in the Solar System, their abundances in the early Solar System are known because their daughter products were preserved in high-temperature condensates found in meteorites.

Here we report that abundances of short-lived r-process isotopes in the early Solar System point to their origin in neutron-star mergers, and indicate substantial deposition by a single nearby merger event.

By comparing numerical simulations with the early Solar System abundance ratios of actinides produced exclusively through the r-process, we constrain the rate of occurrence of their Galactic production sites to within about 1 to 100 per million years.

This is consistent with observational estimates of neutron-star merger rates, but rules out supernovae and stellar sources. We further find that there was probably a single nearby merger that produced much of the curium and a substantial fraction of the plutonium present in the early Solar System. Such an event may have occurred about 300 parsecs away from the pre-solar nebula, approximately 80 million years before the formation of the Solar System.

Siegel, D.M., et al (2019) **Collapsars as a major source of r-process elements.** NATURE 569:241-244

Authors' abstract: *The production of elements by rapid neutron capture (r-process) in neutron-star mergers is expected theoretically and is supported by multimessenger observations of gravitational-wave event GW170817. This production route is in principle sufficient to account for most of the r-process elements in the Universe.*

Analysis of the kilonova that accompanied GW170817 identified delayed outflows from a remnant accretion disk formed around the newly born black hole as the dominant source of heavy r-process material from that event. Similar accretion disks are expected to form in collapsars (the supernova-triggering collapse of rapidly rotating massive stars), which have previously been speculated to produce r-process elements.

Recent observations of stars rich in such elements in the dwarf galaxy Reticulum II, as well as the Galactic chemical enrichment of europium relative to iron over longer time scales, are more consistent with rare supernovae acting at low stellar metallicities than with neutron-star mergers.

Here we report simulations that show that collapsar accretion disks yield sufficient r-process elements to explain observed abundances in the Universe. Although these supernovae are rarer than neutron-star mergers, the larger amount of material ejected per event compensates for the lower rate of occurrence. We calculate that collapsars may supply more than 80 per cent of the r-process content of the Universe.

Ballesteros, F.J., et al (2019) **Diving into exoplanets: Are water seas the most common?** ASTROBIOLOGY 19:642-654

Authors' abstract: *One of the basic tenets of exobiology is the need for a liquid substratum in which life can arise, evolve, and develop. The most common version of this idea involves the necessity of water to act as such a substratum, both because that is the case on Earth and because it seems to be the most viable liquid for chemical reactions that lead to life. Other liquid media that could harbor life, however, have occasionally been put forth.*

In this work, we investigate the relative probability of finding superficial seas on rocky worlds that could be composed of nine different, potentially abundant, liquids, including water. We study the phase space size of habitable zones defined for those substances. The regions where there can be liquid around every type of star are calculated by using a simple model, excluding areas within a tidal locking distance.

We combine the size of these regions with the stellar abundances in the Milky Way disk and modulate our result with the expected radial abundance of planets via a generalized Titius-Bode law, as statistics of exoplanet orbits seem to point to its adequateness.

We conclude that seas of ethane may be up to nine times more frequent among exoplanets than seas of water, and that solvents other than water may play a significant role in the search for extrasolar seas.

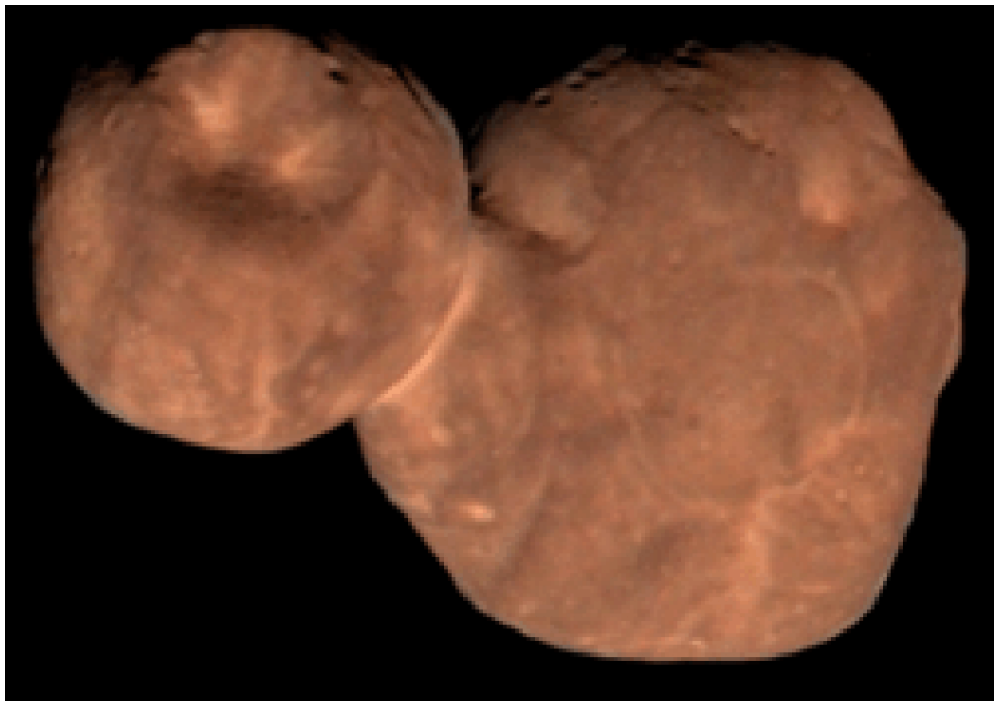
Stern, S.A., et al (2019) **Initial results from the New Horizons exploration of 2014 MU69, a small Kuiper Belt object.** SCIENCE 364:doi/10.1126/science.aaw9771

Authors' abstract: *The Kuiper Belt is a broad, torus-shaped region in the outer Solar System beyond Neptune's orbit. It contains primordial planetary building blocks and dwarf planets. NASA's New Horizons spacecraft conducted a flyby of Pluto and its system of moons on 14 July 2015. New Horizons then continued farther into the Kuiper Belt, adjusting its trajectory to fly close to the small Kuiper Belt object (486958) 2014 MU69 (henceforth MU69; also informally known as Ultima Thule).*

Stellar occultation observations in 2017 showed that MU69 was ~25 to 35 km in diameter, and therefore smaller than the diameter of Pluto (2375 km) by a factor of ~100 and less massive than Pluto by a factor of ~10 6. MU69 is located about 1.6 billion kilometers farther from the Sun than Pluto was at the time of the New Horizons flyby. MU69's orbit indicates that it is a "cold classical" Kuiper Belt object, thought to be the least dynamically evolved population in the Solar System.

Imaging of MU69 showed it to be a bilobed, contact binary. MU69's two lobes appear to have formed close to one another, becoming an orbiting pair that subsequently underwent coupled tidal and orbital evolution to merge into the contact binary we observe today. The object rotates on its axis every 15.92 hours; its rotation pole is inclined approximately 98° to the plane of its heliocentric orbit.

Its entire surface has a low visible-wavelength reflectivity (albedo) but displays brighter and darker regions across its surface, ranging from 5 to 12% reflectivity. The brightest observed regions are the neck of MU69 where the two lobes are joined, and two discrete bright spots inside the largest crater-like feature on the object's surface. Although MU69's albedo varies substantially across its surface, it is uniformly red in color, with only minor observed color variations. This coloration likely represents a refractory residue from ices and organic molecules processed by ultraviolet light and cosmic rays. ... No evidence of satellites, rings, or an extant atmosphere was found around MU69.



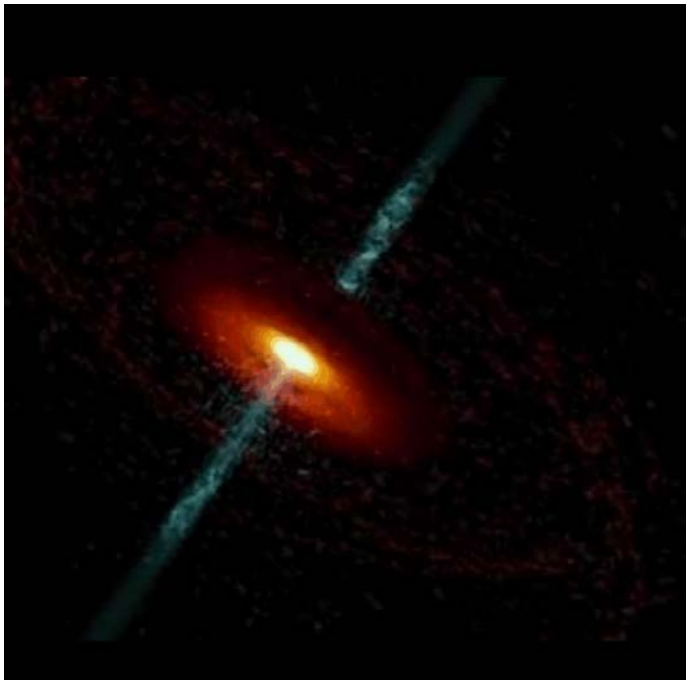
NASA photo of MU69 asteroid.

Miller-Jones, J.C.A., et al (2019) **A rapidly changing jet orientation in the stellar-mass black-hole system V404 Cygni.** NATURE 569:374-377

Authors' abstract: *Powerful relativistic jets are one of the main ways in which accreting black holes provide kinetic feedback to their surroundings. Jets launched from or redirected by the accretion flow that powers them are expected to be affected by the dynamics of the flow, which for accreting stellar-mass black holes has shown evidence for precession due to frame-dragging effects that occur when the black-hole spin axis is misaligned with the orbital plane of its companion star.*

Recently, theoretical simulations have suggested that the jets can exert an additional torque on the accretion flow, although the interplay between the dynamics of the accretion flow and the launching of the jets is not yet understood. Here we report a rapidly changing jet orientation, on a time scale of minutes to hours, in the black-hole X-ray binary V404 Cygni, detected with very-long-baseline interferometry during the peak of its 2015 outburst.

We show that this changing jet orientation can be modelled as the Lense-Thirring precession of a vertically extended slim disk that arises from the super-Eddington accretion rate. Our findings suggest that the dynamics of the precessing inner accretion disk could play a role in either directly launching or redirecting the jets within the inner few hundred gravitational radii.



Similar dynamics should be expected in any strongly accreting black hole whose spin is misaligned with the inflowing gas, both affecting the observational characteristics of the jets and distributing the black-hole feedback more uniformly over the surrounding environment.

Sholes, S.F., et al (2019) **A maximum subsurface biomass on Mars from untapped free energy: CO and H_2 as potential antibiosignatures.** ASTROBIOLOGY 19:655-668

Authors' abstract: *Whether extant life exists in the Martian subsurface is an open question. High concentrations of photochemically produced CO and H_2 in the otherwise oxidizing Martian atmosphere represent untapped sources of biologically useful free energy.*

These out-of-equilibrium species diffuse into the regolith, so subsurface microbes could use them as a source of energy and carbon. Indeed, CO oxidation and methanogenesis are relatively simple and evolutionarily ancient metabolisms on Earth. Consequently, assuming CO- or H_2 -consuming metabolisms would evolve on Mars, the persistence of CO and H_2 in the Martian atmosphere sets limits on subsurface metabolic activity.

In this study, we constrain such maximum subsurface metabolic activity on Mars using a one-dimensional photochemical model with a hypothetical global biological sink on atmospheric CO and H_2.

We increase the biological sink until the modeled atmospheric composition diverges from observed abundances. ... These convert to a maximum metabolizing biomass of about 10^{27} cells or about 2×10^{11} kg, equivalent to about 10^{-4} to 10^{-5} of Earth's biomass, depending on the terrestrial estimate.

Diffusion calculations suggest that this upper biomass limit applies to the top few kilometers of the Martian crust in communication with the atmosphere at low to mid-latitudes. This biomass limit is more robust than previous estimates because we test multiple possible chemoautotrophic ecosystems over a broad parameter space of tunable model variables using an updated photochemical model with precise atmospheric concentrations and uncertainties from Curiosity.

Our results of sparse or absent life in the Martian subsurface also demonstrate how the atmospheric redox pairs of CO-O_2 and H_2-O_2 may constitute antibiosignatures, which may be relevant to excluding life on exoplanets.

Ball, R., and J. Brindley (2019) **The power without the glory: Multiple roles of hydrogen peroxide in mediating the origin of life.** ASTROBIOLOGY 19:675-684

Authors' abstract: *The hydrogen peroxide (HP) crucible hypothesis proposed here holds that life began in a localized environment on Earth that was perfused with a flow of hydrogen peroxide from a sustained external source, which powered and mediated molecular evolution and the protocellular RNA world.*

In this article, we consolidate and review recent evidence, both circumstantial and tested in simulation in our work and in the laboratory in others' work, for its multiple roles in the evolution of the first living systems:

(1) it provides a periodic power source as the thiosulfate-hydrogen peroxide (THP) redox oscillator,
(2) it may act as an agent of molecular change and evolution and mediator of homochirality, and
(3) the THP oscillator, subject to Brownian input perturbations, produces a weighted distribution of output thermal fluctuations that favor polymerization and chemical diversification over chemical degradation and simplification.

The hypothesis can help to clarify the hero and villain roles of hydrogen peroxide in cell function, and on the singularity of life: of necessity, life evolved early an armory of catalases, the continuing, and all-pervasive presence of which prevents hydrogen peroxide from accumulating anywhere in sufficient quantities to host a second origin. The HP crucible hypothesis is radical, but based on well-known chemistry and physics, it is eminently testable in the laboratory, and many of our simulations provide recipes for such experiments.

Vance, S.D., et al (2019) **Self-assembling ice membranes on Europa: Brinicle properties, field examples, and possible energetic systems in icy ocean worlds.** ASTROBIOLOGY 19:685-695

Authors' abstract: *Brinicles are self-assembling tubular ice membrane structures, centimeters to meters in length, found beneath sea ice in the polar regions of Earth. We discuss how the properties of brinicles make them of possible importance for chemistry in cold environments, including that of life's emergence, and we consider their formation in icy ocean worlds.*

We argue that the non-ice composition of the ice on Europa and Enceladus will vary spatially due to thermodynamic and mechanical properties that serve to separate and fractionate brines and solid materials. The specifics of the composition and dynamics of both the ice and the ocean in these worlds remain poorly constrained.

We demonstrate through calculations using FREZCHEM that sulfate likely fractionates out of accreting ice in Europa and Enceladus, and thus that an exogenous origin of sulfate observed on Europa's surface need not preclude additional endogenous sulfate in Europa's ocean. We suggest that, like hydrothermal vents on Earth, brinicles in icy ocean worlds constitute ideal places where ecosystems of organisms might be found.

Chen, M., et al (2019) **Assembly of modern mammal community structure driven by Late Cretaceous dental evolution, rise of flowering plants, and dinosaur demise.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 116:9931-9940

Authors' abstract: *The long-standing view that Mesozoic mammaliaforms living in dinosaur dominated ecosystems were ecologically constrained to small size and insectivory has been challenged by astonishing fossil discoveries over the last three decades. By studying these well-preserved early mammaliaform specimens, paleontologists now agree that mammaliaforms underwent ecomorphological diversification during the Mesozoic Era.*

This implies that Mesozoic mammaliaform communities had ecological structure and breadth that were comparable to today's small-bodied mammalian communities. However, this hypothesis remains untested in part because the primary focus of most studies is on individual taxa.

Here, we present a study quantifying the ecological structure of Mesozoic mammaliaform communities with the aim of identifying evolutionary and ecological drivers that influenced the deep-time assembly of small-bodied mammaliaform communities. We used body size, dietary preference, and locomotor mode to establish the ecospace occupation of 98 extant, small-bodied mammalian communities from diverse biomes around the world. We calculated ecological disparity and ecological richness to measure the magnitude of ecological differences among species in a community and the number of different eco-cells occupied by species of a community, respectively.

This modern dataset served as a reference for analyzing five exceptionally preserved, extinct mammaliaform communities (two Jurassic, two Cretaceous, one Eocene) from Konservat-Lagerstätten. Our results indicate that the interplay of at least three factors, namely the evolution of the tribosphenic molar, the ecological rise of angiosperms [flowering plants]*, and potential competition with other vertebrates, may have been critical in shaping the ecological structure of small-bodied mammaliaform communities through time.*

Stubbs, T.L., et al (2019) **Morphological innovation and the evolution of hadrosaurid dinosaurs.** PALEOBIOLOGY 45:347-362

Authors' abstract: *The hadrosaurids were a successful group of herbivorous dinosaurs. During the Late Cretaceous, 100 to 66 million years ago, hadrosaurids had high diversity, rapid speciation rates, and wide geographic distribution. Most hadrosaurids were large bodied and had similar postcranial skeletons. However, they show important innovations in the skull, including disparate crests that functioned as socio-sexual display structures, and a complex feeding apparatus, with specialized jaws bearing dental batteries. Little is known about the macroevolutionary processes that produced these evolutionary novelties.*

Here we provide novel perspectives using evolutionary rate and disparity analyses. Our results show that hadrosaurid cranial evolution was complex and dynamic, but their postcranial skeleton and body size were conservative. High cranial disparity was achieved through multiple bursts of phenotypic innovation.

We highlight contrasting evolutionary trends within hadrosaurids between the disparate facial skeleton and crests, which both showed multiple high-rate shifts, and the feeding apparatus, which had low variance and high rates on a single phylogenetic branch leading to the diverse Saurolophidae. We reveal that rapid evolutionary rates were important for producing the high disparity of exaggerated crests and present novel evidence that the hadrosaurid diversification was linked to both a key adaptive innovation in the feeding apparatus and multiple bursts of innovation in socio-sexual displays.

Speirs: The Red Deer River badlands of Alberta are the richest source of Late Cretaceous vertebrates in the world. Tyrannosaurids get all the publicity, but there were far more hadrosaurs, which were the dinosaur equivalent of bison.

Wang, M., et al (2019) **A new Jurassic scansoriopterygid and the loss of membranous wings in theropod dinosaurs.** NATURE 569:256-259

Authors' abstract: *Powered flight evolved independently in vertebrates in the pterosaurs, birds and bats, each of which has a different configuration of the bony elements and epidermal structures that form the wings. Whereas the early fossil records of pterosaurs and bats are sparse, mounting evidence (primarily from China) of feathered non-avian dinosaurs and stemward avians that derive primarily from the Middle-Upper Jurassic and Lower Cretaceous periods has enabled the slow piecing together of the origins of avian flight.*

These fossils demonstrate that, close to the origin of flight, dinosaurs closely related to birds were experimenting with a diversity of wing structures. One of the most surprising of these is that of the scansoriopterygid (Theropoda, Maniraptora) Yi qi, which has membranous wings, a flight apparatus that was previously unknown among theropods but that is used by both the pterosaur and bat lineages. This observation was not universally accepted.

Here we describe a newly identified scansoriopterygid, which we name Ambopteryx longibrachium, gen. et sp. nov. , from the Upper Jurassic period. This specimen provides support for the widespread existence of membranous wings and the styliform element in the Scansoriopterygidae, as well as evidence for the diet of this enigmatic theropod clade.

Our analyses show that marked changes in wing architecture evolved near the split between the Scansoriopterygidae and the avian lineage, as the two clades travelled along very different paths to becoming volant. The membranous wings supported by elongate forelimbs that are present in scansoriopterygids probably represent a short-lived experimentation with volant behaviour, and feathered wings were ultimately favoured during the later evolution of Paraves.

Bemmels, J.B., et al (2019) **Genomic evidence of survival near ice sheet margins for some, but not all, North American trees.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 116:8431-8436

Authors' abstract: *The precise locations of refugia from which temperate species expanded following the Last Glacial Maximum have yet to be precisely identified. Temperate species experienced dramatic range reductions during the Last Glacial Maximum, yet refugial populations from which modern*

populations are descended have never been precisely located. Climate-based models identify only broad areas of potential habitat, traditional phylogeographic studies provide poor spatial resolution, and pollen records for temperate forest communities are difficult to interpret and do not provide speciesslevel taxonomic resolution.

Here we harness signals of range expansion from large genomic datasets, using a simulation-based framework to infer the precise latitude and longitude of glacial refugia in two widespread, codistributed hickories (Carya spp.) and to quantify uncertainty in these estimates.

We show that one species likely expanded from close to ice sheet margins near the site of a previously described macrofossil for the genus, highlighting support for the controversial notion of northern microrefugia. In contrast, the expansion origin inferred for the second species is compatible with classic hypotheses of distant displacement into southern refugia.

Pavlov, A.K., et al (2019) **On the radiocarbon increase around 5480 BC as a result of the Solar system encounter with interstellar cloud.** MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 485:4441-4445

[AU = astronomical unit. By definition, 1 AU is the average distance between Earth and the Sun.]

Authors' abstract: *We propose hypothesis accounting for the radiocarbon content increase in the terrestrial atmosphere around 5480 BC. It differs from similar increases caused by solar activity depressions by time profile. This time behaviour may be explained if one assume the Solar system collision with compact (diameter ~ 10 to 100 AU) and dense (n ~ 10 to 1000 cm^{-3} and more) interstellar cloud.*

We also suggest experiments on the 3He/4He ratio measurements in atmospheric gases captured in the polar ice cores to check this idea because interstellar cloud is characterized by two orders of magnitude greater ratio than the Earth's atmosphere.

NCD Risk Factor Collaboration (2019) **Rising rural body-mass index is the main driver of the global obesity epidemic in adults.** NATURE 569:260-264

Research group's abstract: *Body-mass index (BMI) has increased steadily in most countries in parallel with a rise in the proportion of the population who live in cities. This has led to a widely reported view that urbanization is one of the most important drivers of the global rise in obesity.*

Here we use 2,009 population-based studies, with measurements of height and weight in more than 112 million adults, to report national, regional, and global trends in mean BMI segregated by place of residence (a rural or urban area) from 1985 to 2017.

We show that, contrary to the dominant paradigm, more than 55% of the global rise in mean BMI from 1985 to 2017, and more than 80% in some low- and middle-income regions, was due to increases in BMI in rural areas. This large contribution stems from the fact that, with the exception of women in sub-Saharan Africa, BMI is increasing at the same rate or faster in rural areas than in cities in low- and middle-income regions.

These trends have in turn resulted in a closing, and in some countries reversal, of the gap in BMI between urban and rural areas in low- and middle-income countries, especially for women. In high-income and industrialized countries, we noted a persistently higher rural BMI, especially for women.

There is an urgent need for an integrated approach to rural nutrition that enhances financial and physical access to healthy foods, to avoid replacing the rural undernutrition disadvantage in poor countries with a more general malnutrition disadvantage that entails excessive consumption of low-quality calories.