

OPUNTIA 545



Saint Urho's Day 2023

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

ABOUT THE COVER

2023-03-09

photo by Dale Speirs

As I strolled out of the New Central Library one day, I saw this man at the front entrance getting a close-up photo of a Canada goose. I don't think the birds yet understand the difference between someone taking a smartphone photo and a possible handout of food.

The nesting season is nigh, and the geese like to use the downtown buildings as foraging habitat. They get more food begging for handouts that what would be found on the still frozen riverbanks.

The downtown core is bounded by the Bow River on the north and the Elbow River on the east, so aquatic bird life is abundant amongst the skyscrapers.

LIGHT THE NIGHT

2023-03-13

photos by Dale Speirs

I strolled out one evening (actually I drove in the Opuntiamobile) to Alexandria Green SW in the residential suburb of Currie.

There was a light installation up for two months. The lights were designed to cast multicoloured patterns on the snow.









PLUS 15
photos by Dale Speirs

The skyscrapers of downtown Calgary are interconnected by enclosed pedestrian skywalks known as the Plus 15. Very handy in winter or rain. I was walking over one bridge through the Westin Hotel at 3 Street SW and 4 Avenue when I saw an owl sitting on a hotel balcony. Closer inspection revealed it was statuette, evidently placed as a decoy to keep problem birds away.



This was the view from the Plus 15. Pardon the reflections from the glass. The next page shows the view from the street.





Later that day I crossed southbound Macleod Trail SE and saw this sign activated. The truck that activated it is on the right side of the photo just beneath the 7 Avenue traffic light.



The danger point is the 9 Avenue underpass where Macleod Trail goes underneath the railway tracks that form the southern boundary of the downtown core. I didn't bother chasing after the truck to see if it made the turn or got stuck. If it did, it wasn't the first and won't be the last.



This was a walkway over 7 Avenue at 4 Street SW. There had been construction down below on the road. Someone with a sense of humour carried the sign up the stairs as a prank.



Plus 15 walkways are called that because they are 15 feet above the roadway. Few delivery trucks are that high but occasionally a walkway will be hit. The name Plus 15 is a legacy because the skywalk system began before Canada went metric in 1971.

Notice in the photo at bottom left that the height is indicated only in metres. 4.8 metres is 15.75 feet.

THE NUMBER YOU HAVE DIALED: PART 5
by Dale Speirs

[Parts 1 to 4 appeared in OPUNTIA's #413, 462, 497, and 516.]

Danger, Will Robinson! Danger!

Twice a year the provincial government sends out a text blast to all cellphones. These blasts are unavoidable and cannot be blocked. They come through even if the smartphone is turned off.

These test messages must be acknowledged by clicking on an OK button before deleting. The smartphone cannot be used for anything else until the blast is acknowledged.

The blasts are from Alberta Emergency Management Agency. I've gotten some real blasts in past years, such as possible tornadoes (which never formed) and, during the pandemic, announcement of lockdowns. Like the vast majority of Albertans, I find the test blasts are an annoyance.

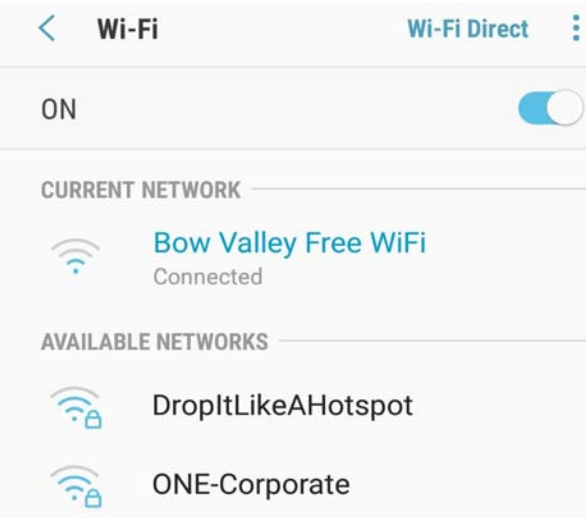
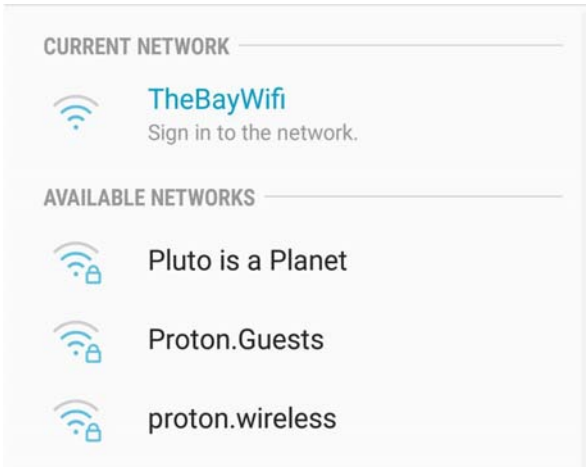
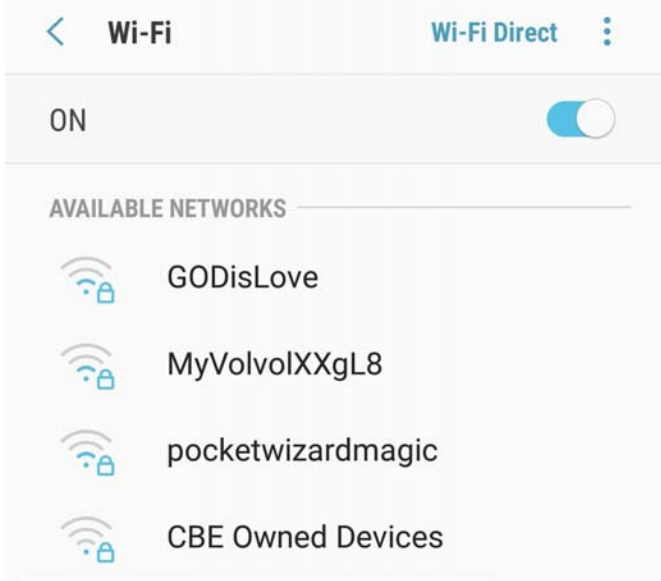
On March 1, all Albertans got a test message, and all of them deleted it after reading. A minute later, we got another blast. I had taken a screenshot of the first one and thought I hadn't deleted it properly, but then once a minute the blast was repeated. Six times for all Albertans. The Ministry apologized.

The date was said to have been chosen because it is the start of the wildfire season in Alberta in the remote boreal forests up north. There is no cellphone service out there, so we didn't buy the excuse. Calgary has its problems but forest fires are not one of them.

And On The Next Page ...

Some screenshots from when I use public wifi on my smartphone.





CONVENTIONAL FICTION: PART 17

by Dale Speirs

[Parts 1 to 16 appeared in OPUNTIA's #70.1A, 270, 285, 313, 364, 385, 398, 414, 421, 439, 459, 488, 495, 513, 523, and 537.]

Rushing To Conventions.

Kristine Kathryn Rusch wrote a series of stories set at science fiction conventions. As a science fiction writer and editor, she certainly had lots of experience with conventions. I bought two of the books from Amazon print-on-demand.

The protagonists were Spade, a secret master of fandom and private detective, and his sidekick Paladin, a pixieish woman. Nicknames both. Spade had been labeled that in honour of Sam Spade but he didn't like the tag although he did use it. He pointed out to all to no avail that he was a big man for whom the tag Nero Wolfe would be a better fit.

THE EARLY CONUNDRUMS (2014) was a collection of five stories. Leading off was "Stomping Mad", set at DinoCon, with 8,000 attendees. The organizers wanted to call the event Jurassic Parkathon but couldn't get the name past the Spielberg studio.

Spade was working finances for DinoCon when the call came in for trouble in the Literature Con party room. The host was Lucinda Danielle Stanhope, the Martha Stewart of fandom. Not any more though. Someone killed her in the room, so angry they stomped her head flat.

A second look revealed that while the corpse was realistic, it was displayed in Hollywood style and was fake. Spade found Stanhope and her boyfriend, an SFX technician, in another room. She had hoped to sabotage the convention. Spade banned her from all sci-fi conventions, which he did by trashing her credit card account, being a financial techie. She understood the future consequences should she cause trouble again.

"The Case Of The Vanishing Boy" introduced Paladin, where Spade was working at FleshCon. The convention was a straightforward science fiction event. The name had nothing to do with pornography but did result in extra sales from a certain group, although seldom repeat business from them.

Paladin wanted Spade's help. She had been hired by a family trying to track their missing teenaged son. He was obsessive about conventions and traveled from one to the next, wheedling memberships and rides and living off con suite food.

Spade eventually found the boy. There was a back story. Family trouble, a stepfather, feeling out of place in the real world as trufen often do. Life on the road was rough, in the nasty way. The ending wrapped up with optimism.

"The Karnikov Card" took place at CelebCon in Los Angeles, a convention run by naive fans who wanted to be the next Comic-Con. They booked a big-name actor Dmitri Karnikov for an outrageous appearance fee, who then tried to stiff them for more money.

The concom were too in awe of Karnikov to negotiate with him, so Spade insisted on being the point man. He settled the problem but back at the hotel met a new one. Paladin specialized in tracking runaway teenagers or those preyed on by child molesters.

Like Karnikov, who had been getting away with it for years by paying off the parents of the boys he molested. Spade went after him from a different angle, tracking the money and assisting the District Attorney gratis. That got Karnikov before a grand jury. CelebCon took a hit but they would survive. The gushy fans on the concom wouldn't be so gushy anymore.

"Pandora's Box" took place at CrapCon. Descriptive but not the real name as Spade wanted to protect the guilty. The concom forgot to print a programme schedule for the members, and things went downhill from there.

Such as a bomb threat, which turned out to be a real bomb. Paladin got it out to the hotel parking lot, where the police bomb squad took care of it. The plot was straightforward. Spade did the computer work to identify the culprit and, more importantly, get him convicted.

"Trick Or Treat" was the final story. Spade was in San Francisco scouting for Alternate Pro-Con (not its real name), a non-fan convention for professional writers only. Paladin talked him into visiting a church shelter. The Reverend was fiddling the books, discovered by a whiz kid named Casper, who needed protection from him and society. She was to become a continuing character in later Spade stories.

As with the previous stories, Spade’s financial forensics were glossed over. He ran stuff through his computer, found the fraud, went to the police, and they quickly packaged the con man for jail. More like wish fulfillment than actual police work.

TEN LITTLE FEN (2021) was a last-one-standing novel that took place at SierraCon in the mountains of Nevada during the autumn off-season. The convention chairwoman Ruth was being treated for cancer, so Spade was not only treasurer but suddenly found himself looking after programming as well.

Then it began snowing. The deep stuff that isolated the hotel. About half the members, dealers, and guests of honour would not be able to reach the hotel because of the blizzard. The phrase “Donner Party” was heard more than once.

Fortunately Spade had written a cancellations clause into the contract. Unfortunately the experienced hotel staff weren’t there so he had to explain the contract to the relief staff.

As an aside, few conventions have this clause, which stipulates that if a booking is cancelled by a guest then it will still be counted for the room guarantee. Despite the blizzard some fans and pros made it up the mountain road. Generally they were the obnoxious ones, although some were civilized.

An example of the better behaved were Richard Agberg and his much younger wife Kalee Behar, whose real names will be obvious to palaeofans. To me anyway, as I met them when they attended Con-Version in Calgary many long years ago.

Those who know fanhistory will have fun picking out identities from the roman à clef characters. Rusch was writing what she knew, the types of fans and pros that infested conventions of yore. But I digress.

Soon enough, events became serious. A fan was poisoned through his food but survived. A young woman was slugged on the back of her head, a Klingon mask tied onto her face, and then she was left outside in the cold. She barely survived.

The trend continued. Ruth was poisoned with sleeping pills on someone else’s prescription and barely survived. An author named Horatio had his leg slashed by a booby-trapped exhibit of fantasy swords.

Spade remembered Agatha Christie’s famous work which had several different titles but is known today as AND THEN THERE WERE NONE. The perpetrator was using a poem in the novel, originally titled “Ten Little Niggers”, which Horatio converted to “Ten Little Fen”.

Using the poem as a guide, Spade and Paladin figured out the next attack would be against Star Trek fans dressed as Borg. Fortunately the attack was forestalled, otherwise a fan would have been scarred for life by acid burns.

Spade continued investigating, working on the assumption that the culprit probably had been banned from other conventions. He found her, just as she found him. She was a hotel employee, which explained how she was able to infiltrate and set up her attacks.

There was a gunpoint confrontation. Spade was rescued by Paladin. As he remarked in the final sentences of the novel: *“I had just lived through a cozy, in a blizzard. It was not an experience I ever wanted to have again.”* The epilogue discussed the difficulty in putting away mentally ill people who were a danger to others. We who attend science fiction conventions have all seen people who can’t or won’t distinguish between fiction and reality.

The Art Of Murder.

THE CON ARTIST (2018) by Fred Van Lente took place at the San Diego Comic-Con. Mike Mason was a comic book artist who narrated a guided tour to the convention, which was what this novel basically was.

The corpse was Danny Lieber, a none-too-popular comic book editor. Especially with Mason, whose wife he stole. That made Mason the prime suspect and sent him on an odyssey through the convention to prove his innocence.

A steady flow of mini-infodumps followed, pretty much confirming the beliefs held by the general public about fans who need to get a life. Mason remarked that reviewing a comic book series with a handgun was not normal but the evidence suggested otherwise.

Once all the varieties of media and comic fans were dealt with, the plot lines converged onto a killer who had been faking comic artwork. Apparently that paid better than forging Old Masters paintings.

DBO ZPV SFBE UIJT NFTTBHF: QBSU 6
by Dale Speirs

[Parts 1 to 5 appeared in OPUNTIA's #335 409, 446, 473, and 534.]

Cryptocoizes.

Parnell Hall had a long cozy series about Cora Felton, syndicated as the Puzzle Lady. I've reviewed most of those novels in previous installments of this column.

Her guilty secret was that her crossword puzzles were ghosted by her niece Sherry Carter, who wished to remain anonymous from fear of her abusive ex-husband. Cora was no good at solving crossword puzzles, necessitating a lot of bluffing and public deception.

Other than that, she was quite the battleaxe, often barging in where she was not wanted, always a good trait for Miss Marples. She carried a handgun and wasn't afraid to use it, definitely not a typical Marple trait. Cora was a woman of a certain age, much married, drank too liberally, and was known to traffic police throughout the county.

The series had one incredible aspect. The murderer always left a crossword puzzle or sudoku on the victim's corpse to taunt police. Of necessity, they were forced to consult with Cora, unaware that she was no good with crosswords. She could do sudoku puzzles quite well, but a string of random numbers was never a useful clue.

The puzzles were shown in the text to give the reader a fair chance at solving them and guessing the murderer. Policing Cora's home town of Bakerhaven, Connecticut, was like no other jurisdiction.

The village's only lawyer was young Rebecca Baldwin, who scraped by on legal aid cases and, for solicitor work, the fact that an out-of-town lawyer was too much trouble for people who wanted their will done or a contract drawn. Rebecca often found herself working with Cora in the hope there would be a fee in there somewhere.

DEAD MAN'S PUZZLE (2009) began with the death of Herbert Overmeyer at the age of 92. A crossword puzzle was found near his body, so that made the

death murder in Cora's opinion. She was right, as the autopsy revealed the old man had been poisoned. Cora and Rebecca went in deep on the case when information revealed that Overmeyer had a fortune in stocks and died intestate. Suddenly a flock of heirs, mostly bogus, came out of the woodwork.

The alarums, additional murders, puzzles, and goldiggers flowed steadily by, leading to a denouement of crossword puzzles and sudden analysis. The decrypts would stymie an NSA agent but Cora was able to tie in Overmeyer's murder with a 50-year-old cold case.

Meanwhile, back at the probate, there was a mass meeting of heirs. Cora maneuvered herself into being assigned the friend of the court status to decide the disposition of the estate. No judge in his right mind would touch the mess if he could dump it into someone else's lap.

Cora used the meeting as a J'accuse! showdown. As we used to say back on the ranch, the meeting was a real barn-burner. When Cora named the murderer, he leaped up and pulled a handgun.

He didn't know that unlike every other Miss Marple, Cora packed heat and was a better and faster shot. The state of Connecticut was saved the cost of a trial, and there were a crowd of witnesses to testify Cora shot in self-defense.

NYPD PUZZLE (2014) took Cora Felton and Rebecca Baldwin to New York City, where another murder or two wouldn't be noticed. Baldwin went to visit a client Charles Kessington in his penthouse apartment.

As they entered, they found the freshly murdered body of Kessington, with a crossword puzzle lying on his corpse. The intruder was still in the apartment. Cora pulled her gun and got off a shot but the man escaped.

The NYPD were not amused, but Cora made bail and began Marpleing. Not to mention sleeping with the sergeant assigned to the case. Said Cora, "*I thought it might be a good idea to ingratiate myself.*"

The murderer, unlike any of his ilk in the big city, kept sending puzzles, not to mention breaking into a police station. The alarums went back and forth between Bakerhaven and Manhattan before the culprit was captured. He just wanted money, and people got in his way.

Treasure Hunts.

BOX 13 was a syndicated radio series that aired from 1948 onward. Syndication meant that radio stations bought vinyl records, one episode per disk, with suitable gaps to insert commercials. They could replay the disks any number of times and so they did.

Dan Holiday had been a newspaper reporter who quit to become a novelist, only to discover he couldn't think of any plots. As far as I know, this was the only broadcast series devoted to writer's block.

Holiday ran a classified ad in his old newspaper: "*Adventure wanted. Will go anywhere, do anything. Box 13*". The box number was at the newspaper. Suzy, the clerk who handled classified ads, was bored with her job and quit to join Holiday as his secretary sidekick.

"The Better Man" was written by Russell Hughes and aired on 1947-02-27. The letter writer was multi-millionaire Charles Winthrop, who had hidden \$100,000 cash somewhere in the city. Winthrop was bored with life, having traveled the world and done everything. He invited Dan Holiday to search for the cash, as well as three others. Winthrop's pleasure would be watching the contestants scramble for the money.

The four seekers would be unknown to each other. They were given clues to the treasure by Special Delivery mail. The first clue was "*High swings the hunter, his dog's eye bright, where science is king, the clue will be right*".

Suzy was baffled, as indeed was Holiday. She babbled about having once worked a puzzle on movie stars. In a flash, Holiday realized the hunter was Orion the constellation and the dog's eye was Sirius, the brightest star in the night sky.

The constellation rises in the east and sets in the west. Orion is highest in the sky at midnight. Sirius is known as the Dog Star and is to the lower left of Orion. Let me now pause for a completely irrelevant digression.

I worked 31 years for the Calgary Parks Dept, mostly as a foreman and the last decade as a supervisor. The shifts always started at 07h00 but foremen and supervisors had to be at work by 06h30 to open up the depot and prepare for the day's work. That meant I had to set my alarm clock for 05h45 to get out of the

house and drive to work. Each pitch-black morning with a clear sky, as I stepped outside I would look up and see Orion high in the sky. The constellation was inextricably associated in my mind with work. I retired in 2010 and since that time have never once seen Orion. I now get out of bed after sunrise. To me, freedom is never having to see Orion.

Back at the puzzle, Holiday went to the newspaper office where he once worked and talked to the librarian there. Lou pointed out that science would be king at the Winthrop Observatory. So it was that Holiday drove there at midnight.

Winthrop was waiting for him, cackling with glee. He gave Holiday the next clue and said only one other contestant had correctly surmised the clue.

That clue was "*He's king yet a slave, and free yet a captive. We, who are weaker, are yet stronger. Those whom he ruled are close to his might, yet they are not there by day or night*." Holiday and Suzy were stumped.

As they worried over the clue, the other contestant arrived. He was a bad guy because, like all old-time radio bad guys, he talked like a Noo Yawk gangster who couldn't pronounce the letter 't'. He told Holiday to get rid of the dame, which caused Suzy much umbrage.

However, Holiday wanted her out of harm's way so he sent her on an errand. Gangster man offered a split of the treasure but Holiday wouldn't agree. The man was very miffed and uttered threats as he departed. Holiday telephoned Winthrop and uttered different threats.

With those hearty sentiments out of the way, Holiday decided the second clue referred to a zoo. He visited the lion pit where someone tried to push him in. As he recovered, Winthrop appeared, chuckled heartily at the contretemps, and told him to visit the mansion that night.

Gangster was there. Winthrop laid out the cash and told them they could divide it equally or fight each other for the whole amount. He then left the room to await the result. Since Holiday was booked for the series, there was no suspense in the outcome.

Leaving Gangster unconscious, Holiday turned the tables on Winthrop and demanded a \$500,000 donation to charity. He got it.

STATELY PILES: PART 8

by Dale Speirs

[Parts 1 to 7 appeared in OPUNTIA's #386, 395, 415, 455, 481, 506, and 530.]

Haunted Piles.

BE MY GHOST (2011) by Carol J. Perry was the first novel in the Haunted Haven series, set in Haven, Florida. Maureen Doherty had lived in Boston. Her employer went bankrupt and she inherited the Haven House Inn, in that order. So off to Florida.

Maureen hadn't even checked into her room before she found a body, a man sitting dead in a chair on the veranda, his corpse still warm. The deceased was Conrad Wilson, a ghost hunter investigating the inn. She thus learned the stately pile had a plethora of sightings. The staff regretted his passing because he had been a good tipper.

The resident ghosts introduced themselves to Maureen. The inn's reputation provided steady business from ghost hunters. Having some business experience, Maureen decided to make a go of the place.

She was constantly obstructed by one staff member who eventually was identified as the killer. The denouement wasn't so much a wrap-up of the crime as it was a mission statement by Maureen for the hotel, stating her plan to make the inn profitable for her and the ghosts.

The hotel had its own restaurant, which explained the recipes appendix for Apple Raisin Pie, Shortbread Cookies, and Blackened Grouper.

NIGHT OF THE LIVING DEED (2010) by E.J. Copperman (pseudonym of Jeffrey Cohen) was the first novel in a series about Alison Kerby of Harbor Haven. New Jersey. After a divorce, she was back in her hometown with her daughter Melissa, and was now operating a guest house.

A bang on her head during renovations gave Alison the ability to see ghosts, specifically the two who haunted the guesthouse. They were Maxie Malone, previous owner of the house, and Paul Harrison, a private detective who had been working for her the night they were both murdered.

The ghosts wanted Alison to solve the crime. The back story involved sharp practice among real estate developers trying to buy the house for their project. The MacGuffin was a land title deed, which confused me because the titles office, or at least the property tax people, would have a record. The American system must work differently.

Melissa was kidnapped and ransomed for the deed. The final confrontation was in a cemetery. The police arrived in the nick of time, as they so often do, and a half-dozen conspirators were rounded up and sent to jail.

THE THRILL OF THE HAUNT (2013) had Alison Kerby now known to the villagers as "the ghost lady". At Paul Harrison's insistence, she obtained her private investigator licence. In exchange, he and Maxie were to manifest twice a day for tour groups staying at the house.

As a private detective, Alison didn't do a good job, with two murders on two different cases. Miss Marple was nothing compared to her. The cases were eventually connected after many alarms and the standard gunpoint confrontation. Drug dealing, it was.

A newly-created ghost found himself confined to haunting the men's washroom in the service station where he died. What a way to spend eternity.

INSPECTOR SPECTER (2014) began with police detective Anita McElone asking Alison Kerby to help investigate the murder of her former partner. Then McElone disappeared.

The ghosts Paul and Maxie helped out, including Internet searches, being thoroughly modern ghosts. This time there were two gunpoint confrontations. The MacGuffin was a memory stick with incriminating data.

Murder Down At The Manor.

The radio series THE SHADOW had a complicated genealogy that began in 1930 and didn't evolve the familiar version of The Shadow until 1933. Several dozen episodes are available as free mp3s from www.otrr.org/OTRRLibrary The series lasted until 1954.

"Mind Over Murder" was written by Joe Bates Smith and aired on 1946-03-31. Emily, Abigail, and Matilda were three elderly spinsters living in a stately pile

with Brooks the butler. Emily asked Brooks to run away with her. He pointed out that she could never be happy on his salary.

In any event, he was quite class conscious and said a liaison between them wouldn't be proper. Emily said she was third in line to the estate. They had only to wait for her sisters to die, then there would be enough money to erase class distinctions.

Brooks replied that if they waited for the natural course of events, they would be quite old by then. The listener will immediately think Aha!, this is where the plot begins.

The listener will not be wrong. Brooks didn't miss his cue. He suggested, ever so politely, that suicides could be arranged. Emily was not shocked at his suggestion.

Jump cut ahead to Lamont Cranston and Margo Lane, walking down the street of the sisters' mansion. The duo were collecting for the Red Cross. They saw a crowd gathered around the mansion. All watched in horror as an elderly woman fell from the roof. Did she jump or was she pushed?

The next evening Cranston and Lane returned to the mansion to pay their respects. The occasion was marred when Matilda, the new heir, squabbled with Emily in front of them and gloated out loud about being in charge now. Mr Carter told her so, she said, he being the lawyer administering the trust fund.

Cranston and Lane visited Carter next, warning him of Matilda's maniacal behaviour. He said there was nothing he could do. Cranston was not satisfied, so after they left, The Shadow came back and did some eavesdropping. Carter certainly seemed to be acting suspiciously.

Meanwhile, back at the mansion, Brooks and Miss Emily visited Matilda in her room. She had been trimming some dress fabric with a pair of large scissors. There are no prizes for guessing where the scissors went next.

The episode paused for a commercial on behalf of the Red Cross, then on to Miss Emily's tears. Cranston had suddenly arrived, with Carter on his heels. Emily cried crocodile tears about Matilda being distraught over Abigail's death.

Carter returned to his office with, unknowingly, The Shadow on his heels. There the latter learned that if all three sisters died, the estate went to Carter. He accused Carter of killing the two sisters. Carter broke under the sound of the invisible voice and said Brooks did it in exchange for a share of the estate.

Miss Emily was next, so The Shadow dashed back to the mansion. Brooks had just spurned Emily's offer of marriage. He was trying to brainwash her into slashing her wrists and offered her a straight razor.

He ought not to have done that. Handing a razor to a woman scorned was a foolish thing to do. Fortunately he disarmed her and carried her down to the basement furnace.

The Shadow's voice came out of the flames, which confirmed that he was a ventriloquist as well as an invisible man. Brooks tried to run but was rendered unconscious pending the arrival of the police.

THEY SHALL MOVE OUT OF THEIR HOLES LIKE WORMS OF THE EARTH: PART 11

by Dale Speirs

[Parts 1 to 10 appeared in OPUNTIA's #307, 308, 331, 347, 390, 399, 415, 439, 474, and 510.]

Lost Worlds.

By the 1930s there weren't too many places left where writers could set lost world stories. All the continents were known in at least rough outline. However, there was still hope way down below for hack writers.

"In Caverns Below" by Stanton A. Coblentz (1935 March, WONDER STORIES, available as a free pdf from www.gutenberg.org) was a standard underground lost civilization story.

Frank Comstock, the narrator, and his partner Philip Clay were exploring a silver mine in Nevada. An earthquake collapsed most of the tunnel, leaving them stranded in a cul-de-sac. Another shake opened up a fissure and sent them down deeper.

Following a dim light through the crevasses, they found an underground city in an immense cavern. Constant shocks and thunder reverberated. The men got down low enough to see two armies in full combat on the vast floor of the cavern. They were separated and Comstock was captured and put into prison.

He was rescued in a sense by a humanoid he called Professor Tan Trum, who suspected Comstock was from levels further down, since everyone knew there was no life on the surface of the planet.

From there to the usual alarms, excursions, fair young maidens, utopias and dystopias, and all the other appurtenances of lost world fiction. Comstock was reunited with Clay as the underground civilizations began to self-destruct.

They always do when a white saviour comes to visit them. The two men climbed up numerous pipes and clefts, and finally made it to the surface. Of course no one would believe their story, so they vowed to return some day.

Critters.

The Tremors series of movies and television shows keep going and going. Previous installments were reviewed in issues #307, 347, and 415 of this zine. The latest chapter is TREMORS: SHRIEKER ISLAND, a 2020 movie written by Don Michael Paul and Brian Brightly.

This movie was a takeoff on the Jurassic Park movies, only with graboids and shriekers instead of dinosaurs. The scenery of tropical islands and karst topography was identical, not surprising since Universal Studios produced both series of movies.

The plot was borrowed directly from Jurassic Park, wherein a ruthless billionaire paid for genetically engineered supersized graboids to increase the thrill of the hunt. The movie had some back stories among the characters from previous movies. Burt Gummer returned for his swan song.

Mostly though, it was a matter of “who’s next?” as the cast and critters were both slowly thinned out on the islands. Gummer, star graboid killer from previous movies, came to the rescue in a blaze of glory.

There were some cute touches. Everyone used cellphone flashlights, although one person had to switch to a cigarette lighter because the battery on her cellphone went dead.

The giant graboid worms, as every Tremors fan knows, reached the size of an SUV towing a house trailer, and then produced three shriekers, dying in the process. The shriekers were high-speed bipedal predators, blind but hunting via thermal sensing. They got loose along with a few graboids, and the rest of the alarms and many excursions followed.

Gummer mentioned again that graboids were Precambrian life forms, something he did in previous movies. This point always annoyed me as there was no way giant worms with three metamorphic stages could have existed back then.

During the Precambrian, life was still making the transition from microbes to small multicellular animals. It would have cost nothing to have the writers change the script to Permian or Pleistocene.

Meanwhile, back on the island, the great white hunters were armed to the teeth with the latest hunting gear. Gummer had some leftovers found in an old WW2 bunker. The biotech shriekers had one advantage over the original variety. They could disable humans with high ultrasonics before attacking.

The movie finished up with a very mawkish ending, which will probably be reversed in the next sequel.

THEY CRAWL BENEATH (2022) was written by Tricia Aurand and was basically a Tremors movie without any humour. The critters were worms very similar to the graboids but only the size of a beagle. They were liberated by earthquakes out in the California desert.

The hero Danny and his Uncle Bill were working on the restoration of an old car in a garage out on a desert acreage. They were both underneath the car when another earthquake shook the car off the jacks. Bill was crushed to death but Danny managed to get his torso out before his legs were pinned.

The worms showed up. Danny had to fight them with only what he could reach from his position. Eventually he managed to snag a jack and pull himself out. The garage door was inoperable due to the quakes, so he was still trapped inside with the worms. Much agony, as he used his ingenuity to fight the worms.

The main problem of this movie was that 90% of the scenes were Danny trapped under the car. They went on far too long, leading me to fast-forward since much of it wasn't the actual combat with critters but drawn-out sequences of Danny trying to reach something.

There were a few scenes in a laboratory where a scientist studying a specimen of the worm failed to use even the simplest biocontainment procedures. She got what she deserved but her demise was early in the movie and almost trivial.

The slow pacing of the movie detracted from the ingenuity displayed by Danny as he tried to make do with what he could reach from his pinned position. Worth seeing once on disk where you can fast-forward the tedious parts. Where's Bert Gummer when you really need him?

Underground Skullduggery.

THE AVENGER was a carbon-copy of The Shadow, produced by the same people. The market for such heroes was saturated and the show never succeeded. The first series aired during the 1941-42 season and has since vanished into the mists of time. The second version aired during the 1945-46 season, written by Ruth and Gill Braun. This series was syndicated on transcribed disks and thus survived.

Those disks were later converted to mp3s. They are now available as free downloads from the Old Time Radio Researchers website at www.otrr.org/OTRRLibrary

Jim Brandon was the alter-ego of The Avenger or perhaps vice versa. His lovely companion was Fern Collier, who was the only person who knew the true identity of The Avenger.

Brandon didn't learn any strange and mysterious powers in the Orient but instead relied on superscience devices. His two main gizmos were the Telepathic Indicator, a mind-reading device, and the Secret Diffusion Capsule, which made him invisible.

"The Tunnel Of Disaster" aired on 1945-07-20. Said tunnel went through a mountain on the south side of the city. It was completed well over budget, behind schedule, and with plenty of political controversy. In short, a typical government project.

The band played on, and a city commissioner had the honour of being the first person to drive a car through the tunnel. Somewhere underneath he disappeared. The Telepathic Indicator went berserk, so Jim Brandon and Fern Collier rushed to the tunnel.

A note was left threatening more trouble unless the tunnel was permanently closed. The construction engineer Merkel Evans had objected to the idea of the tunnel, saying it would have been much cheaper to build a road around it.

While talking to Evans in his office, Brandon noticed a tiny model of a gold smelter. That certainly helped make Evans the primary suspect. Adjacent to the mountain was a steel foundry, the management of which had tried to buy the mountain from the city some years ago.

Theodore Ramsay was the current manager of the steel plant. He provided some plausible explanations as to why the company owner wanted the land. Burgess Hartley was the current owner but seemed to spend his time away from the office.

Notwithstanding the disappearance, the city council ordered the tunnel opened. More alarums. All those who disappeared went in through the north entrance. Brandon and Collier drove round the other side and crashed in through the south entrance.

They found a trivial clue and then spun an hypothesis. Geological maps showed small deposits of gold in the mountain next to the smelter. The Avenger paid a visit to the mill. He found Hartley and Evans preparing to dynamite the stope where they had been mining gold.

The conclusion was foregone. The disappeared people were rescued, explanations were made, and the guilty were booked. The traffic began flowing and all was well.

Astronomy.

Van Dokkum, P., et al (2023) **A candidate runaway supermassive black hole identified by shocks and star formation in its wake.** [www.arxiv.org arXiv:2302.04888v1](https://www.arxiv.org/abs/2302.04888v1) [astro-ph.GA] (available as a free pdf)

Authors' abstract: *The interaction of a runaway supermassive black hole (SMBH) with the circumgalactic medium (CGM) can lead to the formation of a wake of shocked gas and young stars behind it. Here we report the serendipitous discovery of an extremely narrow linear feature in HST/ACS*

images that may be an example of such a wake.

The feature extends 62 kiloparsecs from the nucleus of a compact star-forming galaxy at $z = 0.964$. Keck LRIS spectra show that the $[O\ III]/H\ \beta$ ratio varies from about 1 to about 10 along the feature, indicating a mixture of star formation and fast shocks.

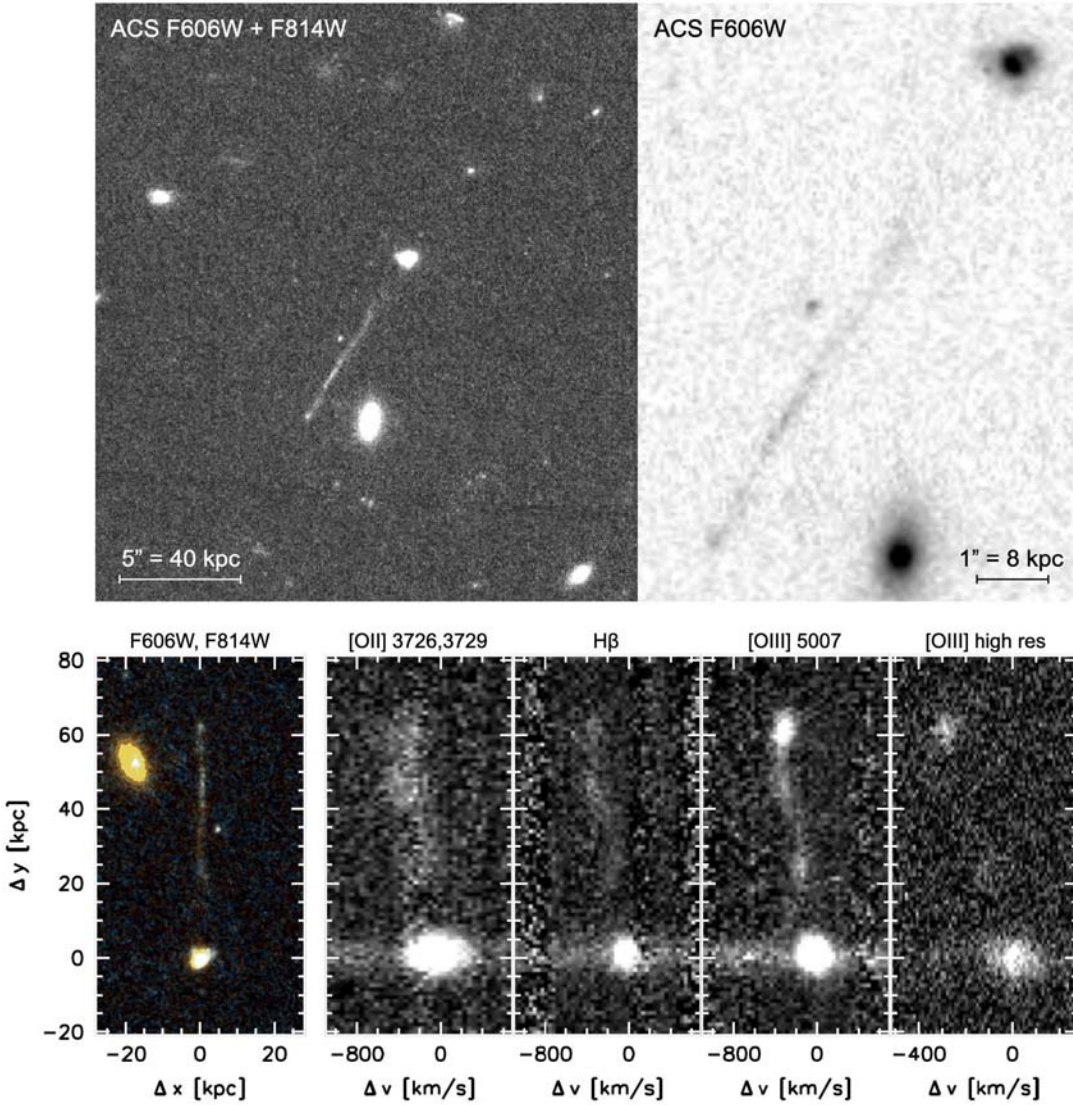
The feature terminates in a bright $[O\ III]$ knot with a luminosity of about 1.9×10^{41} ergs per second. The stellar continuum colors vary along the feature, and are well-fit by a simple model that has a monotonically increasing age with distance from the tip.

The line ratios, colors, and the overall morphology are consistent with an ejected SMBH moving through the CGM at high speed while triggering star formation. The best-fit time since ejection is 39 megayears and the implied velocity is $v_{BH} 1,600$ km per second.

The feature is not perfectly straight in the HST images, and we show that the amplitude of the observed spatial variations is consistent with the runaway SMBH interpretation.

Opposite the primary wake is a fainter and shorter feature, marginally detected in $[O\ III]$ and the rest-frame far-ultraviolet. This feature may be shocked gas behind a binary SMBH that was ejected at the same time as the SMBH that produced the primary wake.

[Images and captions are from this paper.]



Top left: F606W + F814W HST/ACS image of the linear feature and its surroundings.

Top right: Zoomed view of the F606W image. The feature shows a compact bright spot at the narrow tip, and seems to broaden toward the galaxy.

Bottom left: Color image, generated from the F606W and F814W images.

Bottom right panels: Sections of LRIS spectra near bright emission lines. The feature and the galaxy are at the same redshift. The kinematics and line strengths show complex variations along the feature.

Tobin, J.J., et al (2023) **Deuterium-enriched water ties planet-forming disks to comets and protostars.** NATURE 615:227-230

Authors’ abstract: *Water is a fundamental molecule in the star and planet formation process, essential for catalysing the growth of solid material and the formation of planetesimals within disks.*

However, the water snowline and the HDO:H₂O ratio within proto-planetary disks have not been well characterized because water only sublimates at roughly 160 K, meaning that most water is frozen out onto dust grains and that the water snowline radii are less than 10 AU (astronomical units).

The sun-like protostar V883 Ori is undergoing an accretion burst, increasing its luminosity to roughly 200 L, and previous observations suggested that its water snowline is 40 to 120 AU in radius.

Here we report the direct detection of gas phase water (HDO and H₂¹⁸O) from the disk of V883 Ori. We measure a midplane water snowline radius of approximately 80 AU, comparable to the scale of the Kuiper Belt, and detect water out to a radius of roughly 160 AU.

We then measure the HDO:H₂O ratio of the disk to be $(2.26 \pm 0.63) \times 10^{-3}$. This ratio is comparable to those of protostellar envelopes and comets, and exceeds that of Earth’s oceans by 3.1 sigmas.

We conclude that disks directly inherit water from the star-forming cloud and this water becomes incorporated into large icy bodies, such as comets, without substantial chemical alteration.

Planets.

Solomatova, N.V., and R. Caracas (2023) **Earth’s volatile depletion trend is consistent with a high-energy Moon-forming impact.** COMMUNICATIONS EARTH AND ENVIRONMENT 4:doi.org/10.1038/s43247-023-00694-9 (available as a free pdf)

[Chondrites are the most common type of meteorites.]

Authors’ abstract: *The abundance of volatile elements in the silicate Earth relative to primitive chondrites provides an important constraint on the thermochemical evolution of the planet. However, an overabundance of indium relative to elements with similar nebular condensation temperatures is a source of debate.*

Here we use ab initio molecular dynamics simulations to explore the vaporization behavior of indium from pyrolite melt at conditions of the early magma ocean just after the Moon-forming impact.

We then compare this to the vaporization behavior of other minor elements. When considering the volatility of the elements from the magma ocean in the absence of the solar nebula gas, we find that there is no overabundance of indium.

On the contrary, there is a slight deficit in the abundance of indium, which is consistent with its moderately siderophile nature. Thus, we propose that a high-energy Moon-forming impact may have had a more significant contribution to volatile depletion than previously believed.

Origin Of Life.

Subbotin, V., and G.Fiksel (2023) **Exploring the Lipid World hypothesis: A novel scenario of self-sustained Darwinian evolution of the liposomes.** ASTROBIOLOGY 23:doi.org/10.1089/ast.2021.0161 (available as a free pdf)

[The consensus is that cellular life began with lipids forming flat membranes floating on the ocean’s surface, some of which folded into bubbles. The bubbles grew by adding free-floating lipids and dividing when too big. Eventually nucleotides were enveloped inside the membranous bubbles and grew into RNA. The rest was details.]

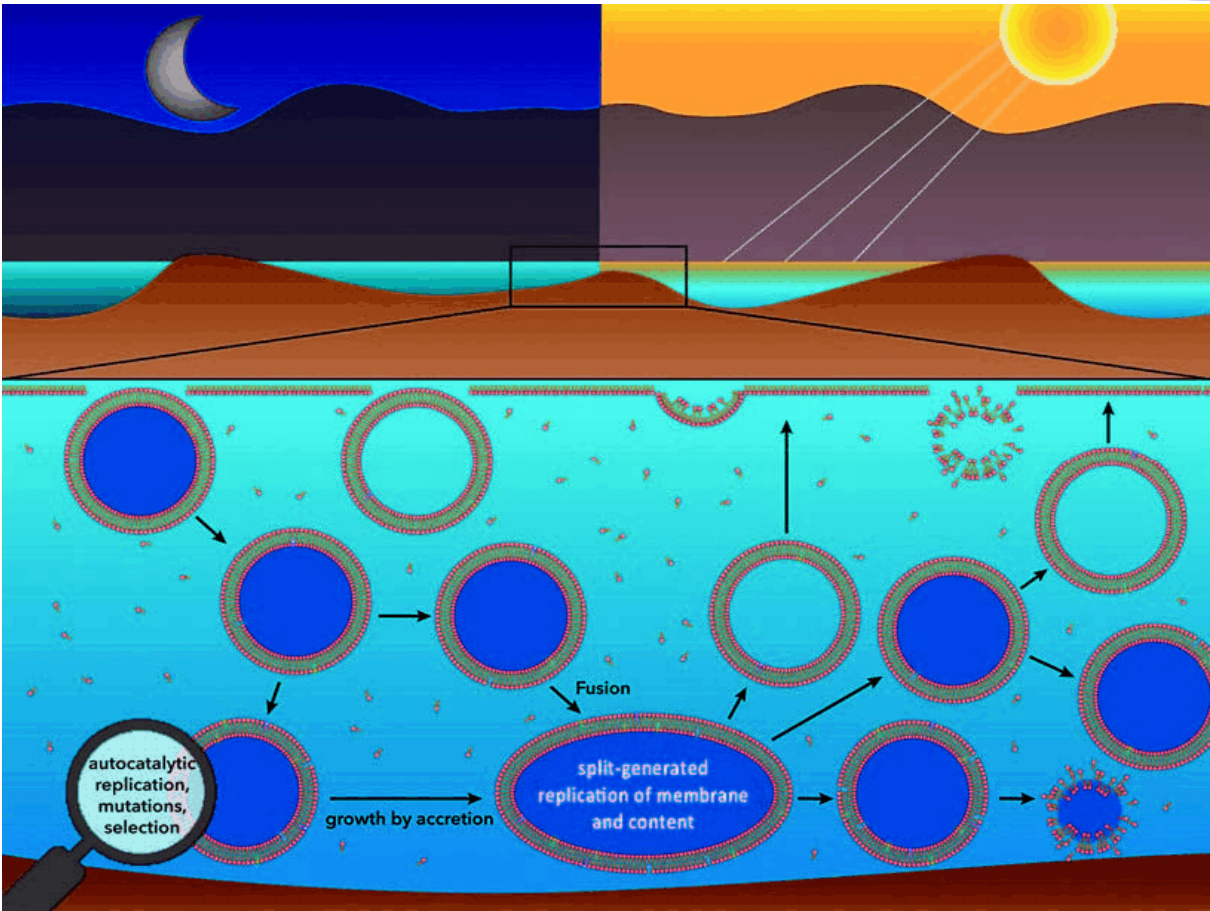
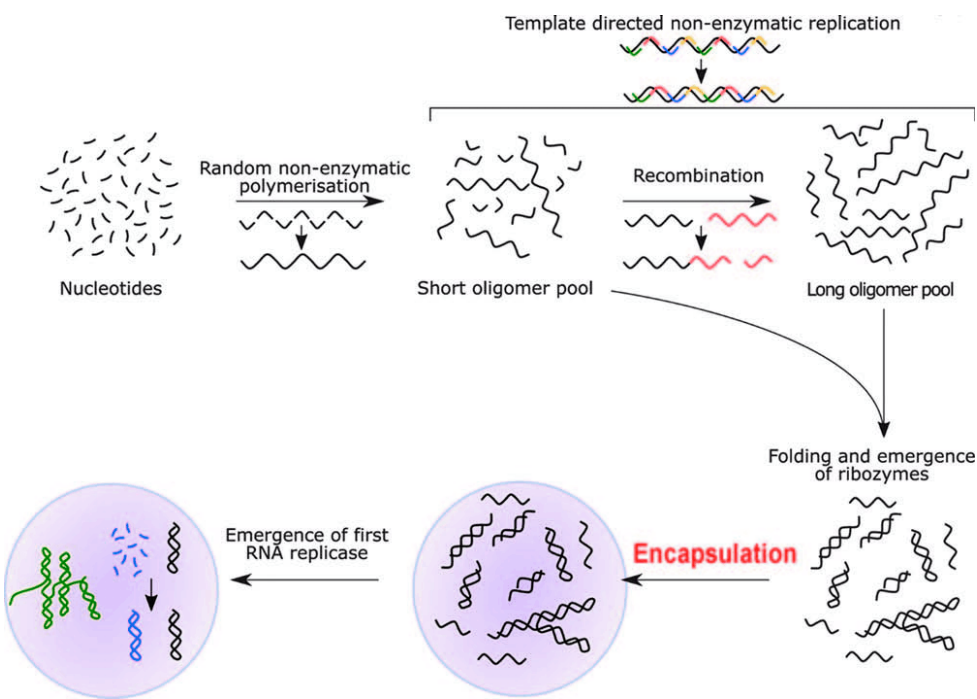
Authors’ abstract: *According to the Lipid World hypothesis, life on Earth originated with the emergence of amphiphilic assemblies in the form of lipid micelles and vesicles (liposomes).*

However, the mechanism of appearance of the information molecules (ribozymes/RNA) accompanying that process, considered obligatory for Darwinian evolution, is unclear.

We propose a novel scenario of self-sustained Darwinian evolution of the liposomes driven by ever-present natural phenomena: solar UV radiation, day/night cycle, gravity, and the formation of liposomes in an aqueous media.

The central tenet of this scenario is the liposomes' encapsulation of the heavy solutes, followed by their gravitational submerging in the water.

The submerged liposomes, being protected from the damaging UV radiation, acquire the longevity necessary for autocatalytic replication of amphiphiles, their mutation, and the selection of those amphiphilic assemblies that provide the greatest membrane stability.



These two sets of adaptive compositional information (heavy content and amphiphilic assemblies design) generate a population of liposomes with self replication/reproduction properties, which are amendable to mutation, inheritance, and selection, thereby establishing Darwinian progression.

Temporary and spatial expansion of this liposomal population will provide the basis for the next evolutionary step, a transition of accidentally entrapped RNA precursor molecules into complex functional molecules, such as ribozymes/RNA.

[Images are from this paper.]

Paleobiology.

Khramov, A.V., et al (2023) **The earliest pollen-loaded insects from the Lower Permian of Russia.** BIOLOGY LETTERS 19:doi.org/10.1098/rsbl.2022.0523

[Gymnosperms are cone-bearing plants such as cycads and conifers, which existed long before flowering plants evolved.]

Authors’ abstract: *Recent fossil discoveries suggest that the coevolution of insect pollinators and gymnosperms started long before the appearance of flowering plants.*

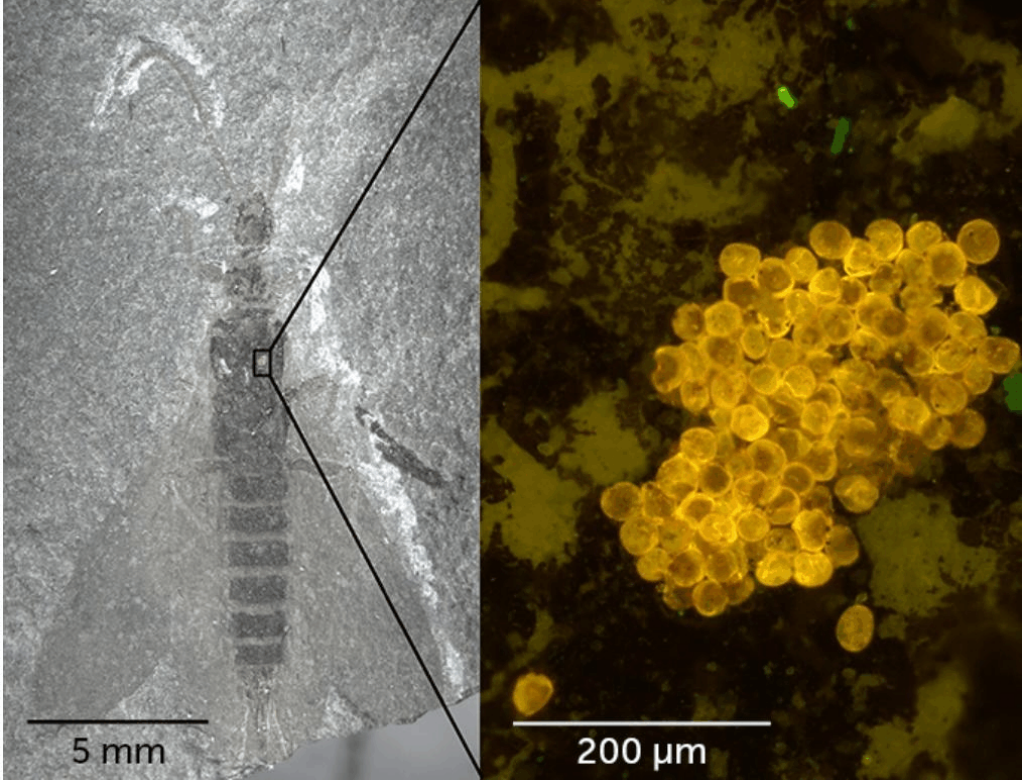
One of the keys to understanding the origins of pollination relationships is fossil insects with gymnosperm pollen attached to the body surface. Such fossils are exceedingly rare to find, especially from the Palaeozoic, a time when ambers with insect inclusions were absent.

Here, we report compression fossils of Early Permian tillyardembiid insects (Polyneoptera) preserved with pollen on their heads, thoraces, legs and abdomens.

This is the earliest finding of pollen bearing insects, predating the previous oldest record from the Middle Jurassic by ca 120 megayears. Judging by the pollen composition, tillyardembiids visited a narrow range of host plants, including Ruffloriaceae (Cordaitales).

While it is impossible to say for certain whether tillyardembiids as pollen consumers contributed to pollination, a trophic specialization of this kind could be considered an evolutionary precursor of pollination mutualism.

[Images are from this paper.]



Mann, A., et al (2023) **Osteology and phylogenetic position of the diminutive ‘microsauro’ *Odontopteron triangulare* from the Pennsylvanian of Linton, Ohio, and major features of recumbirostran phylogeny.** ZOOLOGICAL JOURNAL OF THE LINNEAN SOCIETY 197:641-655 (available as a free pdf)

[Amniotes are terrestrial egg layers and mammals.]

Authors’ abstract: *The group of Permo-Carboniferous tetrapods known as Recumbirostra have recently been hypothesized to represent the earliest radiation of fossorial reptiles.*

Therefore, understanding the anatomy and diversity of this clade is essential to understanding the origin and early evolution of amniotes.

*Here, we redescribe the diminutive ‘microsauro’ *Odontopteron triangulare* from the Moscovian-age deposit of Linton, Ohio, revealing new details on the structure of the cranium and palate, including the presence of a conspicuous transverse flange of the pterygoid, which is a feature traditionally associated with early amniotes.*

Dinosaurs.

Yu, Y., et al (2023) **Complex macroevolution of pterosaurs.** CURRENT BIOLOGY 33:doi.org/10.1016/j.cub.2023.01.007 (available as a free pdf)

Authors’ abstract: *Our study reveals an 115 megayears period, from Early Triassic to Early Cretaceous, of multi-wave increasing net diversification rates and disparity, as well as high morphological rates, followed by an 65-megayears period, from Early Cretaceous to the end of the Cretaceous, of mostly negative net diversification rates, decreasing disparity, and relatively low morphological rates in pterosaur evolution.*

Our study demonstrates the following:

- (1) body size plays an important role in pterosaur lineage diversification during nearly their whole evolutionary history, and the evolution of locomotion, trophic, and ornamental structures also plays a role in different periods;*
- (2) birds, the other major flying tetrapod group at the time, might have affected pterosaur macroevolution for 100 Ma; and*

(3) different mass extinction events might have affected pterosaur evolution differently.

Particularly, the revealed decline in pterosaur biodiversity during the Middle and Late Cretaceous periods provides further support for the possible presence of a biodiversity decline of large-sized terrestrial amniotes starting in the mid-Cretaceous, which may have been caused by multiple factors including a global land area decrease during these periods.

Zoology.

Bridges, A.D., et al (2023) **Bumblebees acquire alternative puzzlebox solutions via social learning.** PLOS BIOLOGY 21:doi.org/10.1371/journal.pbio.3002019 (available as a free pdf)

Authors’ abstract: *Using the bumblebee *Bombus terrestris* as a model, we developed a two-option puzzle box task and used open diffusion paradigms to observe the transmission of novel, nonnatural foraging behaviours through populations.*

Box-opening behaviour spread through colonies seeded with a demonstrator trained to perform one of the two possible behavioural variants, and the observers acquired the demonstrated variant. This preference persisted among observers even when the alternative technique was discovered.

In control diffusion experiments that lacked a demonstrator, some bees spontaneously opened the puzzle boxes but were significantly less proficient than those that learned in the presence of a demonstrator.

This suggested that social learning was crucial to proper acquisition of box opening. Additional open diffusion experiments where two behavioural variants were initially present in similar proportions ended with a single variant becoming dominant, due to stochastic processes.

Mao, Y., and Y. Liu (2023) **Pet dog facial expression recognition based on convolutional neural network and improved whale optimization algorithm.** SCIENTIFIC REPORTS 13:doi.org/10.1038/s41598-023-30442-0 (available as a free pdf)

Authors’ abstract: *Realizing the dog’s emotions through the dog’s facial expressions is beneficial to the harmonious coexistence between human beings and pet dogs. This paper describes a study on dog facial expression recognition using convolutional neural network (CNN), which is a representative algorithm model of deep learning.*

[Images are from this paper.]



Botany.

Götze, S., et al (2023) **Ecological niche-inspired genome mining leads to the discovery of crop-protecting nonribosomal lipopeptides featuring a transient amino acid building block.** JOURNAL OF THE AMERICAN CHEMICAL SOCIETY 145:doi.org/10.1021/jacs.2c11107

Authors’ abstract: *Investigating the ecological context of microbial predator-prey interactions enables the identification of microorganisms, which produce multiple secondary metabolites to evade predation or to kill the predator.*

In addition, genome mining combined with molecular biology methods can be used to identify further biosynthetic gene clusters that yield new antimicrobials to fight the antimicrobial crisis.

In contrast, classical screening-based approaches have limitations since they do not aim to unlock the entire biosynthetic potential of a given organism.

Here, we describe the genomics-based identification of keanumycins A to C. These nonribosomal peptides enable bacteria of the genus Pseudomonas to evade amoebal predation.

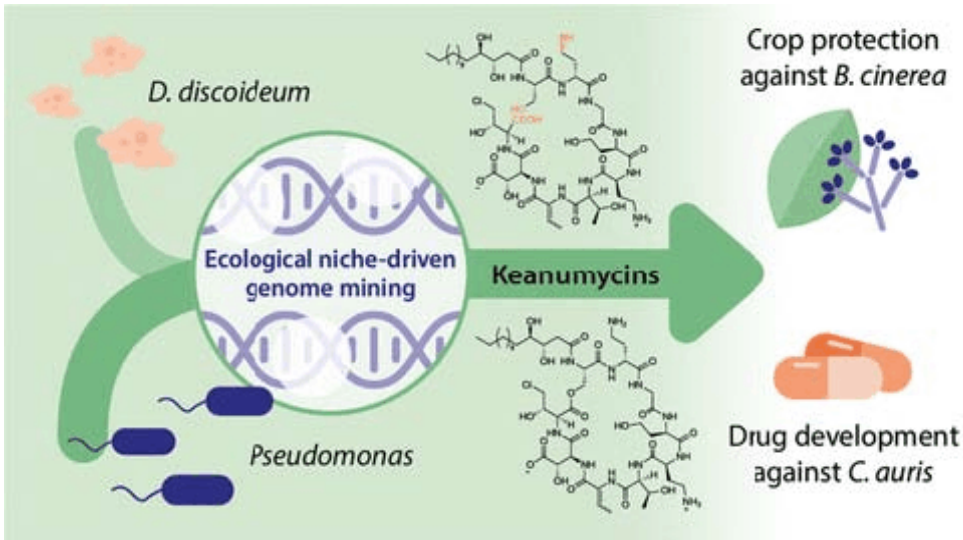
While being amoebicidal at a nanomolar level, these compounds also exhibit a strong antimycotic activity in particular against the devastating plant pathogen Botrytis cinerea and they drastically inhibit the infection of Hydrangea macrophylla leaves using only supernatants of Pseudomonas cultures.

The structures of the keanumycins were fully elucidated through a combination of nuclear magnetic resonance, tandem mass spectrometry, and degradation experiments revealing an unprecedented terminal imine motif in keanumycin C extending the family of nonribosomal amino acids by a highly reactive building block.

In addition, chemical synthesis unveiled the absolute configuration of the unusual dihydroxylated fatty acid of keanumycin A, which has not yet been reported for this lipodepsipeptide class.

Finally, a detailed genome-wide microarray analysis of Candida albicans exposed to keanumycin A shed light on the mode-of-action of this potential natural product lead, which will aid the development of new pharmaceutical and agrochemical antifungals.

[Image is from this paper.]



Di Lelio, I., et al (2023) **A soil fungus confers plant resistance against a phytophagous insect by disrupting the symbiotic role of its gut microbiota.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCE USA 120:doi.org/10.1073/pnas.2216922120 (available as a free pdf)

Authors’ abstract: *Using tomato plants as a model system, we demonstrated that a soil fungus, Trichoderma afroharzianum, widely used as a biocontrol agent of plant pathogens, negatively affects the development and survival of the lepidopteran pest Spodoptera littoralis by altering the gut microbiota and its symbiotic contribution to larval nutrition.*

Tomato plants colonized by the soil fungus Trichoderma afroharzianum, a beneficial microorganism widely used in agriculture as a biocontrol agent, negatively affects the development and survival of the lepidopteran pest Spodoptera littoralis by altering the larval gut microbiota and its nutritional support to the host.

Environmental Science.

Kosiba, K., and J. Wurman (2023) **The strongest winds in tornadoes are very near the ground.** COMMUNICATIONS EARTH AND ENVIRONMENT 4:doi.org/10.1038/s43247-023-00716-6 (available as a free pdf)

Authors’ abstract: *Tornadoes contain some of the strongest winds on earth, causing death and damage when impacting man-made and natural objects, such as buildings and trees. Quantifying tornado winds near the surface is critical to characterizing tornado hazards.*

Direct measurements of tornado winds are rare and are usually obtained at least >100 metres above the ground, well above building height, by proximate mobile radars. The representativeness of these mobile radar obtained measurements to wind speeds closer to the surface is unknown.

Here we analyze rare, low-level mobile radar observations of 73 different tornadoes to demonstrate that the strongest winds in tornadoes generally occur very near the ground. Therefore, even proximate radar measurements at >100 metres above the ground usually substantially underestimate actual tornado wind intensity.

Spatola, G.J., et al (2023) **The dogs of Chernobyl: Demographic insights into populations inhabiting the nuclear exclusion zone.** SCIENCE ADVANCES 9:doi.org/10.1126/sciadv.ade2537 (available as a free pdf)

Authors’ abstract: *The 1986 Chernobyl nuclear disaster initiated a series of catastrophic events resulting in long-term and widespread environmental contamination.*

We characterize the genetic structure of 302 dogs representing three free-roaming dog populations living within the power plant itself, as well as those 15 to 45 kilometers from the disaster site.

Genome-wide profiles from Chernobyl, purebred and free-breeding dogs, worldwide reveal that the individuals from the power plant and Chernobyl City are genetically distinct, with the former displaying increased intrapopulation genetic similarity and differentiation.

Analysis of shared ancestral genome segments highlights differences in the extent and timing of western breed introgression.

Kinship analysis reveals 15 families, with the largest spanning all collection sites within the radioactive exclusion zone, reflecting migration of dogs between the power plant and Chernobyl City.

Speirs: No giant dogs the size of houses or ravening implacable killers. Could it be all those 1950s monster movies were wrong? Where are those giant ants?

Hollis, Simon (2023) **Disasters in the Anthropocene: a storm in a teacup?** DISASTERS 47:doi.org/10.1111/disa.12546 (available as a free pdf)

Author’s extracts: *As we begin to realise the extent of our transformative power as humans, which has propelled the Earth system into a new geological epoch known as the Anthropocene, we must also acknowledge the profound limitations of the human species as we confront an uncertain future.*

The Anthropocene is considered by many as a new geological epoch distinguished by the transformative power of human agency on the planet. An array of intersecting human activity, from the burning of fossil fuels to the diffusion of micro plastics in the soil, sea, and air, contributes to the loss of

biological diversity, the extinction of wildlife, and a more volatile and dangerous Earth.

This is quantified through the idea of ‘planetary boundaries’, which sets the limits for sustainable life. Two such boundaries, climate change and land-system change, are now in a ‘zone of uncertainty (increasing risk)’, while biogeochemical flows and biosphere integrity have already exceeded the scientifically defined thresholds.

The boundary concept is useful in its emphasis on the urgency of the Anthropocene for decision-makers who may still have time left to ensure that we can maintain a ‘Holocene-like . . . state of the Earth System’.

Geo-engineering approaches for reducing disaster risk, for instance, are trumpeted by some as the best solution for confronting the vagaries of the Anthropocene.

These include suggestions such as stratospheric aerosol injection, seeding clouds with sea salt, injecting seawater with microbubbles, and even launching giant space mirrors to reflect the sun’s rays.

Of course, one may not have to go to such lengths as releasing sulphur dioxide into the atmosphere to manage disasters in the Anthropocene, since one can also manage disasters using early warning systems, weather prediction, risk maps, and other technologies with proven track-records.

Empirically, it is difficult for disaster studies to ignore if the Anthropocene describes irreversible human-induced change in the Earth system, producing an increase in the intensity and frequency of natural hazards.

Epistemologically, it is difficult to ignore if the Anthropocene is a product of non-linear human-nature entanglement. Ontologically, it is difficult to ignore if explaining what we observe requires a shift in how we perceive uncertainty and vulnerability.

Speirs: What bothers me is that the mass media do not distinguish between weather and climate, nor point out that many of the disasters are the result of living in hazardous areas. Building beachfront houses on the shores of hurricane coasts (Gulf Coast, USA) or suburbs on drained lake beds (Greater Vancouver, British Columbia) created disasters which are blamed on climate change.

On 2013-06-21, Calgary suffered the worst floods since Europeans arrived, costing 100,000 citizens their houses. All of them were on the floodplains of the Bow and Elbow rivers, yet the talk was how climate change was coming home to roost. The other 90% of us up on the surrounding plateaus were inconvenienced at worst.

Alempic, J.M., et al (2023) **An update on eukaryotic viruses revived from ancient permafrost.** VIRUSES 15:doi.org/10.3390/v15020564 (available as a free pdf)

Authors’ abstract: *One quarter of the Northern hemisphere is underlain by permanently frozen ground, referred to as permafrost. Due to climate warming, irreversibly thawing permafrost is releasing organic matter frozen for up to a million years, most of which decomposes into carbon dioxide and methane, further enhancing the greenhouse effect.*

Part of this organic matter also consists of revived cellular microbes (prokaryotes, unicellular eukaryotes) as well as viruses that have remained dormant since prehistorical times.

While the literature abounds on descriptions of the rich and diverse prokaryotic microbiomes found in permafrost, no additional report about “live” viruses have been published since the two original studies describing pithovirus (in 2014) and mollivirus (in 2015).

This wrongly suggests that such occurrences are rare and that “zombie viruses” are not a public health threat. To restore an appreciation closer to reality, we report the preliminary characterizations of 13 new viruses isolated from seven different ancient Siberian permafrost samples, one from the Lena river and one from Kamchatka cryosol.

As expected from the host specificity imposed by our protocol, these viruses belong to five different clades infecting Acanthamoeba spp. but not previously revived from permafrost: Pandoravirus, Cedratvirus, Megavirus, and Pacmanvirus, in addition to a new Pithovirus strain.

Human Prehistory.

Mussi, M., et al (2023) **A surge in obsidian exploitation more than 1.2 million years ago at Simbiro III (Melka Kunture, Upper Awash, Ethiopia).** NATURE ECOLOGY AND EVOLUTION 7:337-346

Authors’ abstract: *Pleistocene archaeology records the changing behaviour and capacities of early hominins. These behavioural changes, for example, to stone tools, are commonly linked to environmental constraints.*

It has been argued that, in earlier times, multiple activities of everyday life were all uniformly conducted at the same spot. The separation of focused activities across different localities, which indicates a degree of planning, according to this mindset characterizes later hominins since only 500,000 years ago.

Simbiro III level C, in the upper Awash valley of Ethiopia, allows us to test this assumption in its assemblage of stone tools made only with obsidian, dated to more than 1.2 million years (Myr) old.

Here we first reconstruct the palaeoenvironment, showing that the landscape was seasonally flooded. Following the deposition of an accumulation of obsidian cobbles by a meandering river, hominins began to exploit these in new ways, producing large tools with sharp cutting edges.

We show through statistical analysis that this was a focused activity, that very standardized hand axes were produced and that this was a stone-tool workshop.

We argue that at Simbiro III, hominins were doing much more than simply reacting to environmental changes; they were taking advantage of new opportunities, and developing new techniques and new skills according to them.

Speirs: Now compare this paper with the next one. Food for thought.

Proffitt, T., et al (2023) **Wild macaques challenge the origin of intentional tool production.** SCIENCE ADVANCES 9:doi.org/10.1126/sciadv.ade8159 (available as a free pdf)

Authors’ abstract: *Intentionally produced sharp-edged stone flakes and flaked pieces are our primary evidence for the emergence of technology in our lineage.*

This evidence is used to decipher the earliest hominin behavior, cognition, and subsistence strategies.

Here, we report on the largest lithic assemblage associated with a primate foraging behavior undertaken by long-tailed macaques (Macaca fascicularis). This behavior results in a landscape-wide record of flaked stone material, almost indistinguishable from early hominin flaked pieces and flakes.

It is now clear that the production of unintentional conchoidal sharp-edged flakes can result from tool-assisted foraging in nonhominin primates.

Comparisons with Plio-Pleistocene lithic assemblages, dating from 3.3 to 1.56 million years ago, show that flakes produced by macaques fall within the technological range of artifacts made by early hominins.

In the absence of behavioral observations, the assemblage produced by monkeys would likely be identified as anthropogenic in origin and interpreted as evidence of intentional tool production. Long-tailed macaques (M. fascicularis) in Phang Nga Bay (Phang Nga Province, Thailand) routinely crack nuts as part of their daily foraging.

Here, we report that during this behavior, these macaques frequently and unintentionally produce conchoidal flakes, which share attributes that are routinely used for the identification and interpretation of intentionally produced sharp-edged flakes in the Plio-Pleistocene hominin archaeological record.

Flakes produced by long-tailed macaques have not been observed to be subsequently used as tools.

Dong, Y., et al (2023) **Dual domestications and origin of traits in grapevine evolution.** SCIENCE 379:doi.org/10.1126/science.add8655

Authors’ abstract: *We elucidate grapevine evolution and domestication histories with 3,525 cultivated and wild accessions worldwide.*

In the Pleistocene, harsh climate drove the separation of wild grape ecotypes caused by continuous habitat fragmentation. Then, domestication occurred concurrently about 11,000 years ago in Western Asia and the Caucasus to yield table and wine grapevines.

The Western Asia domesticates dispersed into Europe with early farmers, introgressed with ancient wild western ecotypes, and subsequently diversified along human migration trails into muscat and unique western wine grape ancestries by the late Neolithic.

Analyses of domestication traits also reveal new insights into selection for berry palatability, hermaphroditism, muscat flavor, and berry skin color. These data demonstrate the role of the grapevines in the early inception of agriculture across Eurasia.

Trautmann, M., et al (2023) **First bioanthropological evidence for Yamnaya horsemanship.** SCIENCE ADVANCES 8:doi.org/10.1126/sciadv.ade2451 (available as a free pdf)

Authors’ abstract: The origins of horseback riding remain elusive. Scientific studies show that horses were kept for their milk ~3500 to 3000 BCE, widely accepted as indicating domestication. However, this does not confirm them to be ridden.

Equipment used by early riders is rarely preserved, and the reliability of equine dental and mandibular pathologies remains contested. However, horsemanship has two interacting components: the horse as mount and the human as rider.

Alterations associated with riding in human skeletons therefore possibly provide the best source of information. Here, we report five Yamnaya individuals well-dated to 3021 to 2501 calibrated BCE from kurgans in Romania, Bulgaria, and Hungary, displaying changes in bone morphology and distinct pathologies associated with horseback riding. These are the oldest humans identified as riders so far.

[Map and images are from this paper. Pictures are Bronze Age (circa 2100 to 1200 BC)]



Modern Humans.

Sanders, S., et al (2023) **Rent control according to Seinfeld.** AMERICAN JOURNAL OF ECONOMICS AND SOCIOLOGY 82:doi.org/10.1111/ajes.12501 (available as a free pdf)

Authors’ abstract: *This paper argues that popular media can be used as an effective pedagogical tool in learning. This paper analyzes four episodes of Seinfeld to help students identify and differentiate the very real costs of rent control. The paper also guides students to appreciate the difficulty in crafting a policy that is free of unintended consequences.*

Speirs: Fortunately Alberta does not have rent controls. As this paper explains, using SEINFELD episodes, rent controls result in poor property maintenance, fewer apartments, and key money (bribes in thousands of dollars to rent an apartment).

Technology.

Smirnova, L., et al (2023) **Organoid intelligence (OI): the new frontier in biocomputing and intelligence-in-a-dish.** FRONTIERS IN SCIENCE 1:doi.org/10.3389/fsci.2023.1017235 (available as a free pdf)

Authors’ abstract: *Biological computing (or biocomputing) could be faster, more efficient, and more powerful than silicon-based computing and AI, and only require a fraction of the energy.*

Recent advances in human stem cell-derived brain organoids promise to replicate critical molecular and cellular aspects of learning and memory and possibly aspects of cognition in vitro.

Coining the term “organoid intelligence” (OI) to encompass these developments, we present a collaborative program to implement the vision of a multidisciplinary field of OI.

This aims to establish OI as a form of genuine biological computing that harnesses brain organoids using scientific and bioengineering advances in an ethically responsible manner.

Standardized, 3D, myelinated brain organoids can now be produced with high cell density and enriched levels of glial cells and gene expression critical for learning. Integrated microfluidic perfusion systems can support scalable and durable culturing, and spatiotemporal chemical signaling.

Novel 3D microelectrode arrays permit high-resolution spatiotemporal electrophysiological signaling and recording to explore the capacity of brain organoids to recapitulate the molecular mechanisms of learning and memory formation and, ultimately, their computational potential.

Technologies that could enable novel biocomputing models via stimulus-response training and organoid computer interfaces are in development.

We envisage complex, networked interfaces whereby brain organoids are connected with real-world sensors and output devices, and ultimately with each other and with sensory organ organoids (e.g. retinal organoids), and are trained using biofeedback, big-data warehousing, and machine learning methods.

In parallel, we emphasize an embedded ethics approach to analyze the ethical aspects raised by OI research in an iterative, collaborative manner involving all relevant stakeholders.

The many possible applications of this research urge the strategic development of OI as a scientific discipline. We anticipate OI-based biocomputing systems to allow faster decision-making, continuous learning during tasks, and greater energy and data efficiency.

Furthermore, the development of “intelligence-in-a-dish” could help elucidate the pathophysiology of devastating developmental and degenerative diseases (such as dementia), potentially aiding the identification of novel therapeutic approaches to address major global unmet needs.