OPUNTIA 544

Late February 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.

PHILATELY OF THE 2022 UKRAINIAN WAR

by Dale Speirs

The Ukrainian post office, known as Ukrposhta, has been issuing stamps to boost the morale of its people and win favour from abroad. (Stamps illustrated here are not to the same scale or actual size.)

When the Russians invaded Ukraine on 2022-02-24, one of their first targets was Zmiinyi Island, commonly translated as Snake Island, which occupies a strategic position in the western Black Sea. The island was later liberated by Ukraine.

The warship Moskva ordered the islanders to surrender. Guardsman Roman Hrybov defiantly radioed back: "Russian warship, go fuck yourself".

The island was captured but the guardsmen (not soldiers, they were border guards) were later exchanged for Russian prisoners.

Hrybov's transmission was monitored and recorded elsewhere and gained him international fame. Ukrposhta issued a stamp honouring him, which was a sellout. The stamp shows him giving the finger to the Moskva.

(Stamp denominations are: F = domestic postage rate, V = second increment of domestic postage, and W = international.)

The day after this stamp was issued, the Ukrainians sank the Moskva. Ukrposhta quickly issued sheetlets to celebrate.

Ukrposhta also issued envelopes and postcards as the war progressed. Most required a stamp to be added but the envelope below was prepaid. Putin is staring at a map of Ukraine while a Ukrainian soldier puts a hand on his shoulder. The text at the bottom translates as “Welcome To Hell”.

On 2022-10-08, the Ukrainians damaged the Crimean Bridge that connects the peninsula to the Russian mainland. Two lanes of road traffic were dropped into the strait and the rail line was damaged, with a freight train set on fire.

A stamp was issued as shown below. The design was too cluttered and difficult to see for such a small space. The design parodied the movie TITANIC by showing a young couple standing on the edge of the blown bridge.

Ukrposhta issued the design as an unstamped postcard, which made artwork more visible. The reverse side is shown at upper right. Instead of the standard red and blue chevrons for airmail markings, the chevrons are blue and yellow.

The unstamped envelope below likened the Crimean Bridge to handcuffs.

The mail still comes through from Ukraine to Canada. This registered package sent to Calgary shows genuine use of a stamp depicting a farmer towing a disabled Russian tank to the scrapyard. Enlargement at upper right.

Note that on many of the philatelic items, the dominant colours are blue over yellow, the national colours of Ukraine.

The Russian tank depicted on the stamp has a Z mark, which was the quick identification used in battle. On page 8, you will see a Russian bomb with the Z mark.

[continued next page]

Sheetlet issued for bomb-sniffing dogs, one of which received an award for its work.

I have two Ukrposhta envelopes depicting the designs of this sheetlet, one used to Calgary and the other mint.

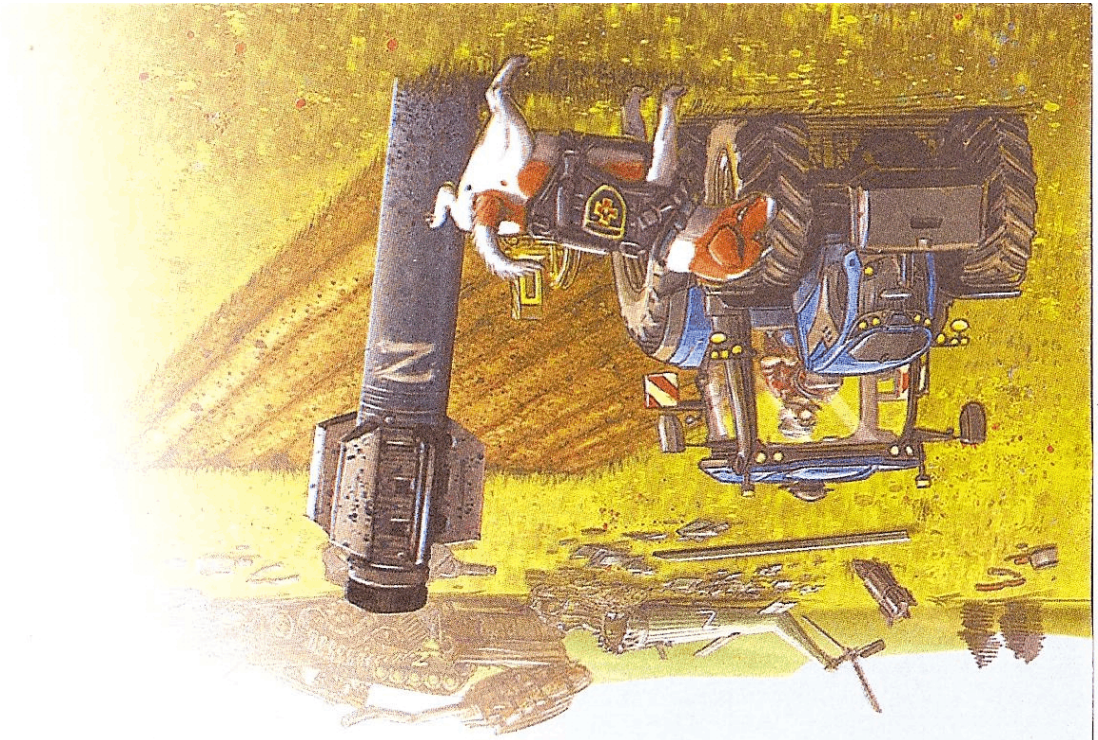
There are probably more but I haven't obtained them yet. See the next two pages.

[illegible], Kharkiv
[illegible] UKRAINE

R KHARKIV 144
RI 611 432 723 UA

[illegible]
[illegible] St. SW
Calgary, Alberta
T[illegible]
CANADA

КАНАДА



Увага! Правильне написання поштового індексу в зазначеному місці
прискорить отримання Вашого листа одержувачем

Some marginalia. Other countries are responding philatelically to the invasion. Every tenth Canadian is of Ukrainian descent, mostly in the prairie provinces where the majority settled on homesteads in pioneer days.

Canada Post issued this booklet of stamps in 2022. Each stamp had a 10-cent surcharge in aid of Ukraine.

[continued next page]

This was on a 2022 piece of mail I received from England.

In 2014, Russia annexed Crimea without a shot being fired, which undoubtedly was what gave Putin the idea that he could easily take over the rest of the country. I have in my collection a 2004 cover with a Ukrainian postmark and stamp from Sevastopol, the capital of the region.

ABOUT THE COVER
photo by Dale Speirs

My neighbours across the street are Russian Jews whose families escaped before the fall of the Soviet Union. As their sign demonstrates, they have no loyalty to Russia.

THE MAN FROM MONTENEGRO: PART 26
by Dale Speirs

[Parts 1 to 25 appeared in OPUNTIAs #252, 253, 275, 278, 279, 289, 304, 307, 319, 332, 335, 337, 344, 355, 364, 365, 382, 415, 445, 473, 479, 503, 513, 519, and 524.]

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

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

Becoming a private investigator, he engaged Archie Goodwin as his legman. Wolfe seldom left his brownstone in Manhattan, which had a rooftop greenhouse filled with orchids. His experiences in the Balkan wars turned him into an agoraphobe. He disliked leaving the house and especially being in an automobile.

Wolfe had a Swiss gourmet cook named Fritz Brenner, who along with Goodwin lived in the house. His office was on the ground floor, where many a J'accuse! meeting was held. His nemesis was NYPD Homicide Inspector Cramer, the equivalent of Inspector Lestrade.

Pastiches: Old-Time Radio.

Nero Wolfe was adapted for radio in three different series between 1943 and 1951. Rex Stout got royalty cheques but farmed out the scripts to other writers. The free mp3s are available from the Old Time Radio Researchers at www.otrr.org/OTRRLibrary.

Two of the series are only known from a single preserved episode each, but the third series survived as a complete run. It featured Sydney Greenstreet, who was considered to be the best at portraying Wolfe. He had a distinctive voice, which made a difference on radio.

"The Case Of The Malevolent Medic" was written by Ruth Adams Knight and aired on 1951-02-03. The client was industrialist Hal Horton, who didn't believe his wife Leslie had died of a heart attack.

The attending physician was young Dr Benjamin Sloan, who once had an affair with her but was now diddling his nurse Grace Banks. Leslie wouldn't let go however, and kept visiting Sloan at his office. She threatened to destroy his reputation and medical practice. He gave her an injection to calm her down, a Vitamin B shot. The injection killed her. He diagnosed a heart attack.

Hal didn't believe the story because Leslie had never mentioned any type of heart trouble to him. Further, after he went through her personal effects, he found love letters from Sloan. Nero Wolfe took the case, as he needed cash to buy a first-edition book for his library.

Archie Goodwin began by visiting Sloan's office. He didn't learn anything new but upon leaving, he was escorted by Banks through a side exit that went through the laboratory.

As they walked out, Goodwin interrogated Banks. She said Sloan had used a stomach pump when Leslie began suffering pain head to feet, which will strike the listener as a peculiar method to treat a supposed heart attack. After hitting on her unsuccessfully, Goodwin departed.

Wolfe sent Goodwin back to the office at 02h00 to do a black-bag job. Sloan surprised him there and understandably a contretemps developed. Goodwin had found love letters from Leslie in Sloan's desk. The two men visited Wolfe in the brownstone, one quite involuntarily.

Wolfe questioned the death certificate that Sloan had signed. The doctor had not mentioned any pain in his final report. Wolfe also picked up on the use of a stomach pump. Sloan's answers prompted Wolfe to notify the Medical Examiner about possible poisoning.

The next meeting at the brownstone was with Banks. She created a scene, which pointed suspicion at her. The following visitor was Hal, who created another scene. He didn't get to finish it because the Medical Examiner telephoned and said death was due to poison.

Not long after, all the characters assembled for the traditional J'accuse! meeting, including Inspector Cramer. Wolfe got possession of Leslie's handbag and found a secret compartment containing a needle. Leslie had committed suicide in Sloan's office, hoping to bring him down in her death as revenge from beyond the grave of a woman scorned.

Pastiches: Novellas

Glenn Dixon wrote three pastiches about Nero Wolfe, available as free downloads from https://www.nerowolfe.org/htm/tidbits/Wolfe_pastiches.htm

In writing pastiches, imitating the style of the corpus stories is as important as the details about characters and places. Dixon seemed to get it right. I mention this because many pastiches don't succeed at imitation. For example, in the corpus, Archie Goodwin was a ladies man but a common mistake in pastiches is to make him into a wolf, a harassing boor.

"Welcome To Death" (1995) opened with three cop killings in New York City. Inspector Cramer had taken early retirement and Sgt Purley Stebbins didn't think much of his replacement Lennings.

District Attorney Skinner was murdered in his office. Shortly after a professional hitman almost killed Archie Goodwin. The hitman had masqueraded as an Assistant D.A. to get inside the brownstone.

He shot up Wolfe's office but Goodwin saw him drawing his gun and threw some furniture at him, followed by fisticuffs. The gunman was arrested. All those events brought Cramer out of retirement at the request of NYPD Internal Affairs. Wolfe was in on the case because he had no way to stay out of the matter.

Wolfe's suspicion was that all the killings and attempted killing were tied together. Ballistics soon confirmed the same gun was used in all the shootings. He called for a J'accuse! meeting with twenty people in his office. A crowded venue.

The meeting was a failure, as Wolfe knew it would be. He wanted to set up a surveillance on one of the attendees, which didn't turn out any better. The next step was an illicit entry into Skinner's office, which was still a crime scene. Goodwin and an Assistant D.A. helping him were caught.

That kerfuffle led to yet another meeting in Wolfe's brownstone, albeit with fewer suspects. He did some extraordinary bluffing about computer palimpsests and nonexistent evidence. The culprit blurted out the wrong thing, and so was caught.

The guilty one was a big-time smuggler who infiltrated the District Attorney's office to keep an eye on the police. The killings were done by hired guns to disrupt any investigations.

"No Body" (1997) was the sequel. The fight with the hitman broke enough furniture such that Wolfe decided to renovate the ground floor full scale. As anyone knows who has ever renovated, the cost is always greater than anticipated.

Therefore Archie Goodwin was at an advertising agency after executive George Rottfeld had called Wolfe requesting a meeting. Rottfeld was involved in a hush-hush deal with Chuck and Carol Orr. She disappeared two days ago.

Carol had been an essential part of the negotiations, while Chuck was an ill-mannered boor. Rottfeld admitted he was in love with Carol. A millionaire, he cut a $100,000 cheque to Wolfe to find her.

There was a gourmet restaurant on the top floor of the building. Normally Wolfe would have had a meeting in his office, but given the renovations he called for a gathering at the restaurant. In the meantime he sent Goodwin to locate Carol.

Goodwin found Carol in hiding at her sister Connie's apartment. The Orrs had an argument and Chuck had battered her black and blue. She insisted she still loved him. Goodwin found a beauty shop where Carol could be made presentable.

He left them with instructions to follow to the restaurant. Connie arrived without Carol, who had wanted to do an errand en route but never showed. The food was fabulous but the dinner failed at the end.

More trouble followed when Carol apparently had committed suicide by diving off a bridge into the Harlem River. Or did she? The suspicion was that she hired a ringer who knew how to dive and swim to fake her death.

Once more unto the breach. The next day, Wolfe brought everyone back to Rottfeld's office, plus Inspector Cramer and Sgt Stebbins. Orr had not beaten Carol. The culprit was the killer, who wanted Carol but was rejected by her.

This time Wolfe identified the murderer, an assistant of Rottfeld, who had killed both Carol and the ringer he had hired to make Carol's disappearance look like suicide. The revelation triggered violence from Orr. The story cut off with some atypical behaviour from Goodwin and a dangling ending.

"Not With A Whimper" (1998) was the follow-on, picking up from the last story. Goodwin was in a snit with Wolfe about how the Rottfeld case was handled and decided to move out of the brownstone.

The police had enough of Wolfe's J'accuse! meetings, especially one that ended in violence. As it turned out, Goodwin didn't have to look for a place to stay. Inspector Cramer put him in a jail cell with Wolfe. "*We'll put him in the jail's kitchen tomorrow. We'll have him make Hominy Grits de Wolfe for the inmates*."

When Goodwin woke up the next morning, much to his surprise he was the only one in the cell. So were the police, who had no idea how the fat man could have escaped.

Goodwin was released without charges and the police went looking for Wolfe. Back at the brownstone, Goodwin and Wolfe's other staff heard from a lawyer that Wolfe was leaving the brownstone to them.

Then an Englishwoman named Marian Hitchcock arrived and ordered Goodwin to come with her to Egypt. A private plane was waiting to fly them to Alexandria. In the corpus stories, a mention was made that Wolfe had a house in Cairo, Egypt, that he had never visited.

Goodwin had been a major during the last war, and now found himself flying with his old commander General Carpenter. They gave him a diplomatic passport. Evidently Wolfe had been quietly sprung from his jail cell by the Feds and was already in Egypt.

Carpenter told Goodwin that Gospo Stritar and his wife Anna Bathory were holding an auction and demanded that Wolfe be the American bidder. There was a connection to Montenegro, where Wolfe was born and raised. He held them in contempt and his first bid was one dollar.

More details emerged. A Russian nuclear bomb had been stolen. The countries invited to bid on it were Britain and the USA on one side and Iran on the other. The Stritars had their own problems. The Russians were trying to get their bomb back and they wouldn't be nice about it. Israel figured it would be the target for the bomb, so they wouldn't be nice about it either.

Wolfe's obstinance disrupted the American/British side. The generals couldn't give him orders, so there was much fussing and feuding. Goodwin was stuck in the middle but he could be just as obstinate as Wolfe for different reasons. After assorted small meetings with suspicious characters, Goodwin learned that Bathory was running the show. She wasn't after money. She wanted to use the bomb, preferably against New York City.

But before that, a J'accuse! meeting in Alexandria to resolve a murder and the auction, conducted in three languages in the room. In New York City, Sgt Stebbins would have handcuffed the murderer and taken him away.

In Egypt, where rule of law is a hypothetical construct, everyone fled in every direction, including a secret underground passage. The majority of the characters, including Wolfe and Goodwin, wound up in the back of an old army truck where the bomb was sitting.

The good guys from NYC won, chased away Bathory, and drove to Cairo with the bomb in the back. From there, they flew home on a Concorde. Too easy, for Wolfe surmised there was a second bomb in Manhattan, set by Bathory.

At the top of the Empire State Building it turned out, but some clever deductions found it. All that remained was to tie up the loose ends in a lengthy epilogue. And so back to the brownstone.

MR AND MRS DETECTIVE: PART 2

by Dale Speirs

[Part 1 appeared in OPUNTIA #527.]

From the 1930s to the 1960s, there was a fad in mystery fiction for husband and wife sleuths. Various movies and radio series were based on novels of couples such as Mr and Mrs North, Nick (the Thin Man) and Nora Charles, and Pat and Jean Abbott. The concept survived into the 1970s with the television show MCMILLAN AND WIFE.

Some couples were strictly amateurs, such as the Norths, while others had the husband as a police officer or private detective with the wife tagging along. The radio series are available as free mp3s from www.otrr.org/OTRRLibrary.

The Norths.

MR AND MRS NORTH aired on radio from 1942 to 1955, based on the novels by Frances and Richard Lockridge. The protagonists were Jerry and Pam North, average citizens with a remarkable propensity for stumbling into murder cases.

Jerry was a publisher and Pam was a housewife. Lt Bill Weigand, NYPD Homicide, kept tripping across them during his investigations. He was a single man, so Pam was constantly trying matchmaking with him.

"The Norths Buy A Letter" aired on 1943-10-06. Their friend Albie Baker was accused of murder. Pam and Jerry North talked to his lawyer, who said the only piece of evidence that would clear Baker was a letter.

No one had sight of the letter. Baker said he had shown the letter to a friend Wilbur Krue, but the latter denied in court seeing it. All the other evidence was stacked against Baker.

The story began when Baker hired a detective Frank Anderson to investigate irregularities in his store's inventory. Some of the stock was stolen goods. Anderson went sleuthing and later sent Baker a letter accusing a supplier named Kuipie Warren.

Anderson reappeared in Baker's apartment as a corpse. The letter disappeared. Baker was convicted by the jury. Afterwards, Krue approached the Norths and offered to sell the letter. The catch was that the letter would be put up for auction against Warren, who wouldn't want to hang.

Sold for $50,000 to the Norths. Warren blustered and the Norths worried. They didn't have that money but as Jerry said, they would gain a day or two to get the letter some other way. Assorted alarums followed, such as submachine gun fire.

The Norths bargained Krue down to $10,000. The deal was done but Warren barged in. Krue took care of him with a single shot, or thought he did. The Norths immediately blackmailed him into returning the $10,000 and they kept the letter. Warren survived to make the trip up the river where he wouldn't survive sitting in a chair.

"Winter Honeymoon" aired on 1954-02-23. Eileen Sheridan was quarreling with her boyfriend Walter Harman, who told her that he was going back to his wife Judy.

He was a lawyer gunning for a judgeship. His promotion would be nixed by scandal. Sheridan said she was going to publicly expose their affair and ruin his career. She didn't think that threat through and was promptly dispatched by a fireplace poker.

Jump cut to a Caribbean cruise where the Harmans were seated with the Norths. There was a kerfluffle with a boor named Megan, who kept hitting on Judy. He kept barging in where he wasn't wanted, and miffed by not being the centre of attention.

Later, the Harmans were by themselves on deck. Judy asked Walter, out of the blue, to explain who Eileen Sheridan was. Walter wasn't very convincing when he denied knowing her.

Landing at Trinidad, the Harmans went on a tour which included Pitch Lake. They quarreled on the beach. He came back to the ship by himself. Megan was blamed when Judy's body was found, since many passengers were aware of him harassing her.

Megan was in a tight spot and appealed to Jerry for help. Jerry realized Pam was barging into trouble, and so she did. Walter grabbed her with grievous intent but she was rescued in the nick of time. And so we bid farewell to sunny Trinidad, as the case was wrapped up moments before the cruise ship sailed.

The Charles.

THE THIN MAN was a 1933 novel by Dashiell Hammett. The protagonists were Nick and Nora Charles, wealthy amateur sleuths. They became a radio series from 1941 to 1950. Hammett was forced off the air in the early 1950s during the Red Scare. By the late 1950s, the witch hunters had left the field and a television series aired for two seasons from 1957 to 1959.

From the television series was "Robot Client", written by Devery Freeman and aired on 1958-02-28. This particular episode is available on the 50th Anniversary Edition DVD of FORBIDDEN PLANET, which was where I watched it. Robby the Robot, the robot of the movie, was used for this episode and many other movies and television shows.

The Charles were asked by Dr Nyles to visit him at his mansion, the kind that had a basement laboratory. There they met Robby and gazed in shock as it waddled into the living room. Obviously they never went to the movie a couple years before in 1956.

The housekeeper Mrs Creavy didn't like Robby. When Nyles came into the room he had a large bandage on his head. He didn't mention how he was wounded and the Charles were too polite to ask. Creavy snapped at Nyles that perhaps he should, but he told the Charles he hit his head after a fainting spell. He asked them to stay the night and so they did.

Nyles was going to stage a public demonstration the next day of Robby's capabilities. He was worried about troublemakers and requested the Charles to help. So they stayed the night.

Twin beds of course, as television networks didn't want to shock viewers, 90% of whom were married couples who slept together in a double bed. The Charles didn't get much sleep as cries for help were heard in the night.

Nick and Nyles rushed to the laboratory where they found an assistant Hartwick backed up against a wall as Robby slowly waddled toward him from several metres away. Really? He couldn't turn to one side and quick-step around and behind Robby?

They rescued him and the next morning the demonstration went on. Nyles had developed Robby to handle radioactive materials. Hartwick was in charge of Robby's controls, which seemed strange in view of what happened in the night.

Or perhaps not, as Robby waddled in carrying the body of another lab assistant named Provost. Police Lieutenant Voss showed up and was annoyed when Nick told him that Robby was his client. Since a machine couldn't be arrested, Voss couldn't do much.

Nick convinced Nyles to let him take the controls of Robby for testing. He wanted Nora to help. She said "*He just isn't my type*" but allowed it to carry her in its arms to prove something or other.

Hartwick showed up waving a gun, determined to ruin Robby. He ranted about how Robby and duplicates would be used to manufacture atomic bombs and bring about the ruination of the world.

Nick got the jump on Hartwick and rushed into Nora's arms. They watched as Robby slowly waddled toward Hartwick, who once more backed up against a wall instead of walking away. He screamed his head off.

Jump cut to the epilogue, where Nick was demonstrating how Robby could vacuum the floor. Nora was quite pleased and wanted him to do her housework. Better than a roomba.

The Abbotts.

Pat and Jean Abbott were latecomers to the married sleuths subgenre, based on the novels by Frances Crane. On radio, ABBOTT MYSTERIES aired from 1945 to 1947. The series was revived for the 1954-55 season as THE ADVENTURES OF THE ABBOTTS. The radio episodes were written by Howard Merrill.

The Abbotts lived in San Francisco. Jean usually narrated the segues, while Pat, a private detective, did the action scenes. She was a jealous wife. They bickered anytime he went near a good-looking woman. Her main function was to have things explained to her and frequently be kidnapped.

"The Blood Red Diamond" aired on 1955-03-06. The diamond wasn't a gemstone but baseball. Jackie Robinson was the guest star.

Marty Phillips was a star player, a catcher with the San Francisco Yellow Sox. Local gangsters were pressuring Phillips to lose the next game, or else. They had $400,000 tied up in bets. Call it $4 million in today's depreciated currency.

The gunsel was, inevitably, named Louie. Philips refused point blank and therefore got a couple of bullets likewise. His murder brought in the Abbotts, via John Stafford, a manager with the Yellow Sox.

The Yellow Sox refused to cancel the game and wanted the Abbotts to find the killer. The police were probably making their own enquiries but listeners knew who would solve the case.

Pat began by talking to Phillips' replacement Ned Tilton who told them the mob was probably involved. The other possibility was Freddy Manning, the pitcher, who seemed a likely target for the mob.

Jean volunteered to interrogate Manning, taking off her wedding ring to make him think she was an available single woman. Now it was Pat's turn to be jealous. He refused to allow her to do it but to no listener's surprise she secretly went out on a date with Manning.

He had an ego the size of a baseball diamond and quickly put the moves on Jean. They went to his apartment to canoodle. She wasn't very subtle in her questioning about Phillips and antagonized him. She did calm him down and didn't return home until morning. Pat was furious, as well he might be.

The game was played, the baseball one, that is. Pat and Jean sat in a booth with sportscaster Tom Whitford who, as she said, "*sounded strangely like Jackie Robinson*". A cute way of introducing the guest star.

In the midst of a play, Manning suddenly fell face down to the ground. Dead, no signs of violence, possibly a heart attack. Pat knew the murder was by slow poison. There was a clue the alert listener will pick up on, suggesting Tilton's wife was the murderer.

Jean had seen the clue in Manning's apartment, a photo of Mrs Tilton in his scrapbook. Pat and Jean rushed off to the Yellow Sox locker room, where Ned Tilton was about to dispose of the evidence. The motive wasn't just throwing the game but jealousy over his wife's affair with Manning.

The resolution was bloody and violent but there was no doubt as to who would win. Jean asked Pat to put her wedding ring back on her finger. He grumbled but finally acceded.

"The Dead White Flame" aired on 1955-03-13. The Abbotts were flying back to San Francisco from Scotland. On the airplane they met Dr John Rose, eminent psychiatrist. He said he was on his way to Kensington Downs, England, to examine some psychotic patients from the Middle East who were extreme fanatics.

At that moment, the aircraft engines began sputtering. The pilot told the passengers to fasten their seatbelts. Jean became hysterical at the thought they were going to crash. The plane made a rough landing in the English countryside.

Rose was found dead in his seat. His head was bashed in and not because of the crash. Pat faked shock in order to get into the local hospital in a military establishment. Wasn't it a surprise to learn the hospital was the very same Kensington Downs unit to which Rose was en route. He got there all right, but instead of visiting the psychotics, he was visiting the morgue.

An orderly named Vic chatted with the Abbotts. He said many of the patients were members of the Mediterranean League, an odd name for a group of Arab terrorists. After Vic left, Pat went for a stroll, with Jean tagging along.

They saw a pair of doctors removing Nazi tattoos in a surgery. The head doctor seemed complacent. The Abbotts returned to their room where they were jumped by the pilot of their plane. He was wielding a knife.

Pat won the fight and then accused the pilot of Rose's murder. The man confessed, saying he had been paid £2,000 to stage the crash and slug Rose so that the death looked accidental. Pat locked him into a room.

With Vic, the Abbotts went to see the head doctor again. Pat accused him as part of the conspiracy. Vic was a henchman. They were processing Nazi war criminals to infiltrate society.

The doctor went into a speech about how the Arabs would throw off the shackles of the British Empire. He was half-Egyptian and would get his revenge.

He said his heart burned with a high dead white flame, getting in the obligatory connection with the episode title. The doctor was overcome by Pat. Vic then revealed himself as an MI5 man working undercover.

The Abbotts carried on to London and thence to the USA by clipper aircraft. On the flight home, Pat explained away the loose ends for Jean. She then recited to the listeners what was obviously a legal disclaimer inserted by a nervous network censor. Modern airplanes are safe, fast, and luxurious.

The Duluths.

Patrick Quentin was the pseudonym of Hugh Callingham Wheeler and Richard Wilson Webb. They wrote a series about Peter and Iris Duluth. He was a theatrical producer and she was an actress. When they weren't on stage, they solved crimes.

"Puzzle For Poppy" (1946 February, ELLERY QUEEN'S, reprinted in GOLDEN AGE DETECTIVE STORIES (2021) edited by Otto Penzler) had them staying at a beach house. Next door was Miss Crump, who was guardian of a wealthy St Bernard named Poppy.

The dog was the recipient of the Wilberframe estate to keep her in a life of luxury. There was a Wilberframe cousin who resented being cut out of the money.

He tried to poison the dog with hamburger a la strychnine. What he didn't know was that Crump ate hamburger and Poppy ate steak. Crump survived and the Duluths were able to prove the cousin had delivered the hamburger meat.

VINCENT PRICE
by Dale Speirs

Vincent Price, like so many other movie actors of his day, was also in radio. His portrayal of Simon Templar in THE SAINT is considered the best of any version, whether radio, stage, or television. Episodes from that series have been reviewed in my column "Series Detectives" but I'll move future reviews to this column..

The Saint.

Simon Templar, aka The Saint, began as a series of novels and short stories by Leslie Charteris and became successful as a multimedia amateur detective in movies, radio, and television. Templar had no visible means of support, yet lived elegantly.

He was not a professional private detective but either stumbled into situations or had people coming to him for help. The latter never had any difficulty in finding his apartment address or telephone number. Presumably he was listed in the directory, and was not averse to newspaper publicity.

Various radio series of THE SAINT aired between 1945 and 1951. The general consensus was that the seasons featuring Vincent Price were the best. He fit the mould of The Saint perfectly, being cultured and urbane in private life.

The dialogue was witty, with so many quips that in several episodes the bad guys were motivated to try and kill him just to shut up all those jests. Well worth listening to. There is a problem with episodes circulating under multiple titles.

"The Hunt For Carl Bruder" aired on 1950-07-16, no writer credited. Simon Templar was visited by a frantic woman named Claire who feared two men tailing her. After several complications, The Saint found himself in the custody of two Germans chasing a MacGuffin which appeared to be a whiskey glass from Mexico.

No one would say why the glass was important but they were certainly prepared to torture and kill for it. After roughing up Templar, he eventually was able to return the compliment and escape.

Claire reappeared and told Templar the glass had the fingerprints of a Nazi war criminal Carl Bruder. Her organization needed it as proof he was still alive and could be brought to justice.

Templar went after the two Germans, this time as the hunter, not the hunted. He got them and correctly surmised that one of them was Bruder. The rest was details.

"Button, Button" was written by Michael Cramoy aired on 1951-03-11. Simon Templar received a summons at the point of a gun to visit the elderly millionaire Orlando Button. The holder of the gun was a Chinese valet named George, who spoke with Hollywood's idea of a Chinese accent.

Upon arrival at the mansion Button said he had changed his mind and tried to make Templar leave. The Saint forced his way in and a stranger within slugged him unconscious. George revived him and told him Button was gone to parts unknown.

Templar did some detective work which took him to the dockside and onto the SS Tuscany. The first officer said Button had imported some paintings via the ship. He commented they were ugly and poorly done.

Upon arrival the paintings were to be sent to a Dr Webber at the Button Art Gallery. Instead they were sent directly to Button by mistake. That triggered a series of alarums, with lots of people waving guns at Templar and working at cross-purposes with each other.

The Saint went to the art gallery where he talked to Webber and the shop assistant Lola Arthur. The latter denied knowing anything about the paintings. Templar said the paintings were obviously watercolours painted over Old Masters oil paintings, since the Italian government was fussy about losing them to foreign shores.

Smugglers arrived, waving guns, to continue the conversation in a different direction. A federal agent arrived, using a gun instead of just waving it, and hauled the smugglers away. After that strange contretemps, the original conversation resumed.

The denouement was an infodump by Templar which accused Arthur of the painting smuggling and the murder of Button. She instantly broke down in

tears and blubbered a confession. Templar had no evidence but with only two minutes remaining in the episode it was evident that someone had to go to jail. As for Button, his body was found in the trunk of a car.

"Pin The Roses On My Corpse" was written by Louis Vittes and aired on 1951-05-20. Simon Templar was dining in a restaurant when he was approached by Laura Kane. "*You're the Saint*", she said, "*and I need help desperately*". For a man who never advertised, he was certainly well known.

She told him that someone was sneaking into the mansion and leaving red roses for her. She said when her first husband was murdered, a red rose had been pinned to his shoulder. Her second husband Henry was seldom home. The only live-in servant was the butler Chester.

Templar drove her home. She invited him inside to show him where the roses were left. None seen, but in their place was Henry, lying on his back, a knife in his chest, and holding a red rose. Chester had disappeared from the mansion. "*I never liked butlers as suspects*", Templar told the police. "*Old fashioned*".

As Templar departed, he was accosted by Gordon Ashingdon, who described himself as a friend of Laura. He spoke in a poofter's voice so as to leave no doubt with listeners that he was in fact just a friend.

Back home, Templar went to sleep but was woken up by a telephone call from Chester. The old boy had fled in panic because he figured the police would pin the murder on him for tradition's sake. He was calling from his hiding place, the Kane hunting lodge in the wilds of New Jersey.

Louie the cabbie drove the Saint out to the hunting lodge. Chester was all in a dither. They got to chatting, during which Chester mentioned that Ashingdon was quite a good gardener. Templar suggested that Chester had not volunteered the information to police because he was saving it for blackmail.

The Saint browbeat Chester into admitting he saw the murder. And the name of the murderer was ... Bang! Bang! Someone fired shots through the window, killing Chester. As Louie said, "*He ain't gonna butle no more*". The killer drove off before Templar could get outside.

Back to the Kane mansion, but Laura was gone. Next stop was Ashingdon's place, where Templar and Louie overheard Laura accusing Ashingdon of murder. There was a confrontation, which ended with Laura named as the murderer. She was the one putting out the roses and planning to become a wealthy widow. A rather arbitrary ending.

"The Girl With The Lower Berth" aired on 1951-06-03, written by Louis Vittes. This was one of the non-Vincent Price episodes, using Tom Conway as The Saint. He was average at best.

Jimmy Doyle departed life on the train by gunshot. He was a bad boy, as the police detective told The Saint. Doyle was suspected of carrying stolen diamonds and consorting with women not his wife. The suspects were a woman of easy virtue named Lola and a couple of gangsters who wanted the diamonds. Lola complained she couldn't get a good berth on the train.

Simon Templar interrogated Lola on the train while the gangsters went after Anne Doyle at home. The widow hadn't been told by police but didn't seem overly wrought when the gangsters told her. They held her hostage while searching for the diamonds.

Templar arrived not long after and was greeted by gunshots. The house was filled with alarums and sudden deaths. Lola arrived not long after. The diamonds were there. They had not been on the train.

Anne had intercepted them and killed her husband, then rushed back home to look innocent. Templar was kind enough to telephone police and tell them he had solved the crime.

Other Radio Shows.

Price also made guest appearances on many radio shows. The episodes mentioned here are available from the Old Time Radio Researchers as free mp3s from www.otrr.org/OTRRLibrary

THE SEALTEST VILLAGE STORE, sponsored by Sealtest Ice Cream, had a long and complicated history. The show originally began as THE RUDY VALLEE SHOW. When Vallee enlisted during the war, the series went through several sponsors, name changes, and hosts before Sealtest bought in.

For the episode mentioned here, dated 1947-03-20, Jack Haley had become the host, assisted by Eve Arden, who soon left to become the star of her own radio

series. Episodes were originally unnamed, so this one is listed on the OTRR site as "Guest - Vincent Price".

At this point the series was a comedy/variety show with three or four musical numbers. The episode at hand began with the expressed desire by the host Jack Haley to learn the ukulele.

Haley and Arden sallied forth to a music school which bragged that it taught every musical instrument. However the proprietor kept urging Haley to study the harmonica. Haley insisted on the ukulele, to no avail. Sitting on a bench, listening to the protestations of Haley, was Vincent Price.

Arden asked Price why he was there. He explained that he had accepted a movie part of a barefoot hillbilly who played the guitar in pickin'-and-a-grinnin' style. All present were aghast to learn that Price was playing against type. He was, after all, the epitome of the suave, well-bred gentleman.

From there, the episode abruptly segued into a performance by Price of the folk song "Jimmy Crack Corn", followed by the cast doing scenes from the hillbilly movie. With one more chorus from the song, the show abruptly concluded with an ice cream commercial.

The comedy DUFFY'S TAVERN aired from 1941 to 1951. Set in Manhattan somewhere in the dingier part of Third Avenue, the tavern was a cheap joint where the liquor was watered, the service was lousy, and the free lunch inedible.

Archie (no surname ever given) was the manager. He frequently had one-sided telephone conversations with the owner Duffy, who was never seen or heard directly. Other characters were Eddie the waiter, Miss Duffy (daughter), and Finnegan the village idiot (if Manhattan can be said to be a village).

Each week there was a guest star, who was integrated into the plot as someone Archie was trying to persuade to take part in one of his plans. Vincent Price appeared as himself in "Actors Club At The Tavern", which aired on 1951-01-26 and was written by Al Johansen and Larry Rhine.

This episode was a remake of a 1944 episode which used Charles Laughton. In those days, before home recording, an audience heard an episode once and that was that. Re-using scripts was quite acceptable, and few listeners would remember a broadcast from six years ago.

Archie's latest scheme was to turn the tavern into an actors club, much like the Friars Club. Featured attractions of the proposed club would include dart boards with pictures of the actors' agents. He needed a headline investor whose prestige would attract other actors.

Vincent Price was invited down to discuss the possibility. He was reluctant but Duffy, listening over the telephone, was even more so and demanded an audition. Price was indignant. "*Hasn't he seen any of my movies?*" Archie replied that was why Duffy wanted an audition.

Choosing a scene from Shakespeare, Price began with Romeo's speech "*He jests at scars that never felt a wound.*" Finnegan wandered in and asked Archie who the mush mouth was.

Smoothing over that contretemps, Archie convinced Price to try singing for Duffy. Price went into a terrible rendition. As the audience laughed, time ran out and the episode concluded. A tavern Duffy's was, and a tavern it would stay.

CHECKMATE: PART 3
by Dale Speirs

[Parts 1 to 2 appeared in OPUNTIA #412 and 473.]

Short Stories.

"The Immortal Game" by Poul Anderson (1954 February, MAGAZINE OF FANTASY AND SCIENCE FICTION, available as a free pdf on www.archive.org) was a look at a chess game from the point of view of the pieces.

The narration was in the form of deliberately bad historical fiction, where ye knights rode out to do battle, and kings and queens were noble. Basically anything you've ever seen at a Renaissance festival where they staged amateur dramatics.

"The Enemy Of My Enemy Is My Friend" by Dan J. Marlowe (1981 September, MIKE SHAYNE MYSTERY MAGAZINE) took place in a prison. The protagonist was Lindell, who kept getting into fights with another convict named Colaneri.

The problem was that they played full contact chess. Colaneri was a sore loser and when Lindell looked like winning a game, Colaneri would tip over the board. That was what started the fights, and because Lindell was a lighter man, he kept losing the punch-ups.

The warden transferred Lindell to a different cell block and put him on a different time for yard liberty so that he and Colaneri wouldn't cross paths. Lindell's new cellmate was Big Henry Gerard, who could easily defeat Colaneri and wanted the opportunity.

Lindell taught Gerard how to play chess, then sent him off for remote-control revenge. He deliberately mis-taught Gerard to move rooks like bishops, bishops like knights, and knights like rooks.

Novels.

CHECKMATE TO MURDER (1944) by E.C.R. Lorac (pseudonym of Edith Caroline Rivett) was reprinted in 2021 by Poisoned Pen Press. The setting was London, England, during the Blitz.

In the studio of artist Bruce Manaton, he was painting a portrait of actor Andre Delaunier. At the other end of the room, two friends Robert Cavenish and Ian Mackellon were playing chess. Bruce's sister Rosanne was cooking supper and Mrs Tubb the charwoman was tidying up. All very domestic.

Suddenly a special constable burst into the room. Folliner, a rich miser who lived next door, was dead and his treasure stolen. His nephew was a suspect but Scotland Yard had their doubts.

Police procedure ensued, gathering physical evidence and interrogating all the neighbours. The suspects were narrowed down to those in the Manaton studio. Cavenish and Mackellon were the patsys, brought in as respectable citizens to vouch for the killer.

Delaunier had moved about the studio, occasionally hovering over the chess players as if to study their game but later quietly and inconspicuously leaving the room unnoticed. He relied on the chess players to be concentrating on their game while he slipped next door for a quick bit of murder and theft.

The denouement was a lengthy explanation by the police inspector, who established some implausible details but did tie up all the loose ends. Once he concluded, Cavenish and Mackellon finished their game, which ended the book with bishop checks king.

THE CHESSMAN (2015) by Dolores Gordon-Smith was the ninth novel in a series about Jack Haldean, an Englishman who wrote detective stories. He also assisted police in solving murders, whether they wanted his help or not. This was a manor house mystery, set back in the period when every county had a dozen manors.

The plot involved stolen diamonds, a body in a cupboard of a church pantry, and a killer who left bwah-ha!-ha! notes signed "The Chessman". He also left a chess piece at the scene of the crime. Family scandals abounded, there were flashbacks to dastardly deeds, to say nothing of blackmail and impersonation.

The real murderer used the Chessman notes to pin suspicion on another family member who played chess. All in aid of speeding up an inheritance or at least some shares in a gold mine. The denouement was a complicated explanation which finally ended with champagne all around.

Gimme That Old Time Radio.

BARRIE CRAIG, CONFIDENTIAL INVESTIGATOR aired on radio from 1951 to 1955. The episodes are available as free mp3 downloads from the Old Time Radio Researchers at www.otrr.org/OTRRLibrary

"The Crimson Queen" was written by Louis Vittes and aired on 1953-01-04. Barrie Craig was dining at a hamburger joint when Peter Hanson stumbled inside looking for him. He told Craig he wanted to hire him to find his murderer, then fell dead to the floor from a knife wound. In one hand he was clutching a chess piece, a red queen.

Craig found Hanson's address in his pocket. Telling the diner cook to call the police, Craig left and visited the address. He found a mansion, butler and all.

Asking for Hanson, he was surprised to learn he was at home, playing chess in the study. Walter Hanson, that is, who was playing chess with a young woman Mona Bailey. He was Peter's brother. Neither of them seemed very upset at the news. "*How distressing*", said Walter in a very cultured voice.

Quickly enough, Craig established the two would each inherit half of Peter's estate, including the mansion. (Bailey was a widowed niece-in-law.) Craig observed the chess board and asked Bailey where her red queen was.

She said when she lost the piece in a game move, she threw it into the fireplace in anger. Didn't sound very convincing. Craig pointed out that on the board the queen file hadn't been opened yet. Therefore the queen couldn't have been taken by any white piece.

Bailey replied she liked the kind of detective in radio shows who didn't know anything about chess. Walter insisted his pieces had taken the queen. To that bold-faced lie, Craig replied it would be a shame if the piece were to turn up elsewhere, then turned to walk away.

As Craig exited the front door, a window opened, from which shots were fired. Since the radio series had two more years to go, he wasn't in danger. He thought better of going back inside and continued post haste back to his office.

Incredibly, Bailey was waiting for Craig in his office. How the devil did she beat him there? She later said she came by train. Unbelievable. In any event, she attempted to vamp him but he didn't buy the routines she tried to pull on him.

He surmised that she was originally playing chess with Peter, not Walter. Then what? Her stories were wobbly. Craig took her over to the window and showed her a parked car. He told her to walk down the street, then take a taxi home.

As she did so, he followed from a side door and surprised a man in the car. He was the butler. Yes, that's right, the butler did it. Valuable items were being stolen from the mansion. The original chess set was an ivory antique, which had been replaced with a wood set.

Back to the big house for the grand finale. Craig surmised that Peter discovered the substitution. He took a sample and went to Craig with the idea of having the chess sets traced. The final twist came. Walter had murdered his brother. There was a shootout in the study, but of course Craig was faster on the draw.

LETTERS TO THE EDITOR

[Editor's remarks in square brackets. Please include your name and town when sending a comment. Email to opuntia57@hotmail.com]

FROM: Lloyd Penney 2023-02-14
Etobicoke, Ontario

OPUNTIA #541: As usual, New Year's was no biggie. We spent it at home, toasted in the New Year, and went to bed. We can't afford a party, and we didn't hear of any until they were long done, and they were small gatherings.

We used to be able to see any fireworks downtown from where we are, but now, we are surrounded by luxurious, over-priced condo buildings, and we can barely see a thing.

[Re: Ben Bova roman a clef novel] Local fans used to remember THE STARLOST with a little pride. Some of the scenes were shot at the CTV/CFTO studios visible from Highway 401 here.

A local fan Phil Stephens, was hired to produce the vacuformed props and weaponry for the show, and they were actually pretty good for something that would never be seen close-up.

A daughter of Ben and Barbara Bova's lived in Toronto for a while. Not sure where she is now, but that was the reason the Bovas used to come up here for science fiction conventions.

OPUNTIA #542: [Re: cover photo] Yeah, that sign "Sorry, We're OPEN" is everywhere, especially at the Jack Astor's chain of restaurants. We used to go to Jack Astor's all the time, but not with prices today.

We certainly enjoyed the second New Year, and welcome the Year of the Rabbit. Besides the big Chinatown in downtown Toronto, there are other Chinatowns in Mississauga to the west, and Markham to the north.

We have noticed the number of Little Free Libraries around here going down, for they are perfect targets for vandalism, either by pedestrians with nothing better to do, or drive-by vandals who will nudge it over, and then run it over.

[I've never seen a vandalized LFL in Calgary.]

We recently went to the Toronto Tea Festival in the downtown area, and we saw an interesting demonstration of how to wear and have put upon your body authentic kimonos. You certainly can't put them on yourself. There is simply too much material and ceremony.

We are also getting to know the Japanese-Canadian Cultural Centre in North York. Lots of good function space for not too much.

[Possibly for a science fiction convention?]

WORLD WIDE PARTY ON JUNE 21

Founded by Benoit Girard (Quebec) and Franz Miklis (Austria) in 1994, the World Wide Party is held on June 21st every year. 2023 will be the 30th 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

Astronomy.

Ciurlo, A., et al (2023) **The swansong of the galactic center source X7: An extreme example of tidal evolution near the supermassive black hole.** ASTROPHYSICAL JOURNAL 944:doi.org/10.3847/1538-4357/acb344 (available as a free pdf)

[Sgr A* is the black hole at the centre of our galaxy around which everything revolves. X7 is the dust cloud falling into the black hole.]

Authors' abstract: *We present two decades of new high-angular-resolution near-infrared data from the W. M. Keck Observatory that reveal extreme evolution in X7, an elongated dust and gas feature, presently located half an arc second from the Galactic Center supermassive black hole.*

We find that the leading edge of X7 appears to be on a mildly eccentric, relatively short-period (170 yr) orbit and is headed toward periapse passage, estimated to occur in ~2036.

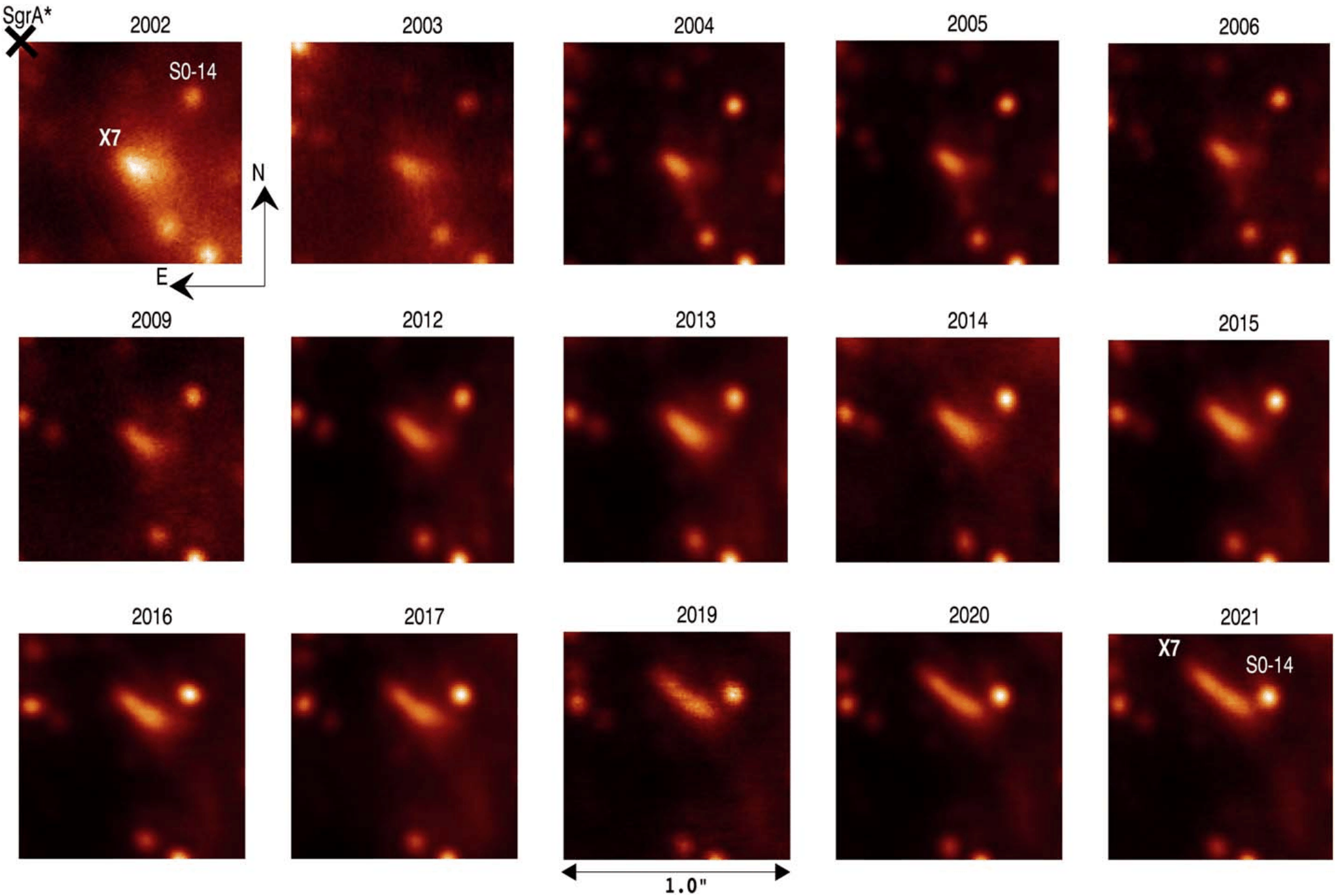
Furthermore, our kinematic measurements rule out the earlier suggestion that X7 is associated with the stellar source S0-73 or with any other point source that has overlapped with X7 during our monitoring period.

Over the course of our observations, X7 has
(1) become more elongated, with a current length-to-width ratio of 9,
(2) maintained a very consistent long-axis orientation (position angle of 50˚),
(3) inverted its radial velocity differential from tip to tail from -50 to +80 km per second, and
(4) sustained its total brightness (12.8 Lp magnitudes at the leading edge) and color temperature (425 K), which suggest a constant mass of ~50 times Earth.

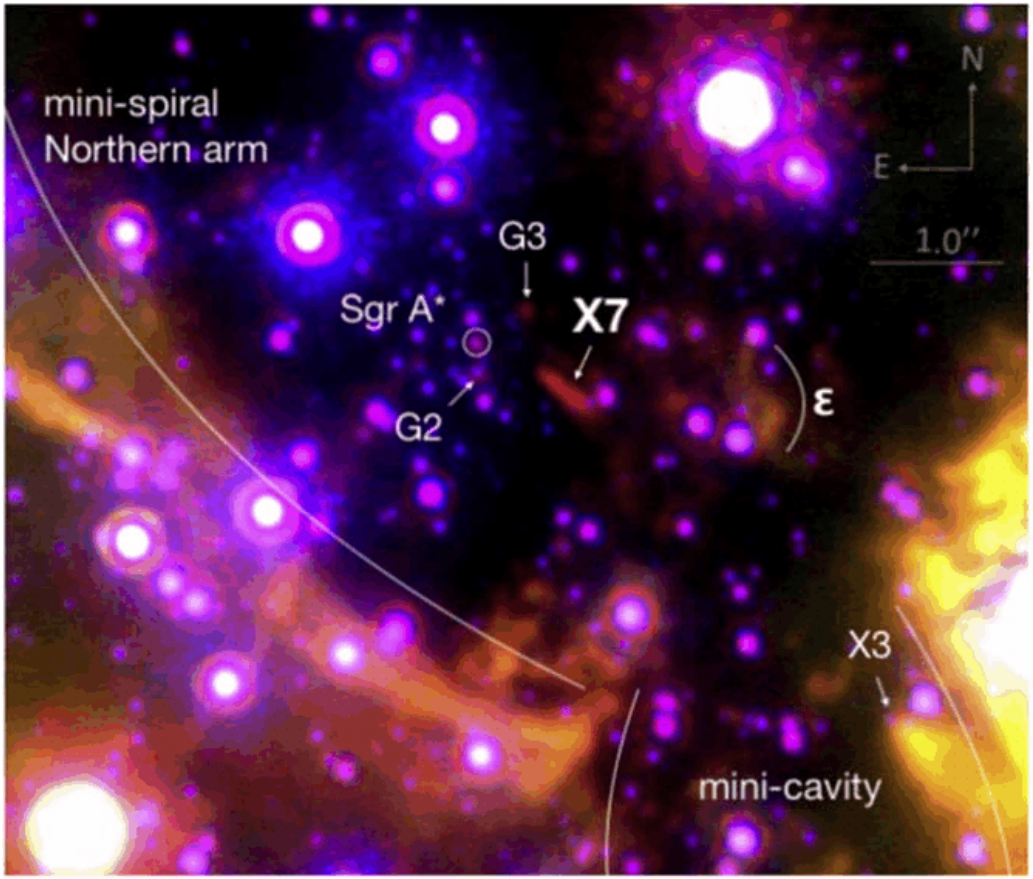
We present a simple model showing that these results are compatible with the expected effect of tidal forces exerted on it by the central black hole, and we propose that X7 is the gas and dust recently ejected from a grazing collision in a binary system.

[Images on the next two pages are from this paper.]

Notice how the X7 dust cloud elongated over the past 20 years as it was sucked toward the black hole Sgr A*, which is at the upper left corner.



A wide shot of Sgr A* and X7.



Chitta, L.P., et al (2023) **Direct observations of a complex coronal web driving highly structured slow solar wind.** NATURE ASTRONOMY 7:doi.org/10.1038/s41550-022-01834-5 (available as a free pdf)

Authors' abstract: *The solar wind consists of continuous streams of charged particles that escape into the heliosphere from the Sun, and is split into fast and slow components, with the fast wind emerging from the interiors of coronal holes.*

Near the ecliptic plane, the fast wind from low-latitude coronal holes is interspersed with a highly structured slow solar wind, the source regions and drivers of which are poorly understood.

Here we report extreme-ultraviolet observations that reveal a spatially complex web of magnetized plasma structures that persistently interact and reconnect in the middle corona.

Coronagraphic white-light images show concurrent emergence of slow wind streams over these coronal web structures. With advanced global magnetohydrodynamics coronal models, we demonstrate that the observed coronal web is a direct imprint of the magnetic separatrix web (S-web).

By revealing a highly dynamic portion of the S-web, our observations open a window into important middle-coronal processes that appear to play a key role in driving the structured slow solar wind.

Historically, the solar wind has been categorized as 'fast' or 'slow' wind. The fast wind is generally described as having speeds greater than 500 km per second and originating from the interiors of coronal holes formed by open magnetic flux.

The slow wind is classified as wind with speeds less than 500 km per second and is associated with the coronal streamer belt. In general, slow solar wind is characterized its high degree of internal structure and variability, coronal elemental compositions and ionic compositions that indicate a hotter and denser source region than the fast wind.

During solar minimum the coronal streamer belt and its associated slow wind streams remain concentrated around the solar equatorial regions, but during periods of solar activity, small coronal holes, which quite commonly form in the unipolar remnants of active regions confined to low latitudes, can reshape the streamer belt, extending it to high latitudes and distorting the central heliospheric current sheet.

These complex streamer belt topologies must create a web of magnetic separatrices within the corona, termed the S-web, but how exactly the coronal streamer belt and this coronal S-web relate to the origin of the slow solar wind is still a subject of active debate.

Super-radial expansion of the coronal holes themselves is thought to be an important source of slow solar wind. Magnetohydrodynamic wave turbulence could drive the slow wind along open magnetic fields in coronal holes.

In this scenario, variations in expansion factors and footpoint field strengths in open field regions are thought to play a role, at least in part, in the observed compositional difference between fast and slow winds.

The spatial variability of slow solar wind is attributed to large-scale events such as coronal mass ejections and streamer blobs that propagate through the background slow solar wind.

Planets.

Teng, H.Y., et al (2023) **A close-in planet orbiting giant star HD 167768.** PUBLICATIONS OF THE ASTRONOMICAL SOCIETY OF JAPAN 75:doi.org/10.1093/pasj/psac097

Authors' abstract: *We report the detection of a giant planet orbiting the G-type giant star HD 167768 from radial velocity measurements using the High Dispersion Echelle Spectrograph at Okayama Astrophysical Observatory.*

The planet orbiting the star is a warm Jupiter, having a period of 20.6532 days, a minimum mass of 0.85 Jupiter, and an orbital semimajor axis of 0.1512 AU.

The planet has one of the shortest orbital periods among those ever found around deeply evolved stars using radial velocity methods. The equilibrium temperature of the planet is 1,874 K, as high as a hot Jupiter.

The radial velocities show two additional regular variations at 41 days and 95 days, suggesting the possibility of outer companions in the system. We also calculated the orbital evolution of HD 167768 b and found that the planet will be engulfed within 0.15 gigayears.

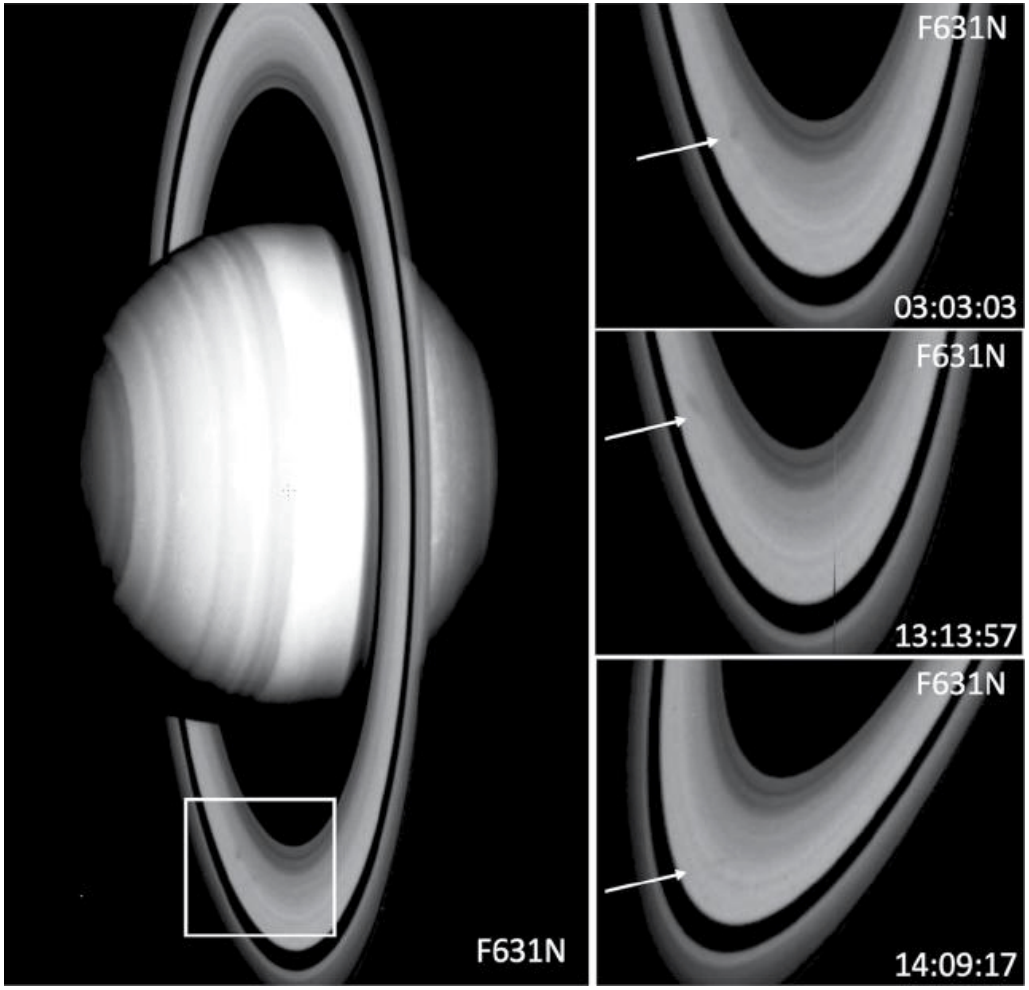
Simon, A.A., et al (2023) **Hubble detects the start of a new Saturn ring spoke season.** GEOPHYSICAL RESEARCH LETTERS 50:doi.org/10.1029/2022GL101904 (available as a free pdf)

Authors' abstract: *Saturn's ring spokes typically appear over an 8-year duration centered on equinox. Hubble Space Telescope observations in 2021 indicate the beginning of a new spoke season as Saturn approaches equinox in 2025.*

The spokes show increased contrast and longevity in 2022, persisting for up to 11 hours. The spokes are visible from UV to near-IR and are slightly bluer (i.e., less red) than the rings, but we find no significant wavelength dependence in the spectral contrast, which approximates their optical depth).

Spoke rotation rates are between 606 and 626 minutes, consistent with either Keplerian rotation or possibly the variable rotation rate of Saturn's kilometric radiation. Spoke activity is expected to increase over the next several years.

[Images are from this paper.]



Kanodia, S., et al (2023) **TOI-5205b: A short-period Jovian planet transiting a Mid-M Dwarf.** ASTRONOMICAL JOURNAL 165:doi.org/10.3847/1538-3881/acabce (available as a free pdf)

[A Jovian planet is a Jupiter-type planet.]

Authors' abstract: *We present the discovery of TOI-5205b, a transiting Jovian planet orbiting a solar metallicity M4V star, which was discovered using Transiting Exoplanet Survey Satellite photometry and then confirmed using a combination of precise radial velocities, ground-based photometry, spectra, and speckle imaging.*

TOI-5205b has one of the highest mass ratios for M-dwarf planets, with a mass ratio of almost 0.3%, as it orbits a host star that is just 0.392 solar mass.

Additionally, the large size of the planet orbiting a small star results in a transit depth of ~7%, making it one of the deepest transits of a confirmed exoplanet orbiting a main-sequence star.

The large transit depth makes TOI-5205b a compelling target to probe its atmospheric properties, as a means of tracing the potential formation pathways.

While there have been radial-velocity-only discoveries of giant planets around mid-M dwarfs, this is the first transiting Jupiter with a mass measurement discovered around such a low-mass host star.

Azua-Bustos, A., et al (2023) **Dark microbiome and extremely low organics in Atacama fossil delta unveil Mars life detection limits.** NATURE COMMUNICATIONS 14:doi.org/10.1038/s41467-023-36172-1 (available as a free pdf)

Authors' abstract: *Identifying unequivocal signs of life on Mars is one of the most important objectives for sending missions to the red planet. Here we report Red Stone, a 163 to 100 megayear old alluvial fan–fan delta that formed under arid conditions in the Atacama Desert, rich in hematite and mudstones containing clays such as vermiculite and smectites, and therefore geologically analogous to Mars.*

We show that Red Stone samples display an important number of microorganisms with an unusual high rate of phylogenetic indeterminacy, what we refer to as "dark microbiome", and a mix of biosignatures from extant and ancient microorganisms that can be barely detected with state-of-the-art laboratory equipment.

Our analyses by testbed instruments that are on or will be sent to Mars unveil that although the mineralogy of Red Stone matches that detected by ground-based instruments on the red planet, similarly low levels of organics will be hard, if not impossible to detect in Martian rocks depending on the instrument and technique used.

Our results stress the importance in returning samples to Earth for conclusively addressing whether life ever existed on Mars. Past, current, and future missions to Mars are primarily motivated by the outstanding question of whether life ever existed on the red planet.

Landed missions like the Mars Exploration Rovers, Phoenix, and the active Mars Science Laboratory and Mars 2020 rovers were tasked with identifying habitable environments, and whether there are evidences for the requirements for life as we know it.

Liquid water is one of the main requirements, so many rovers have landed at sites with geomorphological evidence for ancient rivers and lakes and/or mineralogical evidence for liquid water, like clay minerals.

Pham, T.S., and H. Tkaloio (2023) **Up-to-fivefold reverberating waves through the Earth's center and distinctly anisotropic innermost inner core.** NATURE COMMUNICATION 14:doi.org/10.1038/s41467-023-36074-2 (available as a free pdf)

[Anisotropic refers to a material that has different strengths when measured at different angles. The most familiar example is wood, which is stronger along the grain than across it.]

[Earth's core is anisotrophic, which affects the transit times of earthquake pressure waves. When measured by triangulating seismic stations, the bending of the waves gives a view of the interior of Earth.]

Authors' abstract: *Here, by stacking waveforms recorded by a growing number of global seismic stations, we observe up-to-fivefold reverberating waves from selected earthquakes along the Earth's diameter.*

Differential travel times of these exotic arrival pairs, hitherto unreported in seismological literature, complement and improve currently available information.

The inferred transversely isotropic inner-core model contains a ~650-km thick innermost ball with P-wave speeds ~4% slower at ~50° from the Earth's rotation axis. In contrast, the inner core's outer shell displays much weaker anisotropy with the slowest direction in the equatorial plane.

Our findings strengthen the evidence for an anisotropically-distinctive innermost inner core and its transition to a weakly anisotropic outer shell, which could be a fossilized record of a significant global event from the past.

Earth's inner core, which accounts for less than 1% of the Earth's volume, is a time capsule of our planet's history. As the inner core grows, the latent heat and light elements released by the solidification process drive the convection of the liquid outer core, which, in turn, maintains the geodynamo.

Although the geomagnetic field might have preceded the inner core's birth, detectable changes in the inner core's structures with depth could signify shifts in the geomagnetic field's operation, which could have profoundly influenced the Earth's evolution and its ecosystem.

Asteroids.

Jet Propulsion Laboratory (2023-02-17) **NASA's planetary radar captures detailed view of oblong asteroid.** jpl.nasa.gov/news

News release extracts: *On Feb. 3, an asteroid more than three times as long as it is wide safely flew past Earth at a distance of about 1.1 million miles (1.8 million kilometers, or a little under five times the distance between the Moon and Earth).*

While there was no risk of the asteroid, called 2011 AG5, impacting our planet, scientists at NASA's Jet Propulsion Laboratory in Southern California closely tracked the object, making invaluable observations to help determine its size, rotation, surface details, and, most notably, shape.

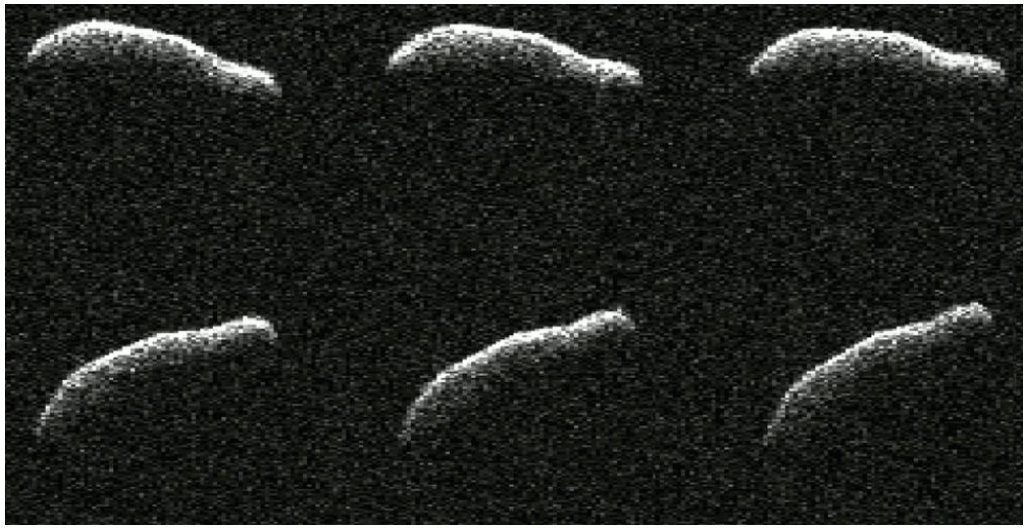
This close approach provided the first opportunity to take a detailed look at the asteroid since it was discovered in 2011, revealing an object about 1,600 feet (500 meters) long and about 500 feet (150 meters) wide, dimensions comparable to the Empire State Building.

The Goldstone radar observations took place from Jan. 29 to Feb. 4, capturing several other details: Along with a large, broad concavity in one of the asteroid's two hemispheres, 2011 AG5 has subtle dark and lighter regions that may indicate small-scale surface features a few dozen meters across.

And if the asteroid were viewed by the human eye, it would appear as dark as charcoal. The observations also confirmed 2011 AG5 has a slow rotation rate, taking nine hours to fully rotate.

Asteroid 2011 AG5 orbits the Sun once every 621 days and won't have a very close encounter with Earth until 2040, when it will safely pass our planet at a distance of about 670,000 miles (1.1 million kilometers, or nearly three times the Earth-Moon distance).

[Images are from this release and show the asteroid's slow rotation.]



Origin Of Life.

Goldman, A.D. (2023) **How did life become cellular?** PROCEEDINGS OF THE ROYAL SOCIETY OF LONDON 290B:doi.org/10.1098/rspb.2022.2327 (available as a free pdf)

Author's extracts: *Prebiotic chemistry experiments suggest that the materials required to make membranes would have been present prior to the origin of life. Specifically, abiotic membranes or protocells can form from naturally occurring or otherwise prebiotically plausible lipids.*

Protocells are also favoured to form under conditions that are similar to settings in which the origin of life may have taken place, specifically alkaline hydrothermal vents in the early ocean. It is possible, therefore, that protocells were present throughout the earliest evolutionary history of life.

The RNA World hypothesis proposes that the current tripartite genetic system composed of DNA, RNA and proteins was preceded by a stage in which functional RNAs including RNA enzymes, or ribozymes, were encoded by RNA genes.

Whether or not this hypothesis is correct, recent laboratory experiments have demonstrated several synergistic relationships between abiotic membranes and nucleobases or nucleic acids. For example, nucleobases have been shown to stabilize membranes composed of the prebiotically plausible compound decanoic acid.

Thus, the nucleobase constituents of ribozymes can stabilize protocells, while the protocells themselves can enhance both the function and evolution of ribozymes.

A parallel line of theoretical and computational research suggests that natural selection would have favoured cells or protocells during the early evolution of life because of their ability to stabilize genomes.

For example, if the genetic material of early life forms was encoded on small, single-gene chromosomes rather than larger multigene chromosomes, these gene-sized chromosomes may have replicated at different rates, disturbing the balance of gene products.

Protocell encapsulation could have mitigated inter-gene conflict and ensured that at least some progeny received the correct complement of genes after protocell division.

Stevenson, D.S. (2023) **A new ecological and evolutionary perspective on the emergence of oxygenic photosynthesis.** ASTROBIOLOGY 23:doi.org/10.1089/ast.2021.0165

Author's abstract: *In this hypothesis article, we propose that the timing of the evolution of oxygenic photosynthesis and the diversification of cyanobacteria is firmly tied to the geological evolution of Earth in the Mesoarchean to Neoarchean.*

Specifically, the diversification of species capable of oxygenic photosynthesis is tied to the growth of subaerial (above sea-level/terrestrial) continental crust, which provided niches for their diversification.

Moreover, we suggest that some formerly aerobic bacterial lineages evolved to become anoxygenic photosynthetic as a result of changes in selection following the reintroduction of ferruginous conditions in the oceans at 1.88 gigayears ago. Both conclusions are fully compatible with phylogenetic evidence.

The hypothesis carries with it a predictive component, at least for terrestrial organisms, that the development and expansion of photosynthesis species was dependent on the geological evolution of Earth.

Bowles, A.M.C., et al (2023) **The origin and early evolution of plants.** TRENDS IN PLANT SCIENCE 28:doi.org/10.1016/j.tplants.2022.09.009 (available as a free pdf)

[A clade is a line of evolutionary descent. A eukaryote has nuclei in its cells. Prokaryotes are the primitive state where the genetic material floats about the cell. Chloroplasts were once very primitive bacteria which joined in symbiosis with single-celled organisms to create plants.]

[Viridiplantae are all the green plants. Archaeplastida are all plants regardless of what kind of photosynthesis they use.]

Authors' abstract: *Plant (archaeplastid) evolution has transformed the biosphere, but we are only now beginning to learn how this took place through comparative genomics, phylogenetics, and the fossil record.*

This has illuminated the phylogeny of Archaeplastida, Viridiplantae, and Streptophyta, and has resolved the evolution of key characters, genes, and genomes, revealing that many key innovations evolved long before the clades with which they have been casually associated.

Molecular clock analyses estimate that Streptophyta and Viridiplantae emerged in the late Mesoproterozoic to late Neoproterozoic, whereas Archaeplastida emerged in the late-mid Palaeoproterozoic.

Together, these insights inform on the coevolution of plants and the Earth system that transformed ecology and global biogeochemical cycles, increased weathering, and precipitated snowball Earth events, during which they would have been key to oxygen production and net primary productivity.

Paleobiology.

Dai, X., et al (2023) **A Mesozoic fossil lagerstätte from 250.8 million years ago shows a modern-type marine ecosystem.** SCIENCE 379:567-572

Authors' abstract: *Finely preserved fossil assemblages (lagerstätten) provide crucial insights into evolutionary innovations in deep time. We report an exceptionally preserved Early Triassic fossil assemblage, the Guiyang Biota, from the Daye Formation near Guiyang, South China.*

High-precision uranium-lead dating shows that the age of the Guiyang Biota is 250.83 million years ago. This is only 1.08 million years after the severe Permian-Triassic mass extinction, and this assemblage therefore represents the oldest known Mesozoic lagerstätte found so far.

The Guiyang Biota comprises at least 12 classes and 19 orders, including diverse fish fauna and malacostracans, revealing a trophically complex marine ecosystem. Therefore, this assemblage demonstrates the rapid rise of modern-type marine ecosystems after the Permian-Triassic mass extinction.

Du, X,, et al (2023) **Giant Jurassic dragon lacewing larvae with lacustrine palaeoecology represent the oldest fossil record of larval neuropterans.** PROCEEDINGS OF THE ROYAL SOCIETY OF LONDON 290B:doi.org/10.1098/rspb.2022.2500 (availablle as a free pdf)

[Neuropterans are lacewings, still extant today.]

Authors' abstract: *Neuropterans seem to be less specious among holometabolans, while they are in fact the relicts of a diverse group from the Mesozoic era. Their early radiation resulted in great family level morphological heterogeneity of extant neuropterans, especially of their larvae.*

The earliest previously reported fossil larvae of this group were from the Early Cretaceous, where they already showed high taxonomic diversity and an extremely wide range of variations in morphotypes.

In this work, the earliest record of the larva of the neuropteran Palaeoneurorthus baii gen. et sp. nov. from the Middle Jurassic Daohugou Beds of China is described.

The larvae, which have large and elongated bodies, straight stylets with curved apices, an extremely elongated cervix and an extended anterior lobe of pronotum, are placed in Nevrorthidae. The elongated cervix is probably a specialized adaptation for hunting small organisms.

The palaeoenvironment of these larvae indicates that larvae of Nevrorthidae have exhibited stable aquatic ecology since the Middle Jurassic, and underwent a possible shift from lakes to more lotic yet constricted modern mountain rivulet habitats over time.

The larvae of modern Nevrorthids are aquatic or semiaquatic, inhabiting the bottom of clear mountain streams or moist litter in cool temperate climates. They are ambush predators that feed on small soft-bodied organisms using the pair of piercing-sucking stylets, which is similar to those of other neuropteran families.

The Jurassic fossil larvae inhabited a palaeoenvironment comprising lakes, swamps and rivulets in a hilly area, with a humid, warm to medium temperate climate with seasonal changes according to a study on the Daohugou flora.

Considering the taphonomy of Daohugou fossil beds, the fossil larvae were aquatic and possibly lived at the bottom of shallow lakes.

In addition to indicating the overall stability in the aquatic larval habitats of Nevrorthidae since the Middle Jurassic, the presence of the larvae in a lacustrine deposit also revealed that they inhabited a more stable environment than their extant counterparts in fast-moving streams.

[Image is from this paper.]

Guinot, G., et al (2023) **Global impact and selectivity of the Cretaceous-Paleogene mass extinction among sharks, skates, and rays.** SCIENCE 379:802-806

Authors' abstract: *The Cretaceous-Paleogene event was the last mass extinction event, yet its impact and long-term effects on species level marine vertebrate diversity remain largely uncharacterized.*

We quantified elasmobranch (sharks, skates, and rays) speciation, extinction, and ecological change resulting from the end-Cretaceous event using >3,200 fossil occurrences and 675 species spanning the Late Cretaceous-Paleocene interval at global scale.

Elasmobranchs declined by >62% at the Cretaceous-Paleogene boundary and did not fully recover in the Paleocene. The end-Cretaceous event triggered a heterogeneous pattern of extinction, with rays and durophagous species reaching the highest levels of extinction (>72%) and sharks and nondurophagous species being less affected.

Taxa with large geographic ranges and/or those restricted to high-latitude settings show higher survival. The Cretaceous-Paleogene event drastically altered the evolutionary history of marine ecosystems.

Dinosaurs.

Hudson, J.G., et al (2023) **A new giant theropod dinosaur track from the Middle Jurassic of the Cleveland Basin, Yorkshire, UK.** PROCEEDINGS OF THE YORKSHIRE GEOLOGICAL SOCIETY 64:doi.org/10.1144/pygs2022-008 (available as a free pdf)

Authors' abstract: *A new specimen of a rare large theropod dinosaur print of Middle Jurassic age is described from the Long Nab Member of the Scalby Formation, Cleveland Basin, Yorkshire. This is only the sixth specimen of this type recorded from the Cleveland Basin since they were first discovered in 1934.*

The present specimen is included in the same, but slightly modified morphotype Bxviii as some of the previous ones, since it shows additional features including an elongated metapodium.

The specimen is assigned to the ichnogenus Megalosauripus, and was possibly made by a Megalosaurus-like theropod.

The elongated metapodium may be the result of resting or crouching behaviour.

[Fossil footprint image is from this paper, others as credited.]

Footprint maker. Credit: James McKay

Dean Lomax/University of Manchester

(From left) John Hudson, Marie Woods and Dean Lomax are shown with the dinosaur footprint.

Zoology.

Osuna-Mascaro, A.J., et al (2023) **Flexible tool set transport in Goffin's cockatoos.** CURRENT BIOLOGY 33:doi.org/10.1016/j.cub.2023.01.023 (available as a free pdf)

Authors' abstract: *The use of tool sets constitutes one of the most elaborate examples of animal technology, and reports of it in nature are limited to chimpanzees and Goffin's cockatoos.*

Although tool set use in Goffin's was only recently discovered, we know that chimpanzees flexibly transport tool sets, depending on their need.

Flexible tool set transport can be considered full evidence for identification of a genuine tool set, as the selection of the second tool is not just a response to the outcomes of the use of the first tool but implies recognizing the need for both tools before using any of them (thus, categorizing both tools together as a tool set).

In three controlled experiments, we tested captive Goffin's in tasks inspired by the termite fishing of Goualougo Triangle's chimpanzees. Thereby, we show that some Goffin's can innovate the use and flexibly use and transport a new tool set for immediate future use; therefore, their sequential tool use is more than the sum of its parts.

Bacteria And Fungi.

Barak-Gavish, N., et al (2023) **Bacterial lifestyle switch in response to algal metabolites.** eLIFE 12:doi.org/10.7554/ eLife.84400 (available as a free pdf)

[When algal blooms are actively growing, bacteria associated with them will provide metabolites in exchange for food molecules from the algae. When growth slows down, the bacteria get hungry and attack the algae.]

Authors' abstract: *Unicellular algae, termed phytoplankton, greatly impact the marine environment by serving as the basis of marine food webs and by playing central roles in the biogeochemical cycling of elements. The interactions between phytoplankton and heterotrophic bacteria affect the fitness of both partners.*

It is becoming increasingly recognized that metabolic exchange determines the nature of such interactions, but the underlying molecular mechanisms remain underexplored.

Here, we investigated the molecular and metabolic basis for the bacterial lifestyle switch, from coexistence to pathogenicity, in Sulfitobacter D7 during its interaction with Emiliania huxleyi, a cosmopolitan bloom-forming phytoplankter.

To unravel the bacterial lifestyle switch, we analyzed bacterial transcriptomes in response to exudates derived from algae in exponential growth and stationary phase, which supported the Sulfitobacter D7 coexistence and pathogenicity lifestyles, respectively.

In pathogenic mode, Sulfitobacter D7 up-regulated flagellar motility and diverse transport systems, presumably to maximize assimilation of E. huxleyi-derived metabolites released by algal cells upon cell death.

Algal dimethylsulfoniopropionate (DMSP) was a pivotal signaling molecule that mediated the transition between the lifestyles, supporting our previous findings. However, the coexisting and pathogenic lifestyles were evident only in the presence of additional algal metabolites.

Specifically, we discovered that algae-produced benzoate promoted the growth of Sulfitobacter D7 and hindered the DMSP-induced lifestyle switch to pathogenicity, demonstrating that benzoate is important for maintaining the coexistence of algae and bacteria.

We propose that bacteria can sense the physiological state of the algal host through changes in the metabolic composition, which will determine the bacterial lifestyle during interaction.

Wang, Y.W., et al (2023) **Invasive Californian death caps develop mushrooms unisexually and bisexually.** BIORXIV PREPRINT https://doi.org/10.1101/2023.01.30.525609 (available as a free pdf)

[Unisexual mushrooms spread rapidly.]

Authors' abstract: *Canonical sexual reproduction among basidiomycete fungi involves the fusion of two haploid individuals of different sexes, resulting in a heterokaryotic mycelial body made up of genetically different nuclei.*

Using population genomics data, we discovered mushrooms of the 10 deadly invasive Amanita phalloides are also homokaryotic, evidence of sexual reproduction by single individuals.

In California, genotypes of homokaryotic mushrooms are also found in heterokaryotic mushrooms, implying nuclei of homokaryotic mycelia also promote outcrossing.

We discovered death cap mating is controlled by a single mating-type locus (A. phalloides is bipolar), but the development of homokaryotic mushrooms appears to bypass mating-type gene 15 control.

Ultimately, sporulation is enabled by nuclei able to reproduce alone as well as with others, and nuclei competent for both unisexuality and bisexuality have persisted in invaded habitats for at least 17 but potentially as long as 30 years.

The diverse reproductive strategies of invasive death caps are likely facilitating its rapid spread, revealing a profound similarity between plant, animal and fungal invasions.

Botany.

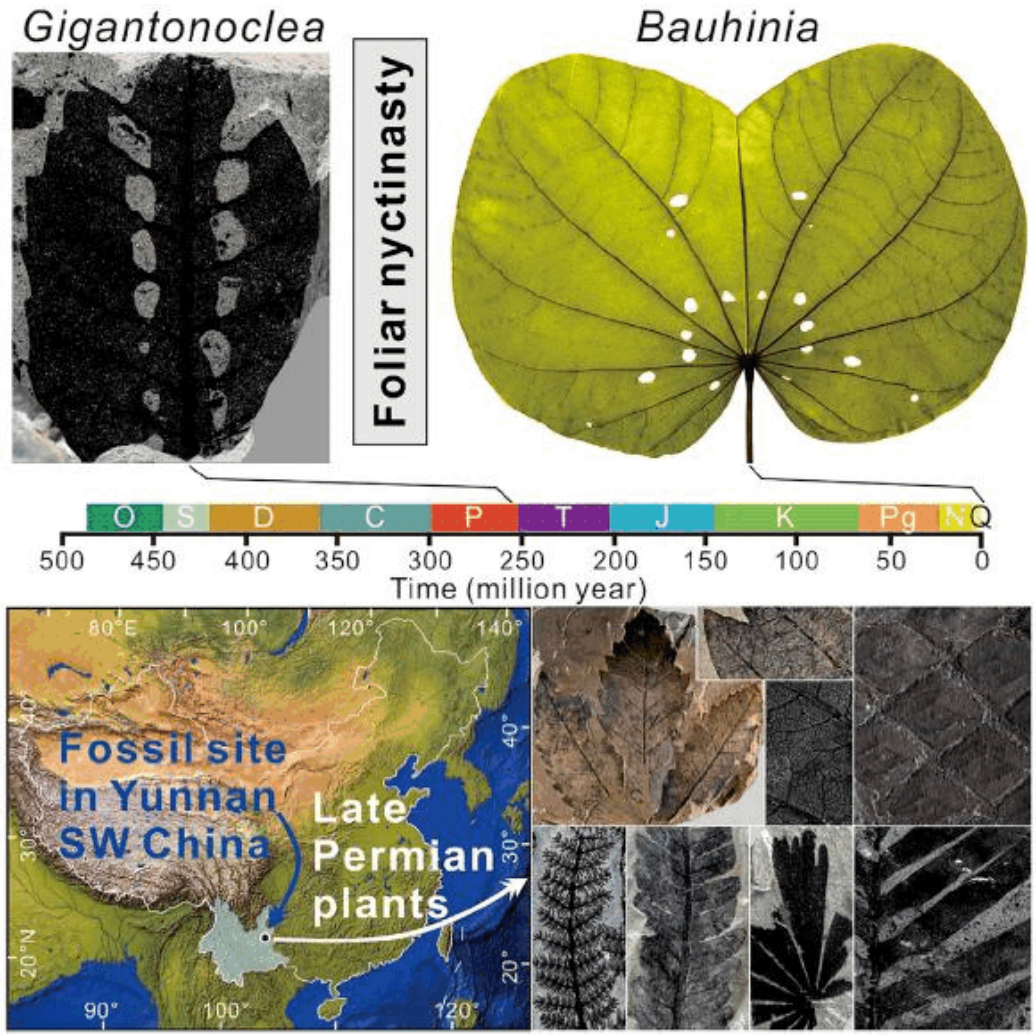
Feng, Z., et al (2023) **Specialized herbivory in fossil leaves reveals convergent origins of nyctinasty.** CURRENT BIOLOGY 33:doi.org/10.1016/j.cub.2022.12.043 (available as a free pdf)

Authors' abstract: *Nyctinasty, the movements involving circadian rhythmic folding at night and opening at daytime of plant leaves or leaflets, has attracted the attention of scientists and the public for centuries.*

In his canonical work entitled The Power of Movement in Plants, Charles Darwin carried out pioneering observations to document the diverse range of movements in plants.

His systematic examination of plants showing ''sleep [folding] movements of leaves'' led him to conclude that the legume family (Fabaceae) includes many more nyctinastic species than all other families combined.

Darwin also found that a specialized motor organ, the pulvinus, is responsible for most sleep movements of plant leaves, although differential cell division and the hydrolysis of glycosides and phyllanthurinolactone also facilitate nyctinasty in some plants.



However, the origin, evolutionary history, and functional benefits of foliar sleep movements remain ambiguous owing to the lack of fossil evidence for this process.

Here, we document the first fossil evidence of foliar nyctinasty based on a symmetrical style of insect feeding damage (Folifenestra symmetrica isp. nov.) in gigantopterid seed-plant leaves from the upper Permian (259–252 Ma) of China.

The pattern of insect damage indicates that the host leaves were attacked when mature but folded. Our finding reveals that foliar nyctinasty extends back to the late Paleozoic and evolved independently among various plant lineages.

[Images are from this paper.]

Campbell, L.C.E., et al (2023) **The evolution of plant cultivation by ants.** TRENDS IN PLANT SCIENCE 28:doi.org/10.1016/j.tplants.2022.09.005 (available as a free pdf)

Authors' abstract: *True plant agriculture in non-human animals is exclusively known in the ant Philidris nagasau, which farms six species of Squamellaria in Fiji.*

Plant cultivation by ants is widespread in the Neotropics and SE Asia/Australasia, with a minimum of 65 independent origins in plants, and 15 in ants, and involving nearly 200 plant species and ~37 ant species. It is apparently absent in Africa.

Plant-cultivating ants, even in obligate systems, overwhelmingly rely on their crops for structural support for nesting rather than food.

Outside humans, true agriculture was previously thought to be restricted to social insects farming fungus. However, obligate farming of plants by ants was recently discovered in Fiji, prompting a re-examination of plant cultivation by ants.

Here, we generate a database of plant cultivation by ants, identify three main types, and show that these interactions evolved primarily for shelter rather than food.

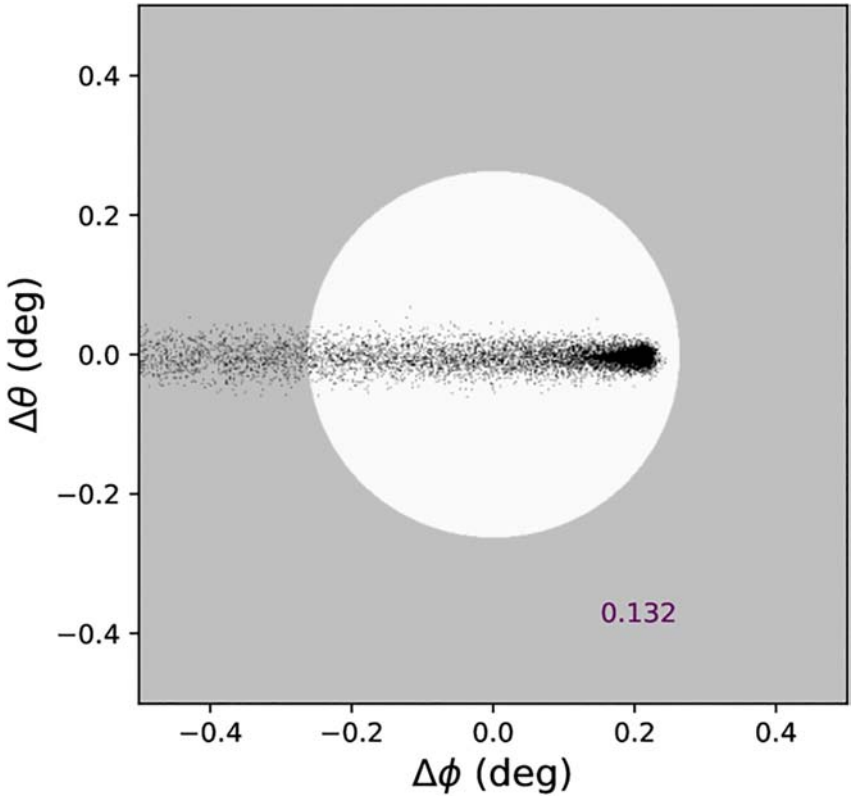
We find that plant cultivation evolved at least 65 times independently for crops (~200 plant species), and 15 times in farmer lineages (~37 ant taxa) in the Neotropics and Asia/Australasia.

Environmental Science.

Bromley BC, Khan SH, Kenyon SJ (2023) **Dust as a solar shield.** PLOS CLIMATE 2:doi.org/10.1371/journal.pclm.0000133 (available as a free pdf)

Authors' abstract: *We revisit dust placed near the Earth-Sun L1 Lagrange point as a possible climate-change mitigation measure. Our calculations include variations in grain properties and orbit solutions with lunar and planetary perturbations.*

To achieve sunlight attenuation of 1.8%, equivalent to about 6 days per year of an obscured Sun, the mass of dust in the scenarios we consider must exceed 10^{10} kg. The more promising approaches include using high-porosity, fluffy grains to increase the extinction efficiency per unit mass, and launching this material in directed jets from a platform orbiting at L1.



A simpler approach is to ballistically eject dust grains from the Moon's surface on a free trajectory toward L1, providing sun shade for several days or more. Advantages compared to an Earth launch include a ready reservoir of dust on the lunar surface and less kinetic energy required to achieve a sun-shielding orbit.

[Image is from this paper and shows what the Moon dust would look like across the Sun's disk.]

Human Prehistory.

Praetorius, S.K., et al (2023) **Ice and ocean constraints on early human migrations into North America along the Pacific coast.** PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA 120:doi.org/10.1073/pnas.2208738120 (available as a free pdf)

[The idea that humans could only cross into North America from Asia when the Bering land bridge existed was thought up by academics who had never paddled a canoe. The strait is as little as 20 km wide and easily traversed even today. Evidence is increasing that humans sailed along the Pacific coasts past the glaciers to California.]

Authors' abstract: *Growing evidence for a human presence in the Americas prior to 15,000 y ago, when ice sheets blocked transit through the continental interior, imply a Pacific Coast route was the more likely pathway for dispersals from Beringia into North America between ~26,000 and 14,000 years ago.*

The feasibility of coastal migration at various times depended on the extent of Cordilleran glaciers, sea ice, the strength of ocean currents, and the productivity and availability of marine and terrestrial resources.

Based on paleoclimate records and climate models, we estimate that 24,500 to 22,000 and 16,400 to 14,800 years ago were the most environmentally favorable time windows for a coastal migration during the period when the interior route was blocked.

Founding populations of the first Americans likely occupied parts of Beringia during the Last Glacial Maximum (LGM). The timing, pathways, and modes of their southward transit remain unknown, but blockage of the interior route by North American ice sheets between ~26,000 and 14,000 calendar years ago BP favors a coastal route during this period.

Using models and paleoceanographic data from the North Pacific, we identify climatically favorable intervals when humans could have plausibly traversed the Cordilleran coastal corridor during the terminal Pleistocene.

Model simulations suggest that northward coastal currents strengthened during the LGM and at times of enhanced freshwater input, making southward transit by boat more difficult.

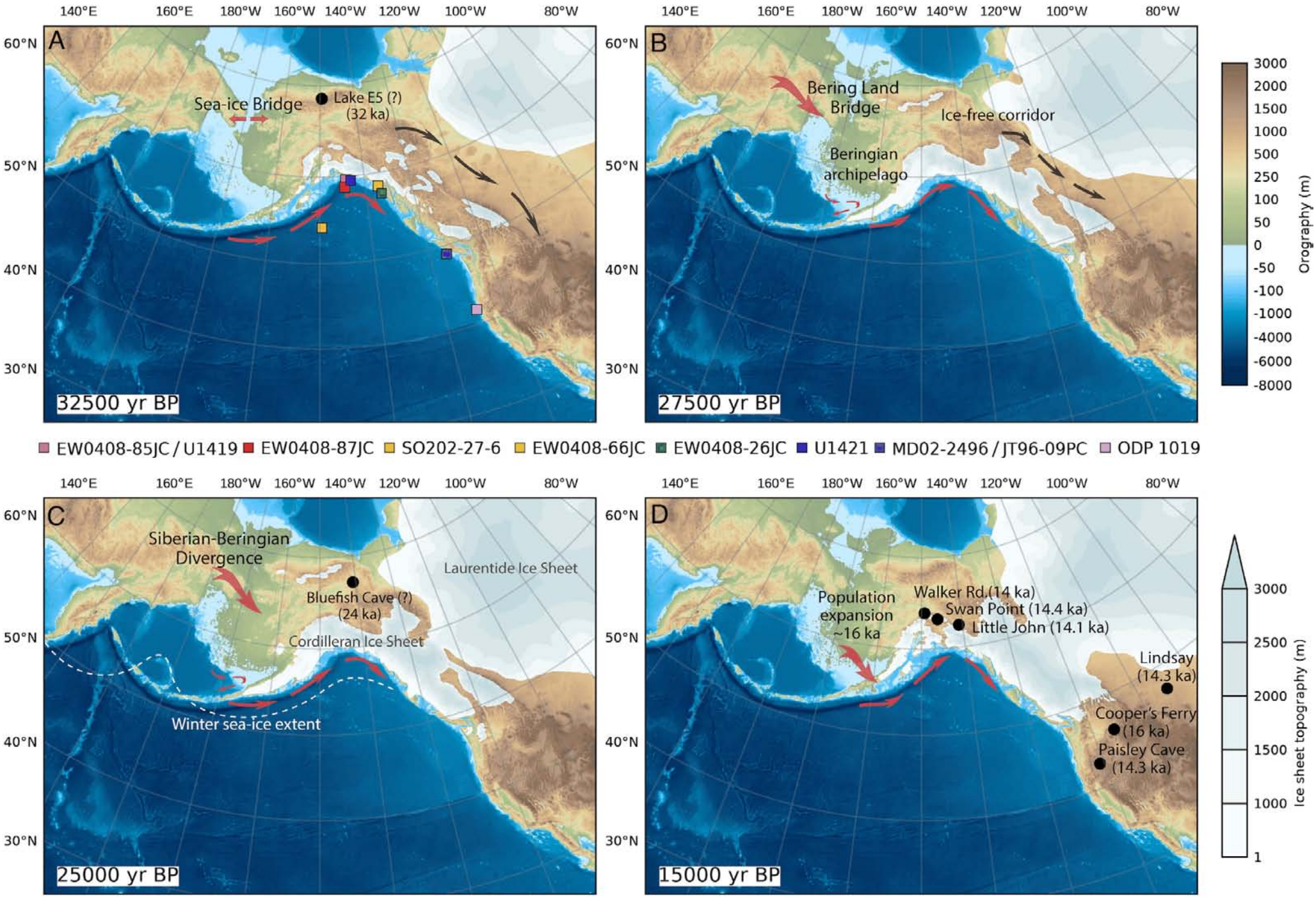
Repeated Cordilleran glacial-calving events would have further challenged coastal transit on land and at sea. Following these events, ice-free coastal areas opened and seasonal sea ice was present along the Alaskan margin until at least 15,000 years ago.

Given evidence for humans south of the ice sheets by 16,000 years ago and possibly earlier, we posit that early people may have taken advantage of winter sea ice that connected islands and coastal refugia.

Marine ice-edge habitats offer a rich food supply and traversing coastal sea ice could have mitigated the difficulty of traveling southward in watercraft or on land over glaciers.

We identify 24,500 to 22,000 years ago and 16,400 to 14,800 years ago as environmentally favorable time periods for coastal migration, when climate conditions provided both winter sea ice and ice-free summer conditions that facilitated year-round marine resource diversity and multiple modes of mobility along the North Pacific coast.

[Maps on the next page are from this paper.]


A
Sea-ice Bridge
Lake E5 (?)
(32 ka)
32500 yr BP
B
Bering Land
Bridge
Ice-free corridor
Beringian
archipelago
27500 yr BP
Orography (m)
3000
2000
1500
1000
500
250
100
50
0
-50
-100
-1000
-4000
-6000
-8000
EW0408-85JC / U1419
EW0408-87JC
SO202-27-6
EW0408-66JC
EW0408-26JC
U1421
MD02-2496 / JT96-09PC
ODP 1019
C
Siberian-Beringian
Divergence
Laurentide Ice Sheet
Bluefish Cave (?)
(24 ka)
Cordilleran Ice Sheet
Winter sea-ice extent
25000 yr BP
D
Population
expansion
~16 ka
Walker Rd.(14 ka)
Swan Point (14.4 ka)
Little John (14.1 ka)
Lindsay
(14.3 ka)
Cooper's Ferry
(16 ka)
Paisley Cave
(14.3 ka)
15000 yr BP
Ice sheet topography (m)
3000
2500
2000
1500
1000
1
140°E
160°E
180°W
160°W
140°W
120°W
100°W
80°W
60°N
50°N
40°N
30°N