The Antarctican Society

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A HALF-CENTURY AGO IN USARP

It was just a short half-century ago that I was between my two seasons at McMurdo. What a year 1973 was! Early that year, the *Glomar Challenger* was drilling in the Ross Sea as part of the Deep Sea Drilling Project (DSDP). The Dry Valley Drilling Project (DVDP), a joint effort of USARP, New Zealand and Japan was well under way, as was the Ross Ice Shelf Project (RISP). Sea World of San Diego began collections that after ten years of research in the U.S. would become a breeding colony of penguins open to the public as *Penguin Encounter*.

Station activity included the closing of the US-NZ HALLETT Station, and final preparation of the very remote SIPLE Station for its first winter with a contingent of just four! At SOUTH POLE, Hercules JD-917 crashed, the new Dome was in place and civilian tradesmen had worked alongside Navy Seabees (who were finishing their final season) during the penultimate summer of new station construction.

I have a particular remembrance of Wolf Vishniac (U. of Rochester) who fell to his death while collecting data in the Dry Valleys in December 1973. Dr. Vishniac was a microbiologist who had designed a device (the "Wolf Trap") able to detect the presence of microorganisms in apparently sterile soils. Vishniac had worked with NASA on the Mars-inspired Viking Project until funding cuts removed his instrument from the two Mars landers. His next target, of course, was the Mars-like Dry Valleys where he had already found active growth of bacteria. Dr. Carl Sagan expressed high praise for Vishniac in his 1980 television series, *Cosmos* (Episode 5, "Blues for a Red Planet"). A moon crater is named for Vishniac, appropriately located at 76.4 degrees South latitude (on the coordinate system commonly used for the moon) – nearly the same as the Earth latitude of his accidental death.

Finally, there was the arrival at McMurdo of Mary Alice McWhinnie preparing (with her colleague) to be the first female winterers in the U.S. program. Dr. McWhinnie had been designated as the Station Science Leader for the upcoming winter.

Dick Wolak, Co-Editor

2024 Gathering Update

By Tom Henderson

The Society's August 11-14, 2024 Gathering is gathering steam! The site is Colorado Chautauqua in Boulder, a National Historic Landmark dating to 1898, with meeting spaces, dining, and lodging all on one compact campus (https://www.youtube.com/watch?v=oTcbWjnHmI4).

Colorado Chautauqua Dining Hall

Registrations and lodging reservations are moving faster than expected. Already, half of our contracted Chautauqua lodging units have been reserved. Studio, 1- and 2-bedroom cottages are still available. All units have kitchens, private bathrooms, wifi, and air conditioning. Almost all have foldout couch-beds. Under our contract, you can potentially reserve a stay longer than the Gathering dates at the contract rates, if the extra days are available. If you plan to stay at Colorado Chautauqua, reserve soon!

The schedule will be similar to the Society's 2022 Gathering in Burlington, with two days of presentations, a reception, and a final day picnic. We will once again have the popular auction of items donated by members. A tour is being planned on the last day at the NSF National Ice Core Facility in Lakewood, outside of Denver.

Several members have offered to make presentations at the Gathering. The Speakers Committee is now recruiting speakers — many from the rich array of Front Range Antarctic scientists — for what will be a very interesting group of presentations.

Chautauqua Garden Path

Link to the 2024 Gathering web page and Planning Guide from www.antarctican.org or use the registration form at the end of this newsletter.

First-ever layered lake sediment sample extracted from subglacial Antarctica

NSF, March 9, 2023

Since the discovery 50 years ago of subglacial lakes in Antarctica — some of the least accessible geological features on Earth — scientists have attempted to extract lake bed sediment to learn about the formation, movement and past conditions of the ice sheet. Now, a team of researchers with the NSF-funded project Subglacial Antarctic Lakes Scientific Access (SALSA), has recovered the first layered sediments from beneath the Antarctic ice sheet.

Their findings from analysis of the sediment sample, published in the journal *Geology*, offer important insights into the dynamics of the Antarctic ice sheet and its history, including a time when the ice sheet was smaller than its current size. The work adds to the sedimentary record of knowledge of Antarctica and has implications for understanding how Antarctica may contribute to global sea level rise.

"The information from this unique sample of subglacial lake sediments shows us the value of

being able to access these extremely remote settings," said Paul Cutler, a program director in NSF's Office of Polar Programs. "It is an impressive scientific, technical and logistical feat that has been several years in the making."

The saga of the SALSA team's quest to explore subglacial lakes is chronicled in "The Lake at the Bottom of the World," a feature-length documentary released across multiple streaming platforms on Feb. 28, 2023, by the team in partnership with Metamorph Films. The NSF-funded film gives viewers a close look at how the scientists conducted their work.

Retrospective: Jack Anderson, muckraker

By Guy Guthridge

Back in the '70s and '80s, Jack Anderson's column was the most influential and widely read in the country. Published in nearly a thousand newspapers, it reached an audience of 40 million.

Anderson exposed the scope of the Mafia when the FBI downplayed it. He helped to bring down Sen. Joseph McCarthy. He found proof that ITT donated to Nixon's presidential campaign so Nixon would stop antitrust prosecution. Later columns made Anderson an assassination target by Nixon's White House staff. The CIA tapped Anderson's phone.

Anderson put fear in the hearts of Federal agencies and NSF got its turn in 1981 when he told our press office he wanted his best writer, Dale Van Atta, to look at the U.S. Antarctic Program. "Everything from gold to garbage," appeared in Anderson's columns, wrote *Washington Post* reporter Tony Kornheiser on August 7, 1983.

Both were in Antarctic columns that Anderson had published before he phoned NSF. In a 1971 column on government surplus, the biggest item in the "waste parade" was 38,000 pairs of camouflage snow pants; the Department of Defense bought them, he explained, "in case we needed to put down a polar bear rebellion in the Antarctic." In 1979, Anderson praised USAP (USGS) scientist David Schneider's May 18, 1974 rescue of three men and equipment from a tractor in a crevasse and his later jury-rig of a radio during a winter storm that restored the party's comms. In 1981 Van Atta exposed a "Top Secret Umbra" document showing the CIA's interest in Soviet operations in the Antarctic.

NSF knew it could not say no to Anderson. Van Atta joined the 1981-1982 Antarctic press tour. When he came back to the States, I pulled together information to help him finish his columns. Smart, and with mostly reasonable requests, he also was eager for classified documents to expose, but we didn't have any.

The first column reports station life: crews doing important work under harrowing conditions, using Yankee ingenuity to relieve tension, enduring unbelievable cold and seclusion without going stir-crazy. The next, "The Antarctic: from the past, the future," describes scientists unlocking "vital mysteries of the world's past and clues to its future," isolating the glycoprotein that keeps fish alive, discerning glacial periods so future ones can be predicted. Americans' "humor and high spirits" get them through the "dreary Antarctic summers."

The column "Soviets seeking to displace U.S. at South Pole" says a classified review by the National Security Agency warns that growth of the Soviet Antarctic program could mean "the Soviet Union may take the top position at the bottom of the world."

In "Valuable work in Antarctica short of funds," Van Atta writes that the U.S. program needs "less than half the estimated cost of a single B1 bomber." Anderson had asked Van Atta to look for "any sign that the project was a gigantic boondoggle." Van Atta found "a group of dedicated scientists, working under harsh conditions and performing valuable research on a tight budget."

Here's Paul Dalrymple in the Society's March 1982 newsletter:

"And did you read all the good things Jack Anderson wrote in late January? Fantastic! One of his associates, Dale Van Atta, told Jack, who told the world, that the only thing wrong with Antarctica is a shortage of funds. I have a sneaking feeling that Van Atta never went to the ice, that there was some sort of collusion between

him and Guthridge with Dale spending those two months in Tahiti while Guy sat in Washington writing the material which Dale later (when he got back from Tahiti) turned over to Jack Anderson. How else can you account for five favorable articles from Anderson, who isn't normally disposed to being kind to anyone? Ed Todd, though, is still sitting in the Director's chair of the Division of Polar Programs at NSF wondering where Van Atta saw 'top secret CIA and National Security Agency reports on Antarctica.' Ed has never seen one since he's been on the job!"

After those five, Dale wrote additional useful Antarctic articles (the last in 1991) for the Jack Anderson column.

NSF Criticizes Own Sexual Assault Report

In a sharp rebuke to NSF's "Sexual Assault/Harassment Prevention and Response (SAHPR) Report," issued in Aug. 2022 following claims of sexual assault and harassment in the US Antarctic Program, the foundation's own Office of Inspector General (OIG) has issued a critical evaluation of that report.

Noting that "both sexual harassment and sexual assault are deplorable acts that traumatize the person who experiences them," the OIG white paper underlines the fact that both are "criminal offenses...subject to federal investigation and prosecution — a point that is largely absent from the SAHPR Report."

The most serious offenses, aggravated sexual abuse and sexual abuse, each carry a potential sentence of up to life imprisonment.

The OIG notes that while the McMurdo station manager can exercise certain law enforcement functions through appointment as a Special Deputy U.S. Marshal (SDUSM), that authority is limited to 24 specified criminal offenses. Among these are sexual abuse, aggravated sexual abuse, and abusive sexual contact — although only when "alleged to have been committed by United States persons against other United States persons." Stalking is not among the specified offenses.

The OIG questions the adequacy of the current "law enforcement function" of the US Antarctic Program. In 2015, OIG issued a USAP-focused health and safety audit, which found that the SDUSM "may lack adequate tools and training to perform the law enforcement function." In Feb. 2018, NSF reps escorted federal law enforcement officials on a site visit to address the OIG's recommendations, and the USAP Law Enforcement Review Team (led by the U.S. Attorney for the District of Hawaii) issued a final Site-Visit Report to NSF in March 2018. Although it made five recommendations, all five are completely redacted from the OIG white paper.

The OIG says that the SAHPR Report calls into question whether the SDUSM is adequately trained and experienced to respond to sexual assault and stalking. "This is particularly so with sexual assault cases, which present law enforcement challenges even under ordinary circumstances," the white paper says. "Those challenges are compounded by Antarctica's distant and sometimes inaccessible location."

Among the OIG paper's seven "Suggestions for NSF to Consider" are: "Communicating a clear message to USAP participants that sexual assault and stalking are criminal offenses that are subject to a law enforcement investigation and prosecution" and "Providing personnel who engage with sexual assault victims with training in victim-centered, trauma-informed approaches to such interactions."

The white paper, dated March 7, 2023, is titled "Sexual Assault and Stalking Issues Pertaining to the United States Antarctic Program" and can be downloaded at:
https://oig.nsf.gov/reports/other/law-enforcement-perspectives-sexual-assault-and-stalking-issues-pertaining-united

Antarctic Currents Heading for Collapse

By Tom Housden, BBC News, March 30, 2023

Rapidly melting Antarctic ice is causing a dramatic slowdown in deep ocean currents and could have a disastrous effect on the climate, a new report warns. The deep-water flows which drive ocean currents could decline by 40% by 2050, a team of Australian scientists says. The

currents carry vital heat, oxygen, carbon and nutrients around the globe. Previous research suggests a slowdown in the North Atlantic current could cause Europe to become colder.

The study, published in the journal *Nature*, report outlines how the Earth's network of ocean currents are part driven by the downwards movement of cold, dense saltwater towards the sea bed near Antarctica. But as fresh water from the ice cap melts, sea water becomes less salty and dense, and the downwards movement slows. These deep ocean currents, or "overturnings", in the northern and southern hemispheres have been relatively stable for thousands of years, scientists say, but they are now being disrupted by the warming climate.

"Our modelling shows that if global carbon emissions continue at the current rate, then the Antarctic overturning will slow by more than 40 per cent in the next 30 years - and on a trajectory that looks headed towards collapse," study lead Professor Matthew England said.

The 2018 Atlas Study found the Atlantic Ocean circulation system was weaker than it had been for more than 1,000 years and had changed significantly in the past 150. It suggested changes to the conveyor-belt-like Atlantic Meridional Overturning Circulation (AMOC) could cool the ocean and north-west Europe. A sensationalized depiction of the AMOC shutting down was shown in the 2004 film *The Day After Tomorrow*.

The report also highlighted how the slowdown would affect the ocean's ability to absorb carbon dioxide from the atmosphere.

Dr Adele Morrison, who contributed to the report, explained that as ocean circulation slows down, water on the surface quickly reaches its carbon-absorbing capacity and is not then replaced by non carbon-saturated water from greater depths.

Dr Morrison also warned that said a slowdown of the southern overturning could have an impact on marine ecosystems and Antarctica itself. "Overturning brings up nutrients that have sunk down to the bottom when organisms die… to resupply nutrients for the global ecosystem and fisheries," she told the BBC. "The other larger implication that it could have is a feedback on how much of Antarctica melts in the future. It opens a pathway for warmer waters which could cause increased melt, which would be a further feedback, putting more meltwater into the ocean and slowing down circulation even more."

Scientists spent 35 million computing hours over two years to produce their models, which assumed that emissions of greenhouse gases continue their current path. If they fall, this could lessen the amount of ice melting, and slow the decline in the ocean current.

However, results suggest deep water circulation in the Antarctic could slow at twice the rate of decline in the North Atlantic. "[It's] stunning to see that happen so quickly," said climatologist Alan Mix from Oregon State Univ., a co-author of the latest Intergovernmental Panel on Climate Change (IPCC) assessment. "It appears to be kicking into gear right now. That's headline news," he told Reuters.

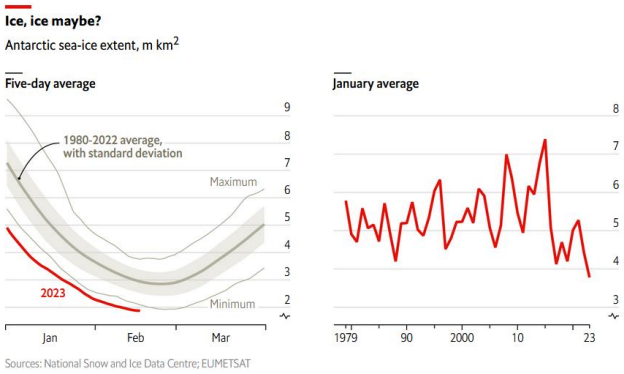
The effect of Antarctic meltwater on ocean currents has not yet been factored into IPCC models on climate change, but it is going to be "considerable", Prof England said.

Sea ice in Antarctica lowest-ever, again

The Economist, February 20, 2023

Germany's *Polarstern* is currently in the Bellingshausen Sea; earlier this week, the expedition leader said he had never seen the sea so devoid of ice. On Feb. 13, sea ice across the Antarctic as a whole spanned 1.91m km^2, the lowest level since satellite records began in 1979.

The world is now, on average, 1.0-1.3°C hotter than it was before the Industrial Revolution. That has obvious consequences for floating sea ice at the northern pole: the extent of sea ice in the Arctic has declined by about 40% in the last 40 years. The situation is more complicated around the South Pole, where a thinner ozone layer has a cooling effect. The Antarctic is surrounded by the vast Southern Ocean, which absorbs huge amounts of heat from the atmosphere. That, plus the continent’s high elevation, slows the warming rate.



Antarctic Sea Ice Extents
Source: *The Economist*, February 20, 2023

Sea-ice extent around Antarctica was relatively stable until 2014. It has been declining precipitously since then. One study by a climatologist at America's NASA reckons that between 2014 and 2017 Antarctic sea ice receded three times as quickly as during any comparable period in the Arctic. Antarctic sea ice shrinks to a minimum during late February and early March, during the southern hemisphere's summer. It hit record lows in 2022 and again now in 2023.

These changes have prompted much research into how global warming is affecting Antarctica. The biggest concern is over the enormous West Antarctic ice sheet, which is smaller but less stable than its eastern counterpart. Scientists say that it risks collapse if it melts beyond a certain point, which could result in a global sea-level rise of up to three meters. This is regarded as one of climate change's most consequential "tipping points". It is unlikely to happen any time soon, but increasing evidence of instability in Antarctica's ice sheets is cause for concern.

The Dolley Madison House

By Guy Guthridge

Antarctica must have been the topic of uncounted conversations within the walls of 1520 H Street, N.W., Washington, D.C.

Popularly called Dolley Madison's House, the building is on the northeast corner of Lafayette Square, which is across Pennsylvania Avenue from the White House.

The house was built in 1820 for Richard Cutts, Comptroller of the Treasury, and his wife Anna, Dolley's sister. After Cutts in 1828 went to prison as a debtor, James Madison, who had been President of the United States from 1809 to 1817, bought the house and let Anna live in it until her death in 1832. James and Dolley lived at their Montpelier estate in Virginia until he died in 1836. Dolley couldn't afford Montpelier on her own and moved to the house in which her sister had died.

Plaque on the Dolly Madison House

Dolley was broke because of her blind devotion to her dissolute son from a former marriage, John Payne Todd. She was extraordinary. During the War of 1812, she kept the Gilbert Stuart painting of George Washington from falling into British hands before they burned the White House. Years later, she heroically saved James's important papers from destruction by fire. She had a profound impact on Washington society and held significant political influence. She died in 1849.

Enter Charles Wilkes, U.S. Navy, who had led the United States Exploring Expedition, 1838-1842, establishing that Antarctica is a continent. He and family had lived in Washington earlier. They returned in 1856 "and finding the property of Mrs. Madison owned by her son, Mr. Todd," Wilkes wrote in his autobiography, "I concluded to purchase it at $11,500."

Wilkes and his heirs owned the house for 35 years and improved it significantly, adding a third floor, moving the front door to the H Street side,

adding a bay window on the south side, and installing a wrought-iron porch on the Lafayette Square side that's there today.

Wilkes died in 1877. The family sold the house to the Cosmos Club, which "has provided a prestigious environment for intellectual fellowship since 1878." Antarctican Society members of a certain age know the Cosmos Club well. According to our September 1979 newsletter, "the Society's evolution [began] at the bar of the Cosmos Club in the fall of 1959." The Cosmos Club by then had moved to its present location on Massachusetts Avenue. Into the early 2000s many of our meetings were held at the Cosmos Club, some in collaboration with the Explorers Club or the Polar Research Board.

The Federal Government bought the Dolley Madison House for $1 million in 1940 but let the Cosmos Club stay there until 1952.

Then the National Science Foundation moved in! It's the Federal agency that funded U.S. participation in the Antarctic component of the International Geophysical Year and then, to this day, the U.S. Antarctic Program. NSF occupied Dolley's house until 1958. The General Services Administration now owns the building and calls it an "office building."

John DeFerrari's online "Streets of Washington" provided some of this information. Thanks to Ray Arnaudo for telling me about it in 2010.

The astonishing 944-page hardbound *Autobiography of Rear Admiral Charles Wilkes, U.S. Navy, 1798-1877*, which the Naval History Division published in 1978 (a century after Wilkes's death), deserves its own story.

Kill dates of black mosses are archives of Antarctic glacier history

NSF, Feb. 28, 2023

Mosses, one of the few types of plants living in Antarctica, have a tenuous existence, threatened by advancing glaciers. When glaciers move, they can entomb or cover a plant — starving it of light and warmth. Scientists have discovered that the timing of when a glacier killed a moss, the kill date, provides an archive of glacier history.

The date the plant died coincides with the time the glacier advanced over that location. As glaciers recede, the previously entombed mosses are exposed, now dead and black.

Cape Rasmussen, one of the black mosses study sites mentioned in the paper

In NSF-supported research published in the journal *Geology*, Dulcinea Groff of the University of Wyoming and colleagues determined kill dates by using radiocarbon dating of previously ice-entombed, dead black mosses to reveal that glaciers advanced during three distinct phases in the northern Antarctic Peninsula over the past 1,500 years. "What's so valuable about these kill dates compared to other records [such as the ages of glacial erratics or penguin remains] is their accuracy," says Groff. They provide a clear picture of climate history.

"This study is important because it allows for a better understanding of climate history and the timing of glacier advance and retreat in the past by the novel application of precisely dating entombed mosses," says Michael Jackson of NSF's Office of Polar Programs.

Groff and colleagues collected black mosses around the northern Antarctic Peninsula by exploring the edges of glaciers at several locations. Then, by radiocarbon dating the mosses, they determined the phases of glacier advance. The finding is evidence for phases of cooler and potentially wetter conditions than today.

On Anvers Island, they learned that the last time the glacier was at its 2019 position was about 850 years ago. "We found that the glacier front with the fastest advance also had the fastest retreat, suggesting that hotspots of rapid coastal

glacier dynamics occur in the Antarctic Peninsula," says Groff.

Nuyina likely to miss 2023 expedition

By James Dunlevie, ABC News, February 2, 2023

Australia's Antarctic icebreaker, *Nuyina*, which has barely been in active service since being delivered in late 2021, will be out of action for this season due to delays in repairs.

Built in Romania by Dutch shipbuilding company Damen, *Nuyina* replaced its predecessor *Aurora Australis* after that ship was decommissioned after 30 years.

The $528 million *Nuyina* is equipped with state-of-the-art technology and can support voyages of up to 90 days at a time.

Nuyina experienced motor trouble prior to first arriving in Hobart in October 2021. Its maiden voyage to Antarctica was later delayed due to an issue with the alarm and monitoring system.

Antarctic Icebreaker *Nuyina*
Source: Peter Harmsen, Australian Antarctic Div.

In a statement, an Australian Antarctic Division (AAD) spokesperson said the delays to the ship returning to Tasmania had been foreshadowed last year. "In July, the AAD announced unexpected issues with *Nuyina*'s propulsion system clutches and a resulting delay for spare parts would see the vessel unlikely to be used for the upcoming season. The AAD chartered *Aiviq* and cargo vessel, *Happy Diamond* for the 2022-2023 Antarctic season while *Nuyina* undergoes scheduled maintenance and repairs in Singapore. Like all new and complex ships, *Nuyina* will require time for commissioning as it prepares to serve Australia's Antarctic and Southern Ocean science efforts in the decades ahead," the statement said.

The AAD said *Nuyina* is now expected to return in April, adding that the "vessel remains under warranty for the duration of maintenance in Singapore."

When operational, *Nuyina* carries 117 passengers and 32 crew. *Nuyina* means "southern lights" in Tasmania's palawa kani reconstructed Aboriginal language and was the winning entry from schoolchildren in a competition.

China to build ground stations

By Ryan Woo, Reuters, Feb. 2, 2023

China is to build ground stations in Antarctica to back its network of ocean monitoring satellites, state media said on Thursday.

China's global network of ground stations to support a growing number of satellites and outer space ambitions has drawn concern from some nations that it could be used for espionage, a suggestion China rejects.

China Aerospace Science and Technology Group Co. is to build the stations at the Zhongshan research base, after winning the tender with its $6.53 million bid, state-controlled China Space News reported.

No technical details of the project were given in the report, though China Space News published two accompanying illustrations of an artist's rendering that shows four ground stations at Zhongshan, located by Prydz Bay in East Antarctica, south of the Indian Ocean.

New study provides close-up view of melting beneath Thwaites Glacier

NSF, Feb. 15, 2023

The rapid retreat of Thwaites Glacier in West Antarctica appears to be driven by processes under its floating ice shelf that are different than researchers realized.

Two papers published in the journal *Nature* provide a clearer picture of the changes taking place under the glacier, which is the size of Florida and is one of the fastest-changing ice-ocean systems in Antarctica.

The results show that, although melting has increased beneath the floating ice shelf, the present rate of melting is slower than many computer models currently estimate.

New observations determining where the ice enters the ocean show that, while melting beneath much of the ice shelf is weaker than expected, melting in cracks and crevasses is happening much faster. The findings are an important step in understanding the glacier's contribution to future sea-level rise, scientists say.

A layer of fresher water between the bottom of the ice shelf and the underlying ocean slows the rate of melting along flat parts of the ice shelf. However, scientists were surprised to see that the melting had formed a staircase-like topography across the bottom of the ice shelf. In these areas, as well as in cracks in the ice, rapid melting is occurring.

Thwaites Glacier's grounding zone — the point where it meets the seafloor — has retreated 8.7 miles since the late 1990s. Much of the ice sheet is below sea level and susceptible to rapid, irreversible ice loss that could raise global sea level by more than 1.64 feet in centuries.

The new data were collected as part of the MELT project, an effort in the U.S.-U.K. International Thwaites Glacier Collaboration, among the largest international field campaigns ever undertaken in Antarctica. The MELT team took observations of the grounding line beneath the Thwaites Eastern Ice Shelf to understand how the ice and ocean interacts in this region.

NSF-supported scientist Britney Schmidt of Cornell University and a team of scientists and engineers deployed a robot called *Icefin* through a 1,969-feet-deep borehole. *Icefin* is designed to access such grounding zones, which were previously almost impossible to survey. The observations it made of the seafloor and ice around the grounding zone provide detail on how melting varies beneath the shelf.

The researchers found that the staircases, called terraces, as well as the crevasses in the ice base, are melting rapidly. Melting is especially important in crevasses. As water funnels through them, heat and salt can be transferred into the ice, further widening the crevasses and rifts.

Trawlers Work Amid Whale 'Supergroup'

By Josie Garthwaite, Stanford News, Feb. 22, 2023

Trawlers working amidst a whale ‘supergroup’ raise red flags about human-whale conflicts in a changing ocean, a Stanford study says. Scientists observed close to 1,000 fin whales foraging near Antarctica, while fishing vessels trawled for krill among them. Without action, such encounters are likely to become more common as this endangered species recovers and krill harvesting intensifies in the Southern Ocean.

Once driven nearly to extinction, the second-largest animals of all time have recently been spotted in big numbers in the Southern Ocean, competing directly with industrial trawlers for prey, according to research led by scientists from Stanford University and Lindblad Expeditions.

Published Feb. 20 in *Ecology*, the study focuses on scientists’ sighting of an enormous “supergroup” of fin whales foraging for krill northwest of the South Orkney Is. in Jan. 2022, with four commercial fishing vessels trawling among them for the same tiny creatures.

The researchers, led by Matthew Savoca of Stanford and Conor Ryan of Lindblad Expeditions, estimate at least 830 and possibly more than 1,100 fin whales were present. This ranks among the largest groups of baleen whales ever recorded since commercial whaling decimated their populations last century.

The authors recorded video of the whale supergroup – as well as two humpback whales, a blue whale, Antarctic fur seals, and thousands of seabirds – from 40 feet above sea level, capturing 71 square miles of an area that the authors call “the global epicenter of krill fishing.” They later used the video to count how many blows occurred simultaneously at the water’s surface (143) and

track how long each blow lasted (about five to 11 seconds). With these data, they then estimated the total group size. “I’ve never witnessed anything close to the scale of this gathering of fin whales,” said Ryan, a research scientist with Lindblad who has been studying the species for 20 years.

The scene would have been hard to imagine just a few decades ago. “While there are indications that the Southern Ocean whale population is slowly recovering, we should not take this rebound for granted. These whales, and the ecosystems they rely on, face increasing pressures from commercial fishing and climate change,” said study co-author Earle Wilson, assistant professor of Earth system science at Stanford. “This work raises serious concerns about krill harvesting in the Southern Ocean and whether existing environmental policies are sufficient to ensure the long-term health of these whales.”

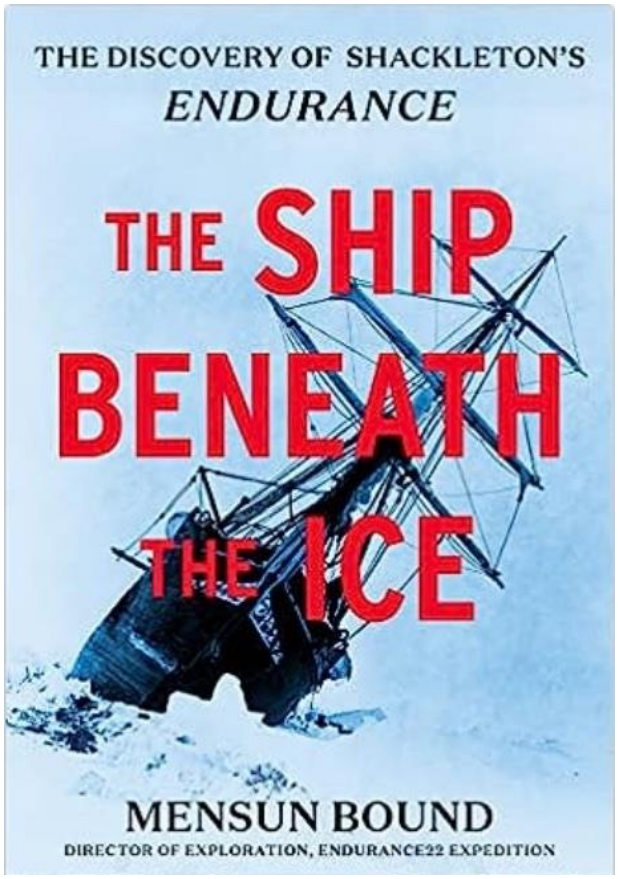
No restrictions are currently in place for how the commercial fisheries interact with – or avoid – whales while fishing for krill, said Savoca, who is a postdoctoral scholar.

Review: *The Ship Beneath the Ice*

By Dennis Drabelle, *Washington Post*, March 3, 2023

In 2019, a shipload of archaeologists, ice experts, engineers and masters of several other disciplines set out to find the *Endurance*. In *The Ship Beneath The Ice*, the group’s commander in chief, Mensun Bound, tells their story, and that of a follow-up mission two years later, with passion and flair.

The book’s first half chronicles yet another failure, incurred by Bound and company in their first attempt to locate the *Endurance*. They were relying on coordinates of the ship’s last position taken by its captain, Frank Worsley, and converted into a theoretical “survey box” on surface ice. Unable to see the wreck, they hoped to detect its presence from signals sent by unmanned submersibles. Unfortunately, the technology they’d been able to afford failed them, and the allotted time ran out. But Bound made a farewell prediction: “Other suitors [of the *Endurance*] will follow and one of them will succeed.”



During the next two years, Bound raised enough money to return with better instruments and a mostly new cadre of experts, including deep-sea divers. Again, however, the clock was ticking, and Bound had to decide how much faith to put in coordinates recorded by Worsley at a time when a whiteout had been obscuring the horizon — a necessary reference point for an accurate sextant reading. With only hours to spare, Bound’s divers, with help from submersibles scanning the sea floor, not only located the *Endurance* 9,842 feet below the surface, but they could also see “the seams between the planks and even the nails that fastened them.” The ship sat largely intact on the sea floor, looking “as if someone had laid her out gently on the silt and said, ‘Wait here now, wait until somebody finds you.’” Declaring that “our mission was to find, record, educate and disseminate through

publication," Bound leaves the question of what will happen next to the *Endurance* for future adventurers and archaeologists to answer.

BMC Robert R. Johnson, USN, 1920 - 2023

By Tom Henderson

Robert Johnson in his "Chief's Quarters"

Retired Chief Boatswains Mate Robert Rowland Johnson passed away in Jacksonville, FL on April 9, 2023. He was the only person to have served on the 1939-41 United States Antarctic Service Expedition (USASE), the 1946-47 Operation High Jump and the 1947-48 Operation Windmill. He was the last living member of USASE, and perhaps of any U.S. expedition prior to WW II.

Born in Hollywood, CA on July 7, 1920, Johnson loved the sea and joined the Sea Cadets at age 15. He served aboard the training square-rigger *Pacific Queen* where he literally learned the ropes of a traditional sailing ship. One 15-day cruise turned into 67 days because of weather and problems with the ship. When they were finally rescued, the crew were at the end of their rations and their morale. Johnson, however, thought it was a great adventure.

He joined the U.S. Navy in 1939 at age 19. He initially served on the battleship *USS Pennsylvania*. Hearing that Admiral Byrd's 1939 USASE was seeking volunteers, he quickly signed up for another adventure. He became a crewman on the 19th century sailing ship *USS Bear*, Byrd's flagship for USASE. Even when I interviewed him in 2012, his eyes gleamed when he talked about Antarctica and the impression it made on him. "There's something about Antarctica that changes you," he said. "You can't get it out of your blood."

Johnson at the wheel of the *USS Bear*

When he returned from USASE, he was assigned to duty on a fuel/munitions ship supplying the war effort in the Pacific, and eventually in the Atlantic.

After the war, yet another Antarctic adventure beckoned: Operation High Jump. Admiral Byrd's massive Antarctic expedition in 1946-47 brought Johnson back to The Ice as a search and rescue team member where he became one of the first persons to parachute in Antarctica. "I got all of my parachute training from the time the plane took off until it reached 2,000 feet," he told me.

He returned in 1947-48 as part of Operation Windmill aboard the icebreaker *USS Burton Island*, mapping the coastline of West Antarctica.

At the end of that cruise, the *Burton Island* helped to relieve the Ronne Antarctic Research Expedition at Stonington Island by breaking a channel through the ice to the sea.

Johnson before his parachute drop over Little America IV, 1947

He retired from the Navy in 1967 and lived the rest of his life in Jacksonville, FL which was his last duty station.

I am so privileged to have known Bob Johnson and his gracious wife Mildred, who survives him. He loved his life and saw every day as another adventure. “I would like to be remembered as someone who tried to do right, learned a lot in this life, made mistakes, and is thankful for being forgiven. There is a lot of happiness in my heart,” he told me. Mission accomplished.

Arlo Landolt, 1935 - 2022

By Bob Benson

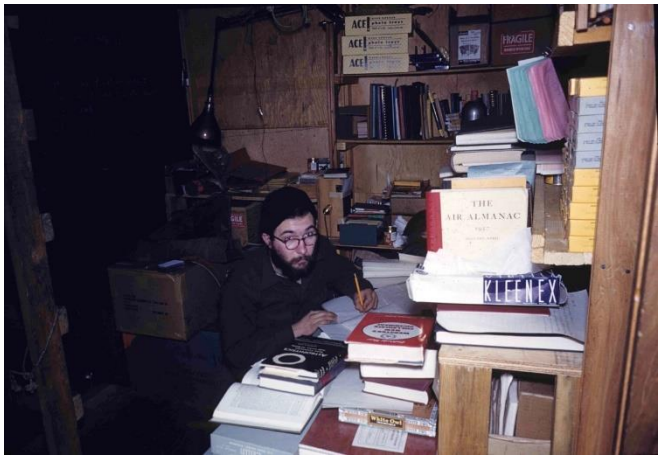
Arlo U. Landolt, auroral scientist on the first wintering-over crew at the Amundsen-Scott IGY South Pole Station, died on January 21, 2022 at age 86. He was born in Highland, Illinois in 1935 and spent most of his young life on a farm about 40 miles from St. Louis, Missouri. His first school was a small country school where one teacher taught all 8 grades. In high school, he won the Bausch and Lomb science award and graduated salutatorian together with his future wife Eunice (who was also salutatorian).

After receiving his Bachelor of Arts degree from Miami University in Oxford, Ohio in 1955, with a double major in mathematics and physics, he entered graduate school at the University of Indiana. During his first year there, he was accepted as the auroral scientist at the station the U.S. was constructing at the South Pole. He arrived at McMurdo Sound on January 19, 1957 via the *USS Curtiss* from Christchurch, N.Z. After almost a month at McMurdo, while the ice runway was being repaired, he flew to the South Pole on the 12th of February on an R4D with 6 others of the wintering-over party (including me). After 290 days at the South Pole he departed on Thanksgiving for McMurdo on a P2V with 4 companions (again, including me).

Dr. Arlo U. Landolt

His first month at the Pole was mainly spent outside assisting with the remaining construction to prepare the station for the coming winter.

Though he was the smallest of the 18 men at the station that did not hinder him from being an enthusiastic team worker.



Landolt at Amundsen-Scott South Pole Station

Once darkness set in Arlo was consumed by the demands of his job as auroral observer. A ladder in his office led to the over-head aurora tower. This tower had three plastic domes, two for an all-sky camera and a spectrograph and one for visual observations. Fans were installed to prevent frost inside the domes. Arlo routinely made hourly visual observations. During special IGY world intervals, observations were made every 15 minutes. Arlo trained some helpers so he could occasionally get a few hours of sleep.

After his Antarctica adventure he returned to the University of Indiana and earned his Ph.D. in astronomy in 1963 and became a faculty member in the Department of Physics and Astronomy at Louisiana State University (LSU). He became one of the most recognized American astronomers with more than 100 peer-reviewed scientific papers. In addition to Mount Landolt in Antarctica, an astronomical observatory at LSU and an asteroid are named after him.

Arlo considered his experience as a member of the first group to winter at the South Pole one of the highlights of his life. And the experiences of the other 17 men (and one dog) in that group were more memorable because of Arlo. With his agreeable personality, keen intellect, and great sense of humor he was friendly to everyone and a friend of everyone.

He is survived by his wife of 55 years, Eunice Casper, a daughter, 4 step-daughters, 13 grandchildren, 8 great-grandchildren, 2 sisters, a sister-in-law and many nieces, nephews, and cousins.

Donald Edward Garfield, 1941 - 2023

Valley News, Lebanon, NH, Feb. 20, 2023

Donald Edward Garfield

Donald Edward Garfield (Don) died peacefully at his home in Meriden, NH on Feb. 17, 2023, following a courageous battle with cancer. Don was born in 1941 in Circle, Montana, and spent his early years on his family's cattle ranch. He found a keen interest in machinery of all types and became quite skilled at repairing most anything. His favorite piece of machinery was a 1949 John Deere Model AW, which remains on the ranch today. He started driving a hay truck as early as four years old with blocks on the brake and accelerator.

Don attended a one-room schoolhouse, which accommodated all eight grades, with one teacher. He excelled in high school, was editor of the 1958 class yearbook, and was class valedictorian. Don earned his bachelor's degree in mechanical engineering from Montana State University and later his master's from Arizona State University.

Don started his career at Shell Oil in Denver, until he was drafted and assigned to the U.S. Army Cold Regions Research and Engineering Laboratory in Hanover, NH. He joined the ice-drilling team that made the first core hole to bedrock at Camp Century, Greenland, to a depth of 4,554 feet in July 1966. Equipment was moved to Byrd Station, Antarctica, and operations commenced there in 1967. The first cored hole to bedrock was completed in January 1968 at a depth of 7,100 feet. Ice cores from these two locations are still being studied today, mostly dealing with climate change. In recognition of his contributions, Garfield Glacier, a 6-mile glacier flowing on the coast of Marie Byrd Land, Antarctica was named in his honor in 1974.

In Feb. 1965, Don met the love of his life, Roberta Irene Morandi, on a blind date. Their whirlwind romance culminated in their marriage in 1966. Their union lasted 56 years, until Roberta's passing in April 2022. Together, they raised three children. As a family, they enjoyed cross country skiing, gardening, riding horses and camping. Most memorable were treasured annual White Mountains retreats for about 20 consecutive years which grew yearly as grandchildren joined.

A private memorial service will be held at a later date with family. Leave a message for Don's family by visiting www.rickerfuneralhome.com.

Julius M.J. "Jules" Madey, 1940–2023

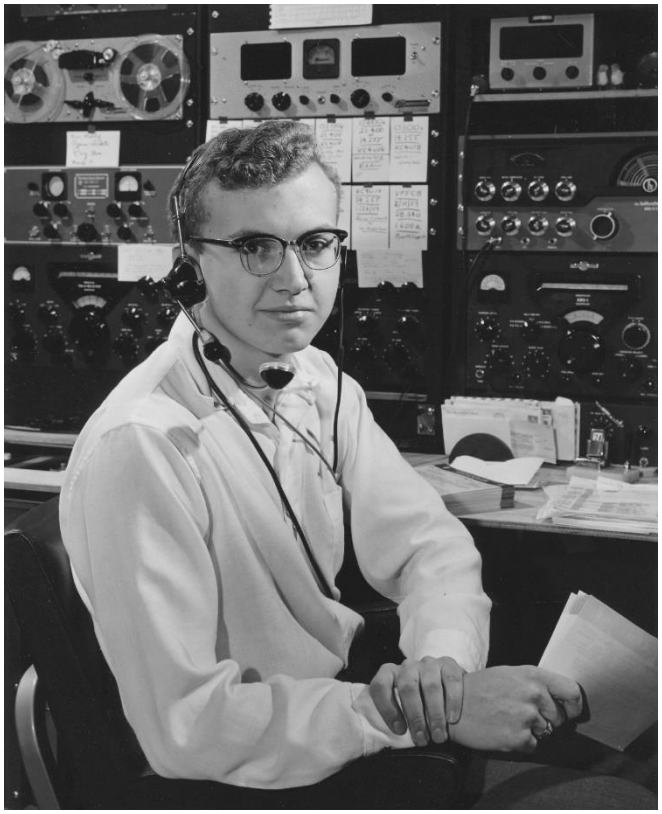
By Tom Henderson

We have lost a quiet hero of Antarctic history. Jules Madey passed away peacefully at his home in Columbia County, New York, surrounded by his family, on March 12, 2023. Jules was legendary for his dedication to amateur radio support of the men deployed to Antarctica during the International Geophysical Year (IGY), 1957-58, and beyond. He and his brother John were teenagers at the time but they somehow managed to maintain regular schedules with ham radio operators on The Ice while excelling in their schoolwork. He was one of the main contacts with home for thousands of men stationed in Antarctica who knew that he could always be counted on to be there for them. Jules continued his contacts with Antarctica for several years after the IGY, facilitating more than 10,000 ham patches and "ham-grams" in total.

Jules Madey

Jules was born in Newark, New Jersey on June 9, 1940. His family later moved to Clark, New Jersey where his father ran an auto repair shop. Both his father and mother prioritized education of their children and impressed upon them early on that hard work and integrity are fundamental values. As Jules put it, "If $1.00 of effort is expected, you put in $1.50 of effort." Jules and his brother John became interested in amateur radio. Jules obtained his ham license at age 14 and John at age 11. In May 1956 they learned of the preparations for the IGY, which included a call for amateur radio operators to help support personal communications in Antarctica. Contacts would be made with radio operators on The Ice and then the conversations would be "patched" to their homes in the U.S. via regular telephone lines. The boys made their first contact with McMurdo Station in Sept. 1956.

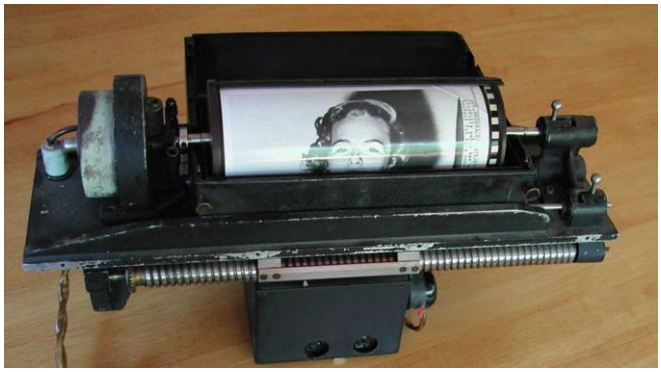
Because of the time differences between the Antarctic stations and the U.S. East Coast, the



Jules at his radio console, 1959

patches would typically take place in the late evening and very early morning hours U.S. time. Patching required the ham operator to monitor the call to listen for the "over" that signaled one party turning over the conversation to the other, at which point the operator would manually switch from receive to transmit or vice-versa. Jules and John would stay up late, doing their homework between calls, and then catch several hours of sleep before going to school in the morning. They were on duty seven days a week and quickly established a reputation as the most reliable ham operators serving the Antarctic. Jules' call sign K2KGJ became well-known to American Antarcticans across the continent.

Jules' dedication went beyond normal communications. He cold-called Hollywood stars such as Art Linkletter and Amanda Blake (*Gunsmoke*) and convinced them to talk to the Antarctic stations. He approached Phil Rizzuto, the famed shortstop of the New York Yankees, to do a call which was very well-received on The Ice. The boys fabricated their own facsimile machine to send photographs to Antarctica of new babies and other family pictures. Jules arranged an early version of FTD service with his local florist that was very popular on The Ice for Mother's Day and Valentine's Day. Jules even contacted the Betty Crocker Company when the cook at South Pole Station had trouble baking a cake at 9,300 feet of altitude.



Madey's home-made fax machine

In 1959, in recognition of his outstanding service, the U.S. Navy arranged for Jules to visit Antarctica for one month. Jules went to McMurdo and Byrd Stations as well as Scott Base where he met some of the people with whom he had been communicating remotely.

After high school, Jules enrolled in engineering at Rutgers University before eventually transferring to the California Institute of Technology where he received a bachelor's degree in electrical engineering. He went to work for a bio-medical company in California developing electronic devices to assist handicapped people.

He eventually joined the New York State Thruway Authority as head of their Technology Development group. The major projects he oversaw included the EZPass radio frequency identification system (RFID) which revolutionized toll systems not only in New York but across the country. He retired from the Thruway Authority in 2011 after 25 years of service.

He is survived by wife Gertrude and their four children, Abraham, Kristin, Marianka and Benjamin.

Sadly, K2KGJ has signed off for the last time. His legacy, however, remains 150% strong.

The Antarctican Society

webmaster@antarctican.org

August 11-14, 2024 Boulder, CO Gathering Registration

Name (s) _____

_____

Address _____

_____

Email _____ Phone _____

Registration

_____ $250.00 Full Registration per person. Increases to $275.00 on January 1, 2024. 100% refund until April 1, 2024.

Full Registration includes the day programs, 2 lunches, Reception on Monday evening, Auction on Tuesday, and the Tour and Picnic on Wednesday.

_____ $125.00 Guest Registration(s) per person

Guest Registration includes the Reception, 2 lunches, Auction, Tour and Picnic **only**. The day programs are **not** included.

Guest(s): _____

_____

$_____ Donation

Donations toward the Gathering are very much appreciated and are tax deductible.

Do you or another of your registrants have ADA accessibility needs? ____ Yes ____ No

Please indicate the need: _____

Do you or another of your registrants have a special dietary need? ____ Yes ____ No

Please indicate the need: _____

Proceed to page 2 if you wish to reserve a lodging unit on the Chautauqua campus.

August 11-14, 2024 Boulder, CO Gathering Lodging

Lodging Reservation and Deposit

The Antarctican Society has reserved and paid for 39 lodging units on the Chautauqua campus. Registrants may select and hold the lodging unit of their choice by indicating the type of unit and paying a deposit of one day's lodging cost for the selected unit. The balance of the lodging cost will be due by June 1, 2024. Deposits may be refunded only if another registrant agrees to assume the reservation for that unit.

There are **two options** for reserving a lodging unit:

Option 1: Deposit one day's lodging cost for holding **3 days of lodging** (Aug. 11-13)
Note: All prices include taxes.

_____ $245.00 Studio Cottage
_____ $281.00 1-bedroom Cottage
_____ $351.00 2-bedroom Cottage

Option 2: Deposit one day's lodging cost for **4 days of lodging** (Aug. 11-14)
Note: All prices include taxes.

_____ $245.00 Studio Cottage
_____ $281.00 1-bedroom Cottage
_____ $351.00 2-bedroom Cottage

Do you wish to reserve "shoulder" days (extra lodging days before or after the Gathering? List dates:

_____

Total Registration and Lodging Deposit

$_____ Total Registration and Donation (from page 1)

$_____ Lodging Deposit

$_____ Total Registration and Donation plus Lodging Deposit

Mail your check and registration form to:

The Antarctican Society
35 Cherry Street, Unit 701
Burlington, VT 05401

or go to the 2024 Gathering page on the Antarctican Society website to pay by credit card.