



The Antarctic Society

VOLUME 19-20

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No. 1

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IF YOU'LL LISTEN, I'LL TELL YOU A STORY

Did you notice that there was no July newsletter? Issues normally are published quarterly, but we skipped that one. My regret: no one complained.

My wife Lynn Teo Simarski and I had a column in *Bay Weekly*, a free newspaper in the Chesapeake area. Sandra Olivetti Martin, the paper's editor then and now, welcomed our plan to write about Bay-area science on one condition: the title must not contain the word science. "No one will read it," she said. So we called it "Voyages of Discovery" and turned out 16 columns in 2007-2008.

The Antarctic Society newsletters are a lot about . . . science.

In her "from the Editor" column in the 23 October 2019 *Bay Weekly* (with the above headline), Sandra writes that few writers have Emily Dickinson's supposed contentment in simply writing her poems, audience or not. For the rest of us writers and editors, she says, "we can't feel a well-made story is complete until it finds its reader."

Lynn and I found our *Bay Weekly* reader one afternoon: a waterman who was hand tonging for oysters in the tidal Patuxent River, a Chesapeake tributary. "Oh yeah," he said. "You're the ones who provide the facts and force us make up our own minds." Whether or not he intended the comment as a compliment, for me the encounter was reward enough for all 16 columns.

I'd like to hear from you: with ideas or better yet a story (keep it under a thousand words) or a comment: Do you read the newsletters? Are we writing too much of something and not enough of another? With Paul Dalrymple's magical voice mostly missing from these pages, has the newsletter's time passed?

A story in this issue needs a decision by you: the Antarctic Society Gathering in Mystic, Connecticut, is on! The dates are changed from what you read (or didn't) in the January issue. The Antarctic Society Gathering in Mystic, Connecticut, will be 4-6 June 2021. Read – on the next page – how to join in.

And keep in touch. If you'll listen, I'll tell you a story.

Guy Guthridge

Antarctic Gathering in Connecticut: Friday-Sunday, 4-6 June 2021



Mystic Seaport Museum Main Building

If you plan to attend the Society's Antarctic Gathering in Mystic, Connecticut, 4-6 June 2021, please read this article and take the actions indicated!

Mystic Seaport Museum is producing a major exhibition, *Discovering Antarctica 1820-2020*, to coincide with the 200th anniversary of the 1820s-era first sightings of Antarctica by, among others, Nathaniel Palmer of nearby Stonington, Connecticut.

Our Society will hold an Antarctic Gathering on the Museum premises for Society members and their families and friends over the weekend of Friday through Sunday, 4-6 June 2021. This date is changed from the date in the January 2019 newsletter.

Here are treats in store just for us, all included in the \$130 per person fee, which you pay in advance (more on that below):

- Friday-Sunday: Campus-wide admission throughout the weekend to Mystic Seaport Museum, established in 1929. This fabulous facility is "America's Museum of the Sea," the Nation's largest maritime museum. It gets a quarter-million visitors a year. Its fleet includes four vessels designated as National Historic Landmarks of which one, the *Charles W. Morgan*, built in 1841, is America's only surviving wooden whaler. The *Morgan* is in the

water and operable. And you will see the major Antarctica exhibition. See the Museum's web site for more:

<https://www.mysticseaport.org>

- Friday evening, 5:30 pm: A 2-hour tour on the scenic Mystic River aboard *Sabino*, a Museum vessel and the Nation's oldest wooden, coal-fired steamboat in regular operation. An on-board catering staff will provide cocktails and heavy appetizers. Only the first 72 people to sign up will be able to go; the ship cannot take more.
- Saturday morning: Continental breakfast and coffee service in the Tom Claggett Boat Shed. The boat shed with tables and chairs will be our very own designated headquarters for the entire weekend.
- Saturday morning (time to be announced): An explication by museum staff, just for us, of the Antarctic exhibition in the Thompson Exhibition Building.
- Saturday evening: A banquet just for us in the boat shed, followed by an Antarctic speaker (to be announced).
- Sunday morning: A tour of the Nathaniel Palmer House and Museum in Stonington, 3 miles from Mystic.

What to do now:

- Sign up at <https://www.antarctican.org>. Pay online there, or by mailing a check (payable to Antarctic Society) to Tom Henderson at his address shown on page 1:
 - \$130 for all the above-listed events, Friday-Sunday. Or,
 - \$85 for the Saturday and Sunday events, but not the Friday evening boat trip. Or,
 - \$80 for just the Saturday events.
- Reserve your accommodations in the Mystic area (a list of hotels is on our web

site or available from the Editor, address on page 1). You are on your own for this.

- Arrange your transportation from your home to Mystic and back.
- Be prepared to handle your local transportation in the Mystic and Stonington area.
- At Mystic, you'll be on your own for Saturday lunch and Sunday breakfast. The Museum campus has, on site, the Galley (for the quick and casual bite), Schaefer's Spouter Tavern (riverside lunch), and the Cake & Bake Shop.



Mystic Seaport

The \$130 price is a bargain. It includes \$23.95 per person for all three days (Friday-Sunday) admission to Mystic Seaport Museum. (The normal admission rate to the Museum for individuals is \$28.95 per day or \$26.95 per day for seniors over 65!). If you were to go on your own to the Mystic Seaport Museum and spend three days there, you'd spend \$86.85 (\$80.85 if a senior) just to get in.

With the Antarctic Society group, for \$130 you'll get the three days of admission plus the Friday evening boat ride with heavy hors d'ouvres plus breakfast and banquet dinner Saturday plus a group introduction to the Antarctic exhibition plus half-price entry to the Palmer House (\$5 vs. \$10) plus being with Antarctic Society colleagues.

- Sign up early. The *Sabino* steamboat capacity is 72 people. If you are not among the first 72 to sign up for that, you will not be able to go on the Friday evening boat ride on the historic Mystic River, you will be on your own for Friday supper, and you will receive a refund of \$45 if you signed up for the boat ride.

The Museum has reserved the weekend for us. We have to do our part by showing them our members will be there! Sign up soon, but not later than 1 June 2020. Be especially quick if you want to join the limited-capacity boat ride on the Mystic River on Friday evening, 4 June 2021.

The Mystic event is a new opportunity for Antarctic Society members. Tell your polar friends: if not members already, for \$13 they can join and get all advantages *and* be able to sign up for the great Mystic gathering!

How does a Florida girl end up in polar science? TEA!

by Louise T. Huffman

As a native-born Floridian, my favorite place to be is walking barefooted on a white sand beach, boating on clear blue oceans, and fishing. When "thinking south," how did a warm-blooded beachcomber like me skip all the way to the Antarctic?

It's not often we can point to a moment that changed our lives and sent us down undreamed pathways. But I had two, both involving Antarctica.

The first happened in 1989 at a teacher conference in my school district in Naperville, Illinois. By chance, I chose a session where polar explorer Will Steger spoke of his plan to traverse the continent by dogsled.

I knew little more about Antarctica than its location on the bottom of maps, but Steger's stories of the harsh climate and the challenges his team would face were intriguing. He was enlisting teachers to raise

people's awareness about the fragile continent and the need for continuation of the Antarctic Treaty to protect it. My life took an abrupt turn down a new path learning and teaching about polar science and global change.

I began developing curriculum, teaching about Antarctica, and making connections with polar science organizations. I wanted to go south to experience the Ice for myself. I suggested to my husband that we vacation there, but he refused. When I saw a solicitation for applications to Teachers Experiencing Antarctica and the Arctic (TEA), funded by NSF, I applied and was selected.

The NSF manager told me that this experience would change my life. Being extremely happy, I didn't think I needed or wanted change, but it turned out to be inevitable and amazing.

Opening a door. TEA opened the door to the second moment when my life's path changed dramatically and completely.

I spent three months in the Dry Valleys of Antarctica on the "Stream Team." I had pictured living in a dorm at McMurdo or in a berth on a ship. I could count my camping experiences on one hand, so being assigned to camp in a tent in the coldest place on the planet had not crossed my mind. Another shock came when I was told that the lead scientist had family issues that made it impossible for her to go to Antarctica, so the team would be led by one of her graduate students. I was being sent to the middle of nowhere with five people young enough to be my children, and none of us had ever been to Antarctica. The first night, the temperature was 40 below zero. I shivered all night and questioned my sanity for *asking* to be there.

My experience on the Stream Team was one of intense learning and growing. I learned the science of hydrology in the stream system of the Dry Valleys, how scientists collect measurements and samples, and about the nature of science. I interviewed and, through the internet, shared what I was

learning about different science disciplines as well as the support staff that makes the science happen. These experiences enhanced my science teaching when I re-entered the classroom, and they enriched the learning experiences of my students.



Louise Huffman in the Field. Full gear on!

I learned about myself. In Antarctica, I never heard anyone say "can't," even though we faced seemingly insurmountable problems. In a minor ATV accident involving a lake hole, I broke my wrist and had to walk two miles back to our camp. In my head, I whined to myself that if I stepped into another hole and got wet or twisted an ankle, I'd lie down and die. In reality, I learned that I would not have given up. I surprised myself to learn that

my limits were self-imposed. I wish I had known that when I was younger.



Louise Surveying in the Dry Valleys

Beyond TEA. The polar science world is small and interconnected, so my TEA experience enabled me to join continuing polar activities. Before the TEA trip, I had worked with the Chicago Museum of Science and Industry to create the teacher guide for the Antarctica iMax movie. After my TEA experience, I led teacher workshops at MSI and, with another TEA, presented NSF-funded teacher workshops on polar science.

Each new polar activity seemed to lead to another. While teaching, I was invited to join the International Program Office Committee for the International Polar Year. When I retired from teaching in 2007, I took the job as coordinator of education and outreach for the ANTarctic geological DRILLing project and worked with ANDRILL scientists and NSF until 2013 while continuing with the IPY. With ANDRILL, I was able to return to Antarctica for another three-month research season – this time to live in the dorms at McMurdo.

I served on the IPY committee until after the last (2012) IPY conference (in Montreal) and helped write the *Polar Science and Global Change* resource book for the Polar Research Board. After Montreal, I worked with an international group to organize Polar Educators International to

continue the educational and science momentum gained during the IPY. I have served on PEI's Executive Committee and as the organization's president. Currently, I chair a PRB revision committee made up of representatives from the International Arctic Science Committee, SCAR, the Association of Polar Early Career Scientists, and PEI to update the resource book.

In 2013, my husband and I retired back to Florida to fish and boat, which we are happily doing. But, in 2014, I was encouraged to apply for the opening as the director of education and outreach for the U.S. Ice Drilling Program. With the urgency of climate change, and the opportunity to stay involved with polar science, the decision to go back to work was easy. As long as I go fishing with my husband each week, we can live happily ever after with one foot in Florida and one in the polar world.

Louise T. Huffman is director of education and public outreach at the NSF-funded Ice Drilling Program Office, Dartmouth College. She kindly contributed this solicited article.

A little pre-Treaty history

Back up seven decades. It's 1950. The International Geophysical Year and the Antarctic Treaty lie years in the future, as do all of the continuously active national Antarctic programs that characterize the region today.

Several nations nevertheless are attentive to the Antarctic. Those with historic ties also perk up their interests.

New Zealand sets up an Antarctic Society, predating ours by almost a decade. In August 1950, the society publishes its first *Antarctic News Bulletin*, two typed pages. The Norwegian-Swedish-British expedition, with its base Maudheim in Queen Maud Land, gets five paragraphs. Six nations are whaling, the bulletin reports.

Five countries get their own paragraphs: English, Argentine, French, American, and Russian. From Deception Island, the British finally manage to reach Stonington Island, where “the five men who had been in the Antarctic for three years were all successfully rescued by plane.” Argentina has “without permission and in spite of two written protests, established itself on Deception Island.” A new French base “now established is about 50 K.m. East of Dumont D’Urville’s landfall in 1840.” In October 1949, “a group of scientists left Odessa to engage in unspecified work.” The Russians also are whaling again, “and the presence of helicopters on board suggests that whaling is not the sole aim of the expedition.”

As for us, “The projected American Expedition, under Admiral Byrd, comprising eight ships and some 3,500 men, was called off in August 1949 ‘for compelling reasons of economy.’ On March 20th last it was reported that Admiral Byrd might lead a party of 4,000 men to Little America, due South of New Zealand, next October, ‘for training in polar warfare’ and to survey the area for minerals.”

Jump ahead 2 years to the April 1952 issue (No. 5), accessible online if you’re a member of the New Zealand Antarctic Society (like ours at <https://www.antarctican.org>). By now the *Antarctic News Bulletin* has a spiffy logo at the top instead of the plain typing on the first issue, and the editor is identified: L.B. Quartermain.

New Zealanders, some of them anyway, seem to feel left out of the Antarctic. The top of page 1 has an underlined quotation: “We can’t afford to ignore the great frozen continent at our back door. If we as a Nation haven’t the energy to develop its great potentialities, there is little doubt there are men of other nations who have – and will.”

An editorial comment follows this unattributed quote: “This was said of Australia. It is true also of New Zealand.”

This issue of the newsletter has six pages, and it ends with two paragraphs under the heading, “Another U.S. expedition?”:

“Commander Finn Ronne, veteran of Byrd’s 1933-5 and 1939-41 expeditions, and leader of an outstanding 15-month exploring project in Graham Land in 1946-48, is completing plans for yet another sortie into the Antarctic. Mrs. Ronne, the first woman Antarctic explorer, does not intend to go again.

“A resolution is now pending before the United States Foreign Affairs Committee, by which the United States would declare its sovereignty over the area between 90°W and 150°W (i.e., James W. Ellsworth Land and Marie Byrd Land) and would receive rights based on discoveries and exploration in other areas.”

What a different scene from today! International tension seems between the lines of nearly all the early issues of this informed and perceptive publication.

These historic news items remind us of something uncomfortable: the Antarctic Treaty, seemingly inevitable when viewed from the perspective of today, could, along with the continent of Antarctica, have had a different fate. U.S. researchers, if there at all, might be confined to that 60-degree wedge of the continent we then called ours.

Argentina, Chile, and the United Kingdom might still be squabbling over their overlapping territorial claims. The big spending in Antarctica might be on fortifications rather than the international programs of science and preservation that define the region now.

Twenty-one letters

A visit to our Society’s Treasurer Paul Dalrymple at home usually is educational. This one was no exception.

Charles J.V. Murphy was a key participant in his friend Richard E. Byrd’s

second Antarctic expedition (1933-1935). Years later, Murphy and Paul C. Dalrymple, our Society's treasurer, struck up a friendship and carried on a lively correspondence. This was a time when letters were typed on paper and got mailed by the Post Office. Paul saved the letters, 21 of them, in a notebook. Your editor, during an August 2019 visit to Paul's seaside home in Port Clyde, Maine, had a chance to look at them.



Murphy (R) and Byrd at Little America II

Murphy, who lived from 1904 to 1987, was a journalist and an author. He coordinated Byrd's live CBS radio broadcasts from Little America II, having already helped to write the book *Little America*, the 1930 book about the first expedition. He also was heavily involved in Byrd's other two Antarctic books, *Discovery* and *Alone*. Some say he flat-out wrote them; Murphy puts it this way in an 18 January [no year given, probably 1981] letter to Paul: "Let me say, my friend, I helped Byrd with that book [*Alone*], as I also did with *Little America* and *Discovery*. *Little America* was a close collaboration [Murphy's underline]." He went on to a career with Time, Life, and Fortune magazines, writing a bestselling book about the Duke of Windsor along the way.

"Please withdraw your resignation," Murphy wrote Paul on 16 July 1981 when he heard Paul was going to stop doing the newsletters, "and return to your task of

keeping the rest of us amused and informed." Paul continued to write and edit the Society's newsletters until 2014.

Informing Paul that he would attend the Society's next meeting in Washington, D.C., Murphy wrote on 17 March 1982 that his guests would be James Angleton, "the formidable former counterintelligence chief of the Central Intelligence Agency," and Colonel Vincent T. Ford, a retired Air Force officer.

On 2 August 1980, having moved to Grafton, Vermont, he wrote, "So I find myself, at 75, a stranger in a small village, in a house meant for my wife, who died before it was ready for her."

The longest letter, three pages of single-space typing with plenty of inked annotations, is dated 31 October 1980. "The Winter Party of the 2nd Byrd Antarctic Expedition were a marvelously mixed lot – louts and scholars, scientists and artisans, drifters and family men. Byrd's absence at Advance Base gave rise to a moral issue unique in the annals of the Antarctic," Murphy wrote. Hal Vogel, in 1980, had "come upon our shameful secret: the philatelic business of our expedition was disgracefully bungled." Philatelic mail was an important part of Byrd's public relations program. Some months after the last ship of the season left Little America, philatelists across America began to howl. The letter describes how a shirker had hidden sacks of philatelic mail, "all still sealed," under a mound of hay where the expedition's three cows were kept. In particular, a patron had donated \$5,000 expressly expecting covers to be serviced and returned. During the winter Murphy instructed Byrd's office to return the \$5,000. "I rather flattered myself on being able to rid the expedition of an embarrassing obligation," he wrote Paul. But Byrd, when he got back to Little America from Advance Base, told Murphy, "Good God. I had to pay the fellow who got the donation a fee of \$1,500. We've ended up at the short end of the stick." Murphy's letter concludes, "My prayer now is

that the relentless Dr. Vogel will remember that the Second Byrd Antarctic Expedition was only incidentally an honorary fraction of the United States Post Office, and the pity is that the cows did not swallow the evidence.”

Less than a month later, on 22 November, Murphy wrote Paul that the above-referenced letter “was surely a light-hearted one,” but he said one collector “seems to have taken me seriously. He has responded with the solemnity that marks all philatelists, where their passion is concerned.”

Byrd – no surprise – was the subject of many of the letters. The following might apply to the philatelic snafu: “Whatever else might be said of Byrd, he was never flamboyant. On the contrary, he was a soft-spoken, quite gentle and generous soul who, had the Naval Academy given him a broader education, could have been a first-class teacher.

“My only quarrel with him – and I was profoundly in the wrong – had to do with my irritation over his insistence at saying nice things in his book about the shirkers and malcontents in his ranks. His justification was a simple one: they had served, most of them, without pay; that service will be the most dramatic interval in their lives: the least I can do for them is to take note of their presence in print.”

Murphy’s last letter to Paul, dated 17 March 1987, says this, in part: “Old men of the ice never die; they only fade away – sinking with the pale March sun below the graying horizon.”

Nine months later Charles J.V. Murphy, far and away the most important chronicler of Richard E. Byrd’s first two Antarctic expeditions and, arguably, the person who made Antarctica, in the public mind, peculiarly American, died of lung cancer at his home in Grafton, Vermont.

IPCC report on ocean and cryosphere

A 25 September 2019 Special Report by the Intergovernmental Panel on Climate

Change, *The Ocean and Cryosphere in a Changing Climate*, sums up projections of change in the Antarctic, the Arctic, other cold places, and the oceans.

It was a big job. A hundred authors from 36 countries assessed 7,000 publications, and the 195 IPCC member governments approved it.



Third Lead Author Meeting for Special Report on the Ocean and Cryosphere in a Changing Climate (Lanzhou, China)

The IPCC is not shy in underscoring the importance of the report. Frozen parts of the planet have a critical role for life on Earth, it states. Ko Barrett, vice chair, writes, “The world’s ocean and cryosphere have been ‘taking the heat’ from climate change for decades, and consequences for nature and humanity are sweeping and severe.”

The report revises upwards the projected contribution of the Antarctic ice sheet to sea level rise by 2100 in the case of high emissions of greenhouse gases. The range of sea level projections “is related to how ice sheets will react to warming, especially in Antarctica, with major uncertainties still remaining.”

A graph plots the four projected contributions to sea level rise compared to the level in the period 1986-2005. By 2100, thermal expansion of the ocean along with ice loss from nonpolar glaciers, Greenland, and Antarctica, will add a meter or more to sea level. Going out to 2300, sea level could rise as much as 5 meters. The contribution from nonpolar glaciers stops because they all melt,

but Greenland and Antarctica keep on giving – and at accelerated rates.

The new report covers lots more than sea level rise, and more about the Antarctic. Read it for free at <https://www.ipcc.ch>.

The IPCC is known mainly for its periodic Assessment Reports. AR5, for example, is shorthand for Assessment Report Number Five, issued in 2014. This continuing worldwide series of evaluations of our planet’s changing climate and what to do about it is seen as the authoritative assembly of information. Each AR contains volumes on such topics as impacts or mitigation, but the volumes of direct relevance to Antarcticans are called *The Physical Science Basis*. The first in the series, a volume of AR1, came out in 1990. The next one, to be one of the volumes in AR6, is to come out in April 2021.

But lots of science gets done between assessment reports, so sometimes the IPCC puts out Special Reports like the one here.

Richard L. Cameron, 1930-2019

Dr. Richard “Dick” L. Cameron, age 89, of Collinsville, Illinois, born 11 July 1930 in Laconia, New Hampshire, passed away on 21 July 2019 during a flight home after visiting his friend Walter Boyd in Seattle.

Dick is survived by his wife Sarah “Sally” A. Barnett, daughter Sarah Cameron, son Andrew Cameron, and Sandie, his faithful canine companion. Per his wishes, his ashes were returned to family. He wanted no memorial, no services, no church stuff, no flowers; his request was “for everyone to read a poem to someone you love.”

Dick Cameron earned a Bachelor of Science degree in geology at the University of New Hampshire. He completed his graduate studies in glaciology and Quaternary studies at the University of Stockholm and obtained his PhD in geology from Ohio State University.

His Antarctic career began in 1956. He spent the 1957 winter at Wilkes Station, one of seven Antarctic stations the United States had just established for the International Geophysical Year. Dick, still with Ohio State, was chief glaciologist. His teammates were Olav H. Løken, glaciologist, University of Oslo, Norway, and John R. T. Molholm, a glaciologist from Tufts University, Medford, Massachusetts.



Dick and Charlie Bentley after Antarctic Traverse

These were formative years for glaciology and other systematic sciences in the Antarctic, and Dick was there from the start. They studied accumulation, ablation, and movement of glaciers. They dug a pit, 2 meters square and 35 meters deep with a 27-meter bore hole at the bottom, made a horizontal deformation tunnel at the 30-meter level. Accumulation stakes were set out, and this system was triangulated to determine relative movement. Ice temperatures at different levels, along with air temperatures, were recorded once a week. Chatter marks, erratics, and elevated beaches were found. Samples of bedrock and lichens were collected. All this by three men in less than a year. Dick was lead author of an Ohio State monograph detailing the results; the paper is one of 11 Antarctic studies of which he was sole or lead author over the years.

Other professional positions included appointments as chief of the Geotechnics Branch, Terrestrial Sciences Laboratory, Air Force Cambridge Research Laboratories; assistant to the director, Institute of Polar Studies, Ohio State University, as well as assistant dean of University College and assistant dean for international programs; program manager for international organizations, and then program manager for glaciology (1975-1985) for the Division of Polar Programs of the National Science Foundation.

“My cousin gave me a copy of *The Royal Road to Romance* by Richard Halliburton, which piqued my interest in seeing the world,” Dick told *Le Cercle Polaire* in December 2014. “In 1953, between my junior and senior years at college, I attended the University of Oslo Summer School and then worked with the Norwegian Polar Institute on glaciers in Norway. I knew then what I would be doing for my life’s work: Greenland 1954; Sweden 1955; Antarctica 1956-1958; and so on studying glaciers.”

When Dick was at the National Science Foundation, he was on a committee studying the possibility of towing icebergs as a source of water for Saudi Arabia. Prince Mohamed al Faisal al Saud was funding the project. Dick received a call that a meeting was to be held the following week in Paris. He said he was particularly busy and probably could not make it. They said, “Take the Concorde.” Dick said, “I’m coming.” It took three and a half hours to get there from Washington, D.C.

During the austral season 1964-1965, he participated in the Queen Maud Land Traverse from the geographical South Pole to the Pole of Relative Inaccessibility in the middle of East Antarctica. “Charlie Bentley led the first half of the traverse and yours truly the second. Going from 2,820 m (9,250 ft) elevation at the South Pole to 3,657 m (12,000 ft) at Inaccessibility, we traveled 1,200 km

(750 miles) at the breakneck speed of 8 km/h (5 miles per hour).”

Undertaking a series of studies en route, the traverse took two months. “It was exciting to be crossing a part of the Earth where no man had been before.”

“A great moment for me was standing at the geographical South Pole with my son Andy in November of 1979.” Andy was just finishing his year at the Pole, and Dick had just arrived to be the NSF Representative at the Pole for the summer.

“Antarctica is a special place - as I consider it the epitome of the way the rest of the world could one day be. The IGY was the prime example of cooperation on the Ice when their respective countries were at odds with one another.”



Dick Cameron and Claude Lorius

Dick's favorite statement was this: “Antarctica is a special place. It is a place where men and women of all nations and ethnic backgrounds can live and work in harmony.”

Dick Cameron was an active member of our Society, a friend of all and at the center of many Antarctic Gatherings over the years.



Dick Cameron at Port Clyde, July 2018

Grace S. Machemer (1926 - 2019)

Grace S. Machemer, 93, Paul C. Dalrymple's close companion and a beloved and important member of the Antarctic Society, died the morning of 8 October 2019 at Woodlands Senior Living Center in Waterville, Maine. She had moved there from her longtime home in Port Clyde, Maine, in August 2019 following a stroke.

Grace was born in 1926 to Robert Bruce and Florence A. Skinner in Brooklyn, New York. In training and spirit, she was a lifelong academic. She graduated from Ridgewood High School in New Jersey and Smith College in Massachusetts. Grace received the Master of Science in biology from Plymouth State College and later taught science at Mary Hitchcock Memorial Hospital

School of Nursing in Hanover, New Hampshire.

In 1948 Grace married John Douglas Page and settled in Laconia, New Hampshire, where she taught high school biology. Following a divorce, Grace married Paul E. Machemer in 1969 and moved to Belgrade, Maine, where she taught biology at Thomas College in nearby Waterville for 14 years. In 1984, she and Paul retired to Port Clyde, Maine. Working alongside her sons Thomas and David, they actively participated in the design and construction of their new home. Grace and Paul loved the coast of Maine, spending their days boating and sailing.

Years later, on a summer day in 2016, when she was 90, your editor took Gracie on his boat from the Port Clyde harbor out past Marshall Point Light, beyond Gunning Rocks and Mosquito Ledge, past Mosquito Island, and back again. I need not have taken a chart. Gracie knew every ledge, shoal, island, and navigational aid, learned many years before.

During our afternoon ride she told me about going aground once near Vinalhaven Island, Maine, in her Cheoy Lee 38-foot all-teak sailboat. A man came out in a skiff to help Gracie and her husband Paul get the boat off the rocks. She offered to pay the man for his trouble and received the following reply: "No need. I'm happy to help. My name is David Rockefeller."

In Port Clyde, Gracie volunteered for the Penbay Women's Auxiliary, the Jackson Memorial Library, and the Marshall Point Lighthouse. She was an accomplished rug maker, was an avid birder and reader, and enjoyed traveling the world.

Gracie had a strong interest in the history of map making. Her paper, "Headquartered at Piscataqua: Samuel Holland's coastal and inland surveys, 1770-1774," was published in 2002 in *Historical New Hampshire*, volume 57, nos. 1 and 2, pages 4-25. The paper is cited in several scholarly publications concerning

geographical and historical aspects of the Portsmouth, New Hampshire, area.



Gracie and Paul at 2016 Port Clyde Gathering

This article draws from an obituary published 16 October 2019 in the *Portland Press Herald - Maine Sunday Telegram*. See <https://www.legacy.com/obituaries/mainetoday-pressherald/obituary.aspx?pid=194172417>

‘Til death do us part

by Dr. Paul C. Dalrymple

For the past forty-plus years, I have been on the sidelines of the passing away of many great Antarcticans: Richard E. Byrd, Laurence McKinley Gould, Gentleman Jim Zumberge, Ambassador Paul Clement Daniels, Mary Alice McWhinnie, Paul and Ruth Siple, Charles Swithinbank, and many others.

Perhaps none of them touched my heart and soul more deeply than the passing of Gracie Machemer of the State of Maine. For the past twenty years, I have lived with Gracie at her home here in Port Clyde, Maine, twenty peaceful years full of love and happiness and understanding.

She made two trips to Antarctica and became a dear friend of many of my countless Antarctic friends. Even in death, several of my

Antarctic buddies from far away came to my threshold to honor her presence.

Society member Polly Penhale writes, “You and Gracie were the best couple ever . . . meeting as you did and then going on for a wonderful 20 years. Gracie made all Antarcticans feel at home, and we loved the gatherings which you two held in Port Clyde.”

Port Clyde commemorations, 2020

by Dr. Paul C. Dalrymple

We may pay tribute to Gracie Machemer and Dick Cameron this coming summer. If we get a large enough response, we will plan for a gathering honoring Gracie and Dick at my place in coastal Maine on 18-19 July 2020. If you are interested in attending, please let us know as soon as you can. You can contact me directly by telephone, email, or post as shown on the masthead of this newsletter.

I have called most of Gracie’s friends, and their responses have been most touching and we wish to thank each and every one for their kind words.

I would like to tell how two great Antarcticans, Dr. Chester Pierce and Dr. Ed Williams, loved Gracie Machemer. As I often talked to both, each at the end of our conversations asked to talk to Gracie. What an appeal Gracie had for many of her Antarctic friends.

My plan is to have my ashes placed next to some of Gracie’s ashes in our backyard among the trees overlooking our beloved coastal Maine.

For me, she was the greatest, the sweetest. How I miss her! May God bless her eternally.



The Antarctic Society

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ANTARCTICA AND CLIMATE CHANGE GO BACK A LONG WAY

In 1980, the *Journal of Glaciology* published a “Correspondence” from Terence J. Hughes, a University of Maine glaciologist. Forty years later, Terry’s “The weak underbelly of the West Antarctic ice sheet” is prescient. Collapse of the West Antarctic ice sheet by surges of Thwaites and Pine Island glaciers into Pine Island Bay was the concept; Terry and George Denton in 1975 had done models by synthesizing existing field observations. Convincing fieldwork, however, did not exist in 1980. “New field data,” Terry conceded, “will justify improvements in the model.” Some of the new data would be decades in the future.

Now we have huge amounts of new data, collected by methods then undreamed of. Thwaites Glacier is not just in the scientific journals; it is headline news in the popular press. Those newly acquired data spelled the shift from a research speculation to some of Antarctica’s largest field projects ever.

When Terry wasn’t brilliant he was a nuisance. I was editor of the *Antarctic Journal* decades back. Terry sent me a paper way over length and full of irrelevancies. My cuts offended him to the philosophical core, and after a furious exchange I put some back. Terry may be the only glaciologist jailed in six states, protesting abortion. His scientific insights then influence glaciology now.

Terry traveled alone in 1966 and 1967 through Asia, Europe, Africa, and the Americas, was often enough in the Antarctic, spent most of his career at Ohio State and Maine. But he was born (in 1938) and died (in 2018) in the same spot, smack in the middle of South Dakota, where the Bad River enters the Missouri.

New subject. Important. Two Antarctic Society Gatherings are scheduled for this summer and next. Even at this early date, 30 people have signed up for the 4-6 June 2021 Gathering at Mystic Seaport Museum in Connecticut. A year before that, Paul Dalrymple will host commemorations for deceased Antarcticans in Port Clyde, Maine, on 18 and 19 July 2020: events begin with a service for Grace Macheimer at the Port Clyde Baptist Church Saturday morning, 18 July 2020. For more, turn to the last two articles in this issue of the newsletter. It’s your Society. Sign up now, and show up, for these events. We need to know you’re coming. We want to trade stories with you!

Guy Guthridge

Women in Antarctica: 50 Years of Exploration

by Kelly K. Falkner

I am delighted to be here at Ohio State representing everyone in the U.S. Antarctic Program, but especially, on this day, the women who conduct and support science in Antarctica.

Before I share thoughts regarding women in the Antarctic, here's some personal background. In 1969, when I was in elementary school in Concord, New Hampshire, we drank milk from bottles with caps made of waxed cardboard circles. Boys were allotted the lion's share of the playground for kickball; girls were confined to a small space just big enough for double dutch jump-roping. I found the situation unfair and, with friends, set out to address the inequity. We collected enough caps to make campaign buttons for every girl in the school. Inscribed on each button with crayon were the letters G.U.P., for Girls Unite for Power. We affixed the buttons to our clothing and gathered at recess to protest.



Milk bottles at Kelly's elementary school furnished protest buttons.

I can't confirm our protest did the trick, but by fifth grade girls could participate in kickball.

Preparing for this talk gave me the chance to reflect on the changes – social, legal, and otherwise – I have lived through. The 2018 movie “On the Basis of Sex” about Supreme Court Judge Ruth Bader Ginsberg, among numerous other works, underscores that it is important to know your history.

The legacy

Here's some. Admiral Richard E. Byrd was awarded the Medal of Honor, the highest U.S. honor, for pioneering efforts in Antarctica. He has my unmitigated respect for what he accomplished and inspired for our nation. Regarding women, though, let's look at Paul Siple's 1959 book *90 degrees South*, which captures the story of the building of the American station at the South Pole and of the 18 men who were the first to winter there.

Page 108 gave me a jolt. Siple recounts his journey with Admiral Byrd to join the first Deep Freeze mission in November 1955. “Early in December Admiral Byrd and I left by commercial plane to meet the Task Force in New Zealand. . . . When we stopped at Dallas, he was amused by girl pickets, aspiring the right to explore Antarctica, parading up and down the airport carrying signs that read: BYRD UNFAIR TO WOMEN.

This demonstration was inspired by a news story that quoted Byrd as saying Little America was the quietest place on earth because no woman had ever set foot there.

I wish Admiral Byrd were alive today to witness the fruit of his pioneering explorations AND to see how much of his legacy is being carried forward by women.

Byrd was not alone in his thinking about the female sex. Before women first took part in our program, they traveled to the ice as the wives of ship captains and explorers. In some instances, even they expressed

skepticism that women had any place on the ice. Writing about her 1947 adventures in *My Antarctic Honeymoon*, Jennie Darlington, the wife of a member of the U.S. Ronne Antarctic Research Expedition, lamented: “Taking everything into consideration, I do not think women belong in Antarctica.”

The first six women to arrive at the South Pole went on 12 November 1969, making history. If not for them, change would have come slower. Here’s background.

In 1961, only a couple of years after Admiral Byrd made his observations about the picketers, the Antarctic Treaty came into force and the U.S. committed itself to an active and influential science presence in Antarctica. The Navy was charged with logistics. At that point (I’ll put it kindly) mis-estimation of the capabilities of women was codified in Navy policies and regulations.

Institutional changes

The Navy, which had established McMurdo in 1956, was adamant in its refusal to allow women. The then young National Science Foundation and the National Academies jointly managed the science and did not initially challenge the Navy’s position.

Colin Bull, director of Ohio State’s Institute of Polar Studies, which is now the Byrd Polar and Climate Research Center, felt otherwise. A renowned polar scientist who led the first university-sponsored team to Antarctica in 1958-1959 during the IGY, Bull tried for 10 years to include women in teams sent to the ice. The Navy refused. Bull shared his thoughts with the *Antarctic Sun*: “It was really utterly stupid, the whole thing, but we managed to bust it.”

It was agreed that a pilot effort would be undertaken, in 1969.

Announcement of an all-woman science team headed to Antarctica drew media attention, much of it reflective of the times, with headlines like, “Powderpuff explorers to invade South Pole.” Reporters asked, “Will you wear lipstick while you work?”

A ski-equipped airplane flown by the Navy took the women to the South Pole on 12 November. The Navy decided to make hay of the publicity. Rear Admiral D.F. Welch, the commander of the naval forces in Antarctica, escorted the six pioneers. All six women stepped off the cargo ramp at the back of the plane, arms linked.

Naysayers did not disappear. Women would waste research funds, it was argued, because they didn’t publish enough. Irene Peden sat in the cross-wires of that issue when she led a deep-field research team in Antarctica in 1970. She was told that if she screwed it up, she’d be closing the doors for women in Antarctica. She persevered: the *Antarctic Bibliography* lists nine research papers published 1966-1975 with I.C. Peden as first or only author and another nine with her as second or third author.

The policy remained that women deploying had to be married and accompanied by their husbands or go in pairs or groups. It took a university HRM specialist to point out to NSF that the requirement blocked its best-qualified individual, who happened to be female, from tending its science equipment through the austral winter at South Pole Station. NSF Office of General Counsel concurrence set in motion the basis for robust policy changes in the 1980s.

Today, too many female scientists are doing Antarctic research for me to name them.

If Admiral Byrd were to travel to Antarctica today, he might recognize the place, but he would not recognize the workforce. Roughly 34 percent of our support staff on the Ice is female.

Harassment

I’d be remiss if I did not raise the issue of harassment. An egregious case occurred in Antarctica more than 20 years ago but was widely reported 2 years ago. Response to this

incident and others has placed NSF at the vanguard of Federal agencies in addressing issues of gender, sexual, and other forms of harassment.

On 19 September 2018 NSF formalized requirements for research institutions to notify us of harassment situations so that steps could be taken to ensure that Federal dollars were not being used to perpetrate such harm.

(https://www.nsf.gov/news/news_summ.jsp?cntn_id=296610)

On 29 March 2019, NSF issued a dear colleague letter to highlight that NSF continues to support peer-reviewed research that advances fundamental knowledge about the nature and underlying dynamics of sexual and other forms of harassment.

(<https://www.nsf.gov/pubs/2019/nsf19053/nsf19053.jsp>)

All hands on deck

The U.S. Antarctic Program has advanced a long way since six women first reached the South Pole 50 years ago. But the work isn't done. The women who integrated the USAP are mostly white. The U.S. polar community is still far from being as diverse as the Nation's population.

The STEM workforce cannot operate at full capacity if all qualified minds are not engaged and if workers cannot operate fully because they are stressed (e.g., through discrimination, toxic work environments, harassment). Our planet is facing "all hands on deck" problems, but all hands are not on deck. Those of us in the system must reach out so that others may join.

Two women currently aboard the International Space Station made the first all-female spacewalk in history on 18 October 2019. Both are polar alumnae: Jessica Meir, formerly a U.S. Antarctic Program researcher, worked with Paul Ponganis, Scripps Institution of Oceanography, to study the diving physiology of emperor penguins. She joined the space station crew in October 2019.

Christina Hammock Koch has been on the space station since March. She worked at Palmer and Amundsen-Scott South Pole stations and at Summit Station in Greenland. When she leaves in early February, she is expected to have set a record for the longest single spaceflight by a woman, 328 days.



On 12 November 1969 the first women to reach South Pole stepped off the back ramp of an LC-130. Fifty years later, Ohio State University commemorated the event with a seminar on women in Antarctica.



U.S. Antarctic Program veterans Jessica Meir and Christina Koch on the International Space Station.

To steal the title of a currently popular movie, these women inspire us to keep our sights "ad astra," *to the stars*. I wonder what Admiral Byrd would think of that?

Kelly Falkner, Director, Office of Polar Programs, National Science Foundation, is one of 17 Antarcticans who gave talks on 17 and 18 October 2019 at the symposium Women in Antarctica, sponsored

by the Byrd Polar and Climate Research Center, The Ohio State University. This article condenses Dr. Falkner's presentation. Peter West, Director, Polar Outreach, at NSF, "drafted it, and some of the punch was his brainchild," Kelly writes. The web site <https://byrd.osu.edu/celebrate-women> contains videos of the talks plus a panel discussion.

Plateau Station . . . Exploration in Isolation . . . a Retrospective Look

by Thomas O. Frostman

This past November Tom "Frosty" Frostman (Plateau Station '68/Frostman Glacier) and his wife Sam (Susan) were guests aboard *National Geographic Explorer* as it made its way from the Falkland Islands to South Georgia Island and the Antarctic Peninsula over a 3-week period.

This was Sam's seventh continent in their world travels. For Frosty, it was a coming home. Fifty-two years ago, as a newly christened meteorologist (University of Wisconsin), he was making his way to the high plateau of East Antarctica to join three other scientists and four Navy support personnel. He would winter at Plateau Station from late 1967 through early 1969 conducting scientific programs highlighted by micro-meteorology for the University of Wisconsin. His supervisor was Dr. Paul C. Dalrymple (OAE and current treasurer of The Antarctic Society), then employed (as was I) by the U.S. Army Natick Laboratories, Massachusetts.

Before setting sail with National Geographic/Lindblad Expeditions, Frosty had been invited to share his Plateau experience with others aboard ship. He called his talk "Exploration in Isolation," during which he shared stories of carrying out scientific studies in one of the most harsh environments on the planet. It was in July of 1968 that Plateau recorded a low temperature of -123°F , a record low for any U.S. reporting station. The

average temperature for July was -100°F . Plateau had 119 days with temperatures below -100°F , and it never got above zero. During 1968, Plateau experienced malfunctions with generators, had a major structural fire, and ran out of ketchup just after the last supply plane left in February.



The eight members of the 1968 wintering crew at Plateau Station. Frosty is second from left.

Frosty explained to his fellow travelers that the year at Plateau was not just an "exploration *in* isolation," it was also an "exploration *of* isolation," as the eight men had to manage their workload and their relationships during the long winter night, cut off from the rest of the world for 10 months, with some relief via spotty ham radio communication.

Frosty notes, "This return trip to the Antarctic afforded many opportunities for my wife and me to get up close and personal with the abundant marine life of the southern seas, acquire a new appreciation for the early Antarctic explorers, and enjoy a fabulous backdrop for our day hikes, cross-country skiing, and kayaking. What a sharp contrast to my 14 months on the plateau!"

Frosty and Paul have a paper in the 1971 volume Research in the Antarctic (American Association for the Advancement of Science, 768 pages), the first single-book report of Antarctic science since the 1957-1958 International Geophysical Year: "Some aspects of the climate of interior Antarctica" uses Frosty's Plateau Station observations in addition to then-new satellite data to confirm

the interior as a region of stability and the coast as subject to rapid change. Antarctica's cold, dry interior "can be a most pleasant habitational environment," they write, "removed from a great unpleasantness, that of thawing snow." One of just three papers in the book's "Cold Poles and Heat Balances" section, the Dalrymple and Frostman work discusses the climate of the interior, its effect on operations, and "the great Antarctic temperature inversion," states the section editor, Morton J. Rubin. The 47 authors of the book's 39 papers, from John O. Annexstad to Charles R. Wilson, are a who's who of 20th Century Antarctic science and familiar to many Society members, if not members.

LANs in Antarctica

by Al Oxton

In the early days at Palmer Station, message traffic was sent and received by RTTY and HF radio. Operators typed UPPER CASE ONLY to punched paper tape and transmitted messages via shortwave radio. The ten-kilowatt transmitter took up about 16 square feet of floor and kept the radio room warm enough.

Then came geostationary satellites, ASCII, radios smaller than a bread box, and – space heaters. Originators could type their own text in their own offices, lower case was permitted, UPPER CASE became SHOUTING, outgoing was moved on floppy disk via Sneaker-Net to the radio room to be sent via VHF and ATS-3 to the Internet gateway at ATSVAX.

Sometime later Mr. Dennis Tupick introduced Palmer Station to the Grapevine Peer to Peer Local Area Network, and the Sneaker-Net was used only by the outbuildings and remote hovels of science. The Radio Room became the Communications Center; keyboards and CRTs replaced RTTY terminals.

Part of the LAN was a PC dedicated to the *Antarctic Bibliography*. Anyone on station could access the data – bibliographic information and abstracts of all the world's Antarctic literature back to 1951 – from any work-center. Such information as *The Effect of Feral Cats on the Indigenous Bird Species of Sub-Antarctic Islands* and *Recipes for Potato Soup at Vostok* were at your fingertips. The database was in the form of a CD, subscription updated annually, and delivered to Palmer in the first mail of the summer season. One summer the ship was late. We never made the connection between that non-event and the corruption of the *Bibliography* database. Word went around that the database had been hacked and we must stop using it.

I gave that a lot of thought and concluded that inasmuch as PalmerLan was not actually connected via Internet to the outside world any hacking would have to be local and that was unlikely. After a few glasses of Merlot, the thought occurred that the scramble was a time bomb. The subscription had expired so the data was scrambled! No, that wasn't it either. The data was on the CD and could not be changed so the problem had to be with the application that ran on the PC which accessed the data on the CD. Yes! I reset the PC clock to a previous date and reinstalled the Biblio Reader, and all was well. Set the date forward and the data were scrambled again. After that, a simple batch file would set the clock back when the Biblio Reader was called and then set the clock forward again when the program ended. Worked great. I wrote a note describing my solution to my counterparts at the other wintering U.S. stations, which also had the *Antarctic Bibliography* file, and we all lived happily after until the new CD arrived.

In the end, I received an atta-boy from NSF for a clever solution and a slap on the wrist from my supervisor for working outside the box.

Review of “*Exploring the Transantarctic Mountains by Dog Sledge 1960-62*”

by Tom Henderson

Antarctican Society member Peter Otway has written a memoir of one of the last explorations in Antarctica to be supported by dog teams. From 1957 to 1964, the New Zealand Antarctic Research Program sent parties composed of surveyors and geologists to explore and map New Zealand’s Ross Dependency. A large part of that effort was focused on the Transantarctic Mountains. Fresh off his registration as a land surveyor in New Zealand, young Peter realized a childhood dream when was selected to go to Antarctica as a member of the 1960-61 and 1961-62 teams.



Dog teams at a rest stop in the Transantarctic Mountains.

The assignment entailed participating in a summer season, wintering at Scott Base on Ross Island, and concluding with another summer season the following year, 16 consecutive months on The Ice. The idea was to overlap the members of the field parties so that experienced people always would be on each team. The goal was to establish survey control stations used to compile subsequent maps, in most cases the first to be made of the territory over which they traveled. The adventure had a great impact on Peter and led to a successful career in surveying and

mapping all over the world, including six more trips to the Antarctic.

This book is his account of what it was like to spend months in the field treading and surveying expanses of terrain untouched by humans. The only previous parties to pass this way on the surface were led by Amundsen, Scott, and Shackleton. It is also a story of the bonds that formed between the men and the Greenland huskies that they relied on to traverse the hundreds of miles through some of the most picturesque but dangerous mountains in the world. The relationship was further enhanced over the long dark winter at Scott Base when the party was responsible for feeding and maintaining the health of the dogs. Peter has kind words for the U.S. civilian and military contingent in Antarctica, emphasizing the camaraderie and working relationships in both the summer and winter seasons. His style of writing is self-effacing and quite relatable, but it does not disguise the wonder he found in this great adventure.



Descending the Axel Heiberg Glacier.

The story of their descent of the Axel Heiberg Glacier at the end of the second season is particularly gripping. Peter’s team was the first to take this perilous route since Amundsen blazed the trail in 1911-12. Picking their way down the steep glacier while avoiding the monstrous crevasses and frequent avalanches required sound judgment and steady nerves. Fortunately, the team was led by famed polar explorer Wally Herbert, who had an abundance of both. The photos in this part of the book are especially stunning.

Peter has self-published the book, but it does not lack in quality. It is richly illustrated with often spectacular photographs and maps, all rendered in crisp color. Most of the photos were taken by Peter himself. For a copy, contact Peter at otway1@xtra.co.nz.

Dr. Robert H. Rutford, 1933-2019

by John Clough



Dr. Robert H. Rutford

Current Honorary President, President 1988-1990, longtime member, and friend of this society Bob Rutford died 1 December 2019. Bob was involved in Antarctic research and travelled to the Ice more than 25 times during the period 1959-1995.

Bob graduated from the University of Minnesota in 1954, married Margie, and served in the U.S. Army including a year in Greenland testing heavy snow equipment and establishing fuel depots. This work made him the most experienced member of the field party on his first time on the Ice.

His earliest Antarctic research, as a grad student at University of Minnesota conducting geologic mapping in the Ellsworth mountains with Cam Craddock, and grad

student John Anderson, included man-hauling all equipment, supplies and samples.

Most important was their work in the Ellsworth Mountains, which showed that these mountains had been connected to South America, southern Africa, and Australia when the three continents were part of the ancient Gondwanaland.



Charles Switinbank, John Spletstoesser, unknown, Bob Rutford, George Denton in the Ellsworth Mountains.

In 1967, the Rutfords moved to the University of South Dakota where Bob was an assistant professor while finishing his Ph.D. at Minnesota in 1969, whereupon he chaired the geology department at South Dakota.

After the Ross Ice Shelf was penetrated with a deep drill at Little America in 1958, scientists speculated on the value of future ice-core drilling in the shelf. In 1968, A.P. Crary suggested that a hole several hundred kilometers back of the Ross Ice Shelf barrier should be used to sample the underlying water column and bottom sediments.

In 1970, SCAR appointed a group to study plans for a Ross Ice Shelf drilling project. Dr. L. M. Gould, who chaired the Committee on Polar Research (now Polar Research Board, NAS), appointed a Ross Ice Shelf Project steering group chaired by James Zumberge. In 1972, Zumberge was named chancellor of the University of Nebraska—Lincoln. In the same year he was appointed to the National Science Board, and he replaced Larry Gould as the U.S. delegate to the

Scientific Committee on Antarctic Research (SCAR).

Zumberge invited Rutford to Lincoln to direct the Ross Ice Shelf Project (RISP) management office, which was established to coordinate the international RISP plan. With drilling planned for the 1975-76 field season, a geophysical and glaciological survey was scheduled to assist in selecting drilling sites. A 3D grid of measurements was supported by privately contracted Twin Otter flight support contracted by Bob – a big switch from manhauling sleds. During the same period, Bob established the Polar Ice Coring Office, PICO, and the Greenland Ice Sheet Project, GISP.

In April 1975 he became director of the Division of Polar Programs in NSF, which funded and managed NSF research in Antarctica and the Arctic. Bob returned to UN-L in 1977 as Vice Chancellor for Research and Graduate studies. When Zumberge left UN-L, Rutford served as interim chancellor before moving to become president of the University of Texas at Dallas (UTD) in May 1982.

While a scientist at heart, Bob was an entrepreneurial administrator. In the state system of universities, established schools guard their monopoly and prohibit lesser campuses from thriving. When Rutford arrived at UTD, the campus was largely a graduate school. Some juniors and seniors were completing bachelor work, but undergraduates generally weren't allowed. And UT-Dallas was not allowed to offer engineering, vital given the growing needs of high-tech companies.

Knowing the Legislature was unlikely to fund the needed change, Bob recruited business and civic leaders to write a proposal for the engineering school and then convinced the mayor to lead private fund-raising that brought millions.

“What I want the university to be is excellent,” Rutford told *The Dallas News* in

1986. “It should have a national reputation so we can attract the very best faculty.”

Bob set out to change the law so that UT-Dallas could enroll freshmen and sophomores. The Legislature in 1990 gave the school the go-ahead for undergraduates. *U.S. News & World Report* now ranks UT-Dallas's Jonsson School of Engineering one of the Nation's best graduate schools for engineering. Of 30,000 students, nearly three quarters are undergraduates.

Bob was involved in Antarctic science for more than 50 years. He attended every SCAR meeting from 1970 to 2004 and was U.S. delegate (1986–2004), Vice-President (1996–98), and President (1998–2002). As President, he oversaw a major review of SCAR's organization and goals, and he was responsible for its implementation.

Bob's honors and awards include the Distinguished Science Medal, the highest given by NSF. The 130-mile Rutford Ice Stream, which drains part of the West Antarctic Ice Sheet, is named after him. In 2007, the summit of Craddock Massif in the Sentinel Range of the Ellsworth Mountains was named Mount Rutford.

Capt. Alfred N. Fowler, USN 1926-2020

Alfred Noel Fowler, Captain, USN (retired), died on 14 January 2020, age 93. For a total of two decades during his long career, he held senior leadership positions in, or directly relating to, the U.S. Antarctic Program.

The first role came in 1972-1974 as Commander, U.S. Naval Support Force Antarctica. The assignment was made just after a 1971 directive from the President of the United States consolidated management and funding of the entire U.S. Antarctic Program at the National Science Foundation, replacing the long-standing arrangement that the departments of Defense and Transportation provided operational support and NSF only the science. He was the first captain in that

job following seven admirals starting with Richard E. Byrd. The organizational change began a steep learning curve and a vivid cultural shift for both the civilian science foundation and the involved military departments.



Captain Alfred N. Fowler, USN

Al's even handling of both science and support during the sometimes difficult multiyear transition may have been guided by an early assignment to Navy Hurricane Hunter squadrons from 1950 to 1957. At the time, the only way to determine the location, size, and intensity of these dangerous storms was to make low-level airborne penetrations of them. Al internalized the experience as a life lesson extending beyond his 26 years as a naval aviator: "When flying a big multi-engine airplane very low over the ocean in a hurricane, keep your wings level."

In 1980, after Captain Fowler retired from active naval service, NSF recruited him

to be deputy division director of its polar office, which manages and funds the U.S. Antarctic Program. During his 14 years at NSF, Al returned to Antarctica many times to oversee management, logistics, and science support. He retired from civilian government service in 1988.

But not from the Antarctic. An NSF initiative inspired the world's national Antarctic programs to establish an operational managers' forum equivalent to the Antarctic Treaty for geopolitics and the Scientific Committee on Antarctic Research (SCAR) for science. For the next 11 years, Captain Fowler was employed at the American Geophysical Union, where he established the office and served as the first executive secretary for the international Council of Managers of National Antarctic Programs (COMNAP). His expertise in the international governance of Antarctica had grown from his experience with the American program and his participation in many international scientific and diplomatic meetings. The aviator background also came into play as Al was instrumental in creating the Antarctic Flight Information Manual, overseeing steps to improve the efficiency and safety of air operations south of 60 degrees south.

Al wrote three books: a memoir, *Hurricanes to Antarctica: Tales of a Naval Aviator* (2014), *Poems From Punk, The Complete Collection* (2016), which celebrates the 70 years of love and marriage with his high school sweetheart Kathryn (Katie) Shadle (now deceased), and *COMNAP: The National Managers in Antarctica* (2000), history's sole example of unified governance of an entire continent in support of geophysics and environmental protection, states a laudatory review in *EOS* (American Geophysical Union). He contributed to this newsletter, most recently a review of Gabrielle Walker's 2013 *Antarctica: An Intimate Portrait of a Mysterious Continent*, which he calls "my choice for the best available book about contemporary international science in Antarctica."

Fowler Ice Rise, named for Al, is a 100- by 200-mile feature of the southwestern Ronne Ice Shelf. Military honors include the Legion of Merit Medal, Navy Commendation, and Antarctica Service Medal. He was a member of the American Meteorological Society and the U.S. Naval Institute as well as the Antarctic Society.

Funeral services were on 25 January in New Bern, North Carolina. Interment will be at Arlington National Cemetery.

This information draws from material provided by the family. An obituary is in the 19 January 2020 Washington Post.

Antarctic Gathering, 4-6 June 2021

Thirty (30) Society members have signed up for the Antarctic Gathering that will take place at the Mystic Seaport Museum in Connecticut, 4-6 June 2021. See the online version of this newsletter on the Society web site for a list of names. Of the 30, 28 are committed to the Friday evening (4 June 2021) steamboat ride. Because the boat is limited to 72 passengers, we encourage you to go to <https://www.antarctican.org> and sign up. Activities over the weekend and full instructions to reserve a place are there.

In summary:

- \$130 for all events and meals, Friday-Sunday. Or,
- \$85 for the Saturday and Sunday events and meals, but not the Friday evening boat trip. Or,
- \$80 for just Saturday events and meals.

The reason for getting together in Mystic at that time is that Mystic Seaport Museum is producing a major exhibition, *Discovering Antarctica 1820-2020*, to coincide with the 200th anniversary of the 1820s-era first sightings of Antarctica by, among others, Nathaniel Palmer of nearby Stonington, Connecticut.

It is exciting that so many Society members have signed up this far in advance. Until June 2020, signups will be limited to

Society members and their friends and families only. After that, depending on how many have signed up, we may open this opportunity to members of other polar societies and organizations.

| Mystic_Registration as of 20Jan2020 | |
|-------------------------------------|---------------|
| FirstName | LastName |
| Liesl | Schernthaller |
| Michael | Powell |
| Karen Ronne | Tupek |
| Mark | Leinmiller |
| Mrs. | Leinmiller |
| Steve | Dibbern |
| Victoria | Dibbern |
| Alexander | Sutherland |
| Elizabeth | Sutherland |
| Larry | Lackey |
| Joyce | Lackey |
| Kenneth | Behannon |
| Jane | Butterfield |
| Rob | Stephenson |
| Karen | Ayers |
| Guy | Guthridge |
| Lynn | Simarski |
| Robert | Rowland |
| Linda | Fritschner |
| Neil | Wilson |
| Ann | Trainor |
| Michael | Trainor |
| Austin | Kovacs |
| Betty | Kovacs |
| Stephen | Wilson |
| Carolyn | Wilson |
| Ronald | Thoreson |
| Sallie | Thoreson |
| Thomas | Henderson |
| Millie | Eidson |

Memorials Gathering 18-19 July 2020

by Dr. Paul C. Dalrymple

With prominent Antarcticans passing away since last summer, we have decided to honor them with memorial events in Port Clyde, Maine, the weekend of 18-19 July 2020: not a regular Antarctic Gathering with speakers, but friends telling tales about their buddies.

Specifically, four long-time Society members will be commemorated. Obituaries of all of them have appeared in our newsletters, two in this issue.

Dick Cameron goes back to the IGY, and we hope to have several of his friends from Wilkes Station. Health permitting, Ralph Glasgow will be there showing a film that he shot featuring Dick. Among Dick's dearest friends, another IGYer, Walt Boyd, will show up from the West Coast. Walt was the last Antarctic to see Dick alive.

Probably the most famous Antarctic to be honored will be Bob Rutford, our Honorary President. In a long career, Bob held important scientific, academic, and management positions, National and international. As a collegian he was a star football player for the Minnesota Gophers; a son carries on the athletic tradition as a competitive swimmer. Bob had a summer home in Colorado as did other well-known Antarctic geologists, Larry Gould and Gentleman Jim Zumberge.

Al Fowler had top leadership positions in the U.S. Antarctic Program – Navy and NSF – and was the long-time executive secretary of the international group of national government Antarctic program managers called COMNAP. He was a longtime member of this society, and he wrote three books.

Another Antarctic to be honored will be my dear friend and loving companion for the last 19 years, Grace Machemer. She hosted Society members Polly Penhale, Michelle Raney, Lucia deLeiris, and others as

well as Ed Williams, Guy Guthridge and his wife Lynn Teo Simarski, and Jerry Marty. Once, before she had met Bob Rutford, she admonished him to sit down and stop giving our chef hell for being slow feeding him and the group at the Dip Net Restaurant in Port Clyde; later she and Bob became good friends. Gracie's family will hold a memorial for her at the Port Clyde Baptist Church, 843 Port Clyde Road (route 131), the morning of 18 July 2020. In the 19 years Gracie and I lived together, she did not go to church a single time. But we were friends with the pastor.

We dearly hope not to add to this list before gathering in July.

Society members and their friends and families are invited to attend this weekend gathering. You likely will want to settle into your lodging Friday, 17 July 2020; hotels and bed-and-breakfasts are in Port Clyde, Tenants Harbor, and elsewhere nearby. The first event will be the Baptist Church memorial on Saturday morning for Gracie, followed by an outdoor lunch at my house on Marshall Point Road, supper that evening on your own, and a Sunday noon gala at my house, catered (as at prior gatherings) by our star local lobsterman Erich Culver. As always, summertime coastal Maine will welcome you.



The Antarctic Society

VOLUME 19-20

APRIL

No. 3

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THE SOCIALLY DISTANCED ANTARCTICAN SOCIETY

The global calamity of covid-19 has forced unwanted change on just about every facet of our lives and interactions. As Society members, even with the absence of face-to-face gatherings, we still have ways to share information and new ideas.

Some of our readers prefer mailed paper copies of the newsletter, and much can be said about paper instead of a screen. My favorite is to sit at the kitchen table with newspaper or magazine, pen in hand, underlining passages, flipping pages. But I increasingly like using a computer screen or the iPad, especially now.

Most members subscribe to the newsletter electronically, and the trend is in that direction. All have access to the rich web site, <https://www.antarctican.org>, thanks to contributions from members and nonmembers and to webmaster Tom Henderson.

I love ambling around our web site. Click on “Pack Ice,” for example, then “Farewell Tribute to R/V *Polar Duke*.” It’s a hilarious reminiscence about the “infamous 1990 Texas outlaw-Viking raid” on Palmer Station.

Read about everyday life at McMurdo half a century ago, or look at videos of old sledging journeys. There’s a mail bag, memoirs and diaries, personal stories.

An underused part of our site is the “Members List” (click on “Members” after signing in). A few of us have taken advantage of the “Biography” feature to write something about ourselves so that other members – and only other members – can learn more about the rich heritage represented by our group. It’s easy. Tom provides a guide on the site explaining how. You’ll be on a treasure hunt, though, to find a name with a bio attached. Try Kenneth W. Behannon for a good one, or even your Editor if it doesn’t put you to sleep. I hope you will add yours!

Another way to participate virtually is to contribute an article (around 500 words) for publication in this newsletter. You’ve seen a number of such over the years. I think they are the best part.

Fellow Antarctic Society members, we can make a difference. Read and use the CDC Guidelines, <https://www.cdc.gov>. Help to prevent spread of covid-19.

Guy Guthridge

Gathering in 2020 in Maine is cancelled

The Antarctic Society gathering announced in the January issue for 18-19 July 2020 in Port Clyde, Maine, to commemorate the passing of Gracie Machemer and other Society members is cancelled.

Some sixty members had decided to attend. Paul Dalrymple received more than forty cards and letters of sympathy.

Paul has had a setback. Following a stroke, he has moved to Knox Center, a long-term care facility in Rockland, Maine. He may be able to welcome phone calls from friends at Knox Center, 207-301-6800.

The coronavirus pandemic is the immediate cause for us to cancel the gathering. We regret the situation as do so many others. Cancel travel and hotel reservations for Port Clyde that you may have arranged.

The Society's next gathering, announced in former issues of the newsletter and on the web site, will take place at Mystic Seaport Museum in Connecticut 4-6 June 2021. The much anticipated *Discovering Antarctica 1820-2020* exhibition will be on display there during that time, or at least we hope it will. Updates will be provided in future newsletters.

To sign up for the 2021 Mystic gathering, if you have not done so, consult the Antarctic Society web site or contact webmaster Tom Henderson (see page 1).

Covid-19 situation at Antarctica's U.S. stations

The *Washington Post* reported on 24 March that Antarctica had not yet confirmed a case of the novel coronavirus. Nevertheless, the chief medical officer of the Australian Antarctic Division cautioned that, "No continent is immune, including Antarctica."

Australia and Germany, writes the *Post*, have respirators at stations, but British and U.S. stations had not yet stated such when the article was published. Many if not most stations were in winter isolation then, but McMurdo still was getting flights because the operating season was extended for a multiyear station reconstruction program there, AIMS.

On 31 March, the National Science Foundation posted a notice describing changes in its Arctic and Antarctic programs in response to covid-19:

https://www.nsf.gov/news/news_sum_m.jsp?cntn_id=300302&org=OPP

Restrictions worldwide, it states, challenge supply chains "upon which we rely." An immediate goal is to prevent introduction of covid-19, because medical capabilities are limited.

On 31 March, all three U.S. Antarctic year-round stations were "operating safely. No indications of the virus have been detected and no new personnel have been admitted since February."

- McMurdo is staffed and provisioned for winter. Medical supplies and protective equipment are being supplemented as needed.
- Palmer summer staff were to remain until the winter crew can be deployed without risk. The station is provisioned. Science events and tourist visits have been cancelled for the rest of the winter. Medical supplies and personal protective equipment are being supplemented as needed.
- South Pole Station is in winter status and provisioned for the winter. No flights are planned for the next several months.

For the 2020-2021 summer, the U.S. Antarctic Program is evaluating planned and proposed activities. "From discussions with our international Antarctic partners through COMNAP, we expect significant disruptions to travel routes. We also expect impacts to our U.S. support partners, such as the Air National

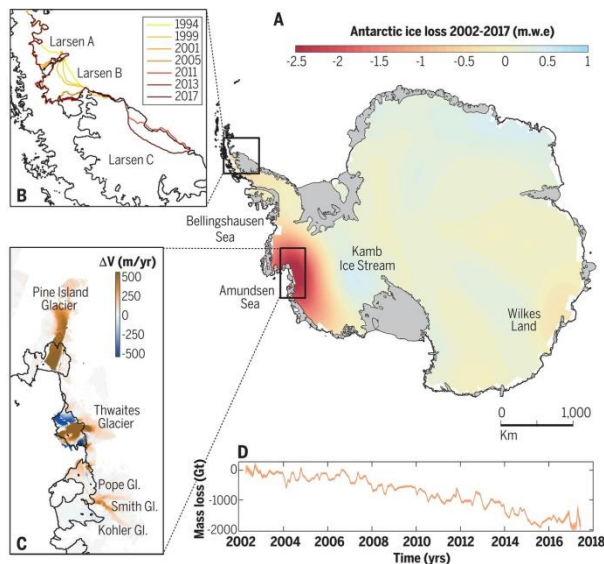
Guard, that are playing a critical role in covid-19 response activities.”

NSF says a goal is to have, by the end of May, a more complete picture of expected impacts on the end of the Arctic field season and the upcoming Antarctic season.

Science Magazine special section

The 20 March 2020 *Science* has an iceberg on the cover and three five-page articles (longer than usual for *Science*) that describe “the formation of the Antarctic Ice Sheet and the geological processes controlling its existence; the ice sheet’s evolution, as affected by its interaction with the surrounding ocean; and how the continent’s ice is expected to change in our warming future.”

A fourth article, by a staff writer, notes that 900,000 king penguins “vanished without a trace” since 2017 from the Subantarctic Ile aux Cochons, south of Africa. The disappearance so far is unexplained despite efforts by French scientists to figure it out.

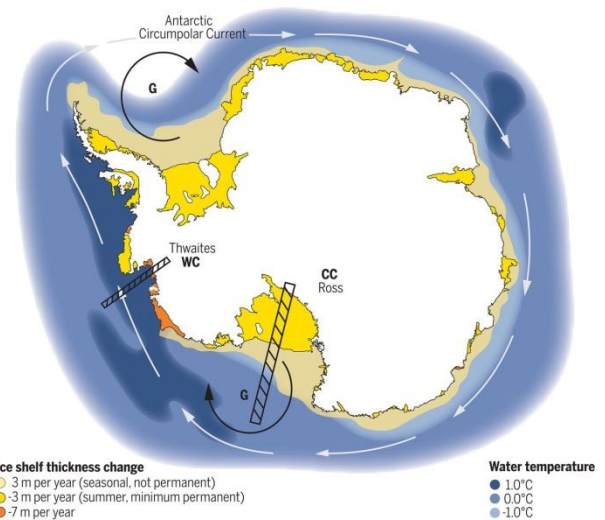


Ice loss has accelerated in the 21st Century, and most of it is centered in West Antarctica.

Copyright 2020 Robin Bell, Helene Seroussi, AAAS.

Robin Bell of Columbia University and Helene Seroussi of the Jet Propulsion Laboratory are the authors of the paper on the history, mass loss, structure, and dynamic

behavior of the ice sheet. Regions are losing mass, flowing faster, and retreating where exposed to warm ocean. “The Antarctic contribution to sea level rise has reached ~8 millimeters since 1992,” they write. “Our knowledge of the continent has shifted from the notion of a stagnant piece of ice to a constantly evolving continent interacting with the ocean around, the atmosphere above, and the solid Earth under it and affected by human activities.” But a lot remains unknown. With regard to global impact, “changing ocean volume from Antarctic mass loss remains one of the largest contributors to communities’ unknown future.”



The black rectangle WC (warm current) indicates ocean melting of Thwaites Ice Shelf. The CC cold current transect has little impact on the Ross Ice Shelf. G = gyre. Copyright 2020 David Holland, AAAS.

Dave Holland and Keith Nicholls of NYU and Aurora Basinski of the British Antarctic Survey have the story on how the Southern Ocean is melting ice shelves from the underside: a major effect in some places, but not in others. It happens, they write, “either indirectly by its influence on air temperature and winds, or directly, mostly through its effects on ice shelves.” Those winds shove warm water to the south, and the authors see “a century-scale trend in positive wind values that is likely being forced by anthropogenic forces.” The Thwaites Ice Shelf in particular

is melting and retreating faster than it otherwise would.

Belgian Frank Pattyn and University of California at Irvine's Mathieu Morlighem discuss the uncertain future of the Antarctic Ice Sheet. The pace of mass loss is accelerating, they write, "and ice loss will likely continue over the coming decades and centuries. Some regions of the ice sheet may reach a tipping point, potentially leading to rates of sea level rise at least an order of magnitude larger than those observed now." They observe that high-resolution data, high-resolution modeling, and longer time series are enabling increasingly robust projections of future behavior, with its "profound impact on global sea level rise."

Science labels all three papers as "review," meaning they focus on rounding up the latest published research rather than presenting new material. The papers contain excellent illustrations as well as a comprehensive and authoritative look at the topics covered. They are worth a read if you have access to *Science*, which, like most scientific journals, is pricey.

Pirate radio in Antarctica

by Alfred J. Oxton

I never got to work at a radio station when I was 15, but I did put in a year spinning old vinyl on the military's American Forces Radio and Television System (AFRTS) FM station at McMurdo. Mine was the Sunday afternoon classical slot. During the hours of not much commentary but lots of music I had little opportunity to listen to otherwise, I sat there with a laptop cataloguing the collection. Such a task had never been done. The treasure consisted of 30-40 feet of shelved LPs, hundreds of records.

At the same time that was going on, part of the rest of my tasking in Information Systems was to assemble, build, test, and prove the T-1 satellite link to Bellingham

Washington, which would eventually carry the live feeds to replace local programming in McMurdo. The cataloguing was a labor of love, especially knowing that the record library would probably end up in the tip once the live feed came on line. Worse was realizing that I was working at one task, which I found fun and challenging, to assure the demise of the other, which I found fulfilling and purposeful.

My introduction to the radio station came about during an earlier winter at McMurdo through the machinations of an Old Hippy gone NSF Winter Representative who was annoyed at the narrowly selective news AFRTS offered and at the lack of sports feeds. Their news came in via HF RTTY, and their canned programming was from a tape library that had to last the entire winter.

The Old Hippy knew I had access to the HF equipment at the remote receiver site on Black Island and he knew of my own hippie radical background. All I needed was the challenge and the direction, and of course the surreptitious support of the NSF Winter Representative.

Unbeknownst even to the Navy radio people in charge of the FM broadcast station, a second/standby/alternate transmitter was in the rack right next to the primary, at the FM station studio. The carriers of both were on the air all the time, a few kiloHertz apart on the dial, the primary with programming, the other silent: dead air we were about to enliven.

At the satellite receiver site on Black Island, where I did some of my maintenance on the INMARSAT telephone link, were several programmable Icom HF receivers. One was spare. Black Island was 70 miles around the edge of the ice shelf via snow-tractor and required a team of four people in two vehicles to make the usual three to five day regular maintenance run. When everything behaved out there, you wouldn't necessarily have to go out for months. Some outages required immediate response. While we waited for something to happen out there,

we readied the equipment and feed on the McMurdo end.

I was also working for the "telephone company" that winter, so it was an easy matter to patch together a twisted pair from the FM transmitter site through the telco office and over to the Black Island microwave link where a spare phone channel was available. A dry contact relay closure control channel also was available. I can remember grinning with childlike glee and rubbing my hands together as much from the cold in the shack as from the anticipation of the surprise to the community when this pirate radio station came on line.

In my luggage coming in for that winter I'd carried along a TRS-80, Radio Shack's second (I think) generation "laptop" computer. It had a pulse dial modem. It didn't take much BASIC to write a short program that would look at the internal real-time clock and *IF* time was such *THEN DIAL* a single digit. The dialer relay went to the microwave control channel, through the ether to Black Island, made a contact close on the switchboard there, and that looped back to blink me a light. Fine. Now we needed to get out to Black Island and set up that end.

Fortuitously, a maintenance run to Black Island became needed. I'll spare you the details of organizing that excursion: a search and rescue person, diesel and oil burner mechanics, an electronics technician (me), a week's worth of food and survival gear, spare parts and test equipment, drums of fuel, a Nodwell, and a Thiokol.

Once we were out there and doing our several tasks, I was able to spend a few days listening to the shortwave to build a schedule of frequencies for the programming we desired. BBC, VOA, Radio Moscow, AFRTS, as well as WWV for a marker so we could tell where in the memory we were. I got inside the radio and finagled a connection between the memory step button and an accessory plug. That went on to the dry contact closure of the microwave. When the button back at McMurdo was pressed, the radio would step

to the next memory. Next was the audio feed. Line Out to an equalizer to the phone line. BBC came out of the monitor at the telco office back in town. Bingo!

Back at McMurdo a week later, I programmed the TRS-80. Within hours, all around town live basketball and baseball games via AFRTS were leaking from portable radios at various work centers. As word spread and the TRS-80 automatically changed the programming—news from Radio Moscow followed by the rest of the story from BBC (this was before the fall of the Berlin Wall)—there was a great rattling of sabers, but the live sports programming calmed everyone and the show went on. All winter long, nobody ever found the "pirate" FM station right under their noses.

Couldn't you just look the other way?

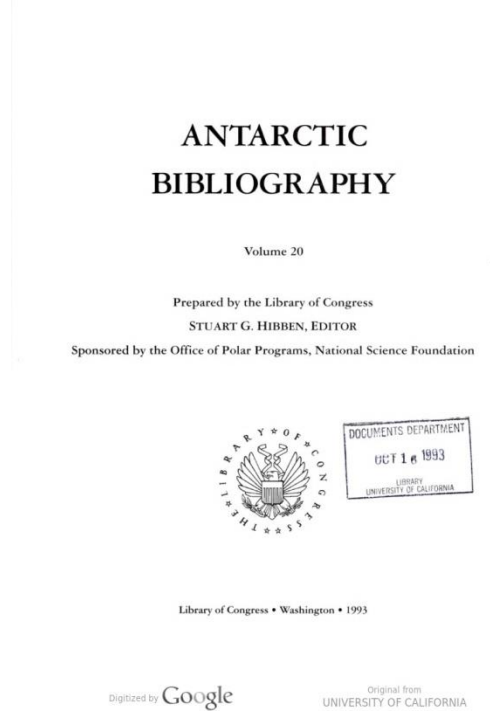
Al Oxtan's reminiscence in the January issue about getting the *Antarctic Bibliography* to work at Palmer Station recalls a meeting, decades ago, to which your editor was summoned at the Library of Congress.

The National Science Foundation and the U.S. Army funded the Library's Cold Regions Bibliography Project, which produced the *Antarctic Bibliography* for NSF and the *Bibliography on Cold Regions Science and Technology* for the Army. I managed NSF's part of the project.

The Library, in addition to bibliographic information, also made microfiche files of the complete texts of the cold regions literature it cited. The Army and NSF had bought the Library an enormous "step-and-repeat" microfiche camera for that purpose.

In the days before the Internet, this was a big deal: copies of the microfiche went to filing cabinets at the three Antarctic stations as well as to NSF, then in Washington, D.C., and to the Army's Cold Regions Research and Engineering Laboratory (CRREL) in Hanover, New Hampshire. So, scientists on the Ice had immediate access to the world Antarctic

literature, something they didn't get even at their home universities. We were proud of ourselves for extending the effectiveness of far-flung Antarctic science by placing the latest findings readily at hand.



Not so long ago, reference works weren't online; they were printed in hardbound books.

In the mid-1990s, decades into this practice, a freshly appointed Register of Copyrights – being an official of the very same Library of Congress – got wind of our project about the time the American Geophysical Union and other publishers sued Texaco for infringing the copyright law's fair-use provision: Texaco was photocopying articles from AGU and other journals and sending them to employees. Texaco lost.

At that Library of Congress meeting, I sat beside Stuart Hibben, director of the Cold Regions Bibliography Project. We were surrounded by the Register of Copyrights and her lawyers, and we were on the defensive.

She was not swayed by my argument that the usage, being noncommercial, was permissible under the law's fair-use provision. As the lawyers circled and the dilemma deepened, Mr. Hibben rose to the occasion,

and he became my hero. "The Library is so huge," he stated with innocence written all over his face, "and our project is so small, couldn't you just look the other way?" The room settled into an uncomfortable silence.

"We'll get back to you on that," stated the Register of Copyrights as she adjourned the meeting.

She never got back. The Library of Congress, which had begun the project in 1961, continued to produce the cold regions bibliographies, complete with microfiche copies of the cited texts, until 1999, when it lost the contract to the American Geological Institute (now American Geosciences Institute). By then the burgeoning World Wide Web and online access to journal texts had made the microfiche unnecessary. In 2011, the Army and NSF stopped funding the cold regions bibliography project altogether.

The legacy remains. You can search all the world's Antarctic literature published between 1951 and 2011 online at a site AGI – bless its pure heart – continues to maintain: <https://www.coldregions.org/vufind/>. It's free. Your editor uses it to this day.

And somewhere in the libraries of NSF (now in Alexandria, Va.) and CRREL are gray cabinets containing the outlaw microfiche.

Dive watch: unforeseen link between a Seiko and a 1979 research project

by Justin Couture
couture.justin.m@gmail.com

As a Midwestern man born and raised in the Sunflower State, virtually all my knowledge of the white continent came from the occasional online article or the 1982 John Carpenter film *The Thing*. I had zero awareness of the scientific endeavors that had taken place on the ice for the past sixty years. Despite my polar naiveté, on 19 June 2019 I purchased a vintage wristwatch that sent me headfirst into the intersection between horology and Antarctic research.

Having collected watches for years, I can tell you that a highly active and knowledgeable community of horology enthusiasts exists across the globe. Each collector is unique, but the fascination with watch provenance is shared. Whether a watch has been to the Moon, the bottom of the sea, or across Antarctic glaciers, this history imbues the watch with undeniable intrigue. It harkens to a time when watches were used as tools to accomplish a specific objective.

On a routine Wednesday at work I came across a vintage Seiko dive watch on eBay with unusual text printed across the dial. The text read “MSST 1979-80.” I googled variations of the wording online and came across a reference to the McMurdo Sound Sediment & Tectonic Study, abbreviated as “MSSTS.” This study took place from 1978 to 1980, and the watch was produced in 1979. The pieces seemed to fit (albeit loosely), so I clicked the “buy-it-now” option and never looked back.



While awaiting the arrival of this enigmatic timepiece, I dug into the potential Antarctic connection. I found the study report for the MSSTS program on the University of Wellington Victoria website. The document conveniently listed the personnel involved in the project. I was then able to locate university email addresses for members of the 1979 team. Within a week, I had heard from Alex Pyne and Dr. Peter Barrett, who functioned as core grabber and lead geologist on MSST. Both of these gentlemen remain active in the

Antarctic community; they indicated that these watches were given to key members of the MSSTS program by the late Japanese geochemist and head of the Japan Polar Research Association, Dr. Tetsuya Torii.

The McMurdo Sound Sediment & Tectonic study was a venture of New Zealand, Japan, and the United States doing deep drilling to obtain core samples that would allow scientists to learn more about Antarctic glacial history. Although Dr. Torii passed away in 2008, my research put me in communication with many titans of Antarctic research. Dr. Peter Barrett, Dr. Peter Webb, and the family of Dr. Barrie McKelvey were more than willing to share stories and information that further validated the significance of this watch and, more importantly, the science that has been and continues to be conducted in Antarctica. Dr. Torii once stated that Antarctica “is the only continent where all people work together and investigate important scientific items for the benefit of future humans.” This watch, a gift from Torii, is a tangible expression of that notion.

Review of *Symphony Antarctica*

by Tom Henderson



Composer Valmar Kurol, a long-time Antarctic Society member, and his musical

collaborator and arranger Michael Stibor have released the third album of Valmar's Antarctica trilogy, *Symphony Antarctica*. Valmar's first album, *Antarctic Arrival*, was released in 1999 and might be described as New Age in genre. The second album, *Ross Sea Suites and Other Antarctic Tone Poems*, released in 2016, is more cinematic. *Symphony Antarctica*, as the name states, is a symphonic treatment of what has inspired all of the albums: the majestic Antarctica.

This latest album is in three movements. The first, The Seasons, is a musical interpretation of the four seasons as experienced in Antarctica. Summer is energetic, reflecting the compressed active season for both nature and man. Fall is mellow, a slowing of the pace in anticipation of the coldest season. Winter opens ominously and continues the appropriate somber mood of the long, dark period. The tempo rises in Spring as both animals and people prepare for the furious activity of Summer as it approaches again.

The second movement is Telescopes to the Stars. It is inspired by the huge astronomic telescope in operation at Amundsen-Scott South Pole Station. This instrument is located at one of the most atmospherically clear locations on the earth, and it has contributed immensely to the knowledge of the universe in just a few years. Seeking Galaxies reflects these scientific discoveries. Beginning of Time is inspired by Stephen Hawking's work, starting with the Big Bang and the vast dispersion of stardust. Cosmic Strings simulates a starship ride through the cosmos on uplifting strings. By contrast, Quiet Nights is a gentle contemplation of the eternal night of space. Finally, the wonder of the unlimited universe is the theme of The Unfolding Universe.

The final movement, Icescapes and Landscapes, focuses on two lakes. Lake Vostok is a contemplation of the secrets hidden in Antarctica's largest subglacial lake 2.5 miles below the surface in East Antarctica. Listeners are treated to mysterious, melodic,

and sometimes fanciful passages. Erebus Lava Lake is the polar opposite – pun intended. Forceful and dynamic, it reflects the restless molten cauldron of Mount Erebus, the active volcano on Ross Island.

Symphony Antarctica is a beautifully rendered musical interpretation of our favorite continent. Those of us who have been there can sit back, close our eyes, and revisit, through the compositions, those magical places we have seen. For those who have not been there, relax and let your imagination trace the landscapes in the music. Either way, *Symphony Antarctica* is transporting.

For more information, or to listen to samples, go to www.symphonyantarctica.com.

Remembering Edward Bransfield

In November we heard from Jim Wilson in County Cork, Ireland, about a monument unveiling that would take place in January 2020. He thought Society members might be interested.



The new stone in Ireland, dedicated 25 January 2020

The unveiling on 25 January had some 400 people in attendance. Edward Bransfield, who charted the Antarctic mainland on 30 January 1820, now has a handsome stone, 80 inches in height, on Lower Road at the entrance to Ballinacurra village, a dozen miles east of the town of Cork.



Back side of the stone

Bransfield's work came at the beginning of Antarctica's age of discovery. "Within less than a year," writes Society member Joan N. Boothe in her book *The Storied Ice* (2011, Regent Press, 373 p.), "from the end of January 1820 to November of the same year, those aboard ships led by three men – Bellingshausen [Russia], Bransfield [U.K.], and Palmer [U.S.] – had almost certainly sighted the Antarctic continent."

That period likely will be part of the *Discovering Antarctica 1820-2020* exhibition that Mystic Seaport Foundation in Connecticut is developing. Originally scheduled to be ready for the public in November 2020, we can wish that it will be open by the time of our (now hoped for) Antarctic Gathering there on 4-6 June 2021.

The new Bransfield memorial in County Cork gives due tribute to the brig *Williams*, which Bransfield used for the 1820 charting expedition. Joan writes that, in addition to the three men above, "There is one other man to consider – William Smith, the British merchant captain who had discovered the South Shetlands in 1819."

Smith commanded the *Williams* delivering cargo from Buenos Aires to Valparaiso when he ran south to dodge heavy

weather. On 19 February he saw the South Shetlands. When he reached Valparaiso 3 weeks later, the British naval office was skeptical. Insulted, Smith headed south on purpose, on his cargo journey back. But ice was forming, and he did not see land. Westbound and passing Cape Horn a third time in less than a year, this dogged young captain, 28 years old, detoured south once again and on 16 October put a party ashore on what now is King George Island.

Back again in Valparaiso, the navy believed Smith this time, chartered the *Williams*, made Smith the pilot, and put Bransfield, Royal Navy, in charge as commander. It took almost a century, though, for Bransfield's historic achievement to receive full attention. William Speirs Bruce finally uncovered Bransfield's chart in 1917.

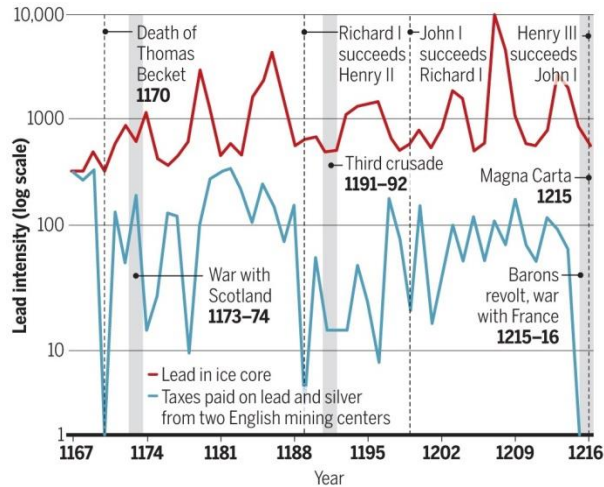
Now, another century having passed, Bransfield has a handsome commemorative stone. It's near the old harbor of Ballinacurra, where he would have sailed as a young man fishing with his father.

<http://rememberingedwardbransfield.ie>

English history written in ice

If you are an English history scholar, your go-to glaciologist is Antarctic Society member Paul Mayewski. Paul heads the Climate Change Institute at the University of Maine. Over the years, working usually with ice cores from the Arctic and Antarctica, he developed a variety of means to extract historic and prehistoric information about prior climates and atmospheric constituents.

A new study by Paul and others uses those skills and more to show lead pollution in ice from the Colle Gnifetti glacier in the Swiss Alps. "We have improved the sampling resolution in ice cores from the previous standard of 100 samples per meter to 10,000 samples per meter, meaning that even in old, compressed ice at depth, high-fidelity data are emerging that remained masked or smoothed out in lower-resolution records," says Paul.



Events influenced the amount of taxes paid on lead from English mines (blue). They also had broader effects, shaping lead pollution deposited 1,500 kilometers away in a Swiss glacier (red). Credit AAAS.

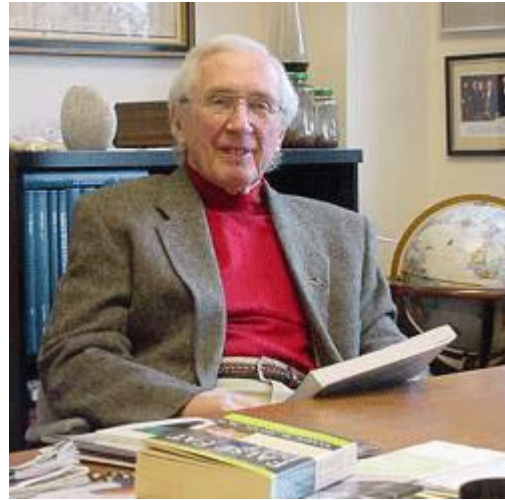
A dramatic finding is that atmospheric lead spiked to the highest levels before modernity between 1170 and 1219 C.E. Globally, atmospheric lead did not again reach that level until 1890 and, higher yet, in the 1970s with peak use of leaded gasoline.

The new study tracks historic wind data and concludes that the Colle Gnifetti lead came from mines in England. Historians pinpoint where: Castleton, 150 miles north of London. Ten years after King Henry II had ordered the killing of Thomas Becket, the archbishop of Canterbury, he made up with the pope and started bankrolling the building of abbeys. Lead was needed for roofs, cisterns, and gutters. Mining surged. There's more to the story, published 30 March 2020 in the journal *Antiquity*. See also a 2 April news release on the University of Maine site.

The glacier preserves a detailed record of medieval lead production. The newly developed method can track deposition over a few weeks or even days, states a news article by Ann Gibbons in the 3 April 2020 *Science*.

Castleton is in the Peak District, home of the U.K.'s first national park. Hikers dominate the place now, but 800 years ago farmers mined and smelted so much lead it left toxic trace in their bodies, and winds blew lead dust 1,500 miles away to the Swiss Alps.

Harold W. Borns Jr. dies



Dr. Harold W. Borns at the University of Maine

Harold (Hal) W. Borns Jr., long-time Society member and the founder of the Institute for Quaternary Studies (now the Climate Change Institute) at the University of Maine, died on 17 March 2020. He was professor emeritus of earth and climate sciences. Specializing in glacial geology, he spent 28 field seasons in Antarctica. His many publications resulting from that work range in date from 1969 to 2007.

Hal's B.S. in geology from Tufts (1951) was followed by M.A. (1955) and Ph.D. (1959) degrees in geology earned at Boston University. He was the first Maine scientist awarded a grant from the National Science Foundation (in 1960), and he held Maine Registered Geologist License #1.

Paul Mayewski, the current Climate Change Institute director, said, "I was fortunate to serve as a field assistant to Dr. Borns many years ago as I was starting my career."

Hal was expert in the glacial history of Maine. He produced the 1985 State Geological Survey map of Maine's Surficial Geology that synthesized previous work and remains the standard reference. In 2006, Hal and Michael Hermann produced Maine's *Ice Age Trail: Down East, Map and Guide*.

He did geological fieldwork on all continents except Australia.

The Climate Change Institute annually holds the Harold Borns Symposium, which features scientific presentations by present and former graduate students, faculty, and staff.

University of Maine President Joan Ferrini-Mundy said Hal was “an educator at heart, widely sharing his expertise for glacial and ice age geology with students of all ages, colleagues, and the community.”

Former CCI director George Jacobson noted, “His own great enthusiasm for science continued to the end, and even in the last few months of his life Hal mentioned plans for next summer’s fieldwork in gravel pits in Downeast Maine.”

Charles A. Bevilacqua, 1930-2019



Charlie at South Pole Station, 1 December 1956. Photo by Dick Prescott; courtesy usap.gov

Charles A. "CB" Bevilacqua, a treasured member of the Antarctic Society, died 25 November 2019. He was born in Woburn, Massachusetts, on 8 June 1930. When he finished high school in 1948 he joined the U.S. Navy Seabees. Serving in Korea, Vietnam, and elsewhere, he earned the rank of CWO4 (Chief Warrant Officer Grade 4). His Navy career spanned 30 years.

Charlie was part of the construction crew that in the mid-1950s built the original McMurdo and South Pole stations. At Pole, he was designated as Chief Builder.

Charles regaled attendees at some of the Society’s Gatherings in Port Clyde, Maine. A particularly memorable one in 2014

included his comments on the initial arrival and first weeks at the South Pole in 1956 to start erecting the structures that would house 18 men during its first (1957) winter, isolated more than 6 months from the rest of the world.

“You’re talking to one of the guys that painted the South Pole,” he told interviewer Dian O. Belanger on 3 August 1999 (the full interview is on the Ohio State University web site). Admiral Byrd and Admiral Dufek wanted a symbolic red and white candy-striped pole. “I came up with the idea of painting it orange and black, which were my Woburn, Massachusetts, high school colors. . . . We painted the pole in the garage, orange and black, and it took a long time to dry because it was oil-based paint.”

The question came up from officials, why was it orange and black and not red and white? “My answer was that was the only paint that wasn’t frozen. Well, lead paint and oil-based paint don’t freeze. But they were worried now about dog food and wrenches and hammers and panels, and the pole was an insignificant thing to worry about.” “I put a sign on it at the South Pole, ‘Woburn, Massachusetts, City Limits.’ I took pictures of it and sent them home to the local newspaper.”



Charles Bevilacqua, recent photo. Courtesy currentobituary.com

On his first deployment, in 1955, Charlie was with fellow Seabee Richard T. Williams, an early casualty when a tractor broke through the sea ice. Charlie headed the campaign that raised money for the memorial to Williams that stands at McMurdo today.

Charlie was a dedicated, focused, and gifted individual whose unending hours of punishing and innovative work in often grueling conditions helped to start the U.S. Antarctic Program on its trajectory of unexcelled polar science.

Bill Cassidy, 1928-2020



Dr. William A. Cassidy

William A. Cassidy, 92, died 25 March 2020. Bill, a professor of geology at the University of Pittsburgh for 30 years, in 1976 founded the Antarctic Search for Meteorites (ANSMET), a continuing program that has collected more than 25,000 meteorite specimens, an almost

incalculable influence on the study of meteorites.

Ralph Harvey, Case Western Reserve University, who with James Karner of the University of Utah heads ANSMET today, writes that, “when properly recovered and curated, these specimens serve as a uniquely representative sample of the extraterrestrial material accreting to our planet.”

Bill earned the B.S. in geology from the University of New Mexico in 1952 and his Ph.D. in geochemistry from Penn State in 1961. From 1995 to 1998, when he became emeritus professor at the University of Pittsburgh, he was an advisor to the Field Robotics Group at Carnegie Mellon University, which developed robotic collection methods for meteorites in Antarctica.

The Antarctic Bibliography lists 39 publications with Bill as author or co-author. Cambridge University Press published Bill’s book, *Meteorites, Ice, and Antarctica, a Personal Account* (2003, 349 p.), giving the project’s history and implications from study of the Antarctic meteorite collection.

Meteorites from Antarctica represent the greatest repository of meteorites on Earth.

Bill was vivid and warm. A memorable day came in 1982 when he was to be the featured speaker at a meeting of the Antarctic Society at the National Science Foundation.

Paul Dalrymple, then editor of this newsletter, reported the prelude to Bill’s appearance:

“Dr. William Cassidy was enjoying the serenity of a peaceful afternoon working in his laboratory at the University of Pittsburgh on February 16th when the quietude was broken by a call from Ken Moulton of NSF checking with Bill’s office to see what time he would be arriving in Washington to give the evening lecture. Imagine Ken’s surprise to find that Bill was still at the University. Disdaining the airlines, Bill hopped into his Audi and sped through the countryside, driving madward towards the Washington Monument.

Four hours after departing his laboratory, 'Hopalong' pulled up in front of the National Science Foundation, having successfully outrun all cops along the 250 miles from Pittsburgh to Washington. He arranged his slides in a tray in the men's room."

Corrections

In "Women in Antarctica: 50 years of exploration," by Kelly K. Falkner, in the January 2020 issue, the photograph on page 2 is not of Kelly Falkner's classroom, but rather a generic picture from the internet. Also, member Bruce Dewald points out that Richard E. Byrd was awarded the Medal of Honor for his 1926 North Pole flight, not for Antarctic accomplishments.



The Antarctic Society

VOLUME 19-20

JULY

No. 4

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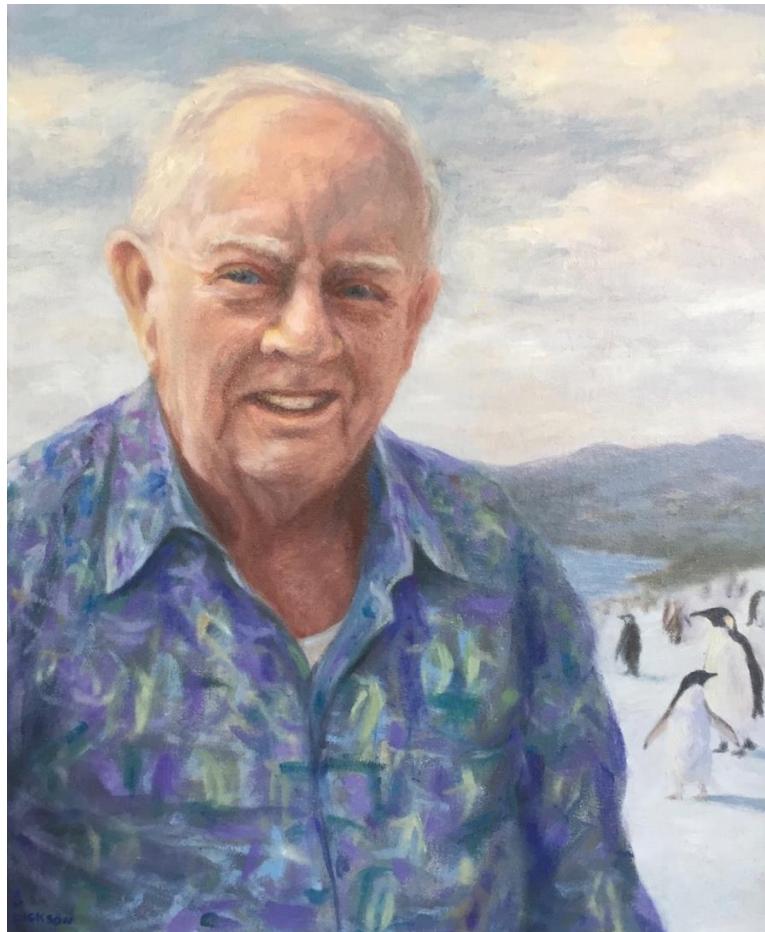
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**DR. PAUL CLEMENT DALRYMPLE
21 NOVEMBER 1923 – 24 APRIL 2020**



Paul Dalrymple nurtured the Antarctic Society for 44 years. His legacy challenges members to sustain the organization in the decades ahead. Read about the challenge, and about Paul, inside. Sandra Mason Dickson painted this portrait in 2013.

Board of Directors tackles Society's ancient bylaws

by Tom Henderson

The Board of Directors of the Antarctic Society has taken an initiative to completely revise our Bylaws. Member participation in this process is needed.

The document was last changed in 1965: a time before computers, the internet, email, hand-held calculators, and even copy machines. It specified dues as \$3.00 per year, and most of the members lived in or near Washington, D.C., making it easy to get to the meetings, lectures, and social events that then were held several times a year in the Washington area.

Numerous updates are needed, and the Board has put a big effort into developing this new version. We want the Bylaws to reflect the world as it exists now, to recognize the now geographically dispersed membership, and to make the Society more efficient.

Changing the Bylaws requires approval by a majority of Society members who choose to vote. Every member will receive, by regular mail, a copy of the proposed new Bylaws and a ballot to vote yes or no on them. If the votes support approval, the Board will adopt the new Bylaws immediately.

We think the improvements are necessary and urge you to vote for them. Do not hesitate to contact any of the current officers if you have questions.

Updating the Bylaws is only one of the Board's recent actions. The two articles that follow cover a member survey and a call for Board of Directors candidates.

A Society document not requiring your direct action is titled Articles of Incorporation, also adopted around 1965. It includes a list of the twelve purposes for which the Society was organized, and you may find it helpful as you go over the proposed revisions to the Bylaws. This document, along with the 1965 version of the Bylaws, is in the members-only part of the

Society website, under Members > Society Documents.

The survey — have your say

by Joan N. Boothe

Along with the ballot and revised Bylaws discussed above being mailed to members, we include a survey. With this one mailing, you can vote on the bylaws and also tell us how you feel about the Antarctic Society.

We are at the time to move the Antarctic Society into a new era. To do it right, we need to know what our members think about the Society and want for the future.

The survey begins on the same page as your ballot. It opens with general questions, then asks about your experience with and feelings regarding membership meetings and gatherings, the newsletter, the website, Society archives, and social media. The survey concludes with questions about your vision for the Society in the future. Most questions are multiple choice, but we want you to expand on your answers, and we provide space to do so.

We will compile all answers and comments, analyze the results, and prepare a report. When we publish the results of the election in the newsletter this fall, we also will let you know the results of the survey.

This is your Society. Your opinion counts, but only if you let us know how you feel. The survey is your opportunity to express yourself. The Board of Directors is committed to listening to what you have to say, and it is committed to acting on it.

Call for Board candidates

by Liesl Schernthanner

Our dear friend, Paul Dalrymple, possessed a great enthusiasm for the Antarctic Society, and his passing is a sad loss. We are grateful for the many memories

of Port Clyde gatherings, stimulating tell-it-as-it-is newsletter entries, Society leadership, and friendship. It has been said that the Society is his legacy, and in keeping with his heartfelt passion for Antarctica and this organization we are pressing ahead with optimism. To quote our acting Treasurer and valued Webmaster, Tom Henderson: “He and Ruth Siple took it upon themselves to carry the Society through difficult times and they succeeded, leaving us in good financial shape and with a stable membership. Now it is up to us to honor them and move the Society forward.”

As part of this effort, we call for **candidate nominations** for the Antarctic Society Board of Directors, Officers, and Ex-Officio Officers. Any current Society member interested in serving should send a short biographical sketch to our Secretary, Joan N. Boothe, at hoodooskr@aol.com or 2435 Divisadero Street, San Francisco, California 94115. Deadline for submissions is **29 August 2020**.

All positions are open for new candidates. New board members will begin their terms at the time of the annual Board meeting in September 2020.

If members approve the new Bylaws this summer (please look for the revision and your ballot in the mail), the Antarctic Society Board of Directors will have as many as 16 members. Of the 16, two officers (President, Vice President) will serve 3-year terms, with a two-term limit. As many as eight directors will serve 6-year terms. Secretary, Treasurer, and four ex-officio officers (Webmaster, Editor, Social Media Director, and Archivist) will serve terms of indefinite duration. All 16 will be voting members of the board. The Society Board will elect no more than eight directors and four officers by plurality vote in each election.

Responsibilities of officers and directors are described in the proposed amended Bylaws being mailed to all members. They include participation in one annual meeting conducted remotely (online using

Zoom or other meeting software as well as a telephone call-in option). Infrequent special board meetings may be called at other times to address urgent issues.

Potential near-term goals are to re-establish our non-profit status, organize future member gatherings, memorialize our recently dearly departed, update the Newsletter, and continue to build on Paul’s legacy. You have an opportunity to participate in moving the Society into a new era. Please consider submitting your candidacy for any of the positions. We need you!

Website update

by Tom Henderson

It has become apparent to me over the past few months that a number of members still do not realize that most of our website (www.antarctican.org) does not require a login and password to view the contents. Again, only certain areas of the Members category are password protected. For example, if you want to pay your dues you can just navigate to Members > Dues Payment without ever having to login. You will know if a page is protected if, when you click on it, the login sub-window appears. In the event of a forgotten login username or password, just send me an email at webmaster@antarctican.org.

By the way, if you are not sure when your membership expires, you can check that easily by logging in and going to Members > Members List. At the top of this page you will find a link to a document which shows you how to view your profile information, including the date of your membership expiration.

I recommend that you check the website frequently as we add new content on a regular basis.

As always, if you have any questions or difficulty in using the website, please contact me at the email above.

Jackie Ronne ignored

by Joanna Kafarowski

I was interested to read Kelly K. Falkner's article in the January 2020 issue about women who conduct and support science and to listen to her related talk at the "Women in Antarctica Celebrating 50 Years of Exploration" conference hosted in October 2019 by the Byrd Polar and Climate Research Center, Ohio State University. I was dismayed by no mention of pioneer Jackie Ronne (1919-2009), the first female member of an American Antarctic expedition. Jackie also was one of the two American women to winter there as part of the Ronne Antarctic Research Expedition (1947-1948).

Jackie's opening line to many lectures was that she "started for a year's stay in the Antarctic with a small suitcase, two silk dresses, two good suits ... and two pairs of shoes with heels." Her contributions as a team member have been downplayed – even by Jackie – until her accomplishments have been relegated to a symbolic role. But Jackie was one of the hardest working members of this expedition. Along with her husband, she dedicated hours towards organizing and planning while also maintaining a full-time job at the Department of State and carrying out the duties of a 1940s housewife. During the expedition, she was the communications expert in charge of preparing and disseminating information about the team's activities and considerable accomplishments. Any expedition stands or falls due to the sum of its parts including the leader, the technical crew, the scientists. The roles of the male radio operator Kelsey, the aviators Lassiter and Adams, the mechanics Hassage and Robertson, are unquestioned. Why is Jackie's role diminished because she worked in communications?

Jackie Ronne's contributions to the Ronne Antarctic Research Expedition extend further than many realize. She was a counsellor to the men and the primary advisor to her husband and expedition leader Finn

Ronne who drew up a document putting her in charge should anything happen to him. She conducted scientific work assisting the geophysicist Andrew Thompson.

I took over the operation of both the tidal gauge and the seismographic work. I made daily trips to the tidal shack, checked to see that the tide changes were being automatically recorded, and then wound the clocks. The seismographs took more time... Every twelve hours I crawled into a dungeon-like room, pulled up the trap door, beneath which the instruments were concealed, and changed the photographic sheets on the revolving drum. The machines were then checked for correct operation and the necessary adjustments made. When several of the recorded sheets had accumulated, I developed them in the same manner as one would a negative.

Unlike all of the team members except Finn, Jackie worked for years after the expedition was over. She wrote most of Finn's book about the experience, prepared and gave lectures, and was a liaison with the press. She devoted her life to Antarctica and was a fierce defender of her husband, the Ronne Antarctic Research Expedition, and his accomplishments. Finn's reputation has cast a shadow over Jackie, and her own achievements have been ignored.

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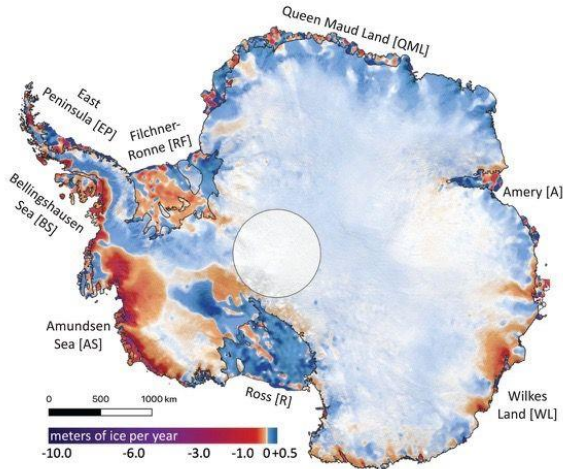
Dr. Joanna Kafarowski is writing the first biography of Jackie Ronne. She is the author of *The Polar Adventures of a Rich American Dame – A Life of Louise Arner Boyd* (Dundurn, 2017, 368 p.).

joannakafarowski@gmail.com

Heating the Antarctic, losing ice

Two recent papers quantify ice sheet mass loss over the last couple decades and help to explain why it's happening. As with so much polar science these days, the papers rely on data – lots of data – and on modeling. Much, not all, of the data are from satellites.

But experienced Antarctic scientists know that validity depends on field observations: Icesat 2, which produced much of the data used, requires annual treks out from South Pole Station to 88°S to calibrate what it's seeing.



Ice mass change, 2003-2019. The blue and white areas accumulated as much as 0.5 meter in snowfall during the period. But the red to dark maroon areas lost as much as 10 meters a year in thickness at the grounding line, where the continent's interior ice moving toward the sea first goes afloat. Overall, Antarctica lost an average

118 +/- 24 gigatons a year over the 16 years. After

figure 3 in B. Smith *et al.*,
Science 10.1126/science.aaz5845 (2020).

Ben Smith and 14 other authors from 10 institutions write in the 12 June *Science* that grounded-ice loss from Greenland and Antarctica contributed 14 millimeters to sea level over the period 2003 to 2019. The Antarctic was responsible for a bit over a third of the total, but its sea level potential of about 58 meters dwarfs Greenland's 7-meter potential. In both places, the *rate* of loss is on the rise. Because of changing atmospheric and oceanic conditions, "we can expect increasing contribution from both Greenland and Antarctica to sea level rise on relatively short (decadal to centennial) time scales," the authors write.

Images in the paper show the damage. A wide belt of blood red along the entire coast of Greenland indicates where ice loss is meters per year, whereas the interior is holding its own or gaining a bit in high places.

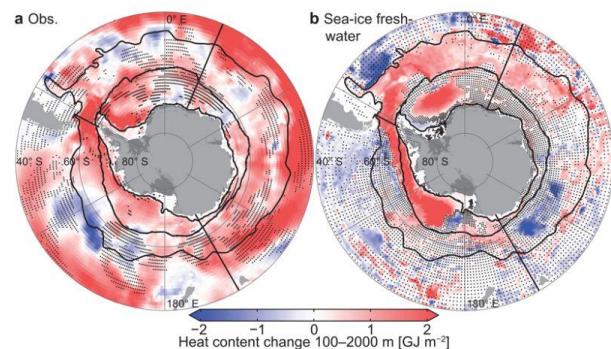
The Antarctica image doesn't look as dramatic, but West Antarctica and Wilkes

Land lost plenty. Ice shelves in West Antarctica account for 30 percent of the continent's total. Loss of floating ice doesn't contribute directly to sea level, but "it directly affects the rate of ice flow into the ocean." In the West Antarctic, just 31 percent of ice loss was from the shelves; the remaining 69 percent was from grounded ice feeding them.

East Antarctic ice shelves, overall, gained weight during the study period.

The other paper, in the 6 May *AGU Advances*, is by F. Alexander Haumann and two others. It looks at what went on in the Southern Ocean between 1982 and 2011. This is important because warmer ocean currents, as noted in the Ben Smith *et al.* paper and other literature, have shifted southward in some places and caused more than half the loss from Antarctic ice shelves. (The warming atmosphere is a factor, too.)

The Haumann paper looks at the third dimension, depth, to get an idea of how that new ocean heat is getting in.



The left image shows the change in the observed subsurface (100 to 2,000 meters depth) heat content from 1982 to 2011 in gigajoules per square meter. At right is the simulated change in subsurface heat content (years 6 to 15) in response to influence by sea ice. The authors reckon the Southern Ocean sea ice influence on ocean heat content accounts for 8 +/- 2 percent of the change in the upper 2,000 meters of the entire global ocean, 1982-2011. After figure 7 in F. Haumann *et al.*, *AGU Advances*, 6 May 2020.

Most of the global ocean *surface* has been warming, they state, but parts of the Southern Ocean surface have cooled, which climate models say should not have happened.

The surface cooled, say Haumann *et al.*, because sea ice patterns changed. When sea ice forms in winter along the coast, it leaves salt behind. Winds shove the sea ice to the open ocean, where it melts and freshens the water there. Wind speeds have picked up in the last couple decades, and that change likely has strengthened the process.

“In our model,” they write, “the resulting freshening leads to a surface cooling, because the mixing of these waters with the warmer waters below is hindered. Thereby, the heat stays below the ocean's surface and cannot be released to the atmosphere.”

That heat retained below the surface near the coast melted ice shelf bottoms and, surprise, “possibly contributed to the slow-down of global warming over this period.”

Virus threat stalls field work

Owing to the Covid-19 threat, U.S. and other Antarctic programs will suspend most planned field research during the coming summer season.

As of 11 June, the National Science Foundation, manager of the U.S. program, reported that all three year-round stations are safe, and “no indications of the virus have been detected.” NSF wants to keep it that way.

Priority is to keep the stations running safely summer and winter, which means restocking supplies for the winter isolation that will begin in February 2021. NSF also will do station-based tasks “that will allow us to avoid irreversible damage to science and operational infrastructure.” While grantee scientists mostly will have to stay home, the support contractor will continue to operate data-collection instruments as possible.

Science magazine, 19 June 2020, states that the halt “is especially painful for the International Thwaites Glacier Collaboration, the continent’s largest field project ever.” The coming season was to be the collaboration’s second, “and perhaps its most critical.”

Australia in the coming austral summer season will not deploy smaller aircraft that normally would operate among its three year-round stations. The decision means some science projects will not take place, and some winterers who were to get home at the end of 2020 will have to wait for the February 2021 ship. Quarantines will be imposed before people get aboard ships or planes.

New Zealand will support only long-term science monitoring, essential operations, and planned maintenance this season. The program “is developing a managed isolation plan with multiple government agencies to ensure Covid-19 doesn’t enter Antarctica.”

The French program will keep its wintering station operational; headquarters staff will telework “to pursue the rest of the activities as best they can.”

Japan’s Syowa Station will continue operations and observations in the 2021 winter, but not do much else. This summer, the team now there will be relieved by a new one.

Most British Antarctic Survey field work in the coming season will be cancelled. Like other nations, the British Antarctic Survey so far has prevented infections of the novel coronavirus at Antarctic stations, according to the *Science* article.

The Antarctic Eye: landscape photographers on the Ice

by Lynn Teo Simarski

Our tour ship *Zaandam* cleaved grey seas south as Cape Horn vanished astern. Thick fog left nothing to see as the ship’s horn blew a lullaby. In the morning, the cabin curtain parted to reveal an icy Shangri-La, my first view of the Antarctic Peninsula. Dazzling as staring at heaven, I could not look too long.

I had cut my teeth as a landscape photographer on the Chesapeake Bay, while living aboard a 40-foot trawler with Guy Guthridge, my husband. Now he was lecturing to passengers aboard the 781-foot

Zaandam, cruising the Peninsula, while I lost myself in landscape photography.

curled around rock spires, as “bad” weather created shape-shifting sleights-of-hand.



Antarctic Parabola copyright Lynn Teo Simarski



Evening Berg copyright Lynn Teo Simarski



Tiramisu copyright Lynn Teo Simarski



Scalloped copyright Lynn Teo Simarski

The visual sensuality of the snow and ice was ever-changing. Snow blanketed mountains into wedding cakes. I began to see swirly and luscious Antarctica as dessert, vanilla ice cream melting down chocolate promontories.

Fanciful icebergs were Rorschach gone wild: a huge icy skull floating by, then giant rabbit ears, and a swoopy grand piano. Steven Pyne, author of *The Ice* (1986, 428 p.), described the ice border as “a sculpture garden of kinetic art...Of all the Antarctic ices, the berg is most artful.” Ground pepper sprinkled a distant berg, resolving upon approach into perched penguins. “The Ice is nature as modernist,” wrote Pyne. With Antarctica’s cloak of vegetation long-gone, its abstract architecture was revealed down to bare bones of ice, rock, bergs and sea. Cotton cloud



Hint copyright Lynn Teo Simarski

Examining my shots, I found them lacking horizon – puzzling the eye but also fostering intimacy and focus. Ice slopes were imprinted with a giant wing, sculpted into Cleopatra’s eye, etched with a sine wave, branded with an arrow of light. Minimalism distilled to essence.



Arrow of Light copyright Lynn Teo Simarski

Photographer-explorers

I began to wonder how other photographers had seen Antarctica, and whether the landscape's austerity had made them move – like me – toward the abstract.

Photography as a technology and an art-form developed in parallel with the exploration of Antarctica. William L. Fox's *Terra Antarctica* (2005, 312 p.) became for me a treasury of insight into Antarctic art history.

Early Antarctic photography had roots in painting traditions, specifically in expedition art. Edward Wilson, accompanying Scott, sketched mountains almost until his death. An earlier artist on James Cook's expeditions, William Hodges, influenced landscape painter J.M.W. Turner, who influenced Edward Wilson.

Cameras could not match the excellence of Wilson's watercolors, especially their capture of atmospheric phenomena, for almost a hundred years later. Even if we don't know it, some of us landscape photographers are indebted to Wilson today.

Artists mostly remained on the coast where the terrain seemed more familiar. Up on the ice sheet, the light was too bright and the horizon lacking. As Pyne said, the landscape painter's Romantic icons – "the wild crag, the deep gorge, the blasted tree, the melancholy ruin... – none was available." It took a long time for modernism to reach the Ice.

Polar artists often used the motif of depicting small figures against a massive background.

As photography began to dig its icy toehold during the "Heroic Age," two men stood out. Australian Frank Hurley used human figures masterfully in "Pushing Against a Gale." He also shot *Endurance* stuck in the ice. As it sank, he dove into the ship's hold, fishing around in the icy waters. "I was rewarded in the end and passed out three precious tins [of film and negatives]."

The other notable photographer was Herbert Ponting, and his "Grotto in an Iceberg" is one of the best-known Antarctic images. Bill Fox sees it as the Antarctic version of the classic landscape formula of trees framing the foreground, sunlit middle ground, and a distant background.

New platforms, new eyes

But few photographers came to the ice in following decades. A large leap to the 1950s brought a new view, from ships to planes, during the International Geophysical Year, 1957-58. Swiss photographer Emil Schulthess soared to a powerful new vantage point – the air – to capture the Ross Sea edge. He also found abstract poetry in scientific paraphernalia, capturing dark loops of seismic cable against the blinding white of snow layers under study.

A scientist-turned-photographer, Eliot Porter, went to Antarctica in the 1970s with NSF. He shot from the air, in ice caves, and from ships. Porter's "flattening of perspective, abstraction and esthetic aim" worked well in Antarctica, noted Steve Pyne. And I found a kinship with his style after I left the cruise ship and saw his work. Jody Forster, another pioneer, took his large 8x10 film view camera south, under NSF's Antarctic Artists and Writers Program, which codified in the 1980s. Jody shot grease ice, icebergs, and jeweled sunset reflections in the Barne Glacier.



Midnight at the Barne Glacier copyright Jody Forster



Windless Bight copyright Neelon Crawford

Neelon Crawford visited the Ice five times, a rare art-program participant to winter at McMurdo. From shipboard, he captured a nighttime image of an iceberg as he persuaded captain and crew to “paint” the berg with the ship’s searchlights. Neelon’s three hanging glaciers in Pearse Valley evoke Salvador Dali’s melting clocks – and personify the power of black-and-white to portray the landscape.



Fog near Brabant Island copyright Stuart Klipper

Stuart Klipper photographed six times on the Ice, using a handheld panoramic

camera. Stuart’s wide-format Antarctic pictures mimic the way one’s own eye sweeps back and forth seeking “visual anchors” in the wide space, as Bill Fox said.

Yann Arthus-Bertrand, known for exploring “the Earth from Above,” shot patterned ground in the Dry Valleys and the Erebus Glacier Tongue. Gerry Johansson created a book of abstract black-and-whites from the Swedish station Wasa. Lisa Blatt went south with NSF, seeing with truly elegant, extreme minimalism. Diane Tuft, a mathematician-turned-artist from New York City, captured how ultraviolet and infrared light waves illuminated Antarctic-scapes, such as bubbles of past atmospheres trapped in Lake Vanda ice.

“Photography is often touted as the predominant Antarctic art form,” says Bill Fox. Photography and Antarctic discovery marched forward in tandem.

And for me, discovering other photographers has made me a more conscious photographer, more aware of our debt to painters and each other, more conscious of the constructed notion of landscape, and appreciative of a dazzling spectrum of “Antarctic eyes.”



Lair of the Ice Dragon copyright Lynn Teo Simarski

This article is based on a talk I gave at the 2018 Antarctic Gathering in Port Clyde, Maine. To view some of my Antarctic work, see <https://lynnteosimarski.com>.

Newsletter editor sought

Guy Guthridge, current editor of this newsletter, has informed the Board that he wishes to hand the opportunity to someone else by no later than the October 2021 issue.

Early editors of the newsletter, which began in 1965, included Henry M. Dater, Historian, Naval Support Force Antarctica, and George A. Doumani, Head, Cold Regions Bibliography Project, Library of Congress.

Paul C. Dalrymple became a member of the Board of Directors as well as the newsletter editor in 1976.

Kristin Larson, Environmental Compliance Officer with NSF's polar office, began a column in 1996 and became co-editor in 1998. She was President of the Society 2000-2002, but by the end of her term she had a law degree and went to full time practice.

Paul resumed editorship until 2014 when he handed the reins to Guy.

Guy and the Board believe the newsletter is vital to the Society. But, "the newsletter needs a new voice from time to time," he says. Guy has back files and is happy to talk with anyone interested.

We hope a member (existing or new!) will step forward to move the newsletter into the future. Communicate your suggestions or availability to Joan Boothe. See page 1 for contact information.

Paul C. Dalrymple, 1923-2020

Dr. Paul Clement Dalrymple, a scientist whose vital association with the Antarctic Society spanned 44 years and included service as Board member, Treasurer, and President in addition to a four-decade tenure as editor of the newsletter, died 24 April 2020 in Rockland, Maine, where he was born on 21 November 1923.

Paul became interested in the Antarctic after reading Richard E. Byrd's books and, when about 12, attending a lecture nearby by Amory H. "Bud" Waite, who was with Byrd's 1933-1935 expedition.

Graduating from Worcester Classical High School, Massachusetts, in 1941, he began at Clark University where Paul Siple (also with Byrd) had just earned his Ph.D.

"My father never had any money," Paul wrote, "but strongly believed in education. I stayed at home and started at Clark University. To finish that freshman year, I had to enlist in the Army. The GI Bill saved me, allowed me to complete college and go through my masters, then take some courses at both MIT and Harvard."



Paul Dalrymple at South Pole Station 1959

Army service left a deep impression. Paul started in ASTP (Army Specialized Training Program) expecting to do technical work. But the program was ended in early 1943, and he was sent to the front in Germany, where a battle at Orscholz felled most companions and resulted in his capture by the Germans. "I was a POW before I had even kissed a girl," he wrote. "I weighed just about 125 pounds, soaking wet, with rocks in my pockets. And surviving in prison camp seemed a lot easier for us skinny kids than the heavier set ones." Liberated nearly a year later, he celebrated the anniversary of the date, 16 April 1945, for the rest of his life.



Paul and Gracie Machemer at POW-MIA Parade

At the graduate level at MIT, Paul took a course in micrometeorological instrumentation. MIT wasn't the only Boston-area school he attended. He also was at Harvard's Blue Hill Meteorological Laboratory and took courses at Boston University.

Long before the International Geophysical Year, he had written Admiral Byrd to volunteer for Antarctica. Byrd kept the letter and years later encouraged him to be the micrometeorologist at Little America V. Paul rounded up funds and instrumentation and headed south in December 1956 aboard USS *Curtiss*. He wouldn't be back until 1959.

"As part of the USNC-IGY glaciology program in the Antarctic," Paul wrote in the official 1961 report, "the Quartermaster Corps, U.S. Army, maintained micrometeorological programs at two U.S. stations which had vastly different climates: Little America V (1957) and the Amundsen-Scott South Pole Station (1958). The South Pole program was basically the same as the one conducted at Little America V. Improved instrumentation, measurements at additional depths and heights, a longer period of record, and a year's experience in the Antarctic combined to make it better. . . . This program represents the only continuously recording temperature and wind profile ever conducted in the interior of the Antarctic continent."

At the two stations, Paul *was* the Quartermaster Corps. He had help before deploying from many, but most of the preparation and all the onsite work were his.



"Redbeard" Dalrymple at Little America V 1958

His clear writing reflects earlier samples such as an eight-page handwritten letter, in ink with no cross-outs, on Red Cross letterhead sent from France as he waited for a ship home after the war ended. Nearly all his life he took notes and named names. "My journal is quite large," he told an interviewer in 1999.

The winter spent at South Pole earned Paul his Ph.D. from Boston University and likely cost him his marriage. "My wife said to me that I was a good guy before I went to the Antarctic. I had an idea that my marriage would've gone on the rocks anyway. This probably was accelerated by Antarctica."

He worked up the Antarctic data with the world's top micrometeorologist, Heinz Lettau, University of Wisconsin, a German prisoner of war in Louisiana while Paul was a POW in Germany.

Paul managed micrometeorology at the U.S. Plateau Station, operated in the East

Antarctic interior 1965-1969. "I never went there. I hired people from the University of Wisconsin who were students of Dr. Lettau."

"But my priorities then were taking me to Thailand because of the Vietnam War." Paul administered the Army's meteorology program there.

Paul was sole author or co-author of 22 scientific publications regarding the Antarctic, issued 1961 to 1974.

"It opened doors for me, Antarctica did. I had a menial job before. I was working on camouflage maps for the Army. The worst damn job in the whole world. I had no interest. I don't have any interest in the military. But I do have interest in basic research, and that's basically what I was doing down there."

In 1986, Paul retired from his long and accomplished career as a researcher, meteorologist, and geographer with the Army's Quartermaster Research and Engineering Command (Natick Laboratories, now Soldier Systems Center). In 1959 he had been presented the highest honorary award granted by the U.S. Government, the Meritorious Civilian Service Award, for outstanding scientific work during the 2-year assignment in Antarctica.

Paul conducted his own retirement party because "nobody else would do it right." The gala midday affair took place at the George Washington Inn on South Washington Street in Alexandria, Virginia (now private residences). At the lectern, he addressed nearly every person in the crowded room, one by one, saying something personal or praiseful or shocking about each. The performance was classic and unforgettable Dalrymple.

During his long tenure as editor, Paul Dalrymple used the newsletter as a tool to develop the Society, present original information in lively style, and celebrate members and others.

A 1978 issue is an early example. Mildred Rodgers Crary wrote about the entry of women into Antarctic science and operations. "It's About Time!" consists of four



Mark Leinmiller, Paul and Gracie at 2018 Port Clyde Gathering

scholarly pages concluding with "Yes, it's about time — to start taking it for granted that qualified people, male or female, go to the Antarctic."

Paul's "The end of a (great) era" followed. He wrote it because, "I did not feel that it was proper to ask for a show of hands of those who were still practicing male chauvinists and, besides, who would have been better qualified than myself?" It begins, "Antarctica was really made for men, stout hearted men like those they sing songs to and tell tales about and drink beer to . . ."

Over the years the newsletter, along with lively programs of Washington, D.C.-area presentations and social events that mainly Paul developed, resulted in a growth in membership to about 650 (we're now half that) and development of a financial cushion that has lasted to the present.

For more than a decade, the newsletter was a joint effort with Ruth Siple, widow of Paul Siple (the Boy Scout with Byrd in the 1930s and science leader for South Pole Station's first winter, 1957). They put issue after issue together in Ruth's living room on

North Jacksonville Street in Arlington, Virginia.

The arrangement ended when Paul built a house in Port Clyde, Maine, and moved “back home” in the late 1980s.



Gracie and Paul on Antarctic cruise ship

In between newsletters, he was a guest lecturer on more than 25 Antarctic tourism cruises in the 1990s.

The change significantly affected the Society’s way of operating. The original Washington, D.C.-area membership concentration for years had been dispersing Nationwide. Paul resurrected both the social side and the presentations from the Washington days with occasional “gatherings” of members on his spacious oceanside lawn on Marshall Point Road in Port Clyde that included a day of presentations in his garage. Some of these events are covered in the Society’s website.

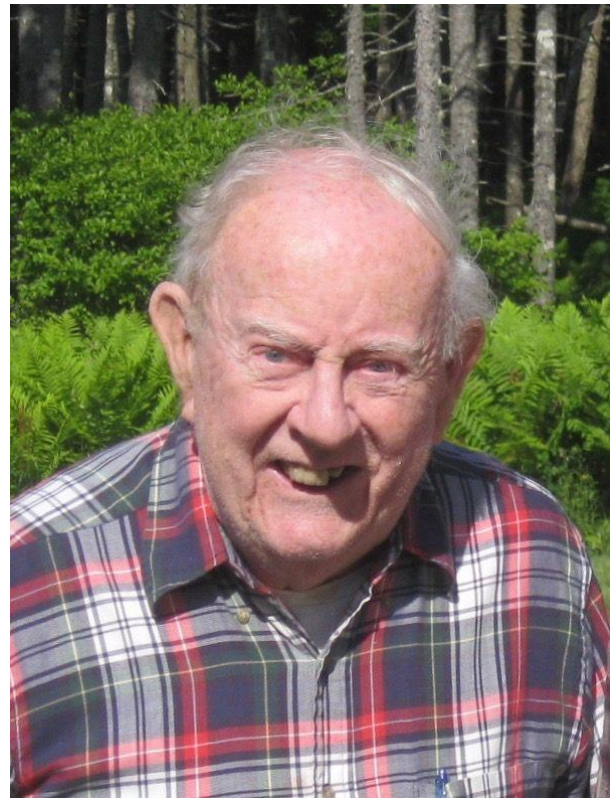
Baseball was a passion of Paul’s, and his knowledge was encyclopedic. In the 1980s, trading a series of emails with fellow alumni of the German POW camps, Paul wrote, “My hormones have been all screwed up. Before World War II, there was only one thing in my life, baseball. Girls were just things that got in the way of baseball.”

In the Army, more than once he mislaid his rifle but had a baseball bat. The most consequential time was during the D-Day invasion, his first exposure to combat. A friend explains: “It is true that he had charge of a baseball bat in England and France, but

what he failed to say was that when we waded ashore in Normandy and lined up, he had the bat in hand, but had lost his rifle. Sergeant Hale had apoplexy right on the beach.”

A dream of Paul’s early on was to be a sportswriter. Before the war, he had interviewed the famous Ted Williams. To the end of his days, the license plate on Paul’s car was TSW 406, for Ted’s full name and his 1941 batting average of .406, a record that still stands.

Grace Macheimer, whose obituary is in the October 2019 newsletter, was Paul’s love and companion from 2000. A visitor to their home would listen to them talking into the wee hours, night after night. Paul died 6½ months after Gracie did.



Dr. Paul Clement Dalrymple, 2016

Sources:

Sandra Mason Dickson granted permission to use the portrait that appears on page 1. Margaret and Scott Dalrymple provided the digital image.

Steve Dibbern furnished the Redbeard photograph.

Clay Guthridge took the 2016 photo portrait.

Mark Leinmiller furnished digital images of old files and emails.

Jerry Marty provided pictures.

Felice Llano gave insights based on spending long uninterrupted times with Gracie and Paul at their home.

The Cold Regions Bibliography Project yielded a list of Paul's Antarctic scientific publications.

Dian O. Belanger conducted a lengthy oral history interview of Paul on 5 August 1999 that has been transcribed and placed on the Ohio State University website.

Tom Henderson digitized the complete archive of Society newsletters (most of which Paul edited or wrote), built and posted a Paul Dalrymple commemoration, and conducted two on-camera interviews of Paul, all on the Antarctic Society website.

The Penobscot Bay Pilot published an obituary on 8 May 2020.

Paul Dalrymple left files, journals, writings, publications, and artefacts that together document a rich and considered life.



The Antarctic Society

VOLUME 20-21

OCTOBER

No. 1

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NEW FACES, NEW IDEAS FOR OUR TREASURED SOCIETY

Among the world's recent reminders is that we're all connected and that resilience helps to carry us forward. With nearly everyone adjusting to the pandemic, the Antarctic Society is doing the same, and then some. We have new Bylaws and a new Board of Directors. We've taken to Zoom meetings and are exploring alternative methods to share information.

We deeply thank the membership for responding to the ballot and the survey this summer. A huge number of you took the time and effort. The thoughtful comments have given us much to work on.

We did not gather in person this year to visit with old friends and honor those dearly departed. Having to cancel the 2021 Mystic Seaport Gathering is another disappointment. We do hope to organize a meeting in 2021, but it will be virtual.

Helping to make plans for the future of our Society are some familiar faces re-elected to our Board of Directors, and a few new Board members. Thank you all for serving. To our retiring Board members – Tony Gow, Louis Lanzerotti, and John Behrendt – who have been inspiring in their wealth of experience, ties to science, personal stories, and dedication to sharing, we extend our perpetual gratitude. Get to know the present Board of Directors on our website "About Us" page (<https://www.antarctican.org/board-of-directors>). You'll be impressed by the diversity and breadth of Antarctic interests.

When I started going south as a laborer in 1995, I fell in love with the Ice, but I never expected to join such a prestigious and dedicated group, nor to follow in the footsteps of many illustrious past presidents. I am honored and excited to be the new Society President. I look forward to working with the Board and members. Together we can help keep the newsletter interesting, membership stimulated, and all of us better informed about the place that has mutually affected us. Please use our virtual resources by perusing the website, sharing an Antarctic post or podcast on Facebook (<https://www.facebook.com/antarcticansociety>), contributing an article to our newsletter, or communicating via email. Let's stay connected, be resilient, and move forward. Be well.

Liesl Schernthanner

Members vote to approve Restated and Amended Bylaws

In June 2020, the Society's Board of Directors met via Zoom to review proposed Restated and Amended Bylaws. The Board voted to submit the proposed revision to Society members for approval. A ballot was sent to all Society members, asking for their vote to approve or disapprove. One hundred fifty-six members - just over 50% of us - returned ballots, with 145 votes to approve, 5 votes not approving, and 6 with no vote. Therefore, *the 2020 Restated and Amended Bylaws have been approved.*

Fourteen of the returned ballots, including 12 of the yes votes, included comments on the wording of the Bylaws. The Board will review these comments and make additional revisions to the Bylaws as warranted. In the meantime, the Revised Bylaws as approved have been posted in the Members section of the Society [website](#).

September 2020 Board meeting

On 19 September the Board of Directors met via Zoom. President Tony Gow opened the meeting, after which Secretary Joan Boothe reported that the membership had approved the Restated and Amended Bylaws. Pursuant to the approved Revised Bylaws, the Board then elected new officers and Directors. Liesl Scherthanner, the newly elected president, then replaced Tony in presiding over the meeting, beginning with thanking Tony for his service.

Minutes of the meeting have been posted in the Members section on the [website](#). Topics discussed included the Treasurer's report; steps being taken to regain nonprofit status for the Society; further revisions to the Bylaws; results of the member survey; plans for future meetings; cancelling of the 2021 Gathering planned for Mystic Seaport; newsletter plans; member outreach; and dollar

cost of membership dues. Discussion of a memorial to Paul Dalrymple was deferred.

The next Board meeting will be via Zoom on December 12 at 4:30 p.m. EST. All Society members are welcome and encouraged to participate. You have to sign up in advance to receive a Zoom meeting link. If you have not used Zoom before, it is straightforward with a computer or a Smartphone, iPad, etc., with Internet access. To sign up, contact Webmaster Tom Henderson, webmaster@antarctican.org.

Membership survey yields big results

by Joan N. Boothe

The Board decided to take advantage of our mailing to the Members asking for approval of the Revised Bylaws to survey how Members feel about the Society now and for the future. Officers, Ex-officio Officers, and Directors joined to create a survey that would not only give our members a chance to express themselves, but also to provide input for moving the Society forward in the years to come. From the response received, it is clear that many members also thought this was a good idea.

Just over 50% of our members - 160 of you - returned surveys, about one-third of them anonymously. Many of you responded to all or nearly all the questions that offered multiple-choice options, accompanied by numerous comments, qualifications, and explanations. Overall conclusions from the survey: Those returning the surveys are pretty happy with the Society as it now is, especially the newsletter, but many would like more from it, or changes for the future to adapt to today's world. There was one common concern, that we are currently an aging society, with a need for new blood and younger members if we wish to survive and thrive in the years to come. But, even if many of us are aging, the surveys make it clear that we are a keen and articulate group that

continues to be interested in what's happening in Antarctica today and is eager to remain involved, if only to keep up to date on today's activity on the Ice.

The survey questions were divided into sections, as summarized here:

General Questions — These were the first questions asked. Nearly everyone answered the questions in this group, perhaps because they were right at the beginning before they had survey-answer fatigue. We asked why people belong to the Society. The overwhelming answer was they want to keep up with Antarctica today. But it isn't only that. People join and remain members also because of personal connections to friends and to their own experiences on the Ice in years past. What do we get from our membership? Nearly everyone, 98% of those who answered the question, cited the newsletter, but the website is also of great interest, as are gatherings and networking.

Gatherings and Meetings — From a statistical perspective, the answers here may not reflect what we would hear if all members responded since it's probable that it was the most engaged members returning the surveys. But here's what you told us. About half of the respondents have attended a Society meeting or "Gathering" at some point, with 41% in the last ten years. You come for the talks, but nearly as important, it's to see friends and renew connections. For those who did not attend, distance seems to be the main issue. As for time of year that's preferred, summer definitely gets the nod (the northern summer, that is!). In part that's because older members seem to prefer that time of year, but it's also because it does not conflict with the Antarctic season. Several people offered thoughts for meetings in the future, including using new technology. The pandemic in particular has made us more aware of the possibilities for virtual gatherings, and quite a few people mentioned this as something to consider for

the future. It would eliminate the problems of distance and might make it practical to have more frequent meetings, something that many suggested would be desirable.

Newsletter — We really, really like the newsletter! Ninety-nine percent of respondents answered the question, "Do you read the newsletter?" and the answer is a resounding "yes." How often? Eight-six percent said "always," with another 11% saying "sometimes." We like everything in it, though current Antarctic news is right at the top (of interest to 99% of respondents to the question!). It's clear that a high-quality newsletter is central to the health of our Society. As one respondent put it, "The newsletter is the eyes, ears, and heart of the Society. A point of reference, a promoter of a true sense of community, and a sustainer and renewer of common bonds of experience and interest." All well and good, but comments received also provided input for improvement. The most common suggestions were for reports of activity on the Ice, including that by people from other countries.

Website — The website is clearly valued by our members. Only 17% say they never go there, but the survey responses also suggest a need for more awareness of what the website has to offer and how to access it. The website is a rich resource for Society members, but the survey tells us that more of us need to explore its content.

Archives — The Society has long had archives, but only about half of us seem to know that, and even fewer of us know how to access the archived material. As for the slide scanning service, most of us have no plans to take advantage of it. In part, that's because members don't know about it. The same appears to be true of the question of having the Society archive polar memorabilia. Only 75 people answered the question about whether they were interested in taking

advantage of this, and of these, just over half said yes. Not everyone has items that might be appropriate for this service, but there does seem to be a problem with letting people know that it's a possibility.

Social Media — As noted earlier, we're an aging group, with relatively few members from the younger generations who are deeply involved in social media. This is clear from the fact that 60% of us don't even know we have a Facebook page, and many people commented that they just don't do anything with social media. The survey responses suggest a potential here for increasing awareness of the Society's possibilities with social media, but this won't be of interest to many of our current members, including several who flatly stated that they don't want the Society to have anything to do with social media.

Goals and Possibilities for the Future — Should we be more closely associated or cooperate with other polar organizations? Most respondents think we should. In fact, only one person checked "none" in response to this question. Of the 84% of respondents who answered this question, the two favorites for closer connections are the New Zealand Antarctic Society and the National Science Foundation Office of Polar Programs. More than half of us said yes to these organizations. The American Polar Society was third in line, then the Old Antarctic Explorers Association.

After who to work with, we asked about possibilities for increasing membership. Just over three-quarters of us, in an echo of the response to the what-organizations question, indicated that we should cooperate with other polar organizations. Closely following this was the option of encouraging members to introduce people to the Society. There were lots of comments on this one, including suggestions of offering free memberships for a year to people returning

from the Ice, reaching out to tourists, having brochures that could be distributed. We have much interesting input to consider here.

The survey concluded with two broad questions, with no multiple-choice options to make it easier to respond. We asked members 1) what they would like the Society to do in the future that it is not now doing and 2) what matters to members about the Society. More than half of the respondents answered one or both of these questions, many offering thoughtful responses that provide rich, valuable input for thinking about the Society's future.

Frequently mentioned, among other things: more meetings, including virtual ones; moving meetings around the country; efforts to increase membership, especially younger members. But members also are concerned that we retain the culture of the Society as it has developed since its inception: relaxed, informal, and welcoming.

The response to the survey from our Membership is clear evidence that our membership values the Antarctic Society. Thanks to all those who returned the survey, and even more so, thank you so much for your input. The Board will be reviewing it carefully and acting on it to move the Society forward, into the future.

For details of the survey responses, see the Members area of the Society's website.

Dues to increase for hard-copy members

by Tom Henderson

The Society has not increased its dues in 10 years. In the interim, the costs of printing and mailing have increased significantly.

As of now, 110 members still receive "hard copy": a printed newsletter mailed first-class via USPS.

The dues difference of \$7.00 in hard copy versus electronic distribution no longer covers the extra expense of hard copy. This is by far the greatest single expense the Society incurs.

Therefore, the Board of Directors, at its September 19 meeting, voted to increase the dues for hard copy members from \$20.00 per year to \$25.00 per year. Dues for non-U.S. hard-copy members will increase from \$25.00 per year to \$30.00 per year. These increases will take effect January 1, 2021. The dues for electronic members will remain at \$13.00 per year for both U.S. and non-U.S. members.

Advantages other than monetary accrue from choosing an electronic membership. They are

- (1) the electronic version contains photos and graphics whereas the hard copy version doesn't,
- (2) the electronic version generally is in your hands earlier than the hard copy version, and
- (3) the online version can be printed out on your home printer should you wish to have a hard copy of it.

When I send out email notice of the availability of the electronic version, that email contains a link to a page on the Society's website. That page allows members to click on a link which uploads a PDF-format version of the newsletter to their computer for reading, saving, or printing. The newsletter is literally two mouse clicks away.

We strongly encourage any hard-copy member with an email address to switch to electronic membership.

As Treasurer, I offer to any hard-copy member that, if you wish to switch to electronic membership now, I will translate any time remaining on your current hard-copy membership to equivalent time in an electronic membership, extending your membership beyond its current expiration date. Contact me at to take advantage of this offer at webmaster@antarctican.org.

Mystic Seaport June 2021 Gathering is cancelled

The Antarctic Society has cancelled the planned June 4-6, 2021 Gathering of members that would have taken place in Mystic, Connecticut. The reason, of course, is that the pandemic is forcing Mystic Seaport Museum to delay, for at least a year, the major Antarctica exhibition that motivated us to set up the meeting.

"The Antarctica exhibit will not be displayed here in 2021," writes Rebecca Shea of Mystic Seaport Museum. "There are still lots of negotiations and many things to be determined, but the earliest it would have a run here at MSM would be sometime in 2022.

"We look forward to the days when the pandemic is resolved and we can enjoy such thought-provoking exhibits and welcome affinity groups such as your own."

The Society will announce in this newsletter any developments or, with luck, rescheduling of this much-anticipated event.

Meanwhile, our webmaster Tom Henderson has returned the money that many of you sent in to reserve a spot. If you reserved a hotel room or transportation, you may wish to cancel unless you want to go to Mystic on your own. Outdoor portions of the museum remain open.

From the Archivist

by Charles Lagerbom

Since 2008, the Antarctic Society has grown a collection of images digitized from original slides provided by Society members. Members receive their slides back as well as the new digital files. The free service requires only that the Society get nonexclusive use for its website and publications.

Slides are not only scanned; they are improved: see "Example of a Scanning

Project” in the Members’ section of the Society’s [website](#) under “Slide Scan Service.”

In this issue of the newsletter, we spotlight an early slide contributor, Jack Crowell (1898-1985).

John Thomas “Jack” Crowell tended to be more Arctic than Antarctic. He went north with Donald MacMillan in the 1920s and 1930s aboard *Bowdoin*, served at Frobisher Bay in World War II, and helped start the U.S. base at Thule, Greenland, in the 1950s.

His Antarctic bona fides came in 1962, when he worked for NSF with development of the *Eltanin* ice-strengthened research ship. He next was instrumental in surveys of Antarctic Peninsula sites for what became Palmer Station as well as design and construction of NSF’s wooden Antarctic research vessel *Hero*, built in South Bristol, Maine, in 1968.

Crowell’s slide collection in the Antarctic Society comprises about 260 images, many from his survey trips in the early 1960s aboard USCGC *Staten Island* and *Eastwind* scouting out possible Palmer Station sites. Four images from his collection accompany the electronic version of this issue of the newsletter.

Jack Crowell lived on Kimball Island just off Isle Au Haut in Maine; he died in 1985.



USCG icebreaker *Staten Island* off Port Lockroy, Mt Williams in background 1963 (copyright Jack Crowell)



Launch of *RV Hero* at Gamage Shipyard, South Bristol, Maine, March, 1968 (copyright Jack Crowell)



USCG Icebreaker *Staten Island* ship's boat approaching Argentine Melchior Station 1963 (copyright Jack Crowell)

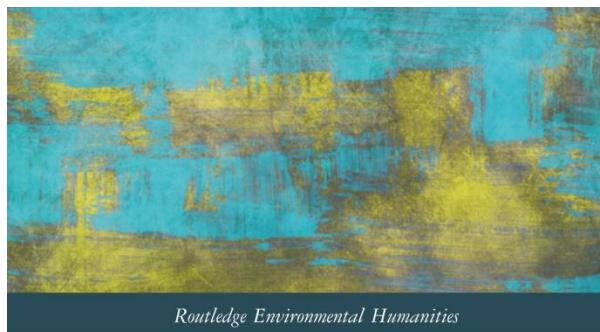


Tabular iceberg from deck of USCG Icebreaker *Staten Island* 1963 (copyright Jack Crowell)

Anthropocene Antarctica

reviewed by Valmar Kurol

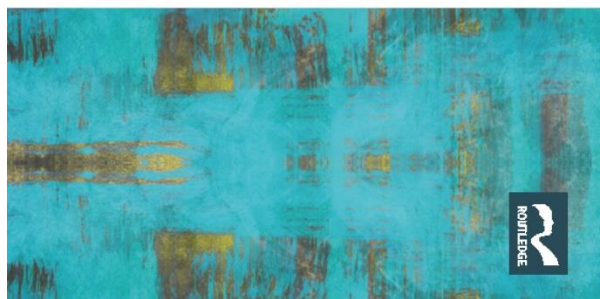
Anthropocene Antarctica – Perspectives from the Humanities, Law, and Social Sciences (Elizabeth Leane and Jeffrey McGee, eds., Oxford and New York: Routledge, 2020, 196 pp) is an informative and often cutting collection of ten essays on aspects of Antarctica. The editors are, respectively, a Professor of English at the School of Humanities and a Senior Lecturer in Climate Change, Marine and Antarctic Law, Institute for Marine and Antarctic Studies, University of Tasmania. Most contributors are professors from Australian and New Zealand institutions. Publisher's current price is US\$124.



ANTHROPOCENE ANTARCTICA

**PERSPECTIVES FROM THE HUMANITIES, LAW AND
SOCIAL SCIENCES**

Edited by
Elizabeth Leane and Jeffrey McGee



Humanities have engaged more slowly with Antarctica than have the natural sciences. A

perception may exist that Antarctica is isolated from world political and social influences. “This collection,” the editors affirm in a foreword, “paves the way for researchers in the Environmental Humanities, Law, and Social Sciences to engage critically with the Antarctic, fostering a community of scholars who can act with natural scientists, to address the globally significant environmental issues that face this vitally important part of the planet.”

While the definition of Anthropocene is in flux, the term is used in the book for that period in which activities by humans have become a significant driver of environmental change. In Antarctica, this change began with whales and seals as victims of planetary expansion, continuing to the destruction of land ice, sea ice, and ice shelves through warming, to the destruction of ozone in the stratosphere by chemicals, and finally to increasing amounts of migrating microplastics in the oceans. The Antarctic Treaty has been successful in managing Antarctica as a continent of science and peace. But, with increasing human activities the book argues for new geopolitical, legal, and ethical perspectives from the humanities, law, and social sciences.

Of the book's three parts, the first and meatiest is Governance and Geopolitics, which discusses the stresses that climate change is placing on Antarctica, and the need for better links between Antarctic governance and global change governance. While science's dominating position within the Antarctic Treaty System has led to greater understanding of Antarctica's role in climate systems, the legal, policy, and operational response, on a global basis, has been limited. One essayist notes that “the fundamental challenge of Antarctica is that it is not behaviour on the continent that is changing Antarctica in any radical and unconstrained way, but rather human activities outside the region and beyond the purview of the Antarctic management regime.” Ironically,

Antarctic Treaty states – representing two-thirds of Earth’s human population – comprise some of the worst contributors to climate change and pollution.

A provocative essayist takes a swipe at his own country, a major Antarctic player, and argues that Antarctic programs, such as subglacial research (ice core drilling), while requiring big international science, exist as a proxy for national self-interest, strategic competition, and support of territorial claims. A further essay examines proposals for geoengineering the cryosphere for climate change relief. Large engineering projects, developed conceptually or on a smaller test scale in non-Antarctic locations, may themselves threaten Antarctica. These schemes include reflective glass beads to increase ice reflectivity, ocean fertilization to increase carbon uptake, and underwater berms to block warm water.

The second part, Cultural Texts and Representations, examines fiction, particularly the growing ecothriller genre, in which Antarctica is threatened by global warming and pollution from beyond its shores, but, paradoxically, is a threat to the planet as a cause of sea-level rise and a source of extreme weather and climate. Also discussed are ecomusicology and soundscape recordings from the field that have been used in public performances and museums as sound art. A final essay treats the use of Antarctica and penguins in advertising, and how some of it has been used subversively for greenwashing (icewashing) products and services.

The third part, Inhabitations and Place, looks at the extreme Eurocentrism of the Heroic Era and polar exploration as an extension of colonialism. Included is an analysis of Chile’s experiment in establishing a small civilian town populated by families of military personnel on King George Island during the 1980s to strengthen Chile’s claim to a part of Antarctica and to ready the country for potential mineral and tourism activity. A short final chapter discusses the McMurdo

Dry Valleys and their unique standing as an ice-free area and how early scientific work there generated new ways of planning for environmental impacts and ecological research for Antarctica as a whole.

Super Bowl Sunday on HF

by A.J. Oxtan

The story you are about to read is true, but some of the salient detail is lost or confused in the ice fog.

Prologue: Back in the old days, HF (high frequency radio) was the prime mode of communication between stations on the Antarctic continent. American Forces Radio and Television Service (AFRTS) broadcast sports and news worldwide and to all the ships at sea. Palmer and South Pole, and other bases and ships of diverse nations along the Antarctic Peninsula, depended upon AFRTS-HF radio for real-time programs.

My second winter on the Ice was at Palmer Station, Anvers Island. While satellites were encroaching, HF was still the backbone of communication among Antarctic stations as well as to the United States. Ham radio and MARS carried personal letters and phone patches, while business traffic went through the Navy via HF RTTY (45 Baud and upper case only) or by way of the Inmarsat satellite phone at US\$10 a minute. During this time the ATS-3 satellite came to be used for daily data exchanges, at 4800 and 9600 Baud—upper and lower case—and for weekly phone patch service. But there was still no live commercial programming from the United States, such as news and sports, other than AFRTS or BBC.

Then one fine day, just before Super Bowl Sunday, AFRTS shut down its HF service and moved all that programming to a channel on Inmarsat. The radios went silent. Panic ensued.

Desperate times called for desperate measures. With coaching from far-flung mentors and a rabid audience close at hand, I

dug out from stores the spare Inmarsat earth station. Consider this: Mobile and satellite phones today you can carry in one hand (with three fingers missing if necessary) but this Inmarsat box required two men and a penguin to move. We hung the box upside down in the walkway behind the Inmarsat equipment rack in order to get the connectors close to the cables and devised a kludge of a splitter to divide the receiver I.F. downlink from the steerable antenna above on the roof. Next, the box was fed the secret code that put the receiver into service mode. That would be like telling your mobile phone to listen in on other phone conversations. Then we were able to tune the receiver to the AFRTS channel. Voila! Voices of announcers at AFRTS came out of the tinny earpiece of the handset.

That was Part A. Now for Part B. This box had a telephone line connection so a regular desk phone could be wired in. We went from that through a phone patch to an audio distribution board. With finagling, line audio was sent to the two 100-watt SSB transceivers usually used for voice comms with: South Pole on 11,553 kHz, other stations around the Peninsula on 4,775 kHz including Faraday (U.K.), Marsh (Chile), sundry summer camps, and all the ships at sea. Also on station was one of those little “hear your own voice on the radio” kits you used to see advertised on the inside back cover of Flash Gordon comics for broadcast around campus.

Super Bowl Sunday arrived. With appropriate fanfare, all this equipment was set up, fired up, tuned up (as necessary), and jacked in to the audio board. Kickoff skipped via skywave to South Pole and sailed via seawave to Faraday. When the game was over, hours later, even tourists on a cruise ship and crew on a nearby Greenpeace vessel sent Thank You QSL messages.

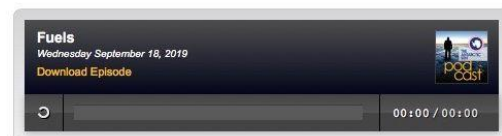
Podcasts from the *Antarctic Sun*

Latest Episode

Posted Monday August 10, 2020



Previous Episodes



Podcast Page on Antarctic Sun website

Your editor some years back bought a laptop computer and was instructed to charge it using a MagSafe, which I figured out is Apple’s word for a plug-in charger. New technology, new word, I guess, but geez.

Now come Podcasts. Turns out a Podcast is a good old radio interview you download from the internet and play anytime. Using an iPad I’ve had for years, the other day I finally opened the Podcast application and typed “Antarctic” in the search box. First on the list was “[The Antarctic Sun Podcasts.](#)” Of many, I listened to two: one called Fuels; the other, Field Support and Training. Each, about 15 minutes long, is well done, full of facts, conversational, and packed with interviews made at locations in Antarctica.

Joan Boothe’s article (above) about membership survey results says many of us want to hear more about field work and NSF and aren’t fond of “social media.” These Podcasts hit the spot. You don’t have to sign up, and they’re free.

Remember those lectures we used to go to? Sit back and enjoy a Podcast. If you find an interesting one, consider sharing it via email or on Facebook.

SCAR Open Science Conference, 3-7 August 2020

The letters SCAR form an abbreviation familiar to Antarctic hands. The Scientific Committee on Antarctic Research is a nongovernmental organization created in 1958 to promote and coordinate Antarctic research that is international. SCAR is part of the International Science Council, or ISC. Funded largely by the national Antarctic programs, SCAR hosts meetings, worldwide in scope, some of which assemble the broadest cast of scientists and others active in furthering understanding of the Antarctic.

While scientific gatherings have been frequent throughout the life of SCAR, in 2004 the organization began Open Science Conferences, held every 2 years in one of the member countries, of which 32 have full membership standing. (The National Academy of Sciences represents the United States in SCAR.)

In 2020, SCAR did something new: it shifted the Open Science Conference entirely to an online setting, and it made the sessions available for free to anyone. The online meeting, originally to have been held in person in Hobart, took place from 3 to 7 August 2020. It used both live streaming and recorded presentation to give plenary presentations, mini-symposia, and workshops. Some fora were devoted to discussion or other interactive formats. Related events were held before and after the main conference.

What's staggering is the scope. The meeting registered 2,712 participants from 60 countries who created 584 virtual displays and held 24 key events and 21 related events. A spreadsheet you can download from the SCAR 2020 Online website lists 576 presentations in 48 categories ranging from astronomy to public engagement.

With Valmar Kuroł's review (above) of *Anthropocene Antarctica* in mind, the humanities and social sciences have expanded in SCAR. This broadening parallels changes

in the parent International Science Council, which was created in 2018 from a merger of the International Council for Science (founded in 1931) and the International Social Science Council (founded in 1952).

An advantage of the online format is that it's still not too late for you to attend the entire conference. Most presentations were recorded and are on the [SCAR2020 Online YouTube channel](#).

Here's where you'll start to feel overwhelmed. You editor asked SCAR for a short list of vital takeaways, or a highlights page, or any kind of wrap-up document. On 12 October, staff replied that "we still haven't produced our report." They may be overwhelmed, too.

I dove in. Boasting 453 views as of 21 October is "Highlights of SCAR's current scientific research programs," 121 minutes long. Then there's the most popular session, "Antarctica in a warming world" (125 minutes), with 594 views. At 92 minutes, a session titled "The role of fish in the Southern Ocean" has been eyeballed 41 times. A session on bioprospecting has 35 views. Two sessions on living and working in Antarctica got a few dozen views each. "Communicating Antarctic issues of global importance" is 16 minutes long; it got 57 views. "The Empirical Sublime: Antarctic Ice, Time, and the Poetry of Elizabeth Bradfield and Jean McNeil," 15 minutes, has had 20 views so far and deserves more.

At a party in McLean, Virginia, some decades back an agitated gent accosted Dr. Marcel Bardon, then head of NSF's physics division and in whose home the party was taking place, demanding to know why he should care about the kind of science Marcel's group was funding. Marcel replied, "You don't need to care at all. But you should be grateful that a few individuals care deeply about these things."

Dr. John O. Annexstad, 1932-2020

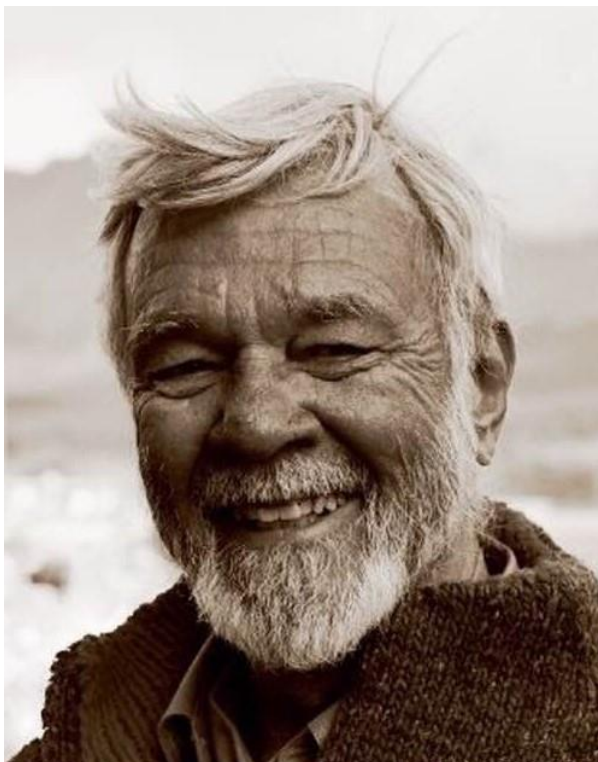
by Tom Henderson

Antarctic scientist Dr. John Owen Annexstad passed away on June 9, 2020. He is survived by his wife Judith, six children and step-children, and eleven grandchildren.

John was born on the Annexstad family homestead in Norseland, Minnesota, on 10 January 1932.

He graduated from Gustavus Adolphus College with a degree in physics and mathematics in 1956 after serving in the U.S. Marine Corps during the Korean War.

His Antarctic career began in 1957 working for the U.S. Coast and Geodetic Survey in Antarctica during the International Geophysical Year as part of Operation Deep Freeze and continued through his time in Fairbanks, Alaska. John notably tended the seismograph there during the 1964 “Good Friday” earthquake.



Dr. John O. Annexstad January 10, 1932 - June 9, 2020

In 1968, he joined the Apollo Space Program in Houston, Texas, as the Associate Curator for lunar samples (moon rocks). While employed with the Johnson Space Center he led the creation of the Antarctic Meteorite Program to continue NASA’s research of planetary materials.

Under his supervision this program discovered numerous meteorites in Antarctica, now in the NASA collection. Annexstad Peak was mapped by the U.S. Geological Survey and named by the Advisory Committee on Antarctic Names for John Annexstad, geomagnetician and station seismologist at Byrd Station.

In 1981, John was recognized with a Distinguished Alumni Citation from Gustavus Adolphus for his government service. During his explorations in Antarctica, he worked on and was awarded his PhD in Glaciology from the Johannes Gutenberg Universität, Mainz, Germany, in 1983.

Upon retirement from NASA in 1985, he returned to northern Minnesota to follow his passion of educating young minds as a Professor of Geology at Bemidji State University. He also served as the Director of the Space Studies Program and Director of the Minnesota Space Grant Consortium.

He retired from BSU in 2000. In 2016, his six decades of Antarctic work earned him emeritus status with the famed Explorers Club. He remained in his beloved northern Minnesota until his passing. He inspired and educated many young students, who now follow in his footsteps.

John was a long-time member of the Antarctic Society. He used his Antarctic knowledge to teach others and to provide understanding to so many about Earth's polar regions. He will be missed.

CDR Robert L. Dale, USN(Ret.), 1925–2020

by Tom Henderson

Long-time Antarctic Society member Robert L. Dale passed away peacefully at home on June 22, 2020 at the age of 95. He is survived by his loving and gracious wife Jean, three children, and five step-children.

Bob enlisted as a Naval Aviation Cadet in 1942, earning his gold wings and commission at Pensacola, Fla. He flew Dauntless dive-bombers, Corsair fighters, and later Savage heavy attack aircraft. The Savage was the first plane capable of delivering an atomic bomb from an aircraft carrier.

He received his degree from George Washington University graduating cum laude, majoring in geology. Bob's mentor at GWU urged him to participate in the International Geophysical Year (IGY) in Antarctica in 1959-1960. As a part of the University of Wisconsin research team, he flew geologists to remote, unexplored mountain ranges to collect geology samples. He wintered at McMurdo Station in 1960 with the VX-6 Squadron. He served as the Naval Air Operations Officer supporting "Deep Freeze" in Antarctica from 1964 to 1966. He retired as Navy Commander in 1966.

Bob joined the National Science Foundation in 1968 as an Office of Polar Programs liaison and served until 1975, managing usage of the research trawler *Hero* and Palmer Station, near where *Hero* did much of its work. Our editor Guy Guthridge overlapped at NSF with Bob for 5 years and remembers him vividly as calm, balanced, and unbureaucratic. In appreciation for Bob's service in Antarctica, the United States Board on Geographic Names named a glacier in the Royal Society Range *Dale Glacier*.



Bob Dale at McMurdo in January, 1972

Peter Espenshied Passes

As we go to press, we have learned that long-time member Peter Espenshied passed away in early September.



The Antarctic Society

VOLUME 20-21

JANUARY

No. 2

“BY AND FOR ALL ANTARCTICANS”

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New members welcome!
\$13/yr, plus more for mailed
newsletter. See ‘About Us’
on website to join.

| | | | |
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AMERICA, ANTARCTICA, AND DIPLOMACY

In the World in 2021 issue, *Economist* diplomatic editor Daniel Franklin says “America needs to start reinvesting in diplomacy.” Today’s more contested global landscape makes the United States the only nation capable of world leadership. China is rising and assertive but, he argues, not yet keen or able to take on the burden.

The United States set the moral tone during World War Two. “We come as conquerors, but not as oppressors,” went Dwight D. Eisenhower’s Proclamation No. 1, as Allies entered Germany in October 1944. The prosperous, democratic postwar friend is an American foreign policy success.

Antarctica is another diplomatic score. In 1924 Secretary of State Charles Evans Hughes, responding to a query, wrote that the United States does not own Wilkes Land. Discovery “does not support a valid claim of sovereignty unless the discovery is followed by an actual settlement of the discovered country.” Hughes’s doctrine, later directed at seven nations’ territorial claims, helped in developing the U.S. initiative for the Antarctic Treaty. At ratification in 1960, Senator Kenneth Keating (R-NY) said, “We have spoken for peace and for disarmament and for abandoning nuclear weapons. In Antarctica we can achieve that most effectively.” Today 54 nations – big and small, rich and poor – agree to the Treaty’s principles of environmental protection, no military fortification, and inspections to check adherence. The peace dividend (defense budgets being zero) paid for scientific understanding of the region.

In *Eagle Over the Ice: The U.S. in the Antarctic* (University Press of New England, 1997) Christopher C. Joyner and Ethel R. Theis write, “The United States is the chief architect of law and policy for the Antarctic.” We were the mightiest military power, but we used diplomacy, not force, to get that win with no losers.

The Economist cites reports from the Council on Foreign Relations and Harvard describing how to rebuild America’s diplomatic expertise. A step would involve “sweeping professionalization” of the ranks. The Antarctic is a case study for that.

Guy G. Guthridge

Website update

by Tom Henderson

The photos on the website's home page are new. These exquisite images were taken by photographer Lynn Teo Simarski. Lynn made a garage theater presentation on her work at the 2018 Gathering in Port Clyde (see the website page on that Gathering on the website, <https://www.antarctican.org/2018-gathering>). She also happens to be the wife of our Editor, Guy Guthridge. To see more of Lynn's work, including full photos of those on our website, go to <https://lynnteosimarski.com>.

On our site, a new section under Pack Ice is titled Webinars & Podcasts. One of the few benefits of the pandemic has been a variety of webinars and podcasts to keep us informed and entertained. Those who watched the recent webinars hosted by the Mystic Seaport Museum and the Thwaites Glacier Collaboration (BAS sponsored) may wish to see the presentations again or catch the ones they missed, or see them for the first time.

Now you can! All you have to do is go to the Webinars & Podcasts page and click on the link to the virtual events which are now archived for viewing.

2020 Treasurer's report

by Tom Henderson

This Treasurer's report will be an annual feature of the January newsletters. It summarizes the financial condition of the Society for the past year.

It appears in this report that the Society had more expenses than income for the year. This is due to the refunds of deposits for the cancelled Mystic Seaport Museum gathering, most of which were made in 2019.

I want to especially thank the donors to the Society in 2020: George Denton, William Fox, John Middaugh, and Michele Raney.

| INCOME | |
|---------------------------------------|-----------------|
| Antarctican Society Gathering Deposit | 1,430.00 |
| Donation By PayPal | 427.00 |
| Donations by check | 550.00 |
| Dues deposits by check | 1,973.00 |
| Dues deposits by PayPal | 2,895.64 |
| Interest Inc | 1.33 |
| Other Inc | 0.25 |
| TOTAL INCOME | 7,277.22 |

| EXPENSES | |
|--------------------------------------|-----------------|
| Administrative Supplies | |
| Postage | 468.00 |
| TOTAL Administrative Supplies | 468.00 |
| Bank Charge | |
| Bank Fees | 23.10 |
| TOTAL Bank Charge | 23.10 |
| Gathering Expenses | 0.00 |
| Misc | 213.00 |
| Newsletter Expenses | 1,017.81 |
| PayPal Fees | 183.56 |
| Reimbursement | 5,206.19 |
| Services | |
| Printing and Distribution | 1,271.99 |
| TOTAL Services | 1,271.99 |
| Subscriptions | |
| Google GSuite | 37.72 |
| Zoom | 132.45 |
| TOTAL Subscriptions | 170.17 |
| Website Expenses | |
| Website Hosting | 216.00 |
| Website Security | 34.65 |
| TOTAL Website Expenses | 250.65 |
| TOTAL EXPENSES | 8,804.47 |

| | |
|----------------------|------------------|
| OVERALL TOTAL | -2,199.25 |
|----------------------|------------------|

| Bank Accounts | |
|-------------------------------------|------------------|
| Camden Bank AS Checking | 0.00 |
| Camden Bank Ruth Siple Fund | 0.00 |
| The Antarctic Society Checking VFCU | 32,358.77 |
| The Antarctic Society Savings | 5.00 |
| VFCU AS Club Account | 0.00 |
| TOTAL Bank Accounts | 32,363.77 |

| Cash Accounts | |
|----------------------------|--------------|
| PayPal Cash Account | 74.53 |
| TOTAL Cash Accounts | 74.53 |

| Liability Accounts | |
|---------------------------------|----------------|
| Gathering registrations | -260.00 |
| TOTAL Liability Accounts | -260.00 |

| Investment Accounts | |
|----------------------------------|------------------|
| Calvert Fund | 49,106.06 |
| TOTAL Investment Accounts | 49,106.06 |

| | |
|----------------------|------------------|
| OVERALL TOTAL | 81,284.36 |
|----------------------|------------------|

Update on nonprofit status

by Tom Henderson

With the passage of the new Bylaws, Articles of Incorporation, and Conflict of Interest Statement, the Society is now prepared to establish our nonprofit status.

The first step is to incorporate as a nonprofit in Vermont. That has now been accomplished, along with obtaining an EIN (Employer Identification Number) from the IRS. The next step is submission of Form 1023EZ to the IRS which, if approved, registers us as a federally recognized nonprofit. The processing of the 1023EZ could take as much as six months so perhaps we will have news by next summer.

I must include a big “thank you” to Michael Russell, the Vermont attorney who is guiding us through the 501(c)(3) process. Michael is experienced in incorporating nonprofits in Vermont and has been of great assistance. When I approached him about his fees, he simply said “give me a membership in the Society”! Michael and two brothers, members George and Ken, have a connection to Antarctica. Their grandfather, Joseph DeGanahl, was a dog driver and backup pilot on the 1928-30 Byrd Antarctic Expedition.

Achieving our nonprofit status will allow us to take advantage of benefits including deductibility of dues and donations by our members, reduced-cost liability insurance for the Society to cover board members and our events, and the ability to apply for grants. It will require annual reports by our Treasurer, not onerous for an organization of our size.

Stay tuned!

2020 new members

Fifty-five people became members of the Society in 2020. Welcome!

| | |
|---------------|-------------|
| Karen Backer | California |
| Peter Barrett | New Zealand |

| | |
|---------------------|------------------|
| Heather Boothe | Virginia |
| Norris Boothe | California |
| Eleanor Byrd | Virginia |
| Chris Callie | Pennsylvania |
| Kirsten Carlson | Military APO |
| Nancy Chabot | Maryland |
| Ted Cheeseman | California |
| Lawrence Cosgriff | Virginia |
| Kathy Covert | Colorado |
| Wendy Crowder | California |
| Fred Davey | New Zealand |
| Crispin Day | United Kingdom |
| Rick Dehmel | California |
| Kenneth Down | California |
| Donald Duncan | Washington |
| Lesley Ewing | California |
| William Fox | Nevada |
| Andrew Gerrard | New Jersey |
| Ellen Gilkerson | California |
| Sheridan Harvey | Washington, D.C. |
| James Haselman | Texas |
| David Hirzel | California |
| Elaine Hood | Colorado |
| Von & Jim Hurson | California |
| Karen Ireland | Washington |
| Gil Jeffer | New Jersey |
| Richard Jones | Hawaii |
| Matthew Jordan | New Zealand |
| Valentine Kass | Virginia |
| Hyomin Kim | New Jersey |
| Cheryl Leonard | California |
| Jerry Lewis | New Hampshire |
| Matt McArthur | Australia |
| William McLean, Jr. | South Carolina |
| Robert Melville | New Jersey |
| Rachel Morgan | United Kingdom |
| Michael Nayak | California |
| Matt Oesterle | California |
| Joe O’Farrell | Ireland |
| Rick Pearsall | Virginia |
| Jennifer Rehmman | Florida |
| Michael Rosove | California |
| Michael Russell | Vermont |
| Heidi Scherthanner | Idaho |
| Laurence Seaton | California |
| Starr Seesler | Arizona |
| Alan Smith | California |

| | |
|-------------------|-------------|
| Andrew Stillinger | New Jersey |
| Patricia Suchy | Louisiana |
| Seamus Taaffe | Ireland |
| Sallie Thoreson | Colorado |
| Toby Travelsted | Colorado |
| Norbert Wu | Callifornia |

December 2020 Board meeting

The Society's Board of Directors met via Zoom 12 December for a regular Board meeting. President Liesl Schernthanner called the meeting to order, after which Secretary Joan Boothe reported that 13 members of the Board, including all officers, were present, enough for a quorum. Two Society members who are not Board members participated as guests.

Minutes of the meeting have been posted in the Members section of the website. Topics discussed:

- 1) The President's Report about work by Board Committees, including work to finalize the Society Documents and develop a Society Mission Statement
- 2) The Treasurer's Report of the Society financial position, progress on the work to regain our non-profit status, current Society membership numbers, website status and possible update options, and information on options and cost to obtain Directors and Officers Insurance for the Society
- 3) Society Documents Committee Report concerning revisions to the Bylaws, Articles of Incorporation, and Conflict of Interest Document, all necessary to obtain Non-profit status
- 4) Outreach Committee Report, including discussion of the new Brochure
- 5) Report of Newsletter Working Group
- 6) Need for and role of Finance and Administrative Policy Committee
- 7) Virtual Gatherings in the future
- 8) Update on Archives
- 9) Discussion of a Paul Dalrymple Memorial was once again deferred

The next Board meeting will be on 13 March 2021. Society members wishing to participate – you are cordially welcome to do so – should notify any member of the Board so the Zoom meeting number and password can be provided. You'll need a computer with an internet connection.

Jerry Marty moves on, but not away

Antarctican Society Director Jerry Marty, who has served on the Board on and off since 2002, has stepped down as a director in order to write his memoirs, which will include his long "living the dream" career with the U.S. Antarctic Program.

"It has been an honor," he writes, "to be part of such a distinguished and dedicated group of people over the years. Elena and I will continue to be Society members and look forward to seeing everyone at the next reunion."

Barry Lopez and the Antarctic

The world, and Antarctica, have lost a major voice.

After writing *Arctic Dreams: Imagination and Desire in a Northern Landscape* (496 p., Penguin Random House, 1986, National Book Award winner), author Barry Lopez turned his attention to the Antarctic, traveling there in 1987 and 1988 – his first of several trips – with support from the National Science Foundation (Antarctic Artists and Writers Program).

A 1,500-word essay in the 27 March 1988 *Washington Post* was the first published result:

Barry was concerned that the looming question of mining in the Antarctic might be decided in favor of commercial interests. He wrote, "it is a shift in the perception of its usefulness to human beings . . . that makes Antarctica, suddenly, so relevant. It's the driving force behind the circulation of both the planet's atmosphere and its oceans. Its ice

sheets have had a profound effect on global climate. All this, and the record of peaceful coexistence under the provisions of its treaty, make Antarctica, perhaps, the continent of the 21st century.”



Author Barry Lopez 1992
(courtesy of literary-arts.com)

The essay signals an interest in the region that lasted the rest of his life, which ended at the age of 75 on 25 December 2020. *The Guardian* (26 December) says he was “an award-winning American writer who tried to tighten the bonds between people and place.” Kim Stafford, former Oregon poet laureate, said Lopez’s 20 books “are landmarks that define a region, a time, a cause. He also exemplifies a life of devotion to craft and learning, to being humble in the face of wisdom of all kinds.”

The *New York Times* wrote on 26 December, “his books, essays and short stories explored the kinship of nature and human cul-

ture. . . . Mr. Lopez embraced landscapes and literature with humanitarian, environmental, and spiritual sensibilities that some critics likened to those of Thoreau and John Muir.”

“He went to the Arctic – as to the Antarctic, the Pacific northwest, Australia, the Galapagos, Africa – with the mental preparation of a scientist,” writes *The Economist* (2 January 2021).

Barry’s second Antarctic article, “Informed by indifference – a walk in Antarctica,” grew out of a week in the McMurdo Dry Valleys (*Harper’s Magazine*, May 1988). “I took several long walks in the Wright and adjacent Taylor valleys. I did not feel insignificant on these journeys, dwarfed or shrugged off by the land, but superfluous. It is a difficult landscape to enter, to develop a rapport with. It is not inimical or hostile, but indifferent, utterly remote, even as you stand in it. The light itself is aloof. . . . If you returned it would be to pay your respects, for not being welcomed.”

“Our frail planet in cold, clear view – the South Pole as global laboratory” is in the May 1989 *Harper’s*. Seven pages, it gives an Antarctic panorama – scientific, geographic, political – from the perspective of Barry and three glaciologists digging and sampling snow at a tent camp 20 miles upwind of South Pole Station. “The line where sky met snow, a thin bead of molten silver trembling under the pressure of the light, was so vivid it seemed the edge of creation.”

Barry Lopez next visited Antarctica because NSF wanted him back. At McMurdo, construction was done on the Albert P. Crary Science and Engineering Laboratory, increasing dramatically the ability to do original science in the Antarctic. Barry agreed to give the keynote address at the 5 November 1991 dedication. The talk became “The gift of good land,” in the June 1992 *Antarctic Journal of the United States*: “Antarctica—where there is no war, no famine, no inflation, no polluting industry, no dictator, no bunkered ghetto—allows us to think hard, and with little distrac-

tion, upon our biology. To confront the tenuousness of it.”

Barry went back to the Antarctic aboard NSF’s new research icebreaker *Nathaniel B. Palmer* on its maiden voyage in 1992 from Port Fourchon, Louisiana, to the Weddell Sea. “Into the Ice” is in the 15 January 1993 *American Way*, the American Airlines magazine. “Along with a sprinter’s thick legs, she had the leanness of a long-distance runner,” he wrote. A longer version is in the Winter 1994 *Orion*: “On several nights I’ve walked away from the ship with a few companions. . . . The snow chirps beneath the scuff of our boots. We probe for weak ice and struggle over wind-crusting drifts. From a distance, the *Palmer* seems like a locomotive idling in a desert.”

About This Life: Journeys on the Threshold of Memory (Penguin Random House, 288 p., 1999), by Barry Lopez, has a chapter about Antarctica.

Forty days with meteorite hunters at a camp in the Transantarctic Mountains resulted in Barry’s “Polar light – searching for the solar system’s origins at the end of the Earth,” in the January 2019 *Harper’s Magazine*. It’s long, with detail and sense of place. Selecting an excerpt is tricky: to read Barry Lopez, read the whole thing.

Orion Magazine published 25 Barry Lopez articles. “The Life and Loss of Barry Lopez” on its homepage highlights works, including an online interview by Bill Moyers.

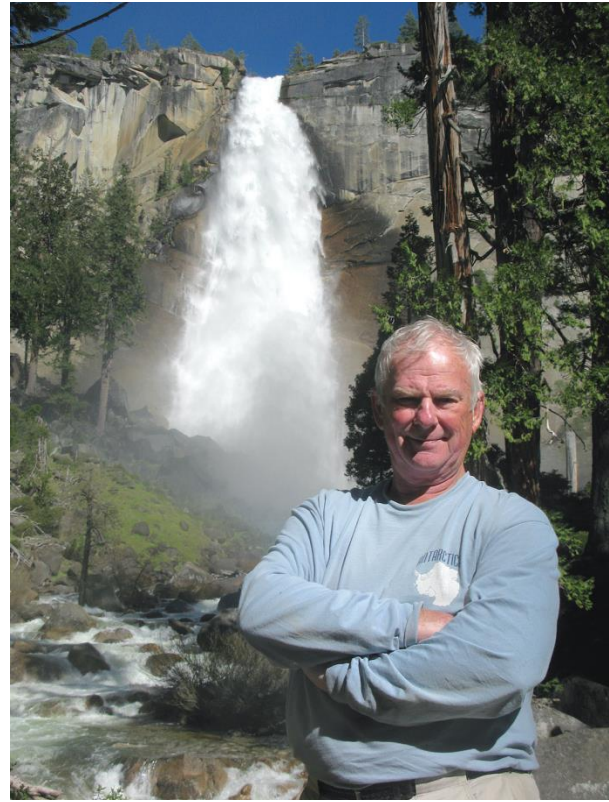
Horizon (Alfred A. Knopf, 572 p., 2019) is Barry’s last book. The first sentence: “*Horizon* is an autobiographical reflection on many years of travel and research, in Antarctica and in more than 70 countries.” Antarctica, he writes near the end of the book, “was like a great island, separated in so many ways from the world of our everyday lives.”

Politics & Prose Books in Washington, D.C., hosted a standing room only talk by Barry Lopez about *Horizon* on 4 April 2019. Lila Stiff said “nature writer” conveys an author’s integrity, probing mind, compassion.

She introduced Barry as the best American nature writer of his generation and “one of the greatest *writers* of our time, period.” *Horizon*, she said, is a life of travels across continents, oceans, ice floes, and time.

Jody Forster, 1948-2020

by P.A. Nisbet



**Jody Forster in Yosemite
(courtesy of Peter Nisbet)**

Joseph Morelle Forster, II (known to all as "Jody") unexpectedly passed away on 23 December 2020 from complications following heart surgery. He was born in Chicago in 1948, the son of famed WWII P-38 fighter Ace Joe Forster. He received his fine arts degree from Cal State, L.A., where he studied photography with the respected master Oliver Gagliani. Following a commission in the Air Force, Forster began to devote himself to photography, attending Ansel Adams’s Yosemite photographic workshop. Forster’s work as an 8" x 10" black and white format

artist was strongly influenced by the images of Ansel Adams with whom he has often been compared. It was Adams's concentration on the effects of light in nature that shaped Forster's art for the remainder of his life. After 1976 he moved to Arizona to concentrate on photographing in the Sonoran Desert, the Pinacate Mountains of Mexico, and the Superstition Wilderness near Phoenix.

Ever restless for new landscapes Forster, in 1984, joined the American expedition to climb Mt. Himalchuli in the Himalayas. Although not a professional climber, he packed in 80 pounds of large format camera equipment and worked at 16,000 to 18,000 feet. During his nine months in Asia he hiked 500 miles, climbed 150,000 vertical feet, and covered three mountain ranges: the Annapurnas, the Gorkas, and the Khumbu. Forster was the first large format photographer to work in the high reaches of the Himalaya since Vittorio Sella made similar history in 1909.

In 1992 Forster was selected by the National Science Foundation as part of the Antarctic Artists and Writers Program to photograph Antarctica's marine landscapes around Palmer Station. During that three-month stay he created spectacular images of icebergs and mountains that are a mainstay of his photographic legacy. He returned to McMurdo Station in 1995 to work during the austral summer. With the assistance of significant air support from Airdevron 6 Hercules aircraft (LC-130) and station helicopters, he found inspiration in areas such as Shackleton Glacier, the Barne Glacier, Cape Evans, Beacon Valley, and the South Pole.

Towards the end of this deployment he focused almost exclusively on aerial imagery of the Antarctic continent utilizing the special viewing ports of LC-130s to capture the abstract patterning of glaciers and mountains from aloft. Forster's untimely passing cut short his desire to return to the Ice one more time to winter over at McMurdo. Jody Forster's work

in Antarctica will certainly stand with his earlier mountain photographs as a prominent part of his legacy. He also will be remembered as friend and supporter of other photographic artists who ventured into the Antarctic.

Watch <https://vimeo.com/496468017>, a 27-minute video about Jody made and narrated by his nephew, Pi Ware, who has five Emmy nominations and one Emmy award for film editing.

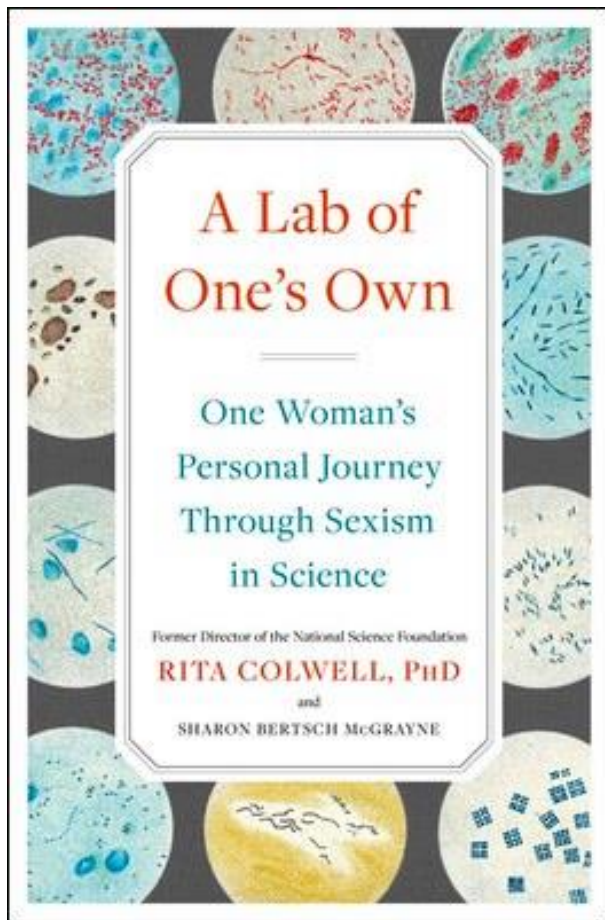
Peter A. Nisbet is a landscape painter based in the American Southwest. He and Jody Forster worked out of McMurdo in 1995 as a photographer-painter team.

Rita Colwell and the Antarctic

Dr. Rita R. Colwell – then a microbiologist at the University of Maryland – already was shaping the U.S. Antarctic Program six years before she started as director of the National Science Foundation (1998-2004). In 1986 and 1987, a committee she chaired produced the 57-page *Role of the National Science Foundation in Polar Regions* (NSB-87-128). The first of 15 recommendations was that science requirements should drive operational capability, not the other way around as sometimes happened. A research vessel with icebreaking capability was needed, they said; 5 years later, NSF had the *Nathaniel B. Palmer* (still in service). The committee said NSF should keep shifting operational support from military to contractors, a transition that had started but then picked up. The group said NSF should double its funding of polar research.

NSF's National Science Board sponsored the study. It saw the rising prominence of polar research, especially in global change, and wanted to sharpen the NSF role. NSF digested the report's premise that "polar research merits a higher place among National priorities than it previously has been accorded."

This polar groundwork plus her international research as a microbiologist came in handy shortly after she was sworn in as NSF director. NSF had won time aboard a U.S. Navy nuclear submarine to fund scientific mapping of the Arctic seafloor. “But there was a problem,” she writes in her [new book](#) *A Lab of One’s Own: One Woman’s Personal Journey Through Sexism in Science* (Simon & Schuster, 269 p., 2020). The chief scientist for the cruise was a woman. Women, an admiral explained, weren’t allowed on U.S. submarines. “Well, I said, no woman, no money.” They worked a compromise, and Associate Professor Margo H. Edwards, University of Hawaii, deployed.



***A Lab of One’s Own* by Rita Colwell**

Six months later the media were in a frenzy over Jerry Nielsen, wintering at South Pole as physician, who developed breast cancer and required an emergency evacuation

– coldest-ever landing at Pole. The Air Force demanded she be interviewed on her way home; Jerry did not want that at all. A call by Dr. Colwell to an Air Force general quieted the matter. Jerry Nielsen told her story later in a book she wrote.

At NSF, someone briefing the new director said life (aside from humans at the station) does not exist at the South Pole. Dr. Colwell asked, “How do you know?” Um. Edward J. Carpenter (SUNY Stony Brook) and two others collected snow samples in the 1999-2000 season. Large populations of bacteria were found, and evidence was that the organisms were metabolizing at ambient subzero temperatures (“Bacterial activity in South Pole snow,” *Applied and Environmental Microbiology*, June 2000).

Dr. Colwell saw that McMurdo Station, the largest settlement in the Antarctic, did not treat its sewage before discharging it into McMurdo Sound. Why not? The standard of macerating and discharge met the legal requirement of the Antarctic Treaty, she learned. “We shouldn’t discharge introduced microorganisms into the environment,” she said. By 2004 McMurdo had a \$6-million wastewater treatment plant. “The goal now is to treat the wastewater to the same levels expected in the United States,” said the supervisor of the new plant.

What about that doubled budget? “In the end, I couldn’t double the NSF’s budget,” she writes. “I did manage to get it increased by 63 percent. . . . I had hoped to do more, but as of this writing, this was nevertheless the greatest period of growth in the NSF’s fifty-year history.”

NSF, the U.S. Antarctic Program, and women in science have benefited notably from Rita Colwell’s career, her directorship at NSF, and, now, from lessons and tales compellingly told in her new book, which is “wonderfully readable for scientists and nonscientists alike,” writes Dr. Hilary Lappin-Scott, Society for General Microbiology.

Your editor found the book highly interesting because of both Dr. Colwell's amazing scientific achievements and her commitment to enabling women scientists. I grew up with no near model of women who had been suppressed in their careers. One aunt was an Army major in charge of German POW camps, another co-owned a furniture store, and a third was a Member of Congress. This book raised my empathy for persons whose potentials are suppressed by powers that be.

Artifacts returned to heritage trust

New Zealand's Antarctic Heritage Trust is celebrating the return of a set of Salter scales that Seabee Captain James Douglas, U.S. Navy, souvenired from Robert Falcon Scott's Discovery Hut in Antarctica.

Capt. Douglas was a distinguished engineer and officer in charge of construction of eight U.S. bases in Antarctica in the 1950s.

Before he passed away, Cap. Douglas gave the scales to his daughter Susanna Marquette.

"He told me that they'd come from Scott's Discovery Hut where they'd been used to weigh meat for the dogs. I was very, very honored that he had passed them on to me," says Susanna. "I was only six when my Dad went to Antarctica and remember getting postcards from him with pictures he'd drawn of penguins and of himself with a beard."

The scales hung in Susanna's Idaho log cabin for 15 years before she learned about the work New Zealand's Antarctic Heritage Trust had done to conserve Discovery Hut and the artifacts in it.

She approached the Trust, and the scales were returned to New Zealand.

The Trust's program manager for artifacts, Lizzie Meek, says "These scales are more than a hundred years old but despite their age and travels are in pristine condition. Captain Douglas and Susanna had taken incredible care of them."



The Salter scale back in the hut

"They're an important artifact and were likely used by the heroic age Antarctic explorers to weigh items ahead of sledging expeditions, to ensure supply levels were accurate and the sled was as light as it could be.

"It was not uncommon, in the 1950s and 60s for those who visited the huts to take a souvenir home with them. We've had a number of these returned over the years including skis, clothing, and items of food,

and we welcome the opportunity to be able to repatriate them,” says Lizzie.

After conservation assessment, the scale details were added to the database, which contains thousands of artifacts from the five expedition bases cared for by the Trust as part of the Ross Sea Heritage Restoration Project.

“We’ve now taken the scales back to Antarctica, and they add something really special to the ambience of Discovery Hut,” says Lizzie.

A photograph of the scales back in the hut was sent to Susanna. “I had the biggest smile on my face when I saw it. I know Dad would be excited that they’re back where they belong too – times have changed.”

Lizzie Meek has a message for families in possession of similar souvenirs. “Get in touch. We’d love to be able to help repatriate such items. We have the cold-climate conservation expertise to ensure these artifacts are returned to where they belong and are well cared for in generations to come.”

Salter is a U.K. company manufacturing kitchen scales since 1760.

People removing artifacts from the huts today are subject to prosecution.

The Trust was supported in Antarctica by crown entity Antarctica New Zealand and was permitted to undertake conservation activity at the huts by New Zealand’s Ministry of Foreign Affairs and Trade.

For information contact Jack Loader, Great Scott (a communications firm based in Christchurch), jack@greatpr.co.nz.

Spotlight: John Spletstoesser

by Charles Lagerbom

Paul Dalrymple once cut short one of our regular lunch meetings at the local Rockland Dennys when he said he needed to go check on a friend recuperating from a helicopter crash in the Arctic.

It was John Spletstoesser. ‘Spletts’ became a mentor and friend to me and opened

doors within the polar community. A geologist by training, he had a varied polar career which culminated in him becoming a sought-after guest lecturer on polar cruises. He had great stories and seemed to know just about anybody involved in polar work and science.

Spletts was a good motivator. He got me into guest lecturing on polar cruise and expedition ships, talked me into becoming the American Polar Society membership chair for a dozen years, started me on editing an index of the first years of APS’s publication *The Polar Times*, recruited me as a polar book reviewer, and kept me up to date on all things Arctic and Antarctic.

The part of John’s slide collection that came to the Antarctic Society numbers nearly 600 images, no doubt a fraction of what he had accumulated from his work in polar regions. Many were slides for his popular shipboard talks, back when lecturers traveled with slide carousels (and always a spare projector bulb!)

A meticulous editor and an endless font of knowledge, John had a great laugh and a hearty sense of humor. We were pretty much in daily contact when he suddenly passed away in January 2016. I made the trek with a few others from the Society to his memorial service in Minnesota. It has been almost 5 years now, and I still miss him. It was an honor to digitize his slides and add them to the society’s image collection.

Spletts was a true Antarctic.



Spletts at sign outside of Byrd Station



Spletts and resupply helo, Beardmore Glacier



Spletts at Shackleton landing site, S. Georgia

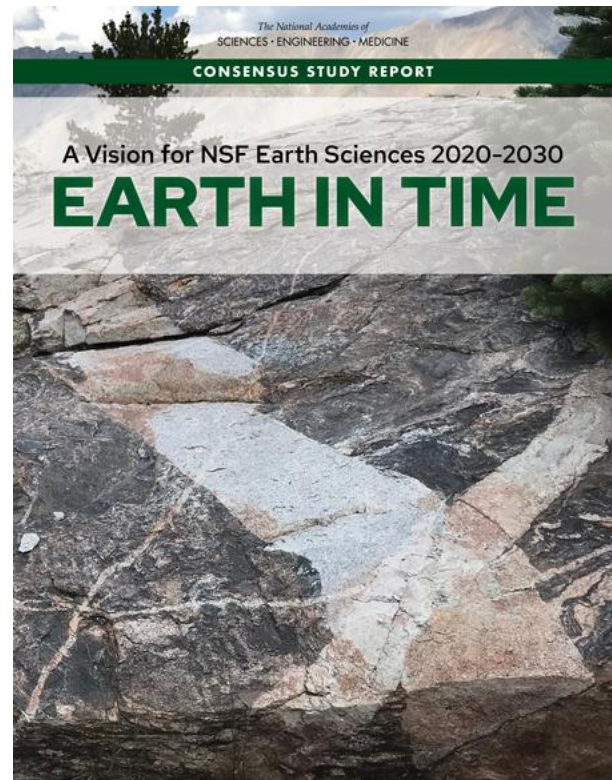


Spletts in the Ellsworth Mountains 1960-61



Spletts, 1981 Christmas dinner at Victoria Land

Deep time and today



Earth in Time, NAS

Earth in Time – a rundown of some of the science NSF should fund in the next decade – was a popular download at the National Academies in 2020.

Question Eight, of a dozen with priority, asks what Earth’s past reveals about climate. “Humans have become geologic agents,” it says, so “longer records and observations outside of human experience are needed to accurately infer the impacts of ongoing change.” An example: Earth took 6,000 years to raise atmospheric carbon dioxide 80 ppm; we’ve done the same over the last ~50 years. “Climate models tend to underestimate the magnitude of polar amplification (the higher rate of temperature rise in polar versus temperate and tropical regions). Paleoclimate archives and models are integral to addressing this deficiency and will be key to generating more confident projections in rates of environmental change at high latitudes.”

Antarctic scientists can be pleased that since beginning their continuous programs in the 1950s they've demonstrated the region's role in global processes. This new book gives the other perspective: what the global earth science community still wants from the Antarctic. Free download:

<https://www.nap.edu/download/25761>.

AAWC: a real group and a virtual exhibition

by Kirsten Carlson

No matter your location on the planet, on Thursday 28 January 2021 I invite you to the opening reception of *Adequate Earth: Artists and Writers in Antarctica*. It's the launch of an online exhibition of past participants from the National Science Foundation's Antarctic Artists and Writers Program (AAWP), organized by the Antarctic Artists and Writers Collective (AAWC). I'm co-chair of AAWC, in addition to being a new Antarctic Society member.

Adequate Earth is the Collective's first public initiative. The exhibition takes its title from a book of poetry written by Donald Finkel, who went to Antarctica with support of the National Science Foundation in 1968. The exhibition presents projects from the 13 founding members of AAWC. Organized in four thematic sections and presenting works ranging from graphic arts to sculpture, photography, illustration, poetry, performance, and music, the exhibition introduces innovative works with a multi-faceted portrayal of present-day Antarctica. Many of these projects have continued to develop long after their authors' return from Antarctica and have encouraged far-reaching conversations about the meaning of the continent in the past, the present, and the future.

The Collective was founded in 2020 to inspire and educate the public about Antarctica and to advocate for the region's vital role in understanding the world we live

in. The 70 members all are past participants of the AAWP. Nurtured by fellow Antarctic Guy Guthridge, over 120 artists, performers, and writers have traveled to the seventh continent through the program, using their creative talents to tell the story of this largely unexplored place through art, music, writing, and performance. The AAWC brings those talents together and shares the work with the public.



Original thirteen founders of AAWC

Antarctican Society members Kirsten Carlson and Cheryl E. Leonard are in the exhibition. It also features works from Susan Fox Rogers, Helen Glazer, Henry Kaiser, Glenn McClure, Greg Neri, Shaun O'Boyle, Michelle Schwengel-Regala, Oona Stern, Patricia A. Suchy, Vince LiCata, and Karen Romano Young. Ulrike Heine is the curator.

The eight free virtual events are organized in partnership with SUNY Cobleskill, the Center for Art and Environment at the Nevada Museum of Art, and the Museum of Making Music. The events include artists presentations and panel discussions, a screening of the restored version of Herbert Ponting's *The Great White Silence*, and a mini-symposium hosted by William L. Fox at the Center for Art and Environment at the Nevada Museum of Art.

The AAWC's mission is to inspire and educate the public about Antarctica and its scientific exploration through collaborations in the arts. More information about the online exhibition and accompanying virtual events plus a directory of members and projects can

be found at the Collective's website:
<http://www.aawcollective.com>.

John Dawson Dies at 85

By Marge Dawson



Dr. John A. Dawson

John Alexander Dawson, 85, of Bala Cynwyd, a lifelong adventurer, transportation planner, and scientist whose early research took him to a frozen outpost in Antarctica, died Friday, Dec. 11, of pneumonia at Lankenau Medical Center.

Dr. Dawson was born to George and Carolyn Dawson in South Amboy, N.J. He graduated from Highland Park High School and Rutgers University with a bachelor's degree in physics.

He earned a master of science degree from Lehigh University and a Ph.D. from the Geophysical Institute of the University of Alaska Fairbanks. His thesis was on geomagnetic micropulsations, or fluctuations in the Earth's magnetic field caused by variations in solar wind.

His first job was as a scientist observing the aurora australis, the southern cousin to the aurora borealis, at the Amundsen-Scott South Pole Station in 1957 and 1958. Just being there demanded toughness: As winter approached, a two-day twilight yielded to six months of continuous darkness.

It was so cold in the rudimentary buildings that Dr. Dawson had to chip ice

from the corners of his quarters. The scientists also shoveled snow to melt for drinking and bathing.

Dr. Dawson met the explorers Sir Edmund Hillary and Sir Vivian Fuchs at the South Pole base. Hillary and Sherpa Tenzing Norgay were the first confirmed climbers to summit Mount Everest. Fuchs' expeditionary team completed the first overland crossing of Antarctica in 1958.

Later, the Advisory Committee on Antarctic Names named a 6,800-foot mountain in the Queen Elizabeth Range after Dr. Dawson. It's now known as Dawson Peak, to mark his contributions to the understanding of the aurora australis through his work at the South Pole Station.

In the early 1960s, Dr. Dawson and a friend kayaked down the Alsek River, which flows from Yukon into Northern British Columbia in Canada, and to Alaska, entering the Gulf of Alaska at Dry Bay. They are believed to be the first Westerners to traverse the full course of the 240-mile river, through uncharted wilderness.

"At the end of their journey, they spotted a fishing cabin near Dry Bay," his family said in a statement. "They knocked at the door and startled the inhabitant, who said that in his two decades spending summers there, no one had ever knocked at his door before."

Starting in 1963, Dr. Dawson was a scientist at a U.S. Commerce Department laboratory in Boulder, Colorado.

From 1966 to 1972, he taught physics at Ahmadu Bello University in Zaria, Nigeria. While based there, he traveled throughout Africa and Europe. He and his wife, Margaret McLaren Dawson, whom he married in 1966, climbed Mount Cameroon, the highest point in sub-Saharan western Africa.

From 1973 to 1978, he worked as a scientist at the Naval Research Laboratory in Washington. From 1978 to 1985, he was a consultant with R.L. Banks & Associates, a

firm in Arlington, Va., specializing in the economics of transportation.

Stand and deliver

The 1988 movie aside, highwaymen used to command their victims to hand over their valuables by saying, “Stand and deliver.”

But this is no stickup. Your Society wants you to give it something that, the giving done, you’ll still have.

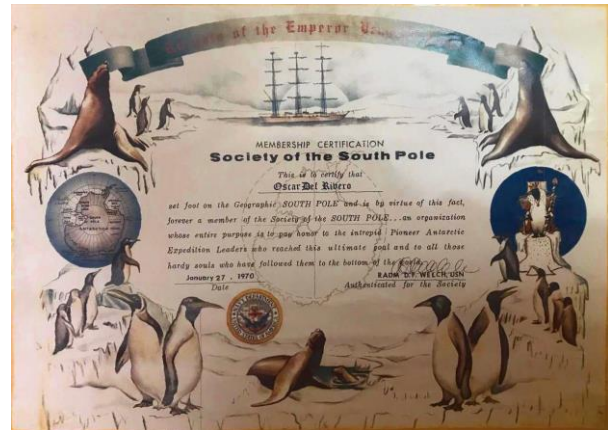
We mean an article, written by you about an aspect of your interesting life or something else you think will be of value to your fellow members. Your editor knows you have those great stories because he’s heard you tell a few. Put your fingers to the keyboard and give us a 500- to 1,000 word article. It won’t make you rich, but you’ll be famous.

Peter Espenshied Passes

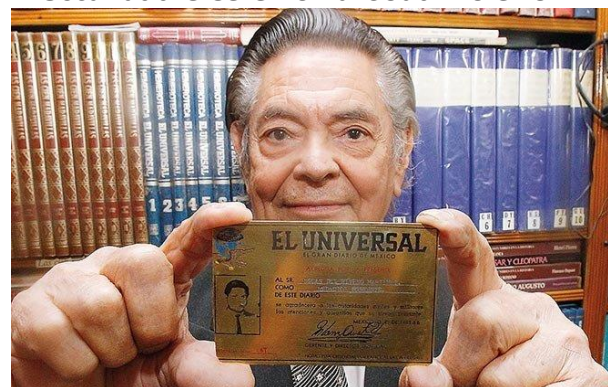
Antarctican Society member Peter Espenshied passed away in his home on September 7, 2020 at age 83. An astronomer and bookseller, he was deeply involved in DC politics and community issues for more than 50 years. His life had taken him all over the world, from deserts of Mauritania to the nunataks of Antarctica. He is survived by his sons, Jonathan and Jared, his sister Joan and grandsons Tobias and Samson.

Did you know Oscar Del Rivero Martinez?

Oscar Del Rivero Martinez was the first citizen of Mexico to set foot at the geographic South Pole. In 1970, he was a reporter for El Universal newspaper and was invited to the South Pole by the U.S. Navy. His granddaughter Katia wants to surprise him on the 51st anniversary of his time there. Contacts from that time would be a good way to do this. If you knew him and want to wish him well, please contact Tom Henderson at webmaster@antarctican.org.



Oscar at the Ceremonial South Pole 1971





The Antarctic Society

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DELIVERING THE GOODS WHERE IT COUNTS, SINCE 1957

On 8 February Elaine Hood, longtime member of the support contractor staff providing essential services to the U.S. Antarctic Program, issued one of her “In the News” emails with a simple declarative sentence: “This year there will be no cargo vessel to McMurdo.” She noted that the incident is unique in the program, and she provided a thumbnail history of the seaborne cargo operation since 1957.

Seaborne deliveries of cargo and fuel are mission-critical parts of U.S. Antarctic field activities. It’s easy for folks arriving at McMurdo by air, which most do, to miss knowing that over 90 percent of the cargo used, and all the fuel, arrives by cargo ship and tanker. To get the ships in, a channel first has to be broken through the sea ice of McMurdo Sound by icebreaker. All this takes place in a carefully choreographed sequence in late austral summer when the sea ice is at its annual minimum.

For decades, missing just one of those annual deliveries would have meant doom for field operations: No fuel? No program. Managers worked for years toward the goal of seaborne deliveries every *other* year. They relentlessly increased energy efficiency of buildings, introduced tractor trains to reduce air delivery of cargo and fuel from McMurdo to South Pole, added fuel storage tanks at McMurdo, and beefed up use of solar and wind generators.

Then covid-19 changed the rules. The U.S. Antarctic Program drastically reduced, but did not terminate, field operations. Critical cargo was delivered this season from Christchurch to McMurdo by augmented C-17 flights in an operation called *Air Bridge*. No cargo ship. No tanker. It worked.

I listened to an interview on the radio some weeks back in which a scholar in social and economic affairs commented that most of the wealthy world has built its capabilities around the principles of comfort and convenience rather than resilience. Antarctica does not permit such indulgence, and the notion seems hard-wired into the thinking of the people who work there. The years-long buildup to the ability to substitute *Air Bridge* for sea deliveries this season underscores the point.

Guy G. Guthridge

Strength in strategic diplomacy: Ambassador Paul C. Daniels

by Ana P. Daniels



**Ambassador Paul C. Daniels signing the
Antarctic Treaty, December 1, 1959**

The phrase “save the best for last” describes the Antarctic Treaty. Its final signer was the Treaty’s visionary, my grandfather U.S. Ambassador Paul Clement Daniels: laser-blue eyed, pipe-smoking, totally brilliant, and ever humble.

While the Treaty itself, signed in 1959, is a marvel – subordinating property and military rights, fostering collaborative global science – its backstory holds important details. Many center on the Treaty’s architect, my grandfather. Most of his papers reside at Yale’s Sterling Memorial Library, but some remain with my mother Jean Daniels Portell. Among them is a book, *Fables for the Nuclear Age* (1989, Paragon House, New York, 207 p.). A penned dedication by the author, Alan F. Neidle, reads, “In gratitude to Ambassador Paul Daniels who stimulated me to think sensibly and without blinkers about diplomacy. His creativity, wisdom, and strength saved a continent from the follies of the Cold War.” My grandfather had selected Mr. Neidle, who in the 1950s was a young GS-7 lawyer with the State Department, to be part of the team negotiating the Treaty.

My grandfather was a magician in every sense of the word. He loved performing tricks and was exceptionally good at it. A dynamic strategist, he had a unique affinity to engage audiences across generational and continental divides. As an expat child, my mother recalls he would enliven trips back-and-forth to the United States by boat; “reading” his audience, entertaining with skilled illusion. He taught the importance of curiosity: knowledge of history and the arts, games of chess, banjo playing, singing favorites entwining his Yankee roots with my Grandmother’s Louisiana Southern flair: “*Red River Valley*,” “*On Top of Old Smoky*,” “*Oh! Susannah*,” and my favorite “*The Old Family Toothbrush*.” At meals we sat straight, elbows off the table.

My grandfather’s work is evidenced in a special Antarctic issue (vol. 26, issue 10, 1970) of the *Bulletin of the Atomic Scientists*, in which he explains the “close relationship between science and international cooperation,” both aimed at reducing barriers to peace and progress. He brought a dynamic mental discipline as Ambassador to Honduras and Ecuador, Council of the Organization of the American States, Director of American Republic Affairs in the State Department. At the start of his career, he was the youngest career foreign service diplomat. To ‘solve’ his greatest puzzle of all, the Treaty, he was drawn out of retirement.

He finessed challenges taking a creative twist. He didn’t just ‘do’ anything – he mastered it. My grandmother would cut-out Sunday crossword puzzle grids, leaving just the clues. To ‘up the ante’ – he rebuilt each puzzle from scratch on graph paper. He made time for everyone he touched: golf with Eisenhower, bridge with my grandmother, chess with my father, hearts with my mother, and 52-card pickup with my brother and me. He had an official “backseat driver’s license” issued for my mother, who admired her father’s quick-wit and lively spirit. In a 2014 Antarctic Society presentation, my mother

spoke of his courageous, significant contributions to the Treaty.



Paul C. Daniels, Yale University, Class of 1924

Called out of retirement

It was from 1957 to 1959 that he was brought in, under secrecy at first, as U.S. negotiator to design the Treaty. He was summoned for his vast knowledge of Latin American leadership and intelligence. The State Department previously supported Antarctica assignments through the Latin American Bureau because of Chile and Argentina's overlapping political and territorial claims. Other constituents carried top-priority sensitivities. It is difficult to appreciate the critical military viewpoints held in check to design the Treaty; its continuity through the decades reflects its success – an incredible feat.

Unlike bilateral treaties, the Antarctic Treaty involves delicately interlacing relationships -- Cold War rivalries between former World War II allies. My grandfather's mission: to conceive a multi-lateral Treaty to restore adversaries to allies. He established a playbook and team, including that young GS-7 lawyer, who later acknowledged him as the greatest stimulus to international diplomacy, encouraging "a concentration of what is important, devoid of clichés."

My grandfather chaired sixty meetings in rapid succession over 9 months including countries active in Antarctica. When others balked at including the Soviets, my grandfather stood firm – he understood the import of Soviet trusted participation; his working group was first-in-class, and it paid off.

Alan F. Neidle in 2000 was interviewed at length by the Polar Oral History Program at The Ohio State University. "Not only was [the Treaty] a very significant issue," he said, "but Daniels conducted this in what I considered a very old fashioned, but very sound and excellent diplomatic manner. We analyzed the problem, the possible approaches, the ways to go about it, when to go to other countries, whether to start with principles, and what I think we came with up with, as I remember, is that we would work for a policy statement by, I think it was Eisenhower, even. So this was an initiative to develop the format, the procedure, the steps we worked out by this little group with Daniels playing a very, very active leading role and all went smoothly."

Timing and strategy were everything. From years working alongside Latin America dignitaries for tightly controlled groups as the coffee industry, my grandfather understood studying 'the dance' from all angles.

Neidle: "Now one of the things that interested me... was Daniels's way of drawing everybody in, getting all of the views, consulting everybody, having everybody kind of be part of the process."

Through my grandfather's alliance building, the Soviets became increasingly more engaged. The Russian representative was later replaced by a senior Russian Foreign Ministry legal advisor.

Neidle: "The Russian line was that these talks were invalid because the People's Republic of East Germany wasn't present. And immediately there was a question, how to respond to this. And Daniels had what I thought was the perfect diplomatic line which

was just to let them have their way. And he calculated, I think quite correctly ... that they wouldn't walk out because they'd want to hear what everybody else was saying. They wouldn't want to miss the opportunity to collect all that information and intelligence."

Once he had Russia fully engaged, the timing was ripe to draft the Treaty.

"One day," Neidle stated in the interview, "Ambassador Daniels said to me, 'Alan, I think it's time we had a Treaty text.' And we had gone through many months talking principles, circulating statements, and so forth. But he said to me, 'I think we need a full treaty text in treaty language. Draft One.' So I went back to my office, pretty excited. This was, you know, quite an assignment. I sat at my typewriter, I stared at the damn thing, and I said, 'How do you start the most important treaty, multilateral with the Russians, since World War II?' Because this would be the first treaty limiting military activities of the Soviet Union in any significant way. So I sat and scratched my head and finally I came up with a sentence." 'Antarctica shall be used for peaceful purposes only.'

Paul Daniels also worked extremely hard to ensure the Treaty bore Eisenhower's imprimatur.

"There were people – Cold Warriors, as it were – experienced, respected, serious people who said this is never going to work. The Russians are not interested in bringing peace to and cooperation with us anywhere. They operate on a zero ... gain basis ... any gain for us is a loss for them and vice versa... and we ought to get out while we have a good excuse and can blame them for foot-dragging in inserting the East Germans who have no business being discussed at all."

Calling it nonsense

"And Daniels worked very hard above my level to say this was nonsense. You just pursue your interest as you calculate it. You do it patiently. You don't let the other side

determine what's in our interest. We decide that. And this treaty, if we got it the way we want and if they signed and others signed, and we had the inspection, would be in our interest. And I think the issue went fairly high – maybe even to the President, although I'm not sure. But it was decided to continue the course of seriously, quietly, without polemics, without publicity, seeking the treaty. And it was a little while after that that the Russians came around."

In a 1972 presentation to the Salisbury Rotary Club my grandfather noted the Treaty's impact: Antarctica was the *only* place where the Soviets allowed inspection of its installations. True magic – a tactical master drawing together allies and competitors, earning trust – demonstrating diplomacy as more powerful, lasting, and impactful than war.



Gov. Reagan, Paul's wife Theodora ("Teddy") and Paul C. Daniels, 1975

He presented the Ninety-Eighth Commencement Address to Vassar College in 1962, *Antarctica – Proving Ground for Practical Idealism*, demonstrating the grand idealism of the Treaty was no pipedream. Describing his journeys to Antarctica, he shared details such as windowless military planes, flying over the Daniels pristine mountain range located at 71°15' S. 160°00'

E. longitude in Northern Victoria Land: nature's enduring classroom. He was deeply committed to its spirit and sanctity – preservation of treasures not to own but for deeper scientific knowledge.

One of the enduring qualities of the Treaty resides in its framework, shaped from my grandfather's Antarctic Society ethos, a vision seeking solutions beyond military lines for global scientific advancement. The Treaty's resiliency marks his legacy: courageous diplomacy. In polarizing times, the Treaty stands an iconic beacon of integrity and global strength.



“Bampa” Paul Daniels with his only granddaughter Ana (author of this article)

His passion for science inspired me as a junior member of the American Society of Polar Philatelists. I was thrilled to receive handwritten letters from senior Society members, heroes, and veterans teaching me of the Arctic and enclosing covers and seals for my collection, sparking my awakening interest in new frontiers.

The Treaty continues to resonate powerfully – its essential governance remains intact through decades of scientific and political change. It marks the first arms control agreement in the framework of the Cold War effectuated through painstakingly complex strategic diplomacy. Nuclear arms control was indelibly shaped by the Treaty: “I think it no exaggeration that your father was the greatest stimulus to my thinking at that early and impressionistic stage of my career.” (Neidle letter to Jean Portell, 4 September 1991)

In my own career living overseas and raising a next generation of expat children, pioneering global R&D governance for a science-led enterprise, the Treaty stands a steadfast reminder of my grandfather's brave vision to lead always with trust and inclusion in building our collective future.



Paul C. Daniels built this CT lakeside cabin where the family celebrated the 80th birthday of daughter Jean Daniels Portell (seated, in red). The author is standing behind her. Daniels' grandson Paul Daniels Portell is at left.

Ambassador Paul C. Daniels (1903-1986) was a Director and first Honorary President of the Antarctic Society. For more than three decades the Society presented annual Paul C. Daniels Memorial Lectures. In an Appreciation in the April 1986 issue of this newsletter, longtime editor Paul C. Dalrymple wrote, “I hope the Society, whatever it is or may become, will never stray far from the ideals he had for it.”

Alan Neidle transcript:
<https://kb.osu.edu/handle/1811/30107>.

Jean Daniels Portell delivered a presentation about her father Paul C. Daniels to members of the Antarctic Society on July 18, 2014 at Port Clyde, Maine.

My years in Antarctica, then and now

by Robert Rowland

My polar career started with a draft notice. In 1961, just after returning to San Diego from a 6-month Indian Ocean expedition on a Scripps Institution of Oceanography research ship, I was drafted. Thankfully, the local draft board postponed my induction until I completed my BS in geology at San Diego State College.

Army basic training started in March 1962 at Fort Ord, California. I was assigned for the rest of my 2-year active duty obligation to the Cold Regions Research and Engineering Laboratory. At that time, CRREL's function and location were unknown to me. In the Fort Ord library, a book of Army posts did not list it. To me, a 21-year-old, this indicated the CRREL assignment might be very good or very bad. I decided to report to CRREL. If it was very bad, I had the application for Officer Candidate School in my pocket.

The first person I met in Hanover, New Hampshire, at CRREL told me I would replace him and would be going to Antarctica. I was overjoyed, because at that time research was the only way one could go to the Seventh Continent. I also would enjoy returning to New Zealand plus I knew an American geologist who worked in Antarctica. In Washington, D.C., the physical exam was passed. Next, I visited a former San Diego State College professor, Art Ford, at his USGS office where he worked when not in Antarctica. Art's enthusiasm was infectious; he recognized studies done there, in the 1960s, would be basic contributions to Antarctic knowledge. Years later, Art was influential in my joining the Antarctic Society.

At CRREL, our first task would be conducting engineering studies on the strength of sea ice in McMurdo Sound and snow bearing studies for footings for the planned geodesic dome at South Pole Station. Our job also included measuring the tunnel closing distances at the under-snow New Byrd Station. In 1962-1963, the "we" was another draftee, George Hendrickson, a civil engineer who had studied at Michigan Technical College, in Houghton, where winters were probably colder than we would encounter during our summer in Antarctica. While we were working at the South Pole, George took a photo for my parents. I was at the bottom of the world 90 degrees south, standing on my hands, holding up the whole world.



Bob Rowland ice coring near the Dailey Islands

The next Antarctic summer, 1963-1964, Tony Gow – one of our bosses at CRREL – joined us. In addition to repeating the previous year's tasks, we added a trip to the Dailey Islands where we found fish carcasses on the ice surface (*Jour. Glaciology*, 1965). I found the frozen fish bodies tasteless.

About this time President Kennedy was killed. At first we thought the US Navy psychologists had initiated this "news" to see how fast a rumor would travel in Antarctica. Our suspicions were heightened when we were told the person who shot the president was shot. But the next plane from New Zealand carried people and newspapers and, sadly, we learned that all we had been told was real.

In the Arctic summer of 1964 and 1965, now a civilian, I worked for CRREL at Camp Century, Greenland. Again, the research was on the load bearing properties of snow. The major difference was that my salary was more than 10 times my former Army pay. The three articles I co-authored while at CRREL no doubt helped me gain admission to graduate school in geology at the University of California at Davis. The field work for my PhD was in Alaska, collecting bottom samples in the northern Bering Sea. I completed my degree and worked for 20 years with the USGS marine programs. I retired as soon as possible and sailed my 30-foot sailboat *Kiana* to the Panama Canal and then westward. On my return to the US I spent a few years writing about my 4½-year trip, but shelved this project; I decided no one would buy my book as nothing went wrong sailing around the world.

In 2004, the Antarctic beckoned again. A former CRREL colleague told me he was getting too old to continue guiding and lecturing on Antarctic cruise ships. He sent my résumé in, and I was hired by Hurtigruten, a Norwegian shipping company that was getting started in polar expedition trips. Every Antarctic season since 2005, I have worked along the Antarctic Peninsula and the nearby islands as a geology lecturer on Hurtigruten ships and as a guide at our onshore sites. A few years later, the company added me to its Arctic shipboard staff, even though I was the only staff member fluent in one language. 2005 also brought me more employment as I re-joined the USGS Law of the Sea project. I worked with USGS geologists to evaluate seafloor claims by other nations, seaward beyond the 200-nautical-mile offshore limit. Many of these claims were in the polar areas where I worked.

The covid-19 pandemic has affected the entire cruise ship business. Many Antarctic trips were canceled, as were Arctic trips in 2020 and 2021. I am scheduled to head south of the Antarctic Circle in early 2022. If all

goes well, this southernmost trip will reach Stonington Island. Onboard we will have Bob Dodson to re-visit his 1947-1948 base where he was an assistant geologist and dog team driver with the Ronne Antarctic Expedition.

Sixty years after being drafted and landing at CRREL, I'm still with polar science.

Thoughts on Antarctic tourism in the covid-19 era

by Valmar Kurol

With the explosion of covid-19 in the early months of 2020, ship-based tourism ground to a halt as ports closed and services such as airports restricted access. The restrictions varied by country, as reports of vessels being turned away reincarnated horrors of immigrant ships of past eras being denied landing.

Antarctica has no conventional governance and thus no covid-19 regulations. The international political mechanisms of the Antarctic Treaty System have not provided guidance. Tourism to Antarctica is not banned, but access is largely by ships from Argentina and Chile and to a lesser extent from Australia and New Zealand. Each country has its own entry and departure rules, some of which are restrictive. 2019-20 statistics from the self-regulating International Association of Antarctica Tour Operators (IAATO) indicate 74,401 tourist visitors to Antarctica, of whom 55,895 were ship-based landed/deep field visitors and 18,506 cruise-only visitors. Many Antarctic cruise operators, operating under IAATO guidelines, put their operations on hold for the 2020-21 season due to the perceived risk of covid-19 transmission on cruise ships as well as to operational uncertainty. According to IAATO, the Antarctic community, including national programs and support infrastructure, has a dominant goal to keep covid-19 out of Antarctica. In the only reported cases of covid-19 in Antarctica, in December 2020 36

people tested positive on a Chilean scientific base on the Antarctic Peninsula.

One unfortunate Antarctic expedition vessel that had been denied access to port at Montevideo, Uruguay, had at the time about 60% of its crew and passengers infected with the virus. That decision was later reversed, and seriously ill passengers were removed for hospitalization. The ship had departed Ushuaia, Argentina, on 15 March 2020 for a 2-week tour of South Georgia and the Antarctic Peninsula, but was forced to divert almost immediately. The Australian government provided assistance to repatriate Australian and New Zealand citizens on a flight to Melbourne. American and European passengers had to wait in quarantine for negative tests before being flown out via São Paulo, Brazil, for linking flights.

Covid-19 has raised questions about the health and safety conditions on all types of cruise ships and the use of screening processes, sanitation practices, and beefed-up on-board medical services as well as coordination with public health authorities. Already, many older ships have been scrapped or sold.

There is no universal schedule for Antarctic cruise restarts, although some companies have advertised packages for late 2021 to early 2022. In January 2021, a new venture, Adventures by Disney, announced two departures for December 2021 and January 2022 for the Antarctic Peninsula for a 12-day cruise beginning in Ushuaia, Argentina. It was to be marketed to families with children over 12 years of age.

The ship will be *Le Boreal*, operated by a French cruise ship company, with room for 264 guests. Prices were reported to range from \$11,500 to \$27,500 per person. Last heard from under a different name, the ship had a major fire in 2015 and was evacuated near the Falkland Islands. With the help of British forces it was recovered and repaired in 2016. It later appeared on the TV show *Mighty Ships* for its South Georgia-Antarctic Peninsula cruises. Disney's iconic cartoon

characters such as Goofy, Donald Duck, and Bugs Bunny have already appeared in several Antarctic cartoon shorts since the 1930s, so this new venture is not a complete surprise.

A casualty of the pandemic will be the prominent Antarctic cruise operator Zegrahm Expeditions. After 30 years, it will wind down its brand in 2022 due to the current business environment and will consolidate with its affiliates under the Exodus Travels/Encore Expeditions.

Future Antarctic tourism could have 1) a quick recovery of ship-based travel if vaccines prove ironclad, 2) a slow recovery if vaccines prove not as effective as anticipated, with or without allowed landings to protect wildlife and habitat, or 3) a longer-term sidestep into more airplane-based travel if infrastructure can be developed.

A benefit of reduced tourism has been the reduced impact of human and ship disturbances on wildlife and habitats at the edges of the continent where landings usually take place. On the other hand, during covid-19 Antarctica perhaps has been out of sight and mind of the world at large. Issues affecting it such as global warming, overfishing, and protection of marine species habitats have been on the back burner for world bodies. Tourists have been a ready source of informed ambassadors for the continent and should continue to be in the future.

Andrew M. Stillinger, 1964-2021

by Bob Melville and Michelle Brown

Andrew ("Andy") M. Stillinger – project engineer for A-112 with the New Jersey Institute of Technology – died suddenly and unexpectedly of natural causes at his home in New Jersey on 23 February 2021; he was 57. Andy was responsible for engineering improvements to the Automatic Geophysical Observatories on the high east Antarctic plateau. His expertise – particularly with design for the wind-turbines – has provided almost unparalleled reliability and up-time for geophysical data collection at these remote,

unmanned sites. Andy was an engineer's engineer.



Andy Stillinger at AGO Project installation

In addition to his official duties with the AGO project, Andy demonstrated boundless energy and enthusiasm and was always ready to help other groups and projects. His repair jobs were legendary, whether it was a broken food processor in the kitchen at South Pole, an exercise cycle in the gym, or an optical instrument at Arrival Heights outside McMurdo Station. He once extended the reach of the HAM radio by upgrading an old amplifier using transistors cannibalized from something he found in the skua bin.

Andy was committed to outreach and went out of his way to identify and then work with PolarTREC teachers. He was involved in numerous impromptu educational experiments, demonstrations, and videos, including one showing how to calculate the tilt of the Earth through trigonometry and shadows while at the Pole at solstice.

His energy, expertise, humor, kindness, and enthusiasm will be missed. Andy is survived by parents Frank and Dot and by a sister, Connie.

HRH Philip in Antarctica

by Steve Dibbern

I was saddened to see the death of HRH Prince Philip, Duke of Edinburgh, the husband of Queen Elizabeth II, at age 99. Some folks may not realize that he visited

Antarctica in 1957. He was on his way back from the Olympic Games in Australia on the yacht *Britannia*. He had an intense interest in wildlife and published a book, *Seabirds in Southern Waters* (Kessinger Publishing, 2010, 118 p.), with his own photography as a result of the trip. His stops included the Falkland Islands Dependencies Base "W" at Detaille Island and Base "B" at Deception Island.

During the early 1980s I was researching the history of Deception Island and came across his book with a map of his trip. Realizing that he was both a photographer and had visited, I wrote to him: "HRH Prince Philip, Buckingham Palace, London" on one of those folded blue airmail letters we used then.

This was pre-internet, so several weeks later I received a reply. It was not from HRH, but from "His Man," a Major "Somebody or Other." He informed me that HRH liked my research project and was sending his original slides for me to copy and use at my will. They arrived some days later, and I had them copied. Unfortunately, the weather was not the best, and although they had lots of good information on the condition of the facilities at Deception, none was usable for publication.

I write this because I think his kindness to me, an unknown interested in his photography, should be noted. He had the experience of visiting Antarctica and was willing to share it with someone in the "colonies."

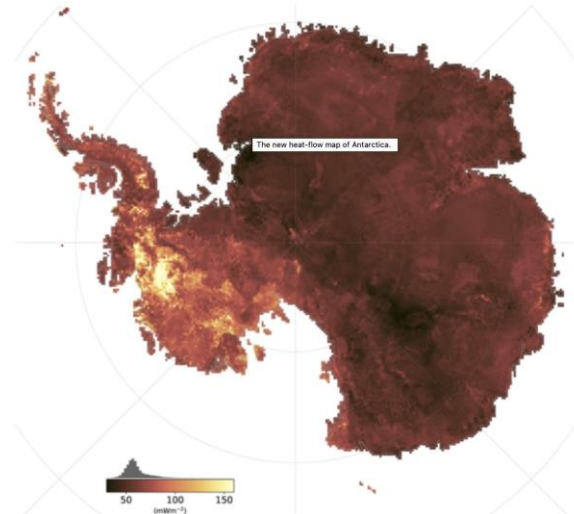
Hot rocks in West Antarctica

by Wes LeMasurier and Art Ford

Recently the American Geophysical Union published a new map of geothermal heat flow in West Antarctica, seen in the figure accompanying the online version of this article, https://eos.org/editor-highlights/taking-the-temperature-of-antarcticas-crust&utm_campaign=ealert

The new information is important because heat flowing from Earth's interior influences basal melting of the ice sheet. As can be seen from the scale at the bottom of the

figure, heat flow increases from the brown to the yellow colors. The highest values are in West Antarctica, where the ice sheet already is unstable because it rests on a bedrock floor 500 to 1,000 meters below sea level.



T. Stål et al. [2021]. Antarctic geothermal heat flow model. *Geochemistry, Geophysics, Geosystems*, 22

The heat flow shown here is the amount of heat ($\text{mW}/\text{m}^2 = \text{milliWatt per square meter}$) that flows from Earth's interior to outer space. A small proportion of this heat is original heat being lost from the early molten history of the planet. However, the majority of the heat flow shown here is produced by radioactive decay of uranium, thorium, and potassium from rocks in the crust and the upper mantle.

The average continental heat flow is about $50 \text{ mW}/\text{m}^2$, and that is the value shown for all of East Antarctica. West Antarctica is an intracontinental rift system, like the Basin and Range of the western United States or the East African rift, where the crust has been stretched and thinned to roughly 25 km, compared to a roughly 40 km thickness for East Antarctica. This attenuation, or thinning, over the rift system has allowed partly molten (~5%) mantle rock to rise to less than 100 km from the surface, producing the higher heat flow seen here (in yellow). These values are

similar to those in other intracontinental rifts like the Basin and Range. In the Lake Whillans area, 1,000 km southeast of Ross Island, the heat flow is much higher and similar to Yellowstone.

These heat flow values no doubt enhance basal melting somewhat, i.e. they are much higher than those under the Laurentide ice sheet 20,000 years ago; but they are unlikely to be as much of a threat to ice sheet stability as the recently discovered rise of relatively warm sea water beneath the Thwaites and Pine Island glacier tongues, which is currently the threat of greatest concern. Finally, the geologic evidence for a postulated large volume of young, potentially active, volcanoes beneath the West Antarctic ice sheet is very weak, which reduces the threat of increased basal melting from this source (Andrews, JT, and LeMasurier, WE, manuscript in revision, EPSL).

The new data in the attached figure should be accepted as a valuable contribution to knowledge and not mis-interpreted as a cause for undue concern.

Wes LeMasurier is with INSTAAR, University of Colorado at Boulder; Art Ford, USGS Retired, Menlo Park, California.

Dr. Edwin S. Robinson, 1935-2020

by Richard Robinson

Edwin S. Robinson, Antarctic scientist, explorer, and long-time Antarctic Society member, passed away in Roanoke, Virginia, on 10 September 2020, after suffering a stroke. He is survived by his wife of 58 years, Valarie, his daughter Lindsay Ailstock, his son Evan Robinson, and three siblings.

Ed made four journeys to the continent, the first during the International Geophysical Year. In January 1957, after graduating from the University of Michigan in geology, Ed learned that a fellow student was going to Antarctica with one of their professors. Ed landed a job as a junior surveyor on the project. In early October, he

arrived in New Zealand with his colleagues. They waited weeks for a flight to McMurdo. While they languished in Christchurch, on 25 October a six-man team already on the Ice, led by IGY Deputy Chief Scientist Albert P. “Bert” Crary, departed Little America on the Ross Ice Shelf Traverse intending to do seismic surveys and glaciology, and measurements of elevation, gravity, and magnetism. The group faced terrible weather crossing areas riddled with snow-covered crevasses. A glaciologist on the team, Peter Schoeck, was badly injured after falling 60 feet down a crevasse. He survived after a daring and dramatic rescue, but he had to be evacuated to New Zealand. Peter Schoeck’s misfortune ended up an opportunity for Ed. Bert Crary invited Ed to join the traverse midstream to replace Peter, which he did, arriving on 16 November 16th. The opportunity set the course for Ed’s career for many years.

Following that season, Ed join graduate students he met in Antarctica who were studying earth sciences at the University of Wisconsin and working at the university's new Geophysical and Polar Research Center, established by George Woolard to analyze the data they had gathered in Antarctica during IGY. This group, who became close friends for life (and Antarctic Society members) also included Hugh Bennett, John Behrendt, Ned Ostenso, Charlie Bentley, Ed Thiel, Steve den Hartog, Mario Giovinetto, and the traverse engineer, Jack Long. Between 1959 and 1968, scientists from universities throughout the United States and the world joined those from Wisconsin on traverses that explored and studied vast areas of the interior of Antarctica never before visited or mapped. Much was learned about the nature and depth of the Antarctic ice sheet, the surrounding ice shelves, and the land masses below the ice.

As part of this group, Ed returned to Antarctica for the 1959/60 season, wintered at McMurdo in 1960, and stayed on for the

1960/61 summer season. He skipped the 1961/62 polar season, staying in Wisconsin taking courses, and he married his wife Valarie in February 1962. He returned to Antarctica for the 1962/63 season and made his fourth and final journey to the continent on a project in the 1977/78 season.



Ed Robinson in Antarctica, 1960

In addition to his scientific contributions in Antarctica, Ed kept detailed written journals, took many photos, and documented life on the traverses through many movies he took in both eight and sixteen millimeter format. A few years ago, he teamed with a fellow Society member and outstanding videographer, the late Ed Williams M.D., to produce two excellent documentary films that revealed life on traverse in the late 50s and early 60s. Those films as well as his written journals are in the “Pack Ice” section of the Society’s website.

After receiving his doctorate from the University of Wisconsin in 1964, Ed began teaching at the University of Utah in Salt Lake City and in 1967 joined Virginia Polytechnic Institute (Virginia Tech) in Blacksburg, Virginia. He remained at “Tech” for the rest of his long and distinguished career, teaching geology and geophysics and conducting scientific research. He was the author of two textbooks as well as scientific papers and journal articles. He retired from active teaching in 1997, but as a Professor Emeritus, he continued to work and study geology for many more years.



Ed Robinson in 2020

After visiting Scotland in the 1960s, Ed began playing bagpipes. He was a member of two bagpipe bands. As a soloist bagpiper, he performed at public events as well as private funerals, weddings, and social events. Members of the Antarctica Society may recall him playing at the Port Clyde gatherings in Maine at the home of Dr. Paul Dalrymple.

Ed was instrumental in arranging an opportunity for his younger brother (the author of this obituary) to travel to Antarctica as a traverse engineer on the 1965/1966 Queen Maud Land II Traverse, after which I wintered at McMurdo in 1966. The Antarctic adventures shaped both of our lives.

**Antarctican Society First Online Talk!
May 17, 2021 at 7:00 p.m. EDT
by historian Joan Boothe**

The Society's Joan Boothe will lecture via Zoom 17 May at 7:00 pm EDT about what may be the smallest and least known of the wintering expeditions. Just 100 members can attend the lecture on a first come, first served basis. The Zoom link for this lecture is:

<https://us02web.zoom.us/j/81682800834?pwd=Wmsrc0pQWXJMSjU4d3VvOHhWWlpXQT09>



Lester, Bagshawe and Cope in Antarctica, 1921

A century ago, just two men wintered to study penguins. They may be the smallest and least known of the wintering expeditions. In late 1920 John Lachlan Cope, a survivor of Shackleton's Ross Sea Party, took G. Hubert Wilkins, and the two neophytes — Maxime Lester and Thomas Bagshawe – to the Antarctic Peninsula. Whalers transported them down the west coast to what Cope named Waterboat Point at the north end of Paradise Bay. A month later, Cope gave up. Wilkins quit. Lester and Bagshawe – young, inexperienced, but determined – stayed to winter at Waterboat Point with the dogs and carry out a scientific program. They endured, triumphed, and achieved so much that they deserve to be celebrated rather than mostly forgotten.

If you can't make the Zoom date, Joan's lecture will be posted later on <https://www.antarctican.org/webinars-podcasts>.



The Antarctic Society

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CHANGING A LEG, CHARGING AHEAD

The Society's newsletter has three legs: reader, writer, editor. Absent any one leg, it's not a newsletter. After 6½ years, we're changing the editor leg. Jeff Rubin and Dick Wolak, both longtime Society members, are taking over. Jeff is the author of the 375-page *Antarctica* volume in the Lonely Planet series. Dick's 10 years with the U.S. Antarctic Program included wintering as leader of Amundsen-Scott South Pole Station; more recently, he has taught an Antarctic course at the University of Connecticut.

Jeff and Dick need the other two legs to get any newsletter out, much less a good one. It's beyond necessity. My pleasure after sending a completed issue to the printer and to webmaster Tom Henderson has been to hear from readers: especially readers who suggest improvements or who are willing to share their Antarctic experiences with other Society members in the form of an article.

Why give it up, then? The project has been a delight, and I shaped the newsletter to meet what I thought to be the desires of readers. But it was my way. The newsletter needs a new perspective once in a while.

But members also set the tone. More than three-quarters of the July 2016 issue, for example, was written by members. Topics ranged from an experience in the U.S. Antarctic Program in the 1950s to a moment 111 years ago when American Robert Peary almost pulled off an expedition to the South Pole. You don't read about such things just anywhere; the shared knowledge of members makes the newsletter unique.

I also liked *writing* for the newsletter: about aspects of the Antarctic Treaty that I thought were underappreciated (example: "Antarctic Treaty nations aren't all big and rich" in the April 2015 issue) or unexpected (for me) explorations such as "David Ferguson, Scottish Antarctic geologist" in the July 2016 issue. Maybe you haven't seen the last of me.

Tax exempt status regained, virtual lectures, a Gathering in 2022! Read on for some of the dramatic ways your Society is charging ahead on behalf of members.

Guy G. Guthridge

Meet in Burlington in August 2022!

by Tom Henderson



Burlington Harbor

The next Gathering of the Antarctic Society will be held in Burlington, Vermont, August 12-14, 2022. Make plans now to join us for our first in-person Gathering since 2018. Let's reconnect and remember the past camaraderie we shared at Port Clyde, Maine, while looking forward to new connections in a reinvigorated Antarctic Society.

Located on the eastern shore of Lake Champlain, Burlington is the largest city in Vermont (50,000) but has a small-town New England feel. It has a vibrant downtown centered on Church Street Marketplace, a pedestrian mall with stores and restaurants with outdoor seating. Our venue is Main Street Landing on the extensively renovated waterfront. Four hotels are within an easy walk, with others a short drive or city bus trip away. The Church Street Marketplace is only three blocks away. Ample parking is available near Main Street Landing. To see a video history of Burlington and the waterfront, go to

<https://www.mainstreetlanding.com/about/history-of-burlingtons-waterfront/>.

For those who prefer to camp or RV, the North Beach Park is only 1.3 miles from the venue. It features tent and RV sites with facilities in a wooded area very near North Beach on the lake. It is connected to downtown by road and by a scenic paved bike and walking trail which follows along

the lakeshore. The trail actually extends 10 miles and is great for bicycling. North Beach will also be the venue for our picnic on the last day of the Gathering.



Church Street Marketplace

Transportation options include Burlington International Airport and the nearest larger airports at Montreal, a two-hour drive to the north; Albany, NY a three-hour drive to the west; and Manchester, NH, a two-and-a-half-hour drive to the east; Amtrak's daily Vermonter, which stops at Essex Junction (7 miles from Burlington); and bus service including through buses from Boston or New York.

The Gathering schedule allows ample time for socializing, presentations and other activities. We are planning for an informal day on Thursday, August 11, including an optional visit to the Shelburne Museum south of town followed by a no-host dinner at a local restaurant. Day programs Friday and Saturday will be devoted to a combination of memorials, presentations, an auction and an open forum for members.

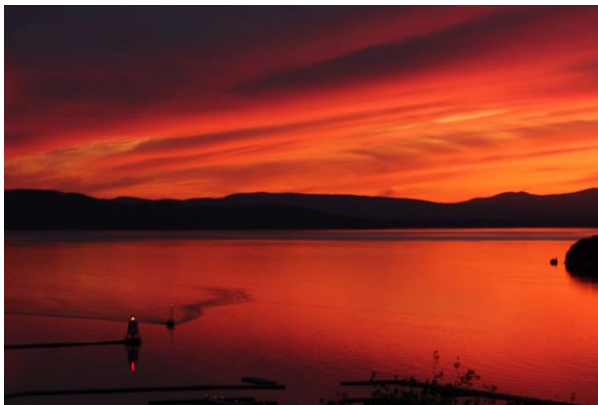
Look for speaker information in coming newsletters and on the website. If you would like to make a presentation at the Gathering, please contact Tom Henderson at webmaster@antarctican.org. Friday night's reception will be held at the ECHO Science and Nature Museum on the waterfront, a modern interactive museum devoted to the understanding of the history and ecology of Lake Champlain and to STEM education (see <https://www.echovermont.org/>).

Our Saturday evening event is a not-to-be-missed 2.5-hour sunset boat cruise on Lake Champlain aboard the *Spirit of Ethan Allen*. The cruise will include a full dinner and a cash bar. See <https://www.soea.com>. Sunday will feature a hosted picnic at a pavilion in the North Beach Park and a Society Board meeting open to all members.



***Spirit of Ethan Allen* Tour Boat**

The registration cost for the Gathering is \$175.00 per person before January 1, 2022, which includes the day programs, the Friday evening reception with light food and a cash bar, the Saturday evening sunset cruise on Lake Champlain with plated dinner and the picnic on Sunday. From January 1, 2022 to the date of the Gathering, the cost will be \$225.00. Family and friends may attend the Friday evening reception and the Saturday evening sunset cruise and dinner, with a guest ticket; the cost will be \$90.00 per person. Members may pay by check or by credit card through the website.



We hope you'll join us for a great time with old and new friends. See the Antarctic Society website for more details. A

registration form is at the end of this newsletter as well as on the website. For further information, please contact Tom Henderson, the Webmaster. See you in 2022!

Virtual Lecture on 23 August 2021

Thank you to all who attended our first Virtual Lecture by historian Joan Boothe. If you missed it, see our website under Pack Ice > Webinars & Podcasts.

The Society will host a new Virtual Lecture via Zoom, August 23, 2021 at 7:00 p.m. EDT. Dale T. Andersen, a scientist with dozens of Antarctic expeditions above and beneath the ice, conducts research in extreme and remote places. Lake Untersee, Queen Maud Land, is a world that resembles Earth's earliest biosphere. It can help us understand how early ecosystems thrived on a planet with an atmosphere nearly devoid of oxygen. His research also helps guide the search for evidence of life on distant worlds such as Mars or the outer moons of Jupiter. Dale knows what it is like to traverse Antarctica's inland mountains, camp atop a frozen lake for months, drill a hole in meters of ice, and dive. He is a limnologist, aquatic ecologist, and Senior Research Scientist with the Carl Sagan Center at the SETI Institute. Additional info is on our website. Join us August 23 to learn more! To join: <https://us02web.zoom.us/j/83974841146?pwd=VThzNG5ubVZLYVFIKy9nY1JyZ3poZz09> Meeting ID: 839 7484 1146, Passcode: 920269

Society regains nonprofit status

by Tom Henderson

The Antarctic Society lost its 501(c)(3) nonprofit status in 2013 as a result of failure to submit required annual reporting to the IRS. After a couple of false starts, we have finally re-established our nonprofit status, incorporating in Vermont as The Antarctic Society Ltd. thanks to our attorney and Society member Michael Russell. This means

that all of your dues and donations paid in 2021 and going forward will be tax deductible. It also means that the Society can more easily apply for grants and engage institutional sponsors. A copy of the IRS determination letter is on our website in the Society Documents area under Members.

Website Update

by Tom Henderson

The Society website has been active since the last newsletter. The biggest change is the addition of a Webinars & Podcasts page under Pack Ice. The pandemic has resulted in an explosion of these alternatives to face-to-face meetings and there has been a number of excellent programs dealing with Antarctica. We have tried to collect links to the best of these on this new page. Going forward, even as the pandemic ebbs, we expect webinars and podcasts to continue to grow, so check the website and our Facebook page for updates!

On a related topic, the Society's own Virtual Lectures Series (see above) was initiated in May. Each lecture will be recorded and posted on the website, both under Webinars & Podcasts and on a special page under Members. Don't miss them!

SouthPole-sium v.4.5

by Rob Stephenson

The SouthPole-sium v.4.5 got underway at Noon on June 26 San Francisco time and proceeded virtually via Zoom for a bit over two hours. The 56 participants, including some Antarctic Society members, hailed from Canada, Germany, Ireland, New Zealand, the United States, and the UK.

The program included an illustrated summary of the past four gatherings starting in Jaffrey, New Hampshire, in 2012, Scotland (2015), Norway (2017) and Ireland (2019), presented by Rob Stephenson.

Michael Rosove spoke on Antarctic bibliographies. Dave Hirzel whetted

appetites by highlighting the expected venues and the attractions of the Bay Area where SouthPole-sium v.5 will be held June 22-24, 2022, this time in actuality.

The gathering dispersed twice into Break-Out Groups.

Rick Dehmel, Joan Boothe, and Alice Cochran of the organizing committee also kept things going well.

The SouthPole-sium is directed at "those who collect, write, publish, buy, sell & love books relating to Antarctica and the South Polar Regions."

You can see more about SouthPole-sium v.4.5 and next year's SouthPole-sium v.5 at <http://www.antarctic-circle.org/gathering4.5.htm> and <http://www.antarctic-circle.org/gathering5.htm>

Antarctic Treaty 60th anniversary

by Guy G. Guthridge

On June 23, 1961 the Antarctic Treaty entered into force. As of that day, all 12 national governments had ratified the document that their representatives had signed in Washington, D.C., on December 1, 1959.

The United States had ratified the Treaty on August 10, 1960 with a Senate vote of 66-21. President Dwight D. Eisenhower had sent it to the Senate "recommending early and favorable consideration." The Constitution gives the President the power to make treaties if two-thirds of the Senate present concur.

The 60th anniversary of that entry into force came during the 43rd consultative meeting of the now 54 Antarctic Treaty parties. (Our Society's web page has a graph showing growth over time in number of member nations.) The June 2021 meeting was virtual, because of the pandemic. France, the host, posted the parties' 60th anniversary declaration, reaffirming "their strong and unwavering commitment to the

objectives of the Antarctic Treaty, its Environmental Protocol, and other instruments of the Antarctic Treaty system.”

It’s tricky, reserving a continent for peace, as Ana Daniels explained in the April newsletter. Her grandfather Paul C. Daniels was central to guiding the treaty into existence. Others since have emphasized its value. The State Department historian, Warren Reynolds, was one. His 1963 talk to observers headed off to inspect other nations’ activities on the Ice became a 19-page single-spaced typescript that we’ve put on the web site. “This Treaty is a great instrument for peace,” he wrote.

A decade later James E. Heg, NSF, wrote a 15-page memo summing up the National Antarctic opportunity, explaining that holding on to the range of our Nation’s Antarctic interests meant observing all of the Treaty’s provisions.

Deborah Shapley’s 1985 *Antarctica in a Resource Age* helped to keep science as the focus of human activity when many were agitating for resource exploitation there. The Treaty’s 1991 Protocol on Environmental Protection now protects science by shutting off the option to extract minerals.

Many other Americans have articulated the value of the Antarctic Treaty. Thinkers in other Treaty parties also have created a wealth of support for it. Nations the world over, Treaty members or not, have benefitted from the far-sighted document, now with 60 years of experience, that reserves a continent for peace and science.

The unintentional Antarctic

by Peter Barrett

Dr. Peter Barrett has had a long and distinguished career in Antarctic science and is a Patron of the New Zealand Antarctic Society. He recently joined The Antarctic Society.



Dr. Peter Barrett, 2020

On 5 October 1962, after the flight from Christchurch, I stepped onto the sea ice runway as the only Kiwi member of the University of Minnesota’s Ellsworth Mountains 8-man geological expedition, led by Professor Cam Craddock.

My new master’s degree in geology from the University of Auckland had nothing to do with the Antarctic. Fellow geologist Vic McGregor had spent the previous year with a NZ party in the Transantarctic Mountains and had been invited by the University of Minnesota to join in the following season. He had a thesis to complete and persuaded them to take me instead.

Our team at McMurdo got food, tents, toboggans, and fuel together. We then were flown by LC-130 Hercules to explore and map Gondwana geology as we travelled the length of the northern Ellsworths for 3 months.

When I returned to New Zealand, Vic had plans for us to map the foothills of the Transantarctic Mountains to complete the work he had done in 1961-62. A US Navy R4D (DC3) left our 4-man NZARP 1963-64 Southern Party, the oldest being 23, with supplies for 2 months at 85°S. We surveyed and mapped around 2,000 square miles from the Ross Ice Shelf coast inland, reaching the

lower Beacon Sandstone at about 10,000 feet elevation.

These two seasons led to my acceptance in 1964 as a PhD student at Ohio State. As important was NSF support for two graduate students (Australian room-mate John Lindsay and me) for two seasons of field work (1966-68) in the Beardmore Glacier area on its superb Gondwana sequence, with postdoctoral fellow David Elliot for the Ferrar Dolerite sills and related basalts. We completed the first major study and maps of the Gondwana sequence in the Antarctic. A newsworthy find was the first tetrapod fossil, reported in *Science*, *Time*, and *Newsweek*. This led to further discoveries, including dinosaurs, by expeditions led by David Elliot confirming plate tectonics when it was in its infancy.



Peter Barrett (left) at Beardmore Glacier Camp, 1966

I was hired in 1970 by Bob Clark, Victoria University of Wellington, to continue the geology they had been doing since 1957. This work led to a half-time permanent position in 1972 as Director, Antarctic Research Centre, the other half being Senior Lecturer in Geology. The expeditions included study of glaciers and volcanoes of the region.

That focus broadened when I was invited, with Peter Webb, then paleontologist at the NZ Geological Survey, to be sedimentologist on the first Antarctic drilling leg of the US-funded Deep Sea Drilling Project. My interest was Gondwana strata beneath the

Ross Sea. Instead, we cored glacial strata dating back 25 million years, establishing the antiquity of Antarctic glaciation.

The 10 weeks on *Glomar Challenger* shifted my focus from the Gondwana period to the geological history of the Antarctic ice sheet, now accessible through its wonderful coring system and scientific protocols. Soon after, Peter Webb moved to Northern Illinois University to take part in the Dry Valley Drilling Project (1970-74) involving the US, NZ and Japan. We persuaded the project to move the rig onto the sea ice for the final hole.

It was just a start. After two more attempts in 1979 and 1984, we had our first big success in 1986 coring over 700 m into the sea floor back to the earliest Antarctic glaciations. By this time John Mercer's 1978 *Nature* paper on the threat of rising CO₂ emissions to the West Antarctic Ice Sheet was getting recognition. We now had a compelling social purpose for coring Antarctic offshore strata for a continuous record of a cooling Antarctic climate since peak warmth 50 million years ago.

This work provided context for an impending human catastrophe, and it might help improve projections with development of modelling and paleotemperature proxies. It led to other major projects including the six-nation Cape Roberts Project (1997-99), revealing Antarctic ice sheet history from 34 to 17 million years ago, and ANDRILL (2006-08) covering the last 20 million years.

Growth of the Antarctic geological drilling community has been critical for integrating data from geological and ice sheet drilling, along with studies of earth-ice-ocean-atmosphere interactions. I feel privileged to have worked in both the US and NZ Antarctic programs and taken part in that memorable Antarctic voyage of *Glomar Challenger*.

Eulogy to Graeme Claridge, 1938-2021

by Iain Campbell

Graeme Claridge, who died on 12 May 2021, had a long career studying Antarctic soils. Society member Jerry Brown, who studies Arctic soils and permafrost, obtained this reminiscence. Graeme was one of the few elected to Life Membership of the New Zealand Antarctic Society.

My relationship with Graeme for over 40 years goes back to 1962, when I was asked to review a paper he had written. Our Antarctic relationship began in 1964, when I joined Graeme on the Second New Zealand Soil Bureau Antarctic Expedition.



**Graeme Claridge (left) and John McCraw
Taylor Valley, 1959**

Graeme had first gone to Antarctica in 1959 with John McCraw. They produced a soil map of Taylor Valley. Little soil development was observed.

The question Graeme formulated to get back to the Antarctic was, would more signs of soil formation be in northern areas and less in southern areas? He put together an investigation that covered five locations over 2,000-km of the Transantarctic Mountains.

Results were not as expected. Strangely, we found salty soils in some high-altitude southern, inland areas, which we concluded to be extremely old. (These soils recently have been confirmed to be around 14 million years old.) Results led to seven further expeditions over the following 23 years. Our results enabled us to show how soils in Antarctica were formed and how Antarctic ice sheets had behaved over millions of years.

During the 31 years in which Graeme and I undertook expeditions to Antarctica, we shared a polar tent over about 1½ years of our lives. We complemented each other's skills. Graeme was a skilled chemist, while my understanding was rudimentary. Graeme was more skilled on snow and ice than I, while the reverse was the case on rock. This dual confidence took us to high altitudes in search of old soils.



John McCraw and Graeme Claridge, 2009

Our domestic arrangements were established the first time we pitched a tent. I went in and arranged the bedding and the kitchen. Outside, Graeme organized snow blocks for water, filled the primus, and made sure the tent was weighted down. Graeme prepared the breakfasts: porridge with bacon and scrambled egg, the egg made from powder. I prepared the evening meal, invariably soup and dehydrated stew.

Graeme had an easy temperament and seldom became irate, but his patience was tested when the lunch sledge-biscuits he was

buttering broke, and he carefully fitted the pieces together then glued them in place with peanut butter or honey.

The radio schedules caused Graeme some annoyance. On our early expeditions, all that was required was one radio communication per week with Scott Base. Later, radio checks were daily at a fixed time. This requirement annoyed Graeme as it restricted our freedom to work when we chose. He maintained that the only radio sked we needed was the one advising us of the date and time of our pickup by plane or helicopter.

Over the years, we shared heart-stopping as well as exhilarating moments. On our first trip together, we spent two days stuck inside the tent in a storm. We could hardly hear each other speak and wondered if the tent might be ripped to shreds. When the storm abated, our fears were unfounded; the tent was half-buried in snow. On another occasion, a helicopter crash was narrowly averted when in high wind an engine failed on take-off. At times we questioned our sanity for wanting to be in this awful place, but these moments were outweighed by sunny days, tranquility, and the euphoria of attaining a vista from a mountain peak, sometimes around midnight. Insights were gained into how the forces of nature had shaped this miraculous landscape.

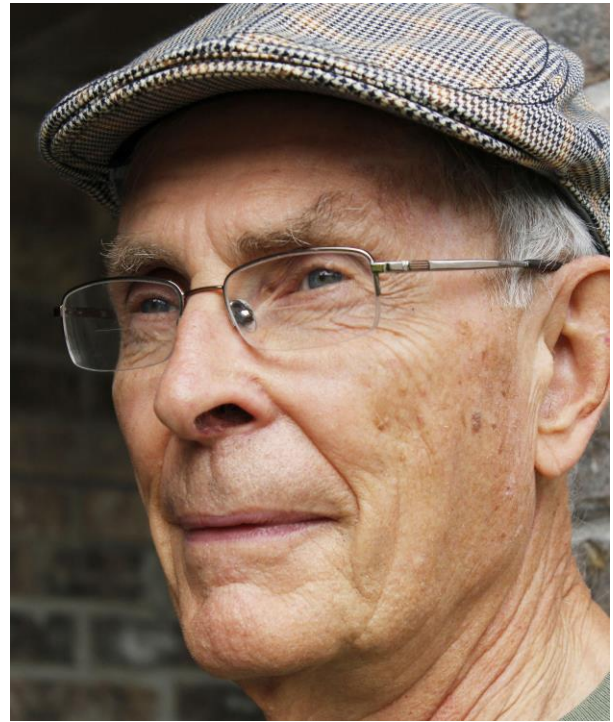
Our collaboration extended beyond Antarctica. I worked with Graeme in the Auckland Islands and soil surveying on New Zealand's West Coast. Graeme did chemical and clay mineral analyses for our Antarctic work as well as the other.

Through the Antarctic we met, and through it we part. We shared a philosophy for a land wrought by powerful forces, silent, ghostly, where earth's heartbeat and even time appear to be frozen; an unforgiving place that reveals the puniness and futility of human endeavor; a place where present and eternity seem to meet; a welcoming place, for those who know it as their spiritual home.

Rev. Bruce Jerome Lieske 1934-2021

by Barbara Hillerman Lieske

Bruce Lieske, long-time Antarctic Society member, died on January 17, 2021. He wintered in Antarctica as a meteorologist at Little America V during IGY (1957).



Rev. Bruce Lieske

Husband, father, grandfather, brother, uncle, scientist, adventurer, Air Force officer, scholar, missionary and servant of God, Rev. Bruce Lieske was called home to eternal life with the Lord on January 17, 2021.

The son of Harold and Theodosia Lieske, Bruce was born on March 20, 1935 in La Crosse, Wisconsin. He graduated from Penn State University in 1956 in meteorology. He was then selected for a group of elite international scientists to participate in the International Geophysical Year 1957-58. At the age of 21, Bruce wintered in Antarctica.

Following his return from Antarctica, Bruce entered the U.S. Air Force as a Second Lieutenant stationed at Bolling Air Force Base and Andrews Air Force Base, where he provided aviation weather forecasts including occasionally for Air Force One. He met his

wife Ann Ruesler at Christ Lutheran Church in Washington, D.C. Together Ann and Bruce had three children.

After completing his Air Force service, Bruce, Ann and their son, Stephen, traveled to Seattle, where Bruce continued working on a master's degree in meteorology at the University of Washington and their daughter Rebecca was born. In January 1963, to acquire a nest egg to finance a return to school, the family traveled to Point Barrow, Alaska, where they lived for nearly two years, with Bruce working as a research scientist for the Naval Arctic Research Laboratory.

After Bruce completed his master's degree in Seattle, the family traveled to Springfield, Illinois, where he attended Concordia Lutheran Seminary and Daniel was born. He completed his vicarage year at St Paul's Lutheran Church in Apopka, Florida, where he was involved with establishment of the church. Following his ordination, the young pastor and his family moved to Philadelphia, where Bruce assumed duties as pastor at St. Luke's Lutheran Church. In 1975 the family moved to North Fond du Lac, Wisconsin, and finally in 1983 to Perryville, New Jersey. In these two locations, Bruce established new congregations – Divine Savior Lutheran Church and Our Savior Lutheran Church.

Bruce prepared mission resource materials, wrote articles for Lutheran publications, and published three books – *Frozen Memories* about his experience in Antarctica, *My Father's Pen*, a discussion of the influence of the written word, and *Cornerstones of Character*, a reflection on life experiences that influenced his development.

He was interred at Bushnell National Cemetery with full military honors.

Robert J. "Bob" Haehnle, 1943-2020

by Steve Dibbern

Robert J. "Bob" Haehnle died December 21, 2020 after suffering from Covid. He was 77. Bob had been married to Diane for 53 years, and they had two children. Born at Bethlehem, Pennsylvania, he graduated from Lehigh University in 1968 with a degree in civil engineering, later earning a master's in ocean engineering from University of Miami, and a Master of Public Administration from GWU. He worked for other government organizations before joining the National Science Foundation

He became the Engineering Project Manager for the Office of Polar Programs during the 1980's. His job took him many times to the Antarctic, and he counted McMurdo as a second home. As the civilian "post" engineer (remember that the Navy was still there in those days) he oversaw such projects as the new Crary Science Lab, the new vehicle shop, the big dorms, and projects at the South Pole. One thing that drove him nuts as an engineer was the unrelenting following of normal building codes in an abnormal place. He once fumed at a requirement for construction of a fireproof wall on a buried building that had 40 feet of snow separating it from another. He also was strict about real safety issues, once finding lead based solder at McMurdo and saying angrily, "I don't want ever to see this on the continent again." ... typical Bob

He later left OPP to join NOAA from which he retired. He and Diane moved to Lititz, Pennsylvania.

A personal note: Bob was amused that he had inadvertently invited an Antarctic history "nut" to visit McMurdo, the crossroads of Antarctic history. On Thanksgiving Day of 1985, he and Pete Check, his Navy counterpart, "commandeered" a Sprite for a demonstration ride...I was looking at transport systems around the station. They drove me to Cape Evans to spend a couple of

hours at Scott's hut which as the reader might imagine was truly a dream come true for me. Bob was a nice guy and I miss him. A final anecdote: as a history buff, I was trying to persuade him/NSF to preserve one of the few original IGY orange plywood box buildings, at that point the NCO Club, I believe. The historian wants to preserve...the engineer is practical... his answer: "firewood!"

Sad ending for a *Hero*

by Charles Lagerbom

In 1968, the Harvey Gamage shipyard in South Bristol built and launched the National Science Foundation Research Vessel *Hero*. The idea was to utilize a sturdy wooden trawler as a scientific platform along the shallow bays and passages of far-south South America and the ice-choked Antarctic Peninsula.



Hero before launch at Harvey Gamage shipyard in South Bristol, Maine, 1968 (photo by Bob Dale)

The vessel was to operate in conjunction with the appropriately named shore-based U.S. Antarctic Program station Palmer, named after seal hunter Nathaniel Palmer, Stonington, Connecticut, one of the first (in 1820) to sight the Antarctic Peninsula from his sturdy little ship named *Hero*.

Arctic mariner and Maine resident Jack Crowell was the NSF point-man for the job; he led the charge for the vessel to be constructed of wood by shipbuilder Harvey Gamage. Crowell carried enough clout with NSF to make it happen. He and his wife Alice rented a small house in South Bristol near the shipyard, and Crowell and Gamage oversaw construction of the vessel.

Hero was 125 feet long and 300 tons, but drew only a dozen feet of water, crucial to explore inner bays and harbors of the Antarctic Peninsula. Contemporary icebreakers and research ships drew over twice that depth.

Hero was diesel-driven by two 380-horsepower engines. Her frame was native-oak timbers sheathed in tough green-heart wood from South America. The mast was Oregon fir. *Hero* was ketch-rigged so it could carry a decent amount of sail yet still maneuver around ice-choked inlets; she carried 1,700 square feet of high-visibility orange sails.

When launched into the Damariscotta River March 28, 1968, *Hero* generated fanfare. NSF dignitaries and Washington, D.C., bigwigs attended, including military officers in dress uniform

According to one account, as *Hero* began to slide out of Gamage's large construction shed, part of the vessel's superstructure nicked the opening. While the band played and the assembled crowd cheered, the shed shook from the impact, and 100 years' worth of pigeon poop in the rafters wafted down onto the officers' dress blue uniforms and the dignitaries, in their finest clothes.

In June that year, when NSF took *Hero* north for a shakedown, Crowell accompanied the vessel. By early summer, she had made

four cruises while ship and systems were tested and calibrated, including one sojourn to Arctic waters. They reached the Grand Banks and Davis Straits in August, where they came upon icebergs officials wanted to photograph alongside *Hero*.

By fall 1968, *Hero* was headed south for her first Antarctic visit. What followed were several seasons of yeoman-like work and science along the Antarctic Peninsula, Drake Passage, southern Atlantic Ocean, and far-south regions of South America.



**Shakedown cruise for *Hero* in the Arctic, 1968
(photo by Jack Crowell)**

The ship proved reliable, if not speedy. She occasionally grounded and bumped her way through the ice and rocks of the region. Season after season, *Hero* became a fixture and symbol of the U.S. Antarctic Program in that part of the world.

Hero worked in conjunction with Jacques Cousteau and his research ship *Calypso* during the 1973-74 austral summer season and hosted the famous outdoor photographer, Eliot Porter, who prominently featured the vessel in his photography book entitled *Antarctica*.

By end of 1975, *Hero* had made 36 voyages for scientific research, spanning the peninsula, South Shetland Islands, and coasts of South America. A major overhaul was conducted, parts not completed until 1977.

Another refit followed in 1980, but by 1983 NSF officials were looking beyond the wooden vessel. A surveyor's report in 1984 forced the decision: "*Hero's* main timbers are

infected with a progressing dry rot condition. Under the circumstances, further operation in Antarctic waters is not considered prudent." When the next-generation research vessel *Polar Duke*, built in Norway, came on-line in the mid-1980s, *Hero* was decommissioned in 1986 and sailed to Port Hueneme, California.

The port of Umpqua in Reedsport, Oregon, next purchased the vessel through the Federal Surplus Property Program. Plans for it to be a museum fell through. A *Hero* Foundation was formed but proved ineffectual. *Hero* sold at auction for \$5,000 and was moved to Reindeer, Oregon. In 2000, it was sold once again and moved to Portland, where attempts were made to repaint and re-caulk.

By 2005, *Hero* was used for storage. In 2007 it was in Newport, Oregon, deteriorating. Her final owner bought it in 2008, once again enthused with plans. Nothing came of it.

The polar community tried to entice Maine maritime museums into making a home for *Hero*, if it could be brought back to the state. Possible transportation arrangements included ship or railway. When museum officials balked, all efforts faded.



***Hero*, Long Beach, WA, 2020 (photo by the Chinook Observer)**

Meantime, *Hero* sat idle in an estuary of the Palix River in Willapa Bay, State of Washington. And sat. The once proud vessel became a local eyesore.

The vessel eventually rotted, was holed, and sank at her mooring following a storm on March 4, 2017. *Hero* became an environmental and navigational hazard. Costly oil-spill mitigation became an ongoing effort, due to nearby oyster farming.

The Washington State Attorney General's office filed misdemeanor criminal charges against *Hero*'s owner for pollution and for allowing it to become derelict. U.S. Coast Guard personnel pumped 1,000 gallons of oily water from it and hired Global Diving and Salvage to clean-up and remove the ship. Estimated costs could exceed \$2 million.

At latest reports, the vessel is still in the mud, rotting and breaking up. *Hero* would have been an example for future generations to see one of the last wooden trawlers built from the Harvey Gamage shipyard and an example of Antarctic history and science. Truly a tragic ending for Maine maritime and shipbuilding history.

Efforts are underway to locate and return *Hero*'s brass name plate to the state. Perhaps, if successful, that will create a way to help remember and celebrate this historically important vessel.

Coast Guard polar icebreaker status



**Artist's Rendering of a Polar Security Cutter
(image by VT Halter Marine)**

The Coast Guard Polar Security Cutter (PSC) program is a program to acquire three new PSCs (i.e., heavy polar icebreakers), to be followed years from now by the acquisition of up to three new Arctic Security Cutters (ASCs) (i.e., medium polar icebreakers). The PSC program has received a total of \$1,754.6

million (i.e., about \$1.8 billion) in procurement funding through FY2021, including \$300 million that was provided through the Navy's shipbuilding account in FY2017 and FY2018. With the funding the program has received through FY2021, the first two PSCs are now fully funded.

The Coast Guard's proposed FY2022 budget requests \$170.0 million in procurement funding for the PSC program, which would be used for, among other things, procuring long lead time materials (LLTM) for the third PSC.

The Coast Guard in 2019 estimated the total procurement costs of the three PSCs as \$1,039 million (i.e., about \$1.0 billion) for the first ship, \$792 million for the second ship, and \$788 million for the third ship, for a combined estimated cost of \$2,619 million (i.e., about \$2.6 billion). Within those figures, the shipbuilder's portion of the total procurement cost is \$746 million for the first ship, \$544 million for the second ship, and \$535 million for the third ship, for a combined estimated shipbuilder's cost of \$1,825 million (i.e., about \$1.8 billion).

On April 23, 2019, the Coast Guard-Navy Integrated Program Office for the PSC program awarded a \$745.9 million fixed-price, incentive-firm contract for the detail design and construction (DD&C) of the first PSC to VT Halter Marine of Pascagoula, MS, a shipyard owned by Singapore Technologies (ST) Engineering. VT Halter was the leader of one of three industry teams that competed for the DD&C contract. The first PSC is scheduled to begin construction in 2021 and be delivered in 2024, though the DD&C contract includes financial incentives for earlier delivery.

The DD&C contract includes options for building the second and third PSCs. If these options are exercised, the total value of the contract would increase to \$1,942.8 million (i.e., about \$1.9 billion). The figures of \$745.9 million and \$1,942.8 million cover only the shipbuilder's costs; they do not

include the cost of government-furnished equipment (GFE), which is equipment for the ships that the government purchases and then provides to the shipbuilder for incorporation management costs.

The operational U.S. polar icebreaking fleet currently consists of one heavy polar icebreaker, *Polar Star*, and one medium polar icebreaker, *Healy*. In addition to *Polar Star*, the Coast Guard has a second heavy polar icebreaker, *Polar Sea*. *Polar Sea*, however, suffered an engine casualty in June 2010 and has been nonoperational since then. *Polar Star* and *Polar Sea* entered service in 1976 and 1978, respectively, and are now well

beyond their originally intended 30-year service lives. The Coast Guard plans to extend the service life of *Polar Star* until the delivery of at least the second PSC. The Coast Guard is using *Polar Sea* as a source of spare parts for keeping *Polar Star* operational.

Note: Society member Bruce Dewald has been our eyes and ears for DoD-related information on Antarctica. Thanks to Bruce for his leads on the information used to compile this article, and for his continued diligence in reporting on this important aspect of Antarctic developments.



www.antarctican.org

August 12-14, 2022, Burlington, VT Gathering Registration

Name (s) _____

Address _____

Email _____ Phone _____

Qty.

_____ Full Registration(s) - includes day programs, Reception on Friday evening, *Spirit of Ethan Allen* sunset dinner cruise on Lake Champlain on Saturday evening and the picnic on Sunday (\$175.00 per person **before** January 1, 2022, \$225.00 per person **after** December 31, 2021)

_____ Guest ticket(s) for Friday Reception and Saturday *Spirit of Ethan Allen* (\$90.00)

Guest(s): _____

Total amount enclosed: \$ _____

Refund policy: 100% prior to March 31, 2022; 50% during April 1 – June 30, 2022.

Mail your check and this form to: The Antarctic Society
35 Cherry Street Unit 701
Burlington, VT 05401

Would you like to visit the Shelburne Museum at 1:00 p.m. on Thurs, Aug. 11? ____ Yes ____ No

Would you like to attend no-host dinner on Thursday evening in Burlington? ____ Yes ____ No

Do you or another of your registrants require handicapped access? ____ Yes ____ No

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



The Antarctic Society

VOLUME 21-22

OCTOBER

No. 1

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LET'S GET TOGETHER

Summer travels this year took me to Vermont, where our Treasurer, Tom Henderson, graciously agreed to join my wife and me with his family for dinner in Burlington despite our last-minute invitation.

Purely by chance, it happened to be almost exactly one year before our Antarctic Society Gathering in Burlington next August 12-14, 2022.

We enjoyed a convivial dinner on a sunny outdoor deck overlooking the gorgeous steel blue waters of Lake Champlain. Afterwards we strolled around the waterfront area, taking in most of the sites where the Gathering will be held.

Tom truly deserves the thanks of every one of us Antarctic Society members for the invaluable work he has done for our Society. Not only has he, with attorney and Society member Michael Russell, regained our non-profit status after several years' effort, but Tom has also put together an absolutely superb group of venues and activities for our next Gathering.

For those who've already looked at the webpage for the Gathering (<https://www.antarctican.org/2022-gathering>), all I can say is, although the photos are great, they do not do Burlington full justice! It is beautiful and must be experienced in person.

Check out (via the webpage above) the comprehensive and detailed Planning Guide that Tom has written. It will answer nearly all of your questions. And yes, maintaining a longtime Gathering tradition, tent camping is an option (though no longer in Paul's front yard, sadly).

One thing Tom left out (deliberately?!) is a local favorite that I'll share: a small, red-roofed building at the south end of the waterfront park near the bike path. This is Creemees Ice Cream — and their maple soft-serve is not to be missed.

It will be terrific to reconnect — in person! — after the far-too-many months of Zoom, FaceTime, Duo, Teams, Messenger, WhatsApp. Ugh. It's been four years since we last Gathered, and that's just too long.

The 2022 Gathering will be a very worthy successor to our wonderful Gatherings that Paul and Gracie hosted in Port Clyde for so many years. I look forward to seeing you in Burlington next August. Register soon!

Jeff Rubin, Co-Editor

2022 Gathering Update

by Tom Henderson



Perkins Pier at Burlington Harbor

The next Gathering of the Antarctic Society will be held in Burlington, Vermont, August 12-14, 2022. Plans for the Gathering are proceeding apace. Check our website for details and updates as they come about (<https://www.antarctican.org/2022-gathering>). We have also produced a Gathering Planning Guide, which gives details on many key considerations in planning for the Gathering. A link to the Planning Guide is on the 2022 Gathering web page referred to above.

The Gathering schedule will include scientific, historical and other presentations in the state-of-the-art Film House, part of Main Street Landing. Six speakers have confirmed so far; we will be listing the speakers and their topics in the newsletter and on the website. If you would like to make a presentation at the Gathering, contact Tom Henderson at webmaster@antarctican.org.

The registration cost for the Gathering is \$175.00 per person until January 1, 2022, which includes the day programs, the Friday evening Reception at the ECHO Science and Nature Museum, the Saturday evening sunset cruise on Lake Champlain with plated dinner aboard the *Spirit of Ethan Allen*, and the picnic at North Beach Park on Sunday. The cost will increase to \$225.00 per person after

January 1. Family and friends may attend the Friday evening reception, the Saturday evening sunset cruise and dinner as well as the Sunday picnic with a guest ticket; the cost will be \$90.00 per person. Members may pay by check or by credit card through the website. A registration form is at the end of this newsletter.

We are watching the direction of the Covid-19 pandemic closely, as I am sure all of you are. We will factor that in as planning goes forward.

We are excited about finally getting together again in person and hope you'll join us in 2022 for a great time with old and new friends. If you think you might attend, even if you have not made a final decision, please send Tom Henderson a note at webmaster@antarctican.org. This will help us in planning for the Gathering.

Virtual Lecture on 2 Nov 2021: Scott Base Redevelopment Project



Artist's conception of the new Scott Base

The next lecture in the Antarctic Society Virtual Lecture series will take place on Zoom at 7:00 p.m. Eastern time, Tuesday, November 2. Matt Jordan's timely presentation will address the major rebuilding of Scott Base near McMurdo. Matthew Jordan (BEng (Hons), PMP) is a Project Manager with Antarctica New Zealand working on the Scott Base Redevelopment Project. He is Co-Chair of the Canterbury Branch of the New Zealand Antarctic Society and is a Board Director of The Antarctic Society. Matt will give us a status on

the Scott Base Project and a glimpse of the significant changes at the new base. Please join us for what will be a very interesting lecture. The Zoom details are:

<https://us02web.zoom.us/j/84696862018?pwd=NldJdzNGdGw2VTFMRno3MG1lQVd4Zz09>

Meeting ID: 846 9686 2018

Passcode: 053171



Holiday Membership Giving

by Liesl Schernthanner

Soon, the holiday season will be here! Last year, we initiated a holiday-outreach encouraging members to give one-year gift memberships to friends and family who might be interested in learning more about Antarctica and our Society. We were delighted to welcome new members this way and appreciate everyone who participated. As the festive season nears, please keep membership gifting in mind as a unique, convenient, inexpensive, and informative present that introduces others to the Society and reminds them of your kindness throughout the year. Watch for an email/facebook announcement including a decorated gift sheet which you can endorse and use to mail to your recipients. If you have questions, please contact antarctican.org.president@protonmail.com

Live Auction at Gathering

by Kathy Covert

Do you have one stuffed penguin too many? A rare old book on the heroic age of exploration? Consider donating some of your Antarctic memorabilia to benefit the Antarctic Society.

The Antarctic Society will be holding its next Gathering in August 2022 in Burlington, Vermont, and keeping with tradition, a live auction, to be masterfully managed by Andy Cameron (of the famed Cameron auction house) will take place on Saturday August 13.

The Auction Subcommittee—Larry Antonuk, Andy Cameron, Kathy Covert, Tom Henderson and Marc Levesque—will catalog the donations and select the most suitable items for the live event, and the remaining items will be offered in an online auction soon thereafter.

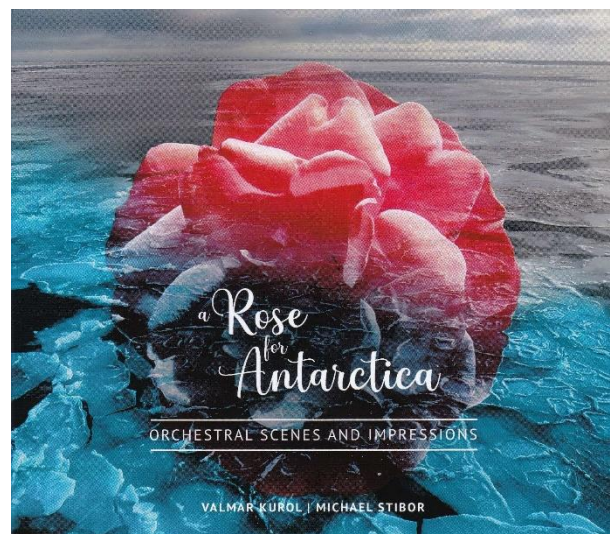
Stay tuned for details. Send a description of your donation(s) to

AuctionChair2022@gmail.com. Thank you.

CD Review: “A Rose for Antarctica”

by Tom Henderson

This CD album is the fourth in a collection of musical tributes to Antarctica by long-time Antarctic Society member Valmar Kurol. The last three have been with musical collaborator Michael Stibor. “I feel that this album is about experience, the feeling of being there for those who have never been, and the memories of being there for those who long to go back” says Michael in the introduction. It is a musical interpretation of a magnificent continent.



The symphonic and, in my opinion, somewhat cinematic album is divided into four movements: *Soaring Over Ice* takes a long view of Antarctica, emphasizing the vastness and awesome beauty of the continent; *Distress* is a lament for both the earth in general and Antarctica specifically as climate change brings irreversible changes to both; *Oceans and Ice* contemplates the Southern Ocean and the life beneath it; *Human Presence* reflects on the human experience and interaction with Antarctica.

The emotional connections between the music and its themes are deep, reflecting Valmar's passion for the continent and great concern for its future. Music can touch us as no other thing can, evoking another dimension of appreciation and understanding beyond the visual. That quality is evident in these compositions.

Taken together, the Kuroi/Stibor musical tetralogy of works is perhaps the most comprehensive musical tribute to Antarctica ever composed. *A Rose for Antarctica* is a worthy complement to the previous three albums.

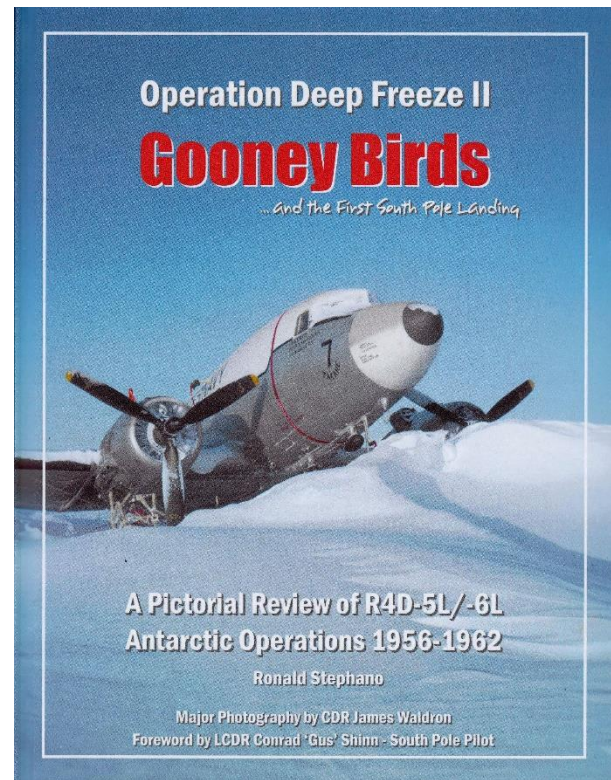
To learn more about the album, hear samples of the music and purchase the music, go to <https://aroseforantarctica.com/>.

Book Review: Operation Deep Freeze II "Gooney Birds"

by Tom Henderson

This is, without question, the most complete and accurate documentation of the R4D-5L and R4D-6L Skytrain aircraft and the men who flew them during the second year of Operation Deep Freeze, 1956-57. The Skytrains were used extensively in Deep Freeze from 1956 until they were phased out in 1968. Antarctic Society member Ron Stephano has devoted thousands of hours to producing this book over the past ten years which includes in-person interviews with U.S.

Navy veterans who were directly involved in this history.



The historical highlight is the first landing of an aircraft at the geographic South Pole on October 31, 1956. The plane was R4D-5L 12418, nicknamed *Que Sera Sera*. The landing and takeoff were historic because this confirmed that it was possible to bring men, equipment, materials and supplies to the Pole by air, an absolute necessity if a permanent base was to be established there. LCDR Conrad "Gus" Shinn USN (ret.), who just celebrated his 99th birthday, was the pilot. Ron interviewed LCDR Shinn several times and visited the U.S. Naval Air Museum with him to see and photograph the *Que Sera Sera* which is on display there. Shinn wrote the forward to the book. Ron also received copies of, and permission to use, the only photographs taken at the historic landing from the brother of the man who took them, navigator Lt. Dick Swadener. The interview information and the photos alone make this a unique historical record.

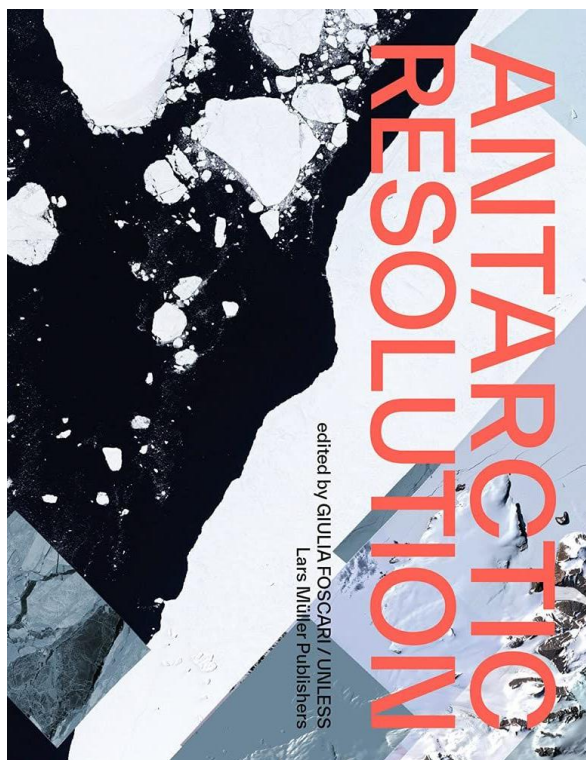
Ron has gone to great lengths to confirm every detail of these aircraft, down to the original stenciling on the fuselages and even the markings on the jet assisted takeoff (JATO) bottles hung beneath the planes. He uses a combination of photos and his own artwork to preserve these details for history.

Full disclosure: Ron contributed his artist's rendition of the *Que Sera Sera* in the form of a limited edition print as a donation reward for my film, *Ice Eagles*. That graphic is included as an illustration in the book.

Aircraft enthusiasts and history buffs alike will find a lot to like in "*Gooney Birds*." Ron Stephano has self-published the book so for information on how to obtain it, contact him at ronalds@pt.lu.

Book Review: *Antarctic Resolution*

by Guy G. Guthridge



Antarctic Resolution is a new 992-page hardcover book (8 by 10½ inches) with 165 articles by more than 200 specialists organized

under 16 themes, or sections. The book also contains 60 “archives” (images, maps, drawings) of Antarctic architecture (stations and their environs). Five multipage sections of photographs each have the title, “The Antarctic through the lens of”

The book does not address all Antarctic topics; it is not an encyclopedia. For such, you might want the two-volume *Encyclopedia of the Antarctic* (Routledge, 2006).

It’s an encyclopedia with a soul. Giulia Foscari, the editor of *Antarctic Resolution* (Lars Müller Publishers, Zürich, 2021), states in the introduction that the volume “urges the construction of a high-resolution image focusing on the continent’s unique geography, experimental governance system, contemporary geopolitical significance, unparalleled scientific potential, and extreme inhabitation model.” It aims also to show the “growing economic and strategic interests, tensions, and international rivalries.” She writes that the book “offers no presumption of completeness and no authoritative finale.” The goal is to provoke change and ultimately mobilize younger generations “to undertake a true Antarctic resolution.”

The editor is, among other things, an architect. Five of the 16 sections explore the built environment. Her “Abstract Master Plan” essay, which heads the “Geography of Science” section, with 11 papers, considers the embassy-like stations that “punctuate the seventh continent to reinforce latent geopolitical ambitions.” Like others, she observes that most nations build their own bases and sustain extra costs rather than join forces with other countries.

Top Antarctic specialists are here. Society member Lou Lanzerotti, with Andrew J. Gerrard, explains Antarctica’s key role in studies of the magnetosphere. Anne-Marie Brady reviews China’s strategic interests. Gillian Wratt describes COMNAP, which she headed. Andrea Kavanagh of the Pew Charitable Trusts discusses marine protected areas. David Vaughan, BAS, discusses ice.

Jonathan Shanklin explains discovery of the ozone hole. U.S. authors seem underrepresented, and the broad international range gives attention to newer players: a sobering but enervating perspective given the long domination of Antarctic affairs by us Americans. English is used throughout.

Critical attention includes a review in an online site, Degraded Orbit, which observes that the book, “though containing extensive scientific perspectives from leading researchers, is framed first and foremost as an artistic inquiry, or an interrogation of the relationship humans have developed with Earth's only uninhabited continent.” The noble goal is “to create a new map of the continent with a 1:1 scale by overlaying data, maps, photographs, and firsthand accounts from a dizzying plurality of sources. The resulting document . . . is in many ways more illuminating than a more standard and straightforward approach might have produced.”

This observation is consistent with mine, and I am glad to have a copy. The wide range from logistics to the arts brings fresh views of the Antarctic from experienced hands. Richly illustrated, with color on almost every page, it's a huge bargain at \$45.49 from Amazon.

Chile building new International Antarctic Centre

by Tom Henderson



Artist's drawing of planned Chilean Antarctic Centre

Chile is solidifying its place as the gateway to the Antarctic Peninsula by creating a large, modern facility that will be a combination of research laboratory, logistics support center and museum. The 33,000 square meter building will be shaped to resemble a tabular iceberg and will cost over \$140 million. The ambitious project will take three years to construct. To read more and see artists' renditions of the planned facility, follow this link:

<https://polarjournal.ch/en/2021/08/06/international-antarctic-centre-to-be-built-in-punta-arenas/?fbclid=IwAR2aJ7gwPsfGf7APnYGZICXS4Ka0i-7cwC501ZMgez4mZlnuVMZxq2HqIwk>

Thanks to Elaine Hood for forwarding this link.

Southern water stymies the Atlantic Ocean's overturning circulation

Evidence implicates Antarctic icebergs as the culprit responsible for reorganizing the North Atlantic deep water to shallow depths during glaciations.

by Alex Lopatka



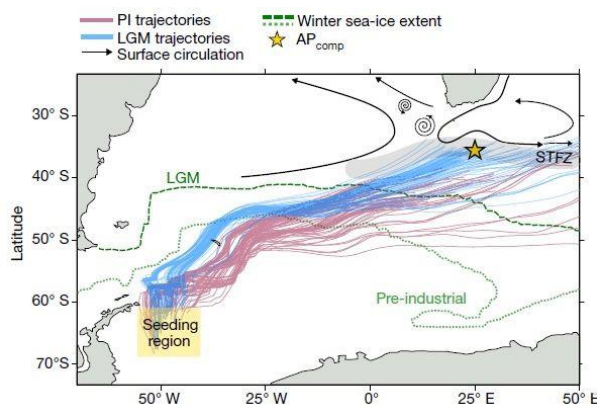
Penguins atop an iceberg in the South Shetland Islands at the peninsula of Antarctica. Credit: Andrew Shiva, [CC BY-SA 4.0](https://creativecommons.org/licenses/by-sa/4.0/).

In 2019 a team of oceanographers published the first data set of continuous observations of the Atlantic Ocean's meridional overturning circulation (AMOC)—the ocean dynamics process that brings warm,

salty, tropical water to the North Atlantic where it sinks and then travels southward as deep water (see the article by Adele Morrison, Thomas Frölicher, and Jorge Sarmiento, *Physics Today*, January 2015, page 27). The modern observations helped oceanographers better resolve the spatial variability of the AMOC and how it affects and is affected by rapid climate change (see *Physics Today*, April 2019, page 19).

To better understand the primary influences on the AMOC, Aidan Starr and Ian Hall of Cardiff University in the UK, with the other members of the Expedition 361 Science Party, have now reported on oceanographic data that span the last 1.5 million years. Their work, combined with iceberg-trajectory modeling, suggests that the far-flung redistribution of fresh water from the Southern Ocean decreased the strength of the AMOC during glacial events.

The paleodata come from new and existing records of debris carried by ice and a new sediment core collected from the Agulhas Plateau in the southwestern Indian Ocean. Because the icebergs there are survivors from the Southern Ocean, Starr, Hall, and colleagues could infer their movement by collecting paleodata on the debris they carried.



Adapted from A. Starr et al., *Nature* 589, 236 (2021)

The researchers then compared those data to the isotopic record from foraminifera organisms in the sediment core. The isotopic record correlated significantly with the movement of water masses from the North

Atlantic. The researchers found that icebergs originating in the Southern Ocean moved equatorward at the onset of glaciation events and about 1000–2000 years before the redistribution of the northern-sourced water masses.

Although previous observations indicate that the AMOC weakened during some glacial events over the past 1.5 million years, the picture that emerges from the new data is that of an influential Southern Ocean. If enough icebergs escaped the Southern Hemisphere, the influx of melted fresh water in the North Atlantic would have limited the strength of the AMOC. That weakening would have consequently decreased the formation of the deep water that supports Earth's transition into an ice age.

South Pole posts most severe cold season on record, an anomaly in a warming world

by [Jason Samenow](#) and [Kasha Patel](#), *The Washington Post*

Amid a record hot summer in large parts of Northern Hemisphere, beset by devastating fires, floods and hurricanes, Antarctica was mired in a deep, deep freeze. That's typically the case during the southernmost continent's winter months, but 2021 was different.

The chill was exceptional, even for the coldest location on the planet.

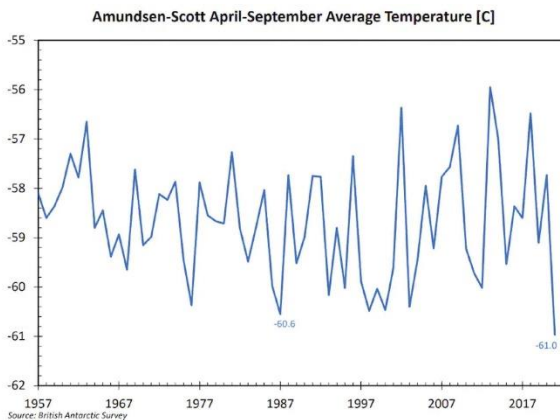
The average temperature at the Amundsen-Scott South Pole Station between April and September, a frigid -78°F (-61°C), was the coldest on record, dating back to 1957. This was 4.5°F (2.5°C) lower than the most recent 30-year average.

We first learned of this record through a tweet from Stefano Di Battista, who has published research on Antarctic temperatures. The legitimacy of Di Battista's information was confirmed by Richard Cullather, a research scientist at NASA's Global Modeling and Assimilation Office.

The temperature averaged over September was also the coldest on record at South Pole, wrote David Bromwich, a polar researcher at Ohio State University, in an email.

The extreme cold over Antarctica helped push sea ice levels surrounding the continent to their fifth-highest level on record in August, according to the National Snow and Ice Data Center.

Extraordinarily cold weather continues to grip the Antarctic Plateau. Maximiliano Herrera, a climatologist who monitors world weather extremes, tweeted that temperature at Russia's Vostok Station sunk to -110.9°F (-79.4°C) on Thursday (Sept. 30), which was just 1°F (0.6°C) from the world's lowest temperature on record during October.



The Amundsen–Scott South Pole Station experienced the coldest average temperature for April to September in 2021 on record. This chart displays the average temperature since 1957 in degrees Celsius. (Richard Cullather/British Antarctic Survey)

The current temperatures are still some distance from the coldest ever observed on the continent. In 1983, Vostok plummeted to -129°F (-89.6°C). Satellites have detected temperatures as low as -144°F (-98°C).

Matthew Lazzara, an expert on the meteorology of Antarctica and scientist at the University of Wisconsin, monitored the South Pole temperatures in recent months from his office in Madison with awe. In an interview, he said it was around -100°F (-73°C) on numerous occasions. Over the years, he's

traveled to Antarctica numerous times to support his research.

“At these temperatures, it is difficult to operate aircraft,” he wrote in an email. “[B]etween -50°C and -58°C (-58°F and -72°F) you put the aircraft at risk with the hydraulics freezing up or fuel turning into a jelly.”

Once he visited the South Pole in late October. “I got to experience -50°C weather ... with a wind chill beyond that. I was “thrilled” to be wearing my 75 lbs (34 kg) of Extreme Cold Weather gear to stay warm,” he joked.

The conditions over Antarctica are in stark contrast to much of the rest of the planet which notched its fourth hottest June through August on record, according to the National Oceanic and Atmospheric Administration. The Northern Hemisphere registered its second hottest summer.

Scientists credited a very strong polar vortex, or a ring of strong winds in the stratosphere, surrounding Antarctica for the intensity of the cold.

The stratospheric polar vortex is a seasonal phenomenon. In the Southern Hemisphere, it forms in the fall, persists through the winter and weakens before reversing course in spring.

The strength of the vortex has connections to weather at the ground, said Krzysztof Wargan, a research scientist with NASA's Global Modeling and Assimilation Office. He said a strong vortex is associated with low surface temperatures.

Whether the vortex is strong or weak depends on a cycle known as Southern Annular Mode (SAM). Right now, the mode is in its positive phase and the vortex is intense.

“Basically, the winds in the polar stratosphere have been stronger than normal, which is associated with shifting the jet stream toward the pole,” wrote Amy Butler, an atmospheric scientist at NOAA in a message. “This keeps the cold air locked up over much of Antarctica.”

Butler wrote the strong polar vortex not only makes it very cold over Antarctica, but accelerates processes that lead to stratospheric ozone depletion, which in turn can strengthen the vortex even more. This year's ozone hole over Antarctic is much bigger than average at around 9.3 million sq. miles (24 million km²), a reflection of the vortex's strength.

Although the stratospheric ozone layer is on the mend since some ozone-depleting chemicals were banned by the Montreal Protocol in the 1980s, Wargan said year-to-year variations are expected to influence the size of the ozone holes in the coming decades.

Scientists stressed the record cold over the South Pole in no way refutes or lessens the seriousness of global warming. Antarctica is notorious for its wild swings in weather and climate which can run counter to global trends.

Ted Scambos, a senior research scientist at the University of Colorado, wrote in an email that the Antarctic climate is extremely sensitive to high-altitude winds and Pacific Ocean conditions and prone to rapid change. He pointed out that its sea ice, which was close to a record high at the end of August tanked to "to one of the lowest extents for this time of year that we've seen" by the end of September.

To evaluate what's happening with the climate of Antarctica, one must look beyond a seasonal snapshot, scientists said.

"One cold winter is interesting but doesn't change the long-term trend, which is warming," wrote Eric Steig, a professor of atmospheric sciences at the University of Washington in an email.

Not only is Antarctica warming over the long term, but its ice is rapidly melting, contributing to global sea level rise.

To see a BBC interview with Principal Investigator Matthew Lazzara, click this link: [BBC interviewed Principal Investigator Matt Lazzara](#)

Earth is now losing 1.2 trillion tons of ice each year. And it's going to get worse.

Ice is melting faster worldwide, with greater sea-level rise anticipated, studies show.

by Chris Mooney and Andrew Freedman, *The Washington Post*



Melt stream on the surface of a Greenland glacier.
(Ian Joughin /University of Leeds)

Global ice loss has increased rapidly over the past two decades, and scientists are still underestimating just how much sea levels could rise, according to alarming new research published this month.

From the thin ice shield covering most of the Arctic Ocean to the mile-thick mantle of the polar ice sheets, ice losses have soared from about 760 billion tons per year in the 1990s to more than 1.2 trillion tons per year in the 2010s, a new study released Monday shows. That is an increase of more than 60%, equating to 28 trillion tons of melted ice in total — and it means that roughly 3% of all the extra energy trapped within Earth's system by climate change has gone toward turning ice into water.

"That's like more than 10,000 'Back to the Future' lightning strikes per second of energy melting ice around-the-clock since 1994," said William Colgan, an ice-sheet expert at the Geological Survey of Denmark and Greenland. "That is just a bonkers amount of energy."

There is good reason to think the rate of ice melt will continue to accelerate. A second, NASA-backed study on the Greenland ice sheet, for instance, finds that no less than 74 major glaciers that terminate in deep, warming ocean waters are being severely undercut and weakened.

And it asserts that the extent of this effect, along with its implications for rising seas, is still being discounted by the global scientific community.

Failing to fully account for the role of ocean undercutting means sea-level rise from the ice sheets may be underestimated by “at least a factor of 2,” the new paper in the journal *Science Advances* finds.

“It’s like cutting the feet off the glacier rather than melting the whole body,” said Eric Rignot, a study co-author and a glacier researcher at NASA’s Jet Propulsion Laboratory and the University of California at Irvine. “You melt the feet and the body falls down, as opposed to melting the whole body.”

“I think this is an example that the current projections are conservative,” Rignot said. “As we peer below we realize these feedbacks are kicking in faster than we thought.”

Together, the two studies present a worrying picture.



The Oceans Melting Greenland mission carried out depth and salinity measurements of Greenland's fjords by boat and aircraft. (NASA)

The first finds that the current ice losses, which are accelerating quickly, are on pace with the worst scenarios for sea-level rise put out by the United Nation’s Intergovernmental Panel on Climate Change (IPCC). That expert

body found that ice sheets could drive as much as 16 inches of sea-level rise by 2100.

But on top of that, the new NASA work on Greenland suggests that the IPCC, whose sea-level projections have long been faulted as being conservative, could underestimate future sea-level rise if the panel, which has a new report expected later this year, does not take full account of the power of the ocean to knock the ice backward and undermine it.

A new tally of vanishing ice

The first study, in the journal *The Cryosphere* and led by University of Leeds researcher Thomas Slater, is basically an enormous work of accounting. It tallies losses from the vast Greenland ice sheet to the jagged peaks of the Himalayas and then southward to Antarctica during the 23-year period from 1994 through 2017.

Not all the ice the planet has lost translates directly into rising seas. For instance, 7.6 trillion tons, the largest single total, comes from the melting of the floating ice cover of the Arctic Ocean, which does not raise seas at all. Nor do the 6.5 trillion tons subtracted from Antarctic ice shelves, as those, too, were already afloat.

Still, the loss of floating ice paves the way for the unlocking of ice on land in Greenland and Antarctica, where 99% of all the planet’s fresh water sits in frozen form, crushing down the invisible landforms beneath it. Greenland and Antarctica together have lost 6.3 trillion tons since 1994, the research finds, leaving out the past three years, which would surely add at least another trillion on top of that.

So far, the world’s mountain glaciers have actually been keeping pace with the ice sheets, losing 6.1 trillion tons of ice over the same time period and thus adding roughly the same amount to sea level. Over time — probably starting right around now — the polar ice sheets will begin to massively outdistance the losses from mountain glaciers and become the dominant drivers of global sea-level rise.

“It is no surprise that the ice on our planet is melting,” said Robin Bell, an expert on the polar ice sheets at Columbia University’s Lamont-Doherty Earth Observatory. “We have turned up the temperature, and just like you can watch an ice cube in your glass melt on a hot summer day, our actions are melting our planet’s ice.”

The question now becomes: Just how fast will climate change lead to the melting of the biggest and thickest ice, the ice atop Greenland and Antarctica?

Where Greenland’s toes dip into the sea, ice is melting

That’s where the results of a six-year NASA campaign to study the influence of warming ocean waters on the melting of Greenland’s glaciers have some unsettling news.

Together with the University of Leeds study, the NASA research helps show why global ice loss is likely to further speed up as global warming continues. One of the main mechanisms causing Greenland’s glaciers to flow faster into the sea, unlocking inland ice and allowing it to slide toward the coast as well, is the encroachment of warm water underneath the ice in the many deep fjords of coastal Greenland.

Scientists have observed accelerating ice loss in nearly every sector of the Greenland ice sheet. While researchers have suspected that warming ocean waters, rather than increasing air temperatures alone, may be behind the melting of glaciers in typically frigid northwest Greenland, for example, the evidence had previously been lacking.

The new study, led by glaciologist Mike Wood, also of UC-Irvine and NASA’s Jet Propulsion Laboratory, relies on measurements taken via hundreds of instruments deployed by aircraft and ships for the past six years, revealing the shape of the land that lurks under the ice where 226 glaciers terminate in the sea, as well as the

temperature structure of waters coming into contact with the ice.

Glaciers that flow into Greenland’s deepest fjords are losing the most ice, Wood said. The 74 glaciers situated in deep, steep-walled valleys accounted for nearly half of Greenland’s total ice loss between 1992 and 2017, the study found. Greenland is now the largest contributor to global sea-level rise.

“In these deep fjords, warm water lurks hundreds of feet below the ocean surface, melting the glaciers from below,” Wood said. “When those warm waters become even warmer — a phenomenon we saw through the early 2000s — the melt increases, causing the glaciers to recede, become unstable and lose ice.”

The science produced by the six-year field campaign, known as Oceans Melting Greenland, may force modelers to rethink their estimates for future ice loss, not just in Greenland but also for glaciers where similar dynamics are at work in Antarctica, such as in the West Antarctic ice sheet.

The NASA-led research shows that the undercutting of glaciers by relatively mild ocean waters explains why so many of Greenland’s glaciers have sped their movement into the ocean, adding to sea-level rise, while some others have not accelerated as much.

In many coastal locations, relatively mild, salty waters sit below a layer of colder, fresher water in glacial fjords. These mild waters are coming into contact with the base of glaciers, where ice meets bedrock, which destabilizes the ice.

“A large amount of a glacier’s stability depends on ice at its base,” Wood said. “Remove it and you destabilize the whole thing, like Achilles’ heel.”

At the same time, during the summer months, meltwater from inland areas can flow all the way to the base of glaciers that end in the sea and pour into the fjords. This fresh water can drag some of the heavier, warm

water toward the surface, accelerating melting further.

The NASA data shows that the shape of the land undergirding glaciers and the water temperatures in coastal areas help determine the rate of Greenland's ice loss, but this information isn't being translated yet into projections for sea-level rise.

"Very few ice-sheet models include that ice process at the frontal margin with realistic forcing," Rignot said. If models were to include undercutting, their estimates of sea-level rise from the faster loss of coastal glaciers could be up to twice what they are now, the study shows.

"I think that's a big deal," Rignot said. "You have to account for ocean temperatures in fjords and undercutting. If it's not in your model, you won't get the prediction right."

The Greenland results add urgency for research into the mechanisms that are destabilizing ice in Antarctica, where melting from warming oceans coming into contact with the base of glaciers is the main contributing factor, rather than increasing air temperatures.

"Because scientific progress is so often built small step on top of small step, I am not surprised by their findings," said Twila Moon, a research scientist at the National Snow and Ice Data Center in Boulder, Colo, who wasn't involved in either study. "But their results are still devastating, further confirming that we are losing ice both from a warming atmosphere and from a warming ocean."

"Ice loss is not a process that will stop itself," Moon said. "We humans are the ones with our hand on the climate control knob, and

our decisions are the most important in determining the future of Greenland ice."

Society member Fred Davey seeks information on US-NZ history

Emeritus Scientist Fred Davey, a new member, writes from New Zealand that he first went to Antarctica in 1965 with the British, recruited by Peter Barker (Birmingham University and BAS) "just for a couple of months," to carry out the first marine (surface ship) gravity measurements in the western Scotia Sea and along the western Antarctic Peninsula. One discovery was that the South Shetlands – Bransfield Strait region is a subducting plate margin. In 1970 he moved to NZ, starting a long collaboration with US marine geophysicists.

In 1992, he was appointed Chairman of the NZ National Committee for Antarctica, where amongst other issues he dealt with revised Antarctic Protected Area management plans. He was NZ Delegate to SCAR from 1992-2002, was SCAR Secretary from 1996-2000 and then a SCAR Vice-President.

Recently, Fred's interest has focused on the history of NZ's involvement in Antarctica, in particular the NZ IGY story.

If anyone has any direct knowledge of when RL (Ron) Viets (Little America Station) flew to the South Pole with AL (Buzz) Burrows (NZ's Scott Base) to make absolute geomagnetic measurements in December 1957, he would appreciate hearing of it.

Fred can be reached at fdavey@actrix.co.nz



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“BY AND FOR ALL ANTARCTICANS”

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HIGH SUMMER IN THE SOUTHLAND

In considering an opening for this first newsletter of CY-2022, I had only to look up to our nameplate and focus on “**January.**” The warmest month in Antarctica, and consequently its most active. I can think of at least a dozen Januarys that I was working in the Antarctic (most recently in 2020). So, here’s a brief reminder of some notable January events in the Antarctic and some personal ones as well.

We know it all started in January 1773 with Captain Cook’s first crossing of the Antarctic Circle. The coastline then started taking shape with the January 1820 sightings by Bellingshausen on *Vostok*, and Bransfield on *Williams*. The U.S. Exploring Expedition under Charles Wilkes charted Wilkes Land in January 1840, and a year later, *Erebus* and *Terror* under James Clark Ross penetrated the pack ice of the Ross Sea leading to a host of discoveries.

In January 1895 Henryk Bull’s mainland landing was recorded at Cape Adare; three years later, Roald Amundsen with the wintering *Belgica* party set off on the first Antarctic sledging journey in January 1898. The longest continually operated station in Antarctica on Laurie Island was occupied by Argentina in January 1905. Shackleton’s furthest south at 88°23’ occurred on January 9, 1909, followed a week later by his *Nimrod* colleagues making their way to the South Magnetic Pole. January 1912 saw the arrival of Scott’s party at the South Pole and Amundsen’s return to Framheim following his dash to the Pole.

The original IGY station at the South Pole was completed in January 1957, and then had its last overnight resident (that was me) in January 1975. Hillary and Fuchs met at the Pole in January 1958, the first surface arrivals since Scott.

It was January 1973 (I was at McMurdo) when Hercules JD-917 crashed at Pole. Those of us about to winter at Amundsen-Scott in 1975 well remember when JD-319 and JD-129 both went down at Dome C on successive days in January. Conversely, JD-321 flew again in January 1988 after 27 years on the polar plateau.

Finally, I think back to the first day of the new millennium when I shared in a Y2K celebration with an uncommon gathering of political and entertainment “names” at Deception Island! I’ll write more on that event in the next newsletter!

Dick Wolak, Co-Editor

Update on 2022 Burlington Gathering

by Tom Henderson



Winter sunset at Burlington Harbor

We are now roughly eight months from our August 2022 Gathering in Burlington, VT. Thanks to the 35 members who have registered to date. Our early registration fee of \$175.00 (full registration) and \$90.00 (guest registration) will continue until March 31, 2022. Registration includes the presentations at Main Street Landing, a catered reception at the Leahy ECHO Center, a provided lunch and live auction one afternoon, a sunset dinner cruise on the tour boat *Spirit of Ethan Allen*, and a memorial picnic on the last day of the Gathering.

You should register and reserve lodging as early as possible. Burlington is popular in summer and hotels and motels fill up fast. Also consider Vrbo and AirBnB. Even if you are “on the fence” about attending, make a reservation with free cancellation to hold a spot. Extensive information can be found in the Gathering Planning Guide on the 2022 Gathering web page on our website:

(<https://www.antarctican.org/2022-gathering>). If you are not able to get to the website and want a copy of the Planning Guide, contact me at webmaster@antarctican.org or 518-888-0387.

Those of you who wish to camp or RV at the Gathering should be aware that **online** reservations for the North Beach campground, which is a little over a mile north of our venue, will open at 10:00 a.m. ET on March 1, 2022. The website address

is <https://enjoyburlington.com/place/north-beach-campground/>. Phone registrations may be made starting May 1 at 802-862-0942. As with Burlington lodging, this campground is very popular during the summer, so we recommend you register online on March 1 if camping is your preferred option.

Carrying on the tradition of the Port Clyde Garage Theater at previous Gatherings, our Gathering will include an eclectic group of speakers. Here is a partial list of invited speakers:

- Dr. Roberta Marinelli, Director of NSF Polar Programs
- Alan Campbell, Antarctic artist
- Discovering Antarctica. A panel discussion by Charles Lagerbom, Richard Wolak, Joan N. Boothe, J. Stephen Dibbern
- Guy G. Guthridge, NSF (retired) will talk about Admiral Byrd and his legacy.
- Tom Henderson will present on Dr. Gordon Cartwright, the first US Exchange Scientist (IGY)
- Kristen Carlson, artist and science communicator with a focus on sharing the beauty and wonder of the undersea world.
- Professor Lisa Crockett, regarding her work and her polar father’s influences.

We will publish a final list closer to the time of the Gathering. We will also have an open forum for members’ stories.

Our auction tradition will continue and while we mourn the passing of our auctioneer-extraordinaire Dick Cameron, his son Andy has graciously agreed to carry on that role. It should be a lively and entertaining event. Only members who attend the Gathering will be able to bid on items – we’ll provide a preview in the coming months. If you would like to donate items for the live auction, contact auction chair Kathy Covert at AuctionChair2022@gmail.com.

We continue to keep an eye on the “x-factor” for this year: Covid-19. While we hope the pandemic will abate before the Gathering, we strongly, strongly encourage all members and Gathering attendees to get vaccinated, including boosters as soon as possible.

So, make plans to join us for a great time in Burlington as we initiate a new era in our Antarctic Society Gatherings. The recent successful Society Christmas Social Zoom is a clear indication that our members are ready to get back to in-person renewal of friendships and meeting new friends. See you there!

Next Society Virtual Lecture Feb 15: From Plankton to Penguins

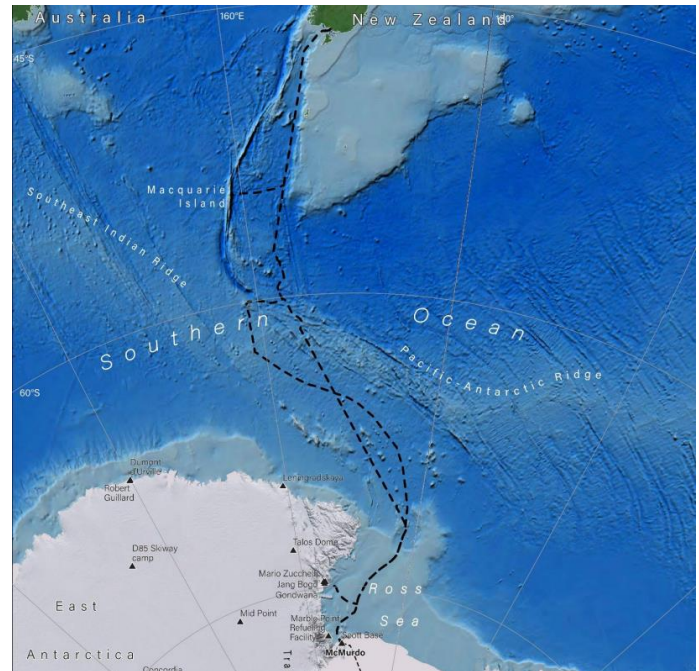
The Antarctic Society is hosting a Virtual Lecture via Zoom, February 15, 2022, at 7:00 p.m. EST. In **“From Plankton to Penguins,”** Endowed Professor at the University of Alabama at Birmingham, James McClintock will discuss the dramatic impacts of climate change on the Antarctic Peninsula. Dr. McClintock is a veteran of 16 productive research expeditions to Antarctica where, over the past twenty-plus years, he has become an authority on Antarctic marine chemical ecology, drug discovery, invertebrate nutrition, reproduction, climate change, and ocean acidification. He’s been featured on NPR, 'TEDx' (Birmingham), 'The Moth' (Lincoln Center, New York City), and The Weather Channel as well as in *National Geographic*, *Smithsonian*, *Discover*, *Scientific American*, *Washington Post*, *Wall Street Journal*, *Chicago Tribune*, *Los Angeles Times*, and CNN. Additional information is on our website. Zoom link to join: <https://us02web.zoom.us/j/87813835736?pwd=ZWQwTW0veU12N2ZCK1p5dzJMcE1OZz09>

Plans for Fiber Optic Cables to Antarctica

Antarctica is the only continent without high-speed fiber optic internet cable. That may change soon. A June 2021 workshop organized by the National Science Foundation concluded that there is great interest and benefit in laying an undersea fiber optic cable from New Zealand or Australia to McMurdo that would accelerate the increasing volume of critical science there and “enable meaningful new research and understanding of the region.” To see the final report from this workshop, click on: <https://drive.google.com/file/d/1Ao4Hz6-bBheFMpGSR4nMvSZJ9kHpji0o/view>. The current

satellite-based internet connections severely restrict the volume of data transfer and analysis in Antarctica. To see a more complete discussion of this initiative, see an article in the online magazine *The Verge*:

<https://www.theverge.com/2021/11/23/22765471/antartica-internet-mcmurdo-station-research>.



Potential undersea cable routes (from 2021 Antarctic Subsea Cable Workshop)

In a parallel development, Chile is studying a similar undersea fiber optic cable from Puerto Williams to the Antarctic Peninsula. Their cable would not only benefit scientific research but also the burgeoning tourist cruise industry along the Peninsula. To see more on this, go to: <https://en.mercopress.com/2021/11/29/chile-planning-an-optical-fiber-cable-from-puerto-williams-to-antarctica>.

Thanks to Elaine Hood and the Antarctic Support Contract for sharing this information.

Honoring William Silva (12/21/1952 – 10/28/2021)

by Bob Melville, Lynnette Harper, Victoria Landgraf, Mark Noske, Ethan Dicks, and Liesl Scherthanner

Will Silva, MD, a highly respected medical professional with several Ice tours under his belt from 1997 to 2015 (including several summer seasons, three winters at Pole [1998, 2003, and 2006], and one winter at Palmer [2000]), died peacefully in his home in Bellingham WA in October 2021. We were fortunate to have had Doc Silva as our South Pole doctor for the 2005-2006 year. His professional skill was only exceeded by his genuine compassion and willingness to listen.



Will Silva 1952-2021

Doc Will's ability to exert calm command and to inspire with his steadfast example were evident in the way he showed up in the Polie community. He knew that being a doctor in Antarctica requires much more than exercising excellent medical training, and he was an exemplary servant to the community while being a reliable practitioner, helping implement telemedicine improvements, transitioning to the new medical facility in the Elevated Station, safely managing medevacs, enhancing procedures and caches, choreographing emergency trainings and medical courses, participating in shared tasking, working at PoleMart (while refusing to sell cigarettes), skiing daily, studying to be a pilot, and being a team player. He even quickly volunteered to take over the

dishwashing roster for a team member who broke their toe. Throughout it all, he showed endless patience and humor.

He was appreciated by us all and drew admiration as he took time from his already full schedule to play radio darts with dart-teams from all over Antarctica, to sit in on music jams with his fiddle, and to smoothly switch from quoting poetry to telling a corny joke. Doc Will's boundless energy and unflappability would have made Ernest Shackleton proud. It made those of us wintering over feel supported and safe, in a very harsh environment.

He said many wise things, but the two quotes that countless Polies still remember are: "Failure to prepare is preparation for failure," and his memorable, "Wash your hands, wash your hands, wash your damn hands!"

Doc Will was a true renaissance man: a pilot, an expert rock and ice climber, accomplished skier, talented musician, a kind soul and one of the few South Pole doctors who earned high praise from a McMurdo dentist, who called Will "the best MD Dentist" he had ever seen.

Will Silva deeply touched all of our lives and will be sorely missed. To reminisce with our favorite doctor a bit more, please see his essay on a last trip to Pole in the 2015 Newsletter Vol 14-15, July No. 4, page 3 (members area of website) and <https://www.harvardmagazine.com/sites/default/files/html/1999/11/alumni.html>

Matthew Fontaine Maury's 1861 proposal

by Guy G. Guthridge

An Antarctic pathfinder, science visionary, and high government official with an international perspective, Matthew Fontaine Maury (1806-1873) left a complex and awkward legacy.

On 10 April 1861, the U.S. Government conveyed a detailed proposal to the ministers of nine nations, outlining an international investigation of the Antarctic. Maury, its author, had labored for a year and won approval for the campaign from his superior, Secretary of the Navy Isaac Toucey.

Maury's international approach was prescient. In 1842 he had been appointed superintendent of the Navy's Depot of Charts and Instruments. He gleaned

millions of observations from thousands of ships' logbooks as the basis for *Maury's Wind and Current Charts*. In 1853 he arranged a system for international exchange of scientific information. In 1855 he published the monumental *Physical Geography of the Seas*. The final edition, some years later, urged extensive Antarctic exploration.



Matthew Fontaine Maury as a U.S. Navy Lieutenant, 1853. (*Matthew Fontaine Maury, Scientist of the Sea* by Frances Leigh Williams (1969), p.290)

Maury's 1861 Antarctic letter stated, "this exploration should be a joint one among the nations that are most concerned in maritime pursuits." A 44-page proposal with scientific objectives accompanied the letter. Maury had worldwide stature. Hugh Robert Mill, in his classic *Siege of the South Pole* (1905), wrote that Maury was first among those who saw the immense importance of increasing our fragmentary knowledge of the remotest south, "a profound scientific investigator and the most brilliant writer who ever attempted to put into words the wonders of the sea."

"Never," Maury argued in his 1861 letter, "were nations so well prepared to undertake Antarctic exploration as are those that I now solicit."

But the United States was not one of them. "Alas," he wrote separately, "this is not a time for the American people to turn their attention away from domestic troubles." A few days after the April 12, 1861 bombardment of Fort Sumter, S.C., he resigned from the U.S. Navy and left for his native Virginia to assist in the cause he thought was right. He became a Commander in the Confederate Navy.

The nine nations took no action in response to Maury's Antarctic letter. However, writes Kenneth J. Bertrand in his seminal *Americans on Antarctica 1775-1948*, Maury influenced the design of the first (1882-1883) International Polar Year.

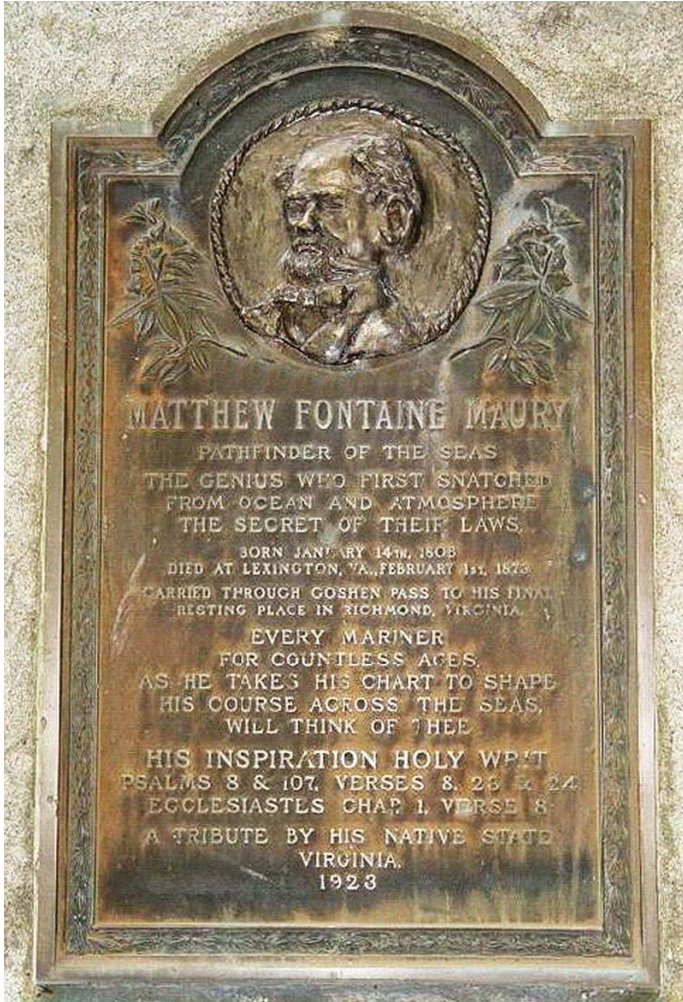
A century after his 1861 letter, from Aug. 21 to Sept. 6, 1961, a conference in Honolulu was titled "Antarctic Research, The Matthew Fontaine Maury Memorial Symposium." The American Geophysical Union published the 28 papers as the hardbound *Geophysical Monograph No. 7* (1962). Long-time Society members will know, or know of, many of the authors: Harry Wexler, Mort Ruben, Ed Thiel, Sam Treves, Bob Nichols, Dick Cameron, Colin Bull, Gentleman Jim Zumberge, Charlie Swithinbank – the last having been an Antarctic Society Honorary President. The book's opening paper, a 3-page "Dedication to Matthew Fontaine Maury," by Wexler, concludes that the IGY, as Maury had predicted, did indeed "unbar the gates of the South."

In his lifetime Maury earned the nickname "Pathfinder of the Seas." His accomplishments as scientist and administrator are established.

Maury was against secession, and he wrote to northern governors urging them to stop the momentum toward war. He was in the West Indies when the Confederacy collapsed and did not return to the States until 1868, when the Federal government pardoned him. In the 5 years before his death, he taught at Virginia Military Institute, wrote *The Physical Geography of Virginia*, and was central to establishing Virginia Tech.

Maury made the news last year when his statue in Richmond, Virginia, with the pathfinder phrase inscribed at the base, was pulled down in acknowledgement of his "proslavery international"

strategy. He “deplored slavery as a curse,” writes a biographer, but to end slavery in Virginia and eventually throughout the South, his plan was to send slaves to Brazil where work would be done “by Africans with the American axe in his hand.”



Maury Memorial at Goshen Pass overlooking the Maury River in Virginia. (Creative Commons Attribution-Share Alike 4.0 International License)

The Matthew Fontaine Maury Papers at the Library of Congress document his scientific endeavors including correspondence, notebooks, and lectures. His grave in Richmond lies between those of Presidents James Monroe and John Tyler. Maury Crater is a feature on the Moon. Maury Glacier, on the east coast of Palmer Land, Antarctica, was named by the U.K. for the “American naval officer and hydrographer, and distinguished promoter of maritime research and Antarctic exploration.”

Antarctic bacteria live on air and make their own water using hydrogen as fuel from *THE CONVERSATION*

by Pok Man Leung, Chris Greening and Steven Chown, Monash University

Humans have only recently begun to think about using hydrogen as a source of energy, but bacteria in Antarctica have been doing it for a billion years.

We studied 451 different kinds of bacteria from frozen soils in East Antarctica and found most of them live by using hydrogen from the air as a fuel. Through genetic analysis, we also found these bacteria diverged from their cousins in other continents approximately a billion years ago.

These incredible microorganisms come from ice-free desert soils north of the Mackay Glacier in East Antarctica. Few higher plants or animals can prosper in this environment, where there is little available water, temperatures are below zero, and the polar winters are pitch-black.

Despite the harsh conditions, microorganisms thrive. Hundreds of bacterial species and millions of cells can be found in a single gram of soil, making for a unique and diverse ecosystem.

How do microbial communities survive in such punishing surroundings?

A dependable alternative to photosynthesis

We discovered more than a quarter of these Antarctic soil bacteria create an enzyme called RuBisCO, which is what lets plants use sunlight to capture carbon dioxide from air and convert it into biomass. This process, photosynthesis, generates most of the organic carbon on Earth.

However, we found more than 99% of the RuBisCO-containing bacteria were unable to capture sunlight. Instead, they perform a process called chemosynthesis.

Rather than relying on sunlight to power the conversion of carbon dioxide into biomass, they use inorganic compounds such as the gases hydrogen, methane, and carbon monoxide.

Where do the bacteria find these energy-rich compounds? Believe it or not, the most reliable source is the air!

Air contains high levels of nitrogen, oxygen and carbon dioxide, but also trace amounts of the energy sources hydrogen, methane, and carbon monoxide.

They are only present in air in very low concentrations, but there is so much air it provides a virtually unlimited supply of these molecules for organisms that can use them.

And many can. Around 1% of Antarctic soil bacteria can use methane, and some 30% can use carbon monoxide. More remarkably, our research suggests that 90% of Antarctic soil bacteria may scavenge *hydrogen* from the air.

The bacteria gain energy from hydrogen, methane and carbon by combining them with oxygen in a chemical process that is like a very slow burn.

Our experiments showed the bacteria consume atmospheric hydrogen even at temperatures of -20°C , and they can consume enough to cover all their energy requirements.

What's more, the hydrogen can power chemosynthesis, which may provide enough organic carbon to sustain the entire community. Other bacteria can access this carbon by "eating" their hydrogen-powered neighbors or the carbon-rich ooze they produce.

Water from thin air

When you burn hydrogen, or when the bacteria harvest energy from it, the only by-product is water.

Making water is an important bonus for Antarctic bacteria. They live in a hyper-arid desert, where water is unavailable because the surrounding ice is almost permanently frozen and any moisture in the soil is rapidly sucked out by the dry, cold air.

So the ability to generate water from "thin air" may explain how these bacteria have been able to exist in this environment for millions of years. By our calculations, the rates of hydrogen-powered water production are sufficient to rehydrate an entire Antarctic cell within just two weeks.

By adopting a "hydrogen economy", these bacteria fulfil their needs for energy, biomass, and hydration. Three birds, one stone.

Could a hydrogen economy sustain extraterrestrial life?

The minimalist hydrogen-dependent lifestyle of Antarctic soil bacteria redefines our understanding of

what is the very least required for life on Earth. It also brings new insights into the search for extraterrestrial life.

Hydrogen is the most common element in the universe, making up almost three-quarters of all matter. It is a major component of the atmosphere on some alien planets, such as HD 189733b which orbits a star 64.5 light-years from Earth.

If life were to exist on such a planet, where conditions may not be as hospitable as on much of Earth, consuming hydrogen might be the simplest and most dependable survival strategy.

"Follow the water" is the mantra for searches of extraterrestrial life. But given bacteria can literally make water from air, perhaps the key to finding life beyond Earth is to "follow the hydrogen."

Antarctica and the latest IPCC report

by Guy Guthridge

You likely know that in 2021 the Intergovernmental Panel on Climate Change (IPCC) issued its first update in 8 years to its *Assessment Report* series. And, it being 1,300 pages long, you probably didn't read all of what 200 authors from 66 countries have to say about the future of our climate.

Here's a quick rundown from scientific organizations.

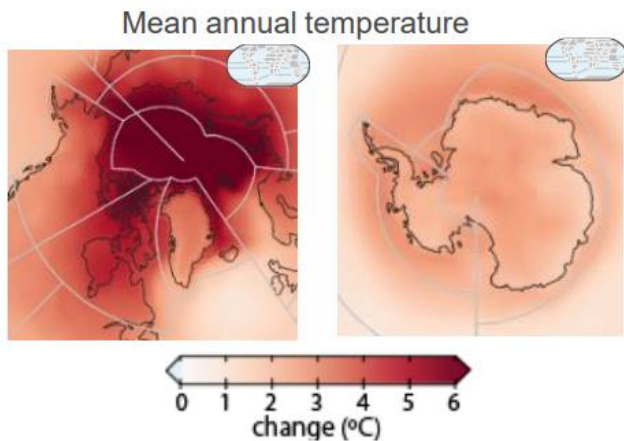
For the worldwide view, look up "What Five Graphs from the U.N. Climate Report Reveal About Our Path to Halting Climate Change," by Janessa Dunscombe (9 August 2021), in *EOS*, the newsletter of the American Geophysical Union. Warming will reach 1.5°C by the early 2030s, the Arctic could be ice-free by mid- to late-century, sea level could rise a meter by 2100, and extreme heat waves could be more intense and frequent. The first graph in her summary shows what everyone has heard: In the last 2,000 years, global surface temperatures stayed about the same until unprecedented warming began in the mid-20th century. Earth's temperature now is more than 1°C above what it was in 1850–1900.

For information specific to the Antarctic (the Arctic, too), search for "IPCC and Antarctic" to get a "Regional Fact Sheet – Polar Regions" from the IPCC. It has images and six main points:

Observations show widespread, strong warming starting in the 1950s in the Antarctic Peninsula. Significant warming trends are observed in other West Antarctic regions and at selected stations in East Antarctica (medium confidence).

The Peninsula, West Antarctica, and some East Antarctic regions are projected to continue to warm in the 21st century at a rate greater than global.

Projected changes (SSP5-8.5 scenario) in mean annual temperature and total precipitation at 2°C global warming compared to 1850–1900 for the Arctic (left) and Antarctic (right).



Antarctic snowfall and net snow accumulation have increased over the 20th century (medium confidence).

Mass losses from West Antarctic outlet glaciers, mainly induced by ice shelf basal melt, outpace mass gain from increased snow accumulation.

At sustained warming levels between 2°C and 3°C, the West Antarctic Ice Sheet will be lost almost completely and irreversibly over multiple millennia; both the probability of complete loss and the rate of mass loss increases with higher surface temperatures.

For Antarctic sea ice, there is no significant trend in satellite-observed sea ice area from 1979 to 2020 in both winter and summer, due to regionally opposing trends and large internal variability.

The full IPCC report is available free online at: <https://www.ipcc.ch/assessment-report/ar6/>

Logbooks linked to Shackleton and Scott found in New Zealand storage room

by Eva Corlett in Wellington

“Priceless” artefacts linked to Antarctic explorers Ernest Shackleton and Robert F. Scott have been unearthed in a surprise discovery within a storage room of New Zealand’s meteorological service.

Metservice staff came across a set of logbooks from some of the most famous Antarctic expeditions while preparing to move buildings in Wellington.

The 1916-17 logbook from the famed sailing vessel *Aurora* records the conditions during the rescue mission to save members of Shackleton’s 1914-16 Trans-Antarctic Expedition from Ross Island in [Antarctica](#).



Captain Robert Falcon Scott writing at a table in his quarters at the McMurdo Sound Hut in Antarctica, 1911. (Scott Polar Research Institute)

Other finds include two logbooks dated 1910 and 1911 from *Terra Nova*, the ship that carried Scott on his tragic attempt to be first to the South Pole. Inventories and letters from Australian Antarctic explorer Sir Douglas Mawson were also discovered.

Kevin Alder, MetService’s manager for meteorological data services, was handed the documents by a colleague and asked if they were something worth holding on to. When Alder opened one and saw “Terra Nova” inside, he was astounded.

“No one had any idea that they even existed. I mean, it’s long forgotten, they’ve probably been sitting on the same shelf for 50 years,” Alder said.

Alder says the documents not only detail the weather and ship positions, but also observations about penguins, orcas, Mt Erebus, and sea-ice.

“It’s a little snapshot in time of what the conditions were on particular days. Shackleton’s ship – you can see the weather on the day that his ship actually arrived down to rescue the stranded party. The documents from Scott’s ship - one of them is the transit across the Indian Ocean. So it’s not Antarctic but it’s still the *Terra Nova* with Scott on board on his way to Antarctica and that is just incredible.”

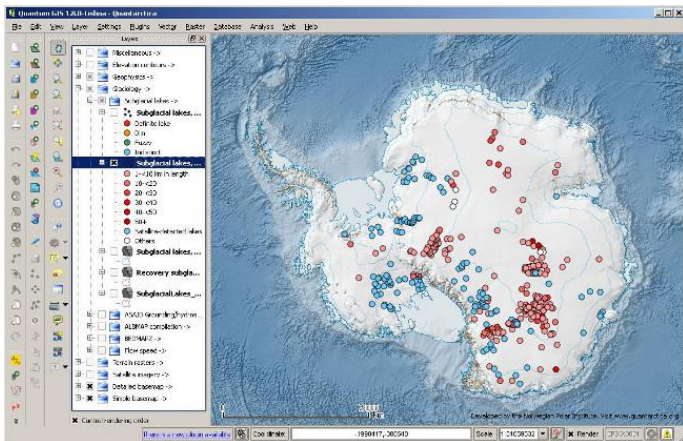
“It’s such an amazing story that has come to light now, 110 years later,” Alder said.

The artefacts were in excellent condition, he said, because they had been housed in a cool dark room: “There’s almost no deterioration whatsoever.”

Quantarctica – Free GIS Data for QGIS

by Caitlin Dempsey

Quantarctica is a collection of freely downloadable GIS data for Antarctica which includes "*community-contributed, peer-reviewed data from ten different scientific themes and a professionally-designed basemap.*"



Screenshot from Quantarctica, showing one of the subglacial lakes datasets. (From Quantarctica website)

The Quantarctica package is released under a Creative Commons Attribution 4.0 International License. All data in the package includes metadata in order to see the individual attribution requirements

necessary. It’s important to check the different licenses, terms of use, and attribution requirements as they vary among the individual datasets.

A QGIS specific free GIS dataset is available for downloading from the Quantarctica site (QGIS + Antarctica). The data contains geography, glaciology and geophysics data originally developed for in-house use at the Norwegian Polar Institute.

Quantarctica was first released for public consumption in July of 2013 and there are plans to expand the data offerings with contributions from the research community. The data is free for noncommercial use.

Users can download a 7GB base package which includes GIS base map vector and raster data, and scientific data covering geophysics and glaciology. Geography data includes place name, facility, ice shelf, grounded ice, and outcrops. Glaciology data includes ice thickness, ice-flow speed, and subglacial lakes. Geophysics data includes geoid heights, and magnetic anomalies.

The data are available at a range of scales from continental to local.

QGIS 1.8 is also bundled in the package. Those users that want to individually download Quantarctica’s datasets can do so via the Quantarctica FTP server. Also available from the download page are high resolution imagery datasets such as Landsat MOS and RADARSAT images.

Users can sign up at the bottom of the home page with their email addresses to receive updates to the Quantarctica site.

2021 Treasurer’s Report

by Tom Henderson

The Society remains in good financial condition. We moved the balance of the Calvert Fund to the Vanguard Wellesley Income Admiral Fund in June, which has yielded considerably greater returns in 2021.

I want to especially thank the generous donors to the Society in 2021: Michael Maish, the Bear Gulch Foundation (managed by the Rob Flint family), Tom Henderson, Julius Madey and Gisela Dreschhoff.

2021 INCOME & EXPENSES**Income**

| | |
|------------------------------|-----------------|
| Dues | \$3,908 |
| Investment Income | \$3,440 |
| Interest Income | \$14 |
| 2022 Gathering Registrations | \$5,701 |
| Donations | \$5,500 |
| Total Income: | \$18,563 |

Expenses

| | |
|--------------------------------|-----------------|
| Admin. Costs | |
| Supplies & postage | \$47 |
| Printing Costs | \$1,776 |
| D&O Insurance | \$614 |
| Communication Licenses | |
| Google Gsuite | \$72 |
| Zoom License | \$160 |
| Website Expenses | \$317 |
| PayPal Fees | \$208 |
| Professional Fees | |
| Vermont Incorporation Fees | \$195 |
| IRS 501(c)(3) Registration Fee | \$275 |
| Gathering Expenses | \$1317 |
| Other Expenses | \$94 |
| Total Expenses: | \$5,075 |
| BALANCE | \$13,488 |

2021 ASSETS & LIABILITIES**Assets**

| | |
|------------------------------|-----------------|
| Bank Accounts | |
| Antarctican Society Checking | \$19,154 |
| Ruth Siple Fund | \$4,156 |
| 2022 Gathering Registrations | \$5,701 |
| Investments | \$65,990 |
| Total Assets: | \$95,001 |

Liabilities

| | |
|------------------------------|-----------------|
| 2021 Gathering Registrations | \$260 |
| 2022 Gathering Registrations | \$5,701 |
| Total Liabilities: | \$5,961 |
| BALANCE | \$89,040 |

Byrd's *Bear* Discovered in North Atlanticby Tom Metcalfe, *LiveScience*

**U.S.S. *Bear* at ice edge near Little America III, 1939
(U.S. Naval History and Heritage Command)**

Ocean scientists have located the wreck of the U.S. Revenue Cutter *Bear*, a ship that served at sea for at least 88 years and played a part in the capture of a Nazi spy ship.

The *Bear* has a storied history. It started working as a commercial sealer in 1874. Then, because the ship could travel through ice-filled waters, the government purchased it in the 1880s to use for rescue work in the Arctic. It also served as a relief ship during the Spanish flu pandemic of 1918-1919, a floating museum, a film set for a Hollywood movie and an expedition ship on Adm. Richard Byrd's Antarctic explorations.

It also patrolled Arctic waters for the U.S. Navy in both world wars, and in 1941 helped capture the Norwegian trawler *Buskø*, which was being used by the German military intelligence service Abwehr to report on weather conditions in the North Atlantic.

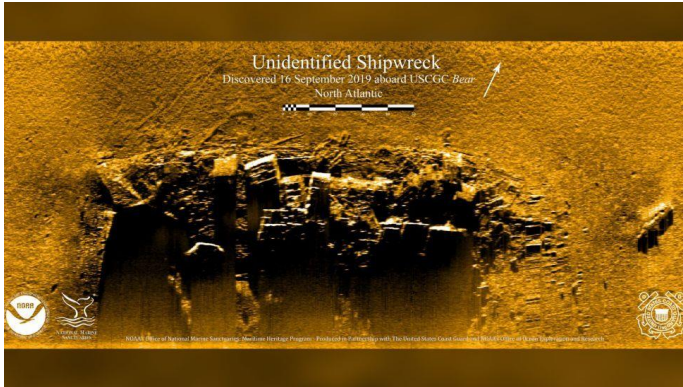
The *Bear* was decommissioned in 1944 and tied up at a wharf in Halifax, Nova Scotia. As it was being towed to Philadelphia in 1963, it sank during a storm, south of Nova Scotia and east of Boston.

"The *Bear* has had such an incredible history, and it's so important in many ways in American and global maritime heritage because of its travels," said Brad Barr, the mission coordinator for the U.S. National Oceanic and Atmospheric Administration's

(NOAA) Maritime Heritage Program, who has led the search for the wreck for several years.

Historic ship

In the late 1970s a group started searching for the *Bear*. It included the Massachusetts Institute of Technology's Harold Edgerton, who invented side-scan sonar — a technology widely used today to detect and image objects on the seafloor.



Side-scan radar image of unknown wreck (presumed to be the *Bear*) on the seafloor (NOAA)

The group tested out the new side-scan technology in 1979, but they didn't find the wreck — possibly because the location of its sinking had been misreported by its tow ship, Barr told Live Science.

A secret Navy submersible, the nuclear-powered NR-1, carried out a second search in 2007, but it too was unsuccessful. The U.S. Coast Guard and NOAA joined forces with other partners and began another search in 2019. After mapping 62 square miles (160 square kilometers) of seafloor with sonar, they identified two submerged objects in the search area.

In September, they returned on a Coast Guard ship equipped with a remotely operated vehicle to take underwater video and confirm that the largest object is the wreck of *Bear*, Barr said.

The wreck now lies on the seafloor at a depth of about 200 feet (60 meters), in Canadian waters about 90 nautical miles (167 km) south of Nova Scotia's Cape Sable. The exact location is being kept confidential in the hopes of deterring technical divers from trying to reach it, Barr said. The search partners are discussing with the Canadian government how the wreck can be protected.

The aging wooden hull has been badly damaged by nets from fishing trawlers and strong currents on the seafloor. But the researchers identified several distinctive features of the *Bear*, including the "bow staples" that strengthened its hull to allow the ship to handle heavy ice in polar waters, Barr said.

Steamship to diesel

Although the *Bear* was equipped with three masts for sailing, it was built as a steamship for its role as a sealer in the 1870s. In the 1930s, the boiler was taken out and the steam engine replaced with a diesel engine as it was refitted for its Antarctic service with Byrd.

As a result, several piles of metal can be seen among the remaining wood of the wreck, which includes sailing-ship technologies, Barr said.

"There's a pile of metal rubble with a deadeye [a fixed wooden pulley] sticking up out of it," he said. "These deadeyes have been around since the 1700s, but they were used on the *Bear* to attach the standing rigging."

Among the *Bear's* most famous exploits was its part in the 1884 rescue fleet for the Greely Expedition to the Arctic, which had become lost in 1881 near Ellesmere Island, northwest of Greenland. Several members of the expedition died of starvation and disease before the *Bear* rescued Greely and the other survivors.

After serving for many years as a government revenue cutter in Arctic waters — intercepting and inspecting ships at sea, and often rescuing commercial ships trapped in ice — the *Bear* was transferred to the Navy; it patrolled around Alaska during World War I, and delivered supplies there during the Spanish flu pandemic.

In 1929, the decommissioned ship was given to the city of Oakland in California, where it became a museum and then a film set for the 1930 film "The Sea-Wolf," an adaptation of a Jack London novel.

The *Bear* was recommissioned for Arctic patrols during World War II, when it helped capture the *Buskø*; but it was mostly tied up in Halifax after that, until it sank in 1963 on its voyage to Philadelphia, where it was planned to become a floating restaurant.

"These are incredibly compelling stories," Barr said. "When you read the details of what the *Bear*

did, how many lives it saved, how many incredible missions it was on — it is really the kind of history that people should be aware of."

To commemorate its discovery, Barr has compiled years of historical research into [several website posts](#) detailing the many exploits of the *Bear*. "One of the reasons why we wanted to find it is because it allows us to tell all these stories."

Britain's *RRS Sir David Attenborough* makes maiden voyage

Britain's brand-new polar research ship is on its maiden voyage in Antarctica. In addition to supplying food, fuel and research teams to the British Antarctic Survey stations in Antarctica, it will also conduct oceanographic research. *The RRS Sir David Attenborough* represents an ongoing significant investment by Britain in its Antarctic program. Built by Cammell Laird Ship Builders, the 15,000-ton ship cost GB£200 million. The *Attenborough* replaces the retired vessels *RRS James Clark Ross* and the *RRS Ernest Shackleton*.



***RRS David Attenborough* in London prior to departure for the Antarctic. (British Antarctic Survey)**

Among the innovative features of the ship is a "moon pool," a 4-meter x 4-meter vertical shaft through the center of the ship open to the air and the sea beneath. This allows sensors to be launched into the sea below even in conditions of dense pack ice and rough seas. Another feature is "plug-in"

containerized scientific laboratories to accommodate additional lab space when needed.

To learn more about this state-of-the-art polar research vessel, go to <https://www.bas.ac.uk/media-post/rrs-sir-david-attenborough-makes-maiden-voyage-to-antarctica/>.

To take a video tour of the ship, go to: <https://www.bing.com/videos/search?q=rrs+sir+david+attenborough&docid=608014614492569466&mid=68D85C842167B462A07C68D85C842167B462A07C&view=detail&FORM=VIRE>

Adélie Penguins Target Certain Nests in Strategic Stone Thieving

By Lauren Lipuma, *Antarctic Sun* Editor

Adélie penguins often steal stones from each other's nests, but new research shows the wily birds target some nests more than others.

Biologists observing Adélies on Antarctica's Ross Island found the birds tend to steal stones from nests on the outside edge of their colony, rather than taking stones from nests in the center.



Adelie penguin "thief with purloined nest stone. (Photo by Elaine Hood)

Penguins and other birds who build nests at or near the center of their colonies tend to have better success breeding and raising chicks. Central nests are less likely to be disturbed by predators and are more protected from the harsh Antarctic elements. The new results show there's an additional benefit to life in the center of the colony: the birds don't have to worry about others stealing their nest stones quite as often.

“It’s really important to have a well-shaped nest, and if you have a lot of birds trying to steal your stones, it’s not as easy to maintain,” said Virginia Morandini, an ecologist at Oregon State University and lead author of a new study detailing the findings. “So they need to spend more energy to maintain their nests.” The stones keep the eggs dry by allowing snow and water to flow beneath them.

Well-built Adélie penguin nests can have hundreds of stones, and collecting them requires a lot of energy. It’s also one of the significant ways mated penguins interact with each other, according to David Ainley, who has studied Adélies for decades: “It’s part of the pair formation process.”

Morandini decided to watch the stone thieves more closely and track where they lived in the colony. She saw that penguins tend to remove stones from nests on the periphery of the colony more often

than from nests near the center. And, not surprisingly, nests near the center tended to be larger and better built.

“The peripheral nests had more stone removal attempts, and the removal attempts were more likely to be successful if the nest was on the periphery of the colony,” Morandini said. “What we saw in central nests is that when a penguin tried to steal a stone, it’s not only the owner of the nest that is attacking him, but the other neighbors are attacking him at the same time because they see him as a possible problem for them too. But nests that are peripheral, they don’t have neighbors on all the sides of the nest. So we think penguins take advantage of that.”

To watch David Ainley explain the Adélies' larcenous and defensive techniques, visit <https://antarcticsun.usap.gov/science/4684/>



The Antarctican Society

www.antarctican.org

August 12-14, 2022 Burlington, VT Gathering Registration

Name (s) _____

Address _____

Email _____ Phone _____

Qty.

_____ Full Registration(s) - includes day programs, Reception on Friday evening, *Spirit of Ethan Allen* sunset dinner cruise on Lake Champlain on Saturday evening and the picnic on Sunday (\$175.00 per person **before** April 1, 2022, \$225.00 per person **after** March 31, 2022)

_____ Guest ticket(s) for Friday Reception, Saturday *Spirit of Ethan Allen* and picnic (\$90.00)

Guest(s): _____

Total amount enclosed: \$ _____

Refund policy: 100% prior to March 31, 2022; 50% April 1 – June 30, 2022.

Mail your check and registration form to:

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

Would you like to visit the Shelburne Museum at 1:00 p.m. on Thursday, Aug. 11? ___ Yes ___ No

Would you like to attend no-host dinner on Thursday evening in Burlington? ___ Yes ___ No

Do you or another of your registrants require handicapped access? ___ Yes ___ No

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



The Antarctic Society

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No. 3

“BY AND FOR ALL ANTARCTICANS”

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\$13/yr, plus more for mailed newsletter. See 'About Us' on website to join.

| | | | |
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OF SHIPWRECKS AND WAR

Antarctica's most famous shipwreck — found! It's hard to believe, and a part of me even wishes it had not been. But *Endurance* has indeed been located at a depth of 3008 meters in the Weddell Sea, after it was crushed by ice and sank in 1915. Shackleton's ship was found precisely on the 100th anniversary of his funeral, within the search area defined by the expedition team before its departure from Cape Town, and approximately four miles south of the position recorded by Capt. Frank Worsley.

The expedition was organized by the Falklands Maritime Heritage Trust and permitted by the UK. The team worked from South African polar research vessel *Agulhas II* commanded by Capt. Knowledge Bengu, using Saab's Sabertooth hybrid underwater search vehicles. The wreck, happily, is protected as a Historic Site and Monument under the Antarctic Treaty, ensuring that while it may be surveyed and filmed, it will not be touched or disturbed in any way. For more information and great photos, visit the expedition's website: <https://endurance22.org/endurance-is-found>.

Many thought *Endurance* would not be found. Given our increasingly sophisticated technology, will we someday become modern Capt. Nemos, plucking treasure from shipwrecks throughout the oceans — bullion from the hulks of Spanish treasure fleets, masterpieces from other wrecks, pearls and corals from the seafloor? By some estimates, a couple million more shipwrecks await discovery. In some deep, anoxic environments, the levels of preservation can be astonishing, with even tool marks made by ancient shipwrights still visible on undecayed timbers. But it will take time to find and reach all of them.

One of the newest wrecks, of course, is that of Russia's guided-missile cruiser *Moskva*, sent to the bottom on April 14 by a pair of Ukrainian Neptune missiles. The sinking of the flagship of the Black Sea fleet was the biggest combat loss of a naval vessel since the Falklands war. Russia's evil invasion of Ukraine has killed tens of thousands of civilians and displaced millions. It also threatens to upend six decades of cooperation through the Antarctic Treaty. Even during the chilliest years of the Cold War, the Treaty provided a "back door" for opponents to discuss "non-Antarctic" issues. But whether and how to work with Russia under the brutish Putin regime remains an open question.

Jeff Rubin, Co-Editor

Update on 2022 Burlington Gathering

by Tom Henderson

70 people have registered so far. Momentum is building! Early registration of \$175.00 will continue until **June 1, 2022**, \$225.00 after that date. Guest registration will remain at \$90.00. To register or for more details go to:

<https://www.antarctican.org/2022-gathering>.



Dalrymple house at Port Clyde, ME

There are two big updates to report. First, the current owner of Paul Dalrymple's house at Port Clyde, ME, John Ackerson, has made a generous offer for a Gathering auction item: **a one-week stay for up to four persons in 2023 at the Dalrymple house!** The live auction will be August 13, 2022. You must be there to bid! Here is a partial list of other auction items:

- Antarctic print by environmental/ expedition artist Alan Campbell, created especially for our Gathering
- Bottle of Mackinlay Scotch whisky blended by the distiller to recreate the formula for the Mackinlay Scotch recently found under Shackleton's Cape Royds hut.
- A limited edition color print of the *Que Sera Sera*, the R4D aircraft that LCDR Conrad "Gus" Shinn landed at the Geographic South Pole for

the first time. It is signed by the artist, Ron Stephano.

- Limited edition book by Society member Ron Stephano recounting the history the R4Ds used in the early years of Operation Deep Freeze.
- A hand-crafted medallion and matching necklace commissioned by the Antarctic Society in 2011 to commemorate the centennial of the Amundsen and Scott parties reaching the Geographic South Pole in 1911-12.
- A watch produced to commemorate 100 years of exploration in Antarctica. It has actually been to the geographic South Pole!
- Complete 4-CD set of original Antarctic-themed music composed by AS member Valmar Kurok.
- Vintage Antarctic books.

Contact auction chair Kathy Covert at AuctionChair2022@gmail.com to donate items for the auction.

The other big news is that Society member George Russell is offering his family compound on Lake Champlain for rent during the Gathering. Three buildings sleep 10 comfortably. The rate could be as low as \$50.00 per person per night if 10 people reserve. The compound is a 30-minute drive south of Burlington. See details at <https://fancyroamervacations.com>. Contact me at webmaster@antarctican.org if you are interested.

Extensive information can be found in the Gathering Planning Guide. See the website (see above) to download the Guide.

Don't miss out on what promises to be a great time with old friends and new in a perfect summer setting. See you in August!

Next Society Virtual Lecture Apr 25: *Herbert Ponting: the Man, the Work, and the Legacy*

The Antarctic Society is hosting a Virtual Lecture via Zoom, April 25, 2022, at 5:00 pm ET.

In *Herbert Ponting: the Man, the Work, and the Legacy*, Anne Strathie will discuss the man who brought iconic images of the *Terra Nova* expedition to the world. While calling Cheltenham, England, home, Anne's historic research has led her all over Britain and to Antarctica, New Zealand, Australia,

America, Norway, and Japan. She has recently completed her third book on members of Captain Scott's *Terra Nova* expedition. Zoom link to join:

<https://us02web.zoom.us/j/88160185840?pwd=WTNkZmlJVThOdUxiemRTMlFZZHFZQT09>

Upcoming ANTARCTIC EVENTS

May 7 - Water-Ice-Sky: Artist April Waters' Journey to Antarctica

SALEM, Ore.— The Hallie Ford Museum of Art at Willamette University is pleased to present the debut of "April Waters: Water-Ice-Sky, Antarctica" exhibition, opening **May 7** and continuing through **August 13** in the museum's Study Gallery and Print Study Center. The exhibition explores the beauty and the vulnerability of Antarctica's fragile and susceptible ecosystem in the face of climate change. April is an Antarctic Society member.

Learn more at the exhibition website:

<https://willamette.edu/arts/hfma/exhibitions/library/2021-22/april-waters.html>

May 8 – Old Antarctic Explorers Association 2022 Reunion in San Diego, CA

The next of OAEA's every-other-year gatherings to be held May 8-12 at the Handlery Hotel in San Diego. The reunion brochure is available at:

<https://www.oaea.net>

June 22 – SouthPole-sium v.5 in San Francisco, CA

The next of these popular events for those who collect, write, publish, buy, sell & love books relating to Antarctica and the South Polar Regions, 22-24 June. Sponsored by The Antarctic Circle, led by Antarctic Society member Rob Stephenson, and The California Contingent (Joan Boothe, Rick Dehmel, David Hirzel and Michael Rosove).

Everything you need to know is at:

<http://www.antarctic-circle.org/gathering5.htm>

Heat wave hits temperatures 70° F warmer than normal in eastern Antarctica

By Jason Samenow and Kasha Patel, condensed from *Washington Post*, March 18, 2022

Temperatures over the eastern Antarctic ice sheet soaring 50 to 90 degrees above normal. The warmth has smashed records and shocked scientists.

"This event is completely unprecedented and upended our expectations about the Antarctic climate system," said Jonathan Wille, a researcher studying polar meteorology at Université Grenoble Alpes in France, in an email.

"Antarctic climatology has been rewritten," tweeted Stefano Di Battista, a researcher who has published studies on Antarctic temperatures. He added that such temperature anomalies would have been considered "impossible" and "unthinkable" before they actually occurred.

Parts of eastern Antarctica have seen temperatures hover 70° F (40° C) above normal for three days and counting, Wille said. He likened the event to the June heat wave in the Pacific Northwest, which scientists concluded would have been "virtually impossible" without human-caused climate change.

What is considered "warm" over eastern Antarctica is, of course, relative. Instead of -50° or -60° F (-45 or -51°C), they've been closer to zero or +10° F (-18° or -12° C) — but that's a massive heat wave by Antarctic standards.

The average high temperature at Vostok at the center of the eastern ice sheet is around -63° F (-53° C) in March. But on Friday, the temperature leaped to 0° F (-17.7° C), the warmest it's been there during March since record keeping began 65 years ago. It broke the previous monthly record by a staggering 27° F (15° C).

Temperatures running at least 50° F (32° C) above normal have expanded over vast portions of eastern Antarctica from the Adélie Coast through much of the eastern ice sheet's interior. Some computer model simulations and observations suggest temperatures may have even climbed up to 90° F (50° C) above normal in a few areas.

University of Wisconsin Antarctic researchers Linda Keller and Matt Lazzara said in an email that such high temperatures are particularly noteworthy

since March marks the beginning of autumn in Antarctica, rather than January, when there is more sunlight. At this time of year, Antarctica is losing about 25 minutes of sunlight each day.

Wille said the warm conditions over Antarctica were spurred by an extreme atmospheric river, or a narrow corridor of water vapor in the sky, on its east coast. According to computer models, the atmospheric river made landfall on Tuesday between the Dumont d'Urville and Casey Stations and dropped an intense amount of rainfall, potentially causing a significant melt event in the area.

The moisture from the storm diffused and spread over the interior of the continent. However, a strong blocking high pressure system or "heat dome," moved in over east Antarctica, preventing the moisture from escaping. The heat dome was exceptionally intense, five standard deviations above normal.

The excessive moisture from the atmospheric river was able to retain large amounts of heat, while the liquid-rich clouds radiated the heat down to the surface — known as downward long-wave radiation.

Wille explained warm air is often transported over the Antarctic interior this way but not to this extent or intensity. "[T]his is not something we've seen before," he said. "This moisture is the reason why the temperatures have gotten just so high."

Models show the atmospheric river will exit the continent around Saturday, but the moisture will take longer to dissipate. Abnormally high temperatures in the region could last through the weekend.

The abnormally high temperatures have caused some melting in the region according to models, which is unusual as this part of Antarctica doesn't experience much melt often. This one melt event won't affect the stability of the glaciers in that area though.

"This event happened in a location that doesn't often have melt. Obviously, this doesn't mean that from now on we're worried that melting will happen," Wille said. "It's more of like, 'Oh, that is weird, that could happen more in the future and then this could be bad.'"

Wille said it's difficult to attribute this one event to climate change at the moment, but he does think rising temperatures helped prime conditions for such an event. Climate change is "loading the dice" for more situations like this, he said.

Wille and his colleagues are studying how climate change will affect the circulation patterns around Antarctica and whether atmospheric rivers will become more common or more intense.

"We do believe they will become more intense because it's just simple physics ... but the details, we're still trying to figure that out. It would be very difficult to say that there's not a climate change fingerprint on an event like this," he said.

Ice Shelf Collapse in East Antarctica

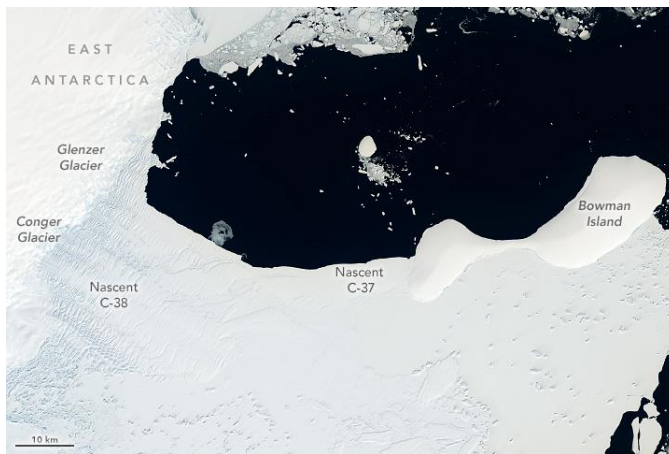
by Kathryn Hansen, NASA Earth Observatory

It is relatively common for ice shelves in Antarctica to spawn icebergs. It is less common for an ice shelf to completely disintegrate. In March 2022, an ice shelf in East Antarctica did both. The collapse has reshaped a part of the Antarctic landscape where coastal glacial ice was once thought to be stable.

The change happened fast. At the start of March 2022, the floating shelf fed by the Glenzer and Conger glaciers was still intact. By the middle of the month, it had fallen apart.

"The whole shelf collapsed in just around two weeks," said Christopher Shuman, a University of Maryland, Baltimore County, glaciologist based at NASA's Goddard Space Flight Center. The icy remnants of both glacial shelf ice and adjacent sea ice dispersed from the waters around Bowman Island within weeks. "All of this took less than a month," Shuman said. "It was quite the blowout."

Fast ice—a type of sea ice that becomes "fastened" to the edges of ice shelves, coastlines, and icebergs—is also part of the mix. For two years prior, the shelf was already in a state of decline. According to Catherine Walker of the Woods Hole Oceanographic Institution, the shelf was losing ice at an average rate of about 1 square kilometer per day through the natural process of iceberg calving.



January 9, 2022



March 23, 2022

But in early March 2022, the shelf in front of the Glenzer Glacier calved a substantial iceberg. Named C-37, the berg initially measured about 144 km² (56 sq miles). A few pieces broke off, such that C-37 measured about 81 km² on March 12. The substantial loss of ice meant the shelf disconnected from Bowman Island.

“Without being supported by a land anchor, the ice shelf was destabilized and primed to collapse,” said Jonathan Wille, a postdoctoral researcher at the Université Grenoble Alpes.

According to Wille, an atmospheric river on March 15 appears to have triggered the shelf’s final collapse. The weather system—which caused temperatures in eastern Antarctica to soar 40° C above normal—also enhanced ocean swells and amplified winds near the vulnerable shelf. This likely caused the ice in front of Conger Glacier to break apart and quickly disperse.

The loss of an ice shelf is problematic because it can indirectly contribute to sea level rise. “Ice shelves are essentially the ‘safety band’ holding up the rest of the Antarctic Ice Sheet,” Walker said. When they collapse, the ice behind them can more quickly flow into the ocean. “And that is what raises sea levels.”

By Antarctic standards, the ice shelf and glaciers that it held back are relatively small, so the impacts from the collapse are expected to be minimal. Scientists are more concerned about the location of the collapse.

“All of the previous collapses have taken place in West Antarctica, not East Antarctica, which until recently has been thought of as relatively stable,” Walker said. “This is something like a dress rehearsal for what we could expect from other, more massive ice shelves if they continue to melt and destabilize. Then we’ll really be past the turnaround point in terms of slowing sea level rise.”

Record low Antarctic sea ice extent could signal shift

by Marlowe Hood, Phys.org

Sea ice around Antarctica shrank to the smallest extent on record in February, five years after the previous record low, researchers said Tuesday, suggesting Earth's frozen continent may be less impervious to climate change than thought.

In late February, the ocean area covered by ice slipped below the symbolic barrier of two million km² (around 772,000 sq miles) for the first time since satellite records began in 1978, according to a study in the journal *Advances in Atmospheric Sciences*.

Researchers found that the key driver of ice loss was change in temperature, though shifts in ice mass also played a lesser role.

Both the North and South pole regions have warmed by roughly 3° C compared to late 19th-century levels, three times the global average.

Antarctica encountered its first recorded heatwave in 2020, with an unprecedented 9.2° C above the mean maximum, and in March a research center in eastern Antarctica saw temperatures soar 30° C above normal.

But extreme aberrations of this kind are recent. Unlike sea ice in the Arctic, which has diminished by 3% a year since the late 1970s, sea ice in Antarctica expanded over the same period by 1% per decade, albeit with large annual variations.

Ice cover during this year's austral summer shrank most around West Antarctica, which has been more vulnerable to global warming than the far larger East Antarctica.

Melting sea ice has no discernable impact on sea levels because the ice is already in ocean water.

But diminished ice cover is nonetheless a major concern because it helps accelerate global warming, explained co-author Qinghua Yang, a professor at Sun Yat-sen University in Guangzhou.

When white sea ice—which bounces the Sun's energy back into space—is replaced by dark, unfrozen sea, "there is less reflection of heat and more absorption," he said in a statement. "This in turn melts more sea ice, producing more absorption of heat, in a vicious circle."

Pristine snow and ice reflect more than 80% of the Sun's energy back into space, whereas open ocean absorbs the same percentage.

Startlingly, the record low 1.9 million km² on February 25 was 30% below the 1981-2010 average. The previous record low was just over two million km² in 2017.

Maximum sea ice extent in Antarctica has averaged about 18 million km² in recent years.

To analyze the causes of this year's record ice loss, researchers examined Antarctica's "sea-ice budget"—ice added and ice lost, year by year—as well as daily sea-ice drift, or movement.

"In summer, thermodynamic"—or temperature-related—"processes dominate the sea melting through poleward heat transport," the study concluded.

The record minimum sea ice extent in the Arctic — 3.4 million km² — occurred in 2012, with the 2nd and 3rd lowest ice-covered areas in 2020 and 2019, respectively. Maximum sea ice extent has averaged about 15 million km².

Ice sheets atop West Antarctica hold the equivalent of six meters of sea level rise, whereas East Antarctica's massive glaciers would raise global oceans by more than 50 meters.

Antarctica Welcomes the Millennium

by Dick Wolak



Graham Bell (British ornithologist) and Dick Wolak in Zodiac at Port Foster (Deception Island) at midnight, New Year's Eve 2000. *Ocean Explorer I* is in background.

Over the last 50 years, I've enjoyed brief encounters in Antarctica with persons of note, usually individuals well-known in political, military or polar circles. I spoke Russian on behalf of the Secretary of the US Air Force and the Director of NSF at Vostok Station. At South Pole, we hosted US Congressmen, National Science Board members, the Director of the Norwegian Polar Institute, Commander of the Pacific Fleet, US Ambassador to Australia, and Ruth Siple. On the Peninsula side, I met Sir Peter Scott, visited Elephant Island with the daughter of Shackleton's chief scientist on *Endurance* (Sir James Wordie), and wished Little America dog-driver, Norman Vaughan, well on his climbing venture to Mount Vaughan. But, just as memorable as any of those was the concentration of celebrities I encountered on New Year's Eve 2000 at Deception Island.

In December 1999, I set off to spend the holidays in Antarctica. I had a new job at the University of Connecticut but had been allowed a five-week leave-of-absence to fulfill a commitment to Marine Expeditions, Inc. (MEI) of Toronto. I was scheduled to work as expedition staff on three of their Antarctic trips starting in mid-December.

I joined the *M/V Lyubov Orlova* in Ushuaia, Argentina, delighted to find that my Expedition Leader was Laurie Dexter, one of thirteen Canadian and Soviet skiers who had completed the 1988 Polar

Bridge Expedition by skiing from Siberia to Canada via the North Pole (described in the book, *Polar Bridge: An Arctic Odyssey* by Richard Weber). We ventured south on December 22, following a typical schedule of lectures and landings. That changed dramatically when we entered the volcanic caldera of Deception Island and anchored in Port Foster. There, on December 30, we came upon the *Ocean Explorer I (OEI)*.

The *Ocean Explorer* was built in 1944 as an American troop ship (*USS General WP Richardson*) and had admirably served the U.S. military during World War II and the Korean Conflict. Steam-powered and 623 feet long, she was now a cruise ship (with her 8th name) configured for 680 passengers and in the midst of a 127-day world-wide cruise that had started in Athens in November. Her presence was part of a Marine Expeditions planned millennium celebration that included *OEI* and three of MEI's smaller ships (*Orlova*, *Shuleykin* and *Ioffe*) all in Port Foster for New Year's Eve.

A few days earlier, MEI had disembarked most of its round-the-world passengers from *OEI* in Ushuaia and flew them to an alternate millennium celebration in Santiago. A new group of passengers (who had paid for the Antarctic celebration) was boarded along with a host of "celebrities" for their extravaganza at Deception.

Prior to the evening's festivity, a lecture program aboard included former South African President, Willem de Klerk (Nobel Peace Prize winner with Nelson Mandela) and Robert F. Kennedy, Jr. For the younger set in the afternoon, there was The Moffatts, a pop-rock boy band made up of four 15 and 16-year-old brothers who had all been born within one year of each other.

The evening entertainment was anchored by The Chieftains, the traditional Irish folk band that had been officially honored as Ireland's Musical Ambassadors. The Chieftains were known for their very successful collaborations with popular musicians of many genres. This event would be no exception. Diana Krall, a popular jazz pianist and singer was aboard; Natalie MacMaster, a remarkably talented fiddler specializing in Cape Breton fiddle music was aboard as well. Dan

Aykroyd would be making a brief appearance, and Art Garfunkel was to be a vocal highlight. Of course, there had been seagoing challenges for the entertainers. Terry Heisler, a technician on *OEI* responsible for lighting, was amused by some of the preparations: "It was pretty humorous watching Art Garfunkel try and do sound check as his mic stand came flying at him. During most of this, his soundman was losing his lunch overboard. I couldn't get "Bridge Over Troubled Water" out of my head for weeks." In his 2017 book (*What is it All but Luminous*), Art Garfunkel reminisced, "I gripped the piano as I sang onstage. It was a rocky trip from the southern tip of Chile across the Drake Passage to the Antarctic Peninsula It was the last week of December 1999. The Garfunkels were little earth angels as we walked among the penguins at the close of the millennium."

The challenge for expedition staff on the smaller ships was the complete changeover of passengers with all their belongings to and from the *OEI*. *Orlova* was finished with the 80 tourists we'd embarked in Argentina and was taking on a new complement of 89 passengers from the *OEI*. With no dockage available, all of this had to be accomplished with gangway muscle and Zodiacs.



Expedition staff of M/V Orlova, 1999-2000. Laurie Dexter with life ring, and Dick Wolak, 3rd from right.

During a "Billboard" 40th anniversary interview in 2002, Chieftains founder, Paddy Moloney recounted the millennium party: "The band was invited to play on a cruise to the Antarctic, and Art Garfunkel, Diana Krall, Dan Aykroyd ... were on

that. My little job was to finish the night with an hour's music bringing it up to 60 seconds [to midnight]. ... Dan Aykroyd insisted on getting up and doing a funny dance and playing the harmonica."

As midnight approached, those of us who had been ferrying passengers and their luggage for much of the day were not inclined to remain with the tourists for the big moment. Certainly, being indoors for such an event in Antarctica made no sense. Several of us happily borrowed a bottle of the onboard champagne, fired up a Zodiac, and departed to get some distance between us and any of the ships. Our own little celebration was a delight.

The following morning, Paddy Moloney acted on a creative notion: "... I had this dream of going on top when the morning of the new millennium [dawned] and playing 'Morning has Broken.' I just liked the feel of that. So I got up – it was freezing cold. but it was on the day [of the new millennium]." That "dream" resulted in a bonus track (new release) on The Chieftain's 40 Year Celebration album, *The Wide World Over*. The track's origin is described in the accompanying album notes:

"It was New Year's Day 2000, the dawning of a new day, a new year, a new millennium. We awoke setting sail from Deception Island, Antarctica Fellow shipmates, Diana Krall and Art Garfunkel, joined us in the ship's library (our make-shift studio) to brave the howling gales and churning seas to record this version of 'Morning Has Broken.'"

You can treat yourself to this lovely, haunting track framed with traditional Irish instrumentation on YouTube at:

<https://www.youtube.com/watch?v=FEhtHC1GOp4>

By the afternoon of January 1, we were satisfied that the digital world had survived Y2K and it was probably safe to return to civilization. We were back to business as usual with landings and lectures for our newly boarded passengers. Back in Ushuaia on January 8, we boarded our next group of 119 expeditioners, and were off for our scheduled Antarctic Circle crossing on January 14. There were

no more celebrities, but as always, Antarctica remained entrancing!

Machine Learning Pinpoints Meteorite-Rich Areas in Antarctica

by Katherine Kornei, Eos – Science News by AGU

While there's no better place to find space rocks than in Antarctica—nearly 2/3 of the meteorites collected so far have been found there—meteorite-hunting expeditions often rely largely on serendipity and the sleuthing skills of experienced participants.

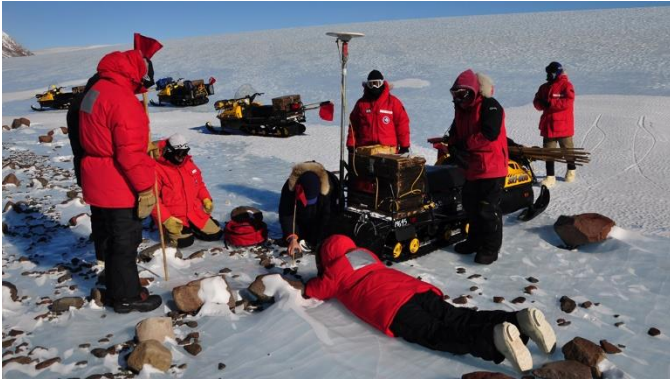
Now, researchers have developed a machine learning algorithm that they suggest reliably pinpoints meteorite-rich regions in Antarctica and could therefore streamline future searches. According to the new analyses, fewer than 13% of meteorites lying on the surface of the White Continent have been recovered to date.

Since the early 20th century, researchers have been collecting meteorites from Antarctica. Rocks from space tend to remain well preserved in the cold, dry environment, and their dark coloration stands in stark contrast to their white surroundings, said Veronica Tollenaar, a glaciologist at the Université Libre de Bruxelles in Belgium.

Meteorite-hunting expeditions accordingly tend to be time-consuming and labor-intensive—teams of volunteers regularly work for weeks at a time, crisscrossing the Antarctic landscape on snowmobiles "We hope to increase the chances of success for future missions," Harry Zekollari, a glaciologist at Delft University of Technology and a team member, wrote on Twitter. "To date, most meteorites on Earth were collected in Antarctica: about 50,000 in total...We think there are still 300,000 meteorites out there!"

To focus their search, the researchers considered only specific swaths of Antarctic terrain known as blue ice areas. These regions, which collectively encompass just 3% of the continent's surface, are prime spots for finding meteorites. That's because they aren't blanketed in snow—persistent winds and sublimation act in tandem to expose the ice underneath. Furthermore, the topography of blue ice areas often causes ice to flow upward in these

regions, effectively transporting to the surface any meteorites trapped within deeper layers.



Volunteers with the Antarctic Search for Meteorites program collect a meteorite in the Dominion Range of Antarctica. Credit: [NASA](#)

The team also folded three other data sets into their algorithm: surface temperature, ice velocity, and the slope of the terrain. Temperature matters because warmer conditions can cause meteorites to sink out of sight, said Tollenaar, and ice velocity is likewise important because rapidly flowing ice transports meteorites away. The effect of slope is less clear-cut, but it's a useful parameter to include nonetheless, the team found. "Through our analyses we learned that it interacts with the other properties, and thus including it helps in making good predictions," Tollenaar told Eos.

To train their algorithm, the researchers provided the precise locations of thousands of meteorites found in Antarctica. On the basis of that input, the algorithm flagged 106,687 grid cells—each measuring 450 meters on a side—as positively containing meteorites. By clustering positively flagged grid cells and retaining only regions larger than 4 km², the team defined more than 600 so-called meteorite stranding zones.

To evaluate their algorithm's output, the team compared the locations of predicted meteorite stranding zones with an independent data set containing both known meteorite stranding zones and nonmeteorite stranding zones (i.e., Antarctic regions known to have been searched by humans but that failed to yield a single meteorite). Tollenaar and her collaborators found that their algorithm accurately identified meteorite stranding zones and nonmeteorite stranding zones more than 80% of the

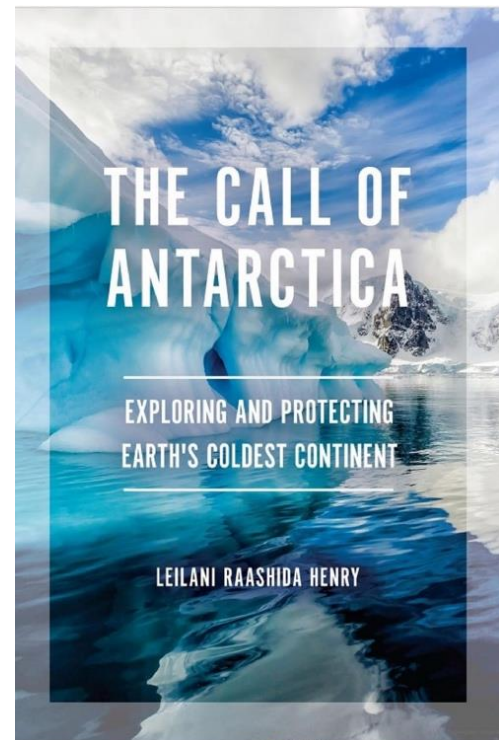
time. And because their algorithm flagged a significant number of meteorite stranding zones that are, as of yet, unexplored, only a small fraction of the meteorites sitting on the Antarctic surface have likely been collected to date, the team concluded—fewer than 13%, Tollenaar and her colleagues reported in January in *Science Advances*.

That's a small fraction, said Jim Karner, a planetary scientist at the University of Utah in Salt Lake City and co-principal investigator of ANSMET, the Antarctic Search for Meteorites program, who was not involved in the research. But it bodes well for finding more meteorites, he said. "As someone who gets a grant to go recover meteorites, [I think] it's encouraging that there [are] a lot more out there."

Book Review: *The Call of Antarctica*

by Joan Boothe

Antarctican Society member Leilani Raashida Henry's *The Call of Antarctica* is a short but beautifully produced, wide-ranging introduction to Antarctica — its human history, geography and geology, biology, environment, politics, and scientific work being done there today. Written in



simple text at a young adult level, it is very well done. What makes this book special, however, is that Henry tells us not only the story of Antarctica, but also that of a single member of the 1939-41 United States Antarctic Service expedition — her father, George W. Gibbs, Jr., a sailor on the *Bear* who was the first Black man known to have set foot on the Antarctic continent. His story, based on unpublished diaries, is the backbone of this book.

In her author's note at the end of her book, Henry writes that when she was young, she had little interest in Antarctica. When her father died, however, the writer he'd asked to help him complete his story backed out, so she decided it was time for her to learn about Antarctica and her father's adventures. She dug into written works about the continent, made her own trip south, talked with scientists, carefully read her father's Antarctic diaries, and connected with two surviving members of the USAS as well as expedition descendants. This book is the result. She concludes her author's note writing, "This book honors their efforts to connect us to the continent. It is an exploration of the link between all living things to Earth, through the intersection of history, science, politics, and art of our planet's most magical place: Antarctica."

Henry introduces each chapter with an extended quote from her father's Antarctic diary. Chapter One is a compressed summary of Antarctic history preceding the USAS expedition. Chapters Two and Three are about the USAS and Gibbs' experience as a man seeing Antarctica for the first time, but in particular, as a Black man on the expedition. This is a highly personal story wonderfully told. Several breaks from the main narrative go into greater detail about segregation at the time, Gibbs' life before and after the expedition, and related matters. Henry's account of the USAS, which one historian has described as "the most poorly reported major expedition in Antarctic History," is an important contribution to our understanding of the USAS voyages of the *Bear*.

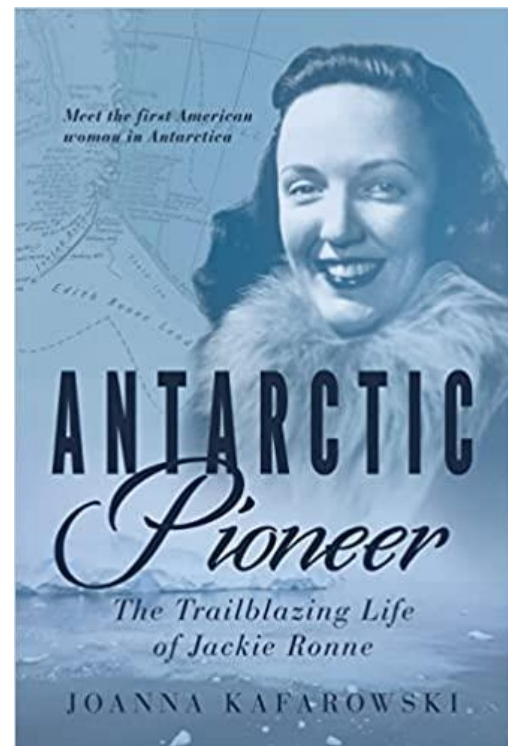
Chapter three concludes with a brief summary of Antarctic history following the USAS. Henry then turns to the story of Antarctica itself with chapters on Ice, Flora & Fauna, what she calls "Human-Made Trouble" (climate issues, sealing

and whaling, environmental issues, tourism), concluding with a chapter on Working & Living in Antarctica.

In sum, *The Call of Antarctica* is two intertwined stories. It is a good, well done, summary introduction to Antarctica. What makes it stand out from other good introductions, however, is the second element, the previously untold story of George Gibbs on the USAS.

Book Review: *Antarctic Pioneer: The Trailblazing Life of Jackie Ronne*

by Kristin Larson



Shadows have long cast unflattering light over the 1946 Ronne Antarctic Research Expedition (RARE). Rumors of interpersonal strife and loathing of the expedition leader, Finn Ronne, stole headlines and undermined this remarkable year of human endeavor and scientific investigation. As a result, the record of this last large-scale private expedition with its daring flights and epic dogsledding has been relegated to archives, where it has remained largely unappreciated, and even ridiculed. A new, meticulously researched and wonderfully written book by Antarctic Society

member Joanna Kafarowski changes all that, and brings this era back to us by profiling the life of RARE's key architect, Jackie Ronne.

Until her death in 2009, Jackie Ronne (nee Edith Ann Maslin) deflected credit for the RARE expedition and even down-played the fact that she and RARE teammate, Jennie Darlington made history as the first women to over-winter in Antarctica. Instead, Jackie wrapped herself in the the feminine trappings of the day, where men dominated, and women supported them in unobtrusive ways. Kafarowski expertly pulls back the apron in this book, uncovering the true Jackie as both a self-effacing force in a good suit and heels (and never without perfectly applied lipstick); and a fully-realized, highly-connected woman expertly navigating the gauntlet of male-dominated Antarctica and Cold War Washington DC. It is revealed that Jackie's talents as an intelligent writer, speaker, and organizer greased the skids of the Ronne's life, and are talents that Finn depended on heavily without giving much credit to Jackie.

Very few books have provided such engrossing details on this overlooked era in Antarctic history- the period between the Heroic Age of Polar Exploration populated by the likes of Amundsen, Scott, Peary and Shackleton, and the current period of government-dominated research programs stemming from the Antarctic Treaty. Moreover, I found it particularly compelling that Jackie managed to juggle her multi-faceted roles, all while retaining her vivacious, happy demeanor with little trace of ego. Knowing Jackie, as I had the pleasure of for many years, she would never have embraced the title of "feminist role model" but in truth she was. A stolid woman equally at ease in polar garb and in holding forth on the world stage, Jackie demonstrated a woman could be smart, beautiful and and extremely strong in life-threatening conditions. Kafarowski expertly weaves these strands together - historic Antarctica, mid-century diplomatic life, and the details of Mrs. Ronne's personal life - in an original way so we are left with a clear and new way of understanding the trajectory of this era.

Antarctic scholars will greatly appreciate this addition to their library with its well-documented,

annotated, referenced and indexed narrative. Kafarowski has given us a wonderful gift in allowing Jackie's story to see the light of day. The book is available for pre-order now; it will be released in mid-May.

JOHN J. KELLEY, 1933 - 2022

by Eleanor Kelley



John J. Kelley 1933-2022

Longtime Fairbanksan John Kelley passed away peacefully on 11 February 2022 at age 89 due to cardiovascular complications, in a local care home with his wife of 52 years, Eleanor, at his side.

After entering Pennsylvania State University to earn a B.S. degree in geophysics and geochemistry in 1958, he worked for several years (1959-1968) as graduate student and senior scientist in the Department of Atmospheric Chemistry at the University of Washington in Seattle, from where he was sent to Barrow in 1959 to gather data at the Arctic Research Lab (ARL) on UW Project Husky, a study investigating movement of carbon dioxide and trace gases through the Arctic tundra, sea surface and atmosphere.

John began working at the University of Alaska Fairbanks (UAF) as a doctoral graduate student and professional staff member in 1968 in response to recruitment by Professor Donald Hood, first director of the Institute of Marine Science. In 1974 he received his Ph.D. in chemical oceanography from the University of Nagoya (Japan) and became a tenured faculty member UAF, retiring from the College of Fisheries and Ocean Sciences as professor emeritus in 2010. During this period, he also served on professional leave as program manager for meteorology and oceanography at the National Science Foundation from 1974-1976, and

director of the Naval Arctic Research Laboratory (NARL) in Barrow from 1997-1980. Highlighting NSF Polar Ice Coring Program (PICO) 1989-1996 his 50 years' professional life, John regarded as most personally pleasing his interlude at NARL and years later his management experience with the that culminated in the world's deepest penetration at the time of the Greenland Ice Cap (with an eye to use of environmentally friendly drilling oils developed at UAF).

Condensed from *Daily News-Miner* Feb. 27, 2022



The Antarctic Society

www.antarctican.org

August 12-14, 2022 Burlington, VT Gathering Registration

Name (s) _____

Address _____

Email _____ Phone _____

Qty.

_____ Full Registration(s) - includes day programs, Reception on Friday evening, *Spirit of Ethan Allen* sunset dinner cruise on Lake Champlain on Saturday evening and the picnic on Sunday (\$175.00 per person **before** June 1, 2022, \$225.00 per person **after** May 31, 2022)

_____ Guest ticket(s) for Friday Reception, Saturday *Spirit of Ethan Allen* and picnic (\$90.00)

Guest(s): _____

Total amount enclosed: \$ _____

Refund policy: 100% prior to March 31, 2022; 50% April 1 – June 30, 2022.

Mail your check and registration form to:

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

Would you like to visit the Shelburne Museum at 1:00 p.m. on Thursday, Aug. 11? ___ Yes ___ No

Would you like to attend no-host dinner on Thursday evening in Burlington? ___ Yes ___ No

Do you or another of your registrants require handicapped access? ___ Yes ___ No

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



The Antarctic Society

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No. 4

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MESSAGE FROM THE PRESIDENT

Welcome to the summer newsletter. We're proud of our newsletters and cannot say enough about our current editors, Jeff Rubin and Richard Wolak, who have been at the job for a year now. We appreciate their efforts and are also grateful to those of you who have contributed articles and reviews. Most importantly, thank you for reading! You help us continue to be “by and for all Antarcticans.”

Our members have varied interests in Antarctica, and we strive to share compelling information, stories, and comradery. You'll be reading about our upcoming Gathering in Vermont – and we hope to see you there. Along with our newsletter and our great [website](#) of resources, Gatherings are a highlight of the Society. You may be surprised by the Antarcticans you'll bump into.

Recent years have sadly taken some members and friends. At our Gathering, we'll be sharing memories of them. We've also gained new members whom we happily welcome. Your Board of Directors and ad-hoc committee members have accomplished a great deal in the recent past to carry us through these transitional times. In addition to planning our Gathering, we've updated society documents and policies, organized more outreach, increased our social media presence, assisted with fundraising and orchestrating efforts to bring *Hero* artifacts home to Maine, scheduled on-line socials, held virtual lectures, shared recordings and podcasts on our website, coordinated with young historians, honored members who've passed, received and cataloged archival items, maintained healthy financials, and published excellent newsletters. We do all this with our members in mind, sharing an appreciation of Antarctica's global importance.

Steve Dibbern recently retired from the Board of Directors, and we thank him for his years of commitment and contribution. Please let us know if you know someone who may be interested in serving on the board. This is a wonderful organization to be part of. Tell your friends or better yet — invite them to Burlington in August!

Thank you for your membership and interest in Antarctica. It makes this difficult world a better place.

Liesl Schernthanner, President

2022 Gathering Home Stretch

by Tom Henderson



Burlington Fireworks, July 3, 2022

The Aug. 12-14, 2022 Gathering in Burlington, Vermont is only a few weeks away and the momentum continues. 90 people are now registered, a clear indication that our first Gathering in four years will be a success! If you've been “on the fence” about attending, please join your Antarctic friends and colleagues for a great time of reconnecting and sharing in a vibrant and beautiful New England setting. See more about the venue, events, and scheduled speakers by going to www.antarctican.org/2022-gathering.

Heading the list of Antarctic-related items to be auctioned on Sat. Aug. 13 is a week-long stay at Paul Dalrymple's former house at Port Clyde, Maine during 2023. The house is the site of memorable past Gatherings. Located on mid-coastal Maine, it is on the water near the historic Marshall Point lighthouse and the fishing village of Port Clyde. Other items include Antarctic paintings by environmental artist and Society member Alan Campbell, a bottle of recreated Scotch originally made for the 1907 Shackleton expedition, a limited-edition print of *Que Sera Sera* (the first aircraft to land at the geographic South Pole), an Antarctic-themed collection of music by member Valmar Kurok, films, books, medallions and more. To see a partial list of items, go to the website page above.

If you're looking for Gathering housing, the Russell Compound, a 30-minute scenic drive south of Burlington, still has openings. See <https://fancyroamervacations.com/>. The more people who sign up, the less the cost for each. Do not sign up on the website above; if interested, please contact Tom Henderson at webmaster@antarctican.org or 518-888-0387.

A complete Gathering Planning Guide is on our website. A link to it is on the Gathering web page. It has everything you need to know about the Gathering and its events.

Sign up soon. See you there!

Virtual Lecture on Zoom, July 26: The Genesis of *Elephant Island*, a Historical Fiction



The Antarctic Society is hosting a Virtual Lecture via Zoom, July 26, 2022, at **6:00 pm ET.**: The genesis of *Elephant Island* — evolving plot, motivation, and research of an Antarctic novel by Todd Gipstein (www.gipstein.com). Todd, a photographer, writer, and producer, lectures on National Geographic expeditions. Find out more about this event on our website. To join the Zoom lecture:

<https://us02web.zoom.us/j/83305618652?pwd=YlZ0Q2pNb0tqMFFlV1JBeGt5djdNZz09>

Meeting ID: 833 0561 8652, Passcode: 677289

Bringing Pieces of *Hero* Home

By Charles Lagerbom

There is exciting news about the Antarctic Society's effort to help save something of the *R/V Hero*, the National Science Foundation's floating wooden science platform which did yeoman-like service in South American, Cape Horn, Drake Passage and Antarctic Peninsula waters for 16 years. As many know, it sank in a 2017 winter storm at its dock in the Palix River at Bay Center, Washington. Since then, the derelict vessel has been rapidly deteriorating and become an environmental concern. The state of Washington's Department of Natural Resources (DNR) has taken control of the situation and appropriated monies to salvage and remove it this summer. They have contracted with a salvage company and at last report were waiting for seasonal water levels to recede to begin work.

The Antarctic Society expressed interest to the DNR about the possibility of obtaining pieces of the historic ship during these salvage operations to return to Maine, where *Hero* was built in 1968 at the Harvey Gamage Shipyard in South Bristol. DNR has agreed for the Society to take responsibility for some salvaged items, provided they are removed from the area. RB Browns Transportation was approached and has agreed to provide the service to potentially ship up to six tons of salvaged material back to Maine.

Staff and board members of the Penobscot Marine Museum in Searsport, Maine have been approached about receiving, preserving and exhibiting any *Hero* items we might be able to bring back. They are interested in the story of this vessel and its contributions to Antarctic science and Maine maritime history. Antarctic Society members are also working on a manuscript for publication on the history and life of the ship.

As of July 1st, we have successfully raised funds dedicated to transporting *Hero* remnants back to Maine from Bay Center, Washington. It is very

gratifying to have heard from several Society members as well as many others who donated and conveyed interest in this effort. The Society also hopes to have some members on hand at Bay Center for the salvage effort as well as to coordinate with RB Browns Transportation. Stay tuned!

Historic Artefacts Discovered

New Zealand Antarctic Heritage Trust (NZAHT)

Historic artefacts around Captain Scott's Terra Nova hut at Cape Evans, left behind by expeditions of the Heroic Age, were made visible to the NZAHT conservation team due to the lack of winter snow accumulation and high snowmelt. Items included a dog hospital, mutton carcasses, *Aurora*'s second anchor (with shackles still attached) and a pickaxe.



Aurora's second anchor with Scott's 'Terra Nova' hut in the background. © Antarctica New Zealand/Anthony Powell

Program Manager Al Fastier says the objects either weren't recorded or hadn't been seen for decades. He found the mutton carcasses, still wrapped in muslin, after taking a routine walk to inspect the site at the start of the season.

The mutton would have been picked up in New Zealand on the way to Antarctica by either Scott's British Antarctic Expedition (1910-1913) or Shackleton's Ross Sea party of the Imperial Trans-Antarctic Expedition (1914-1917) and then stored in the snow cave.

While Al has been visiting the site since 1987, he was fascinated to see the mutton carcasses for the first time. The carcasses were recorded in the Cape Evans conservation and archaeological plans of the site and known to be in an ice cave. "I love my job and am always amazed that I keep on learning and seeing more after visiting the sites so many times," says Al.

A second ice cave revealed a hardwood bench that was used for gravity measurements. This had been partly exposed in previous seasons, but this was the first time the Trust's teams had seen it fully exposed.

Al says the dog hospital is a particularly interesting find, with the remains of small stretchers made out of Venesta cases and bamboo. He believes the stretchers were used to transport injured dogs around the site. Archaeologists mapped the area in the 1980s and 90s. While they identified many items, mapping did not reveal the full extent of these finds.

The *Aurora's* second anchor, one of two (the other is exposed most seasons) is typically buried under snow and ice and it is rare to sight part of it, let alone the whole anchor. Al says the position of the anchor on the beach shows the enormous determination and strength of those who dragged it ashore to anchor the ship. The pickaxe revealed on the southern axis of the site would have belonged to one of the expeditions, says Al.

AHT have formally recorded the location of these artefacts and will follow professional best practice in dealing with them in the future. Artefacts in the environs are individually assessed for any emergency stabilization needs, but typically are left in situ as part of the historical context.

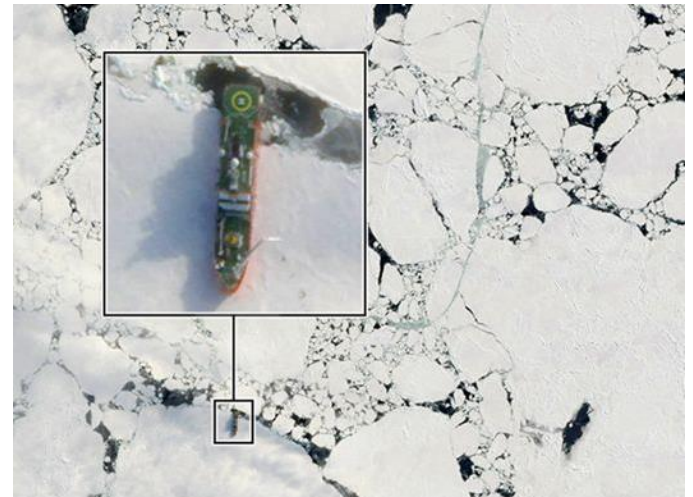
Scott's *Terra Nova* hut houses over 11,000 historic artefacts, all conserved by the Trust as part of the Ross Sea Heritage Restoration Project.

Nations Seek to Protect *Endurance* Wreck

by Jonathan Amos, BBC Science correspondent

A 500m perimeter is being implemented to aid the protection of Shackleton's ship *Endurance*. The vessel's position on the Weddell Sea floor was identified on March 5th, 107 years after its sinking.

Member states of the Antarctic Treaty have already declared the wreck, which lies in 3,000m of water, a Historic Site and Monument (HSM).



Icebreaker Agulhaus II near the site of the *Endurance* wreck in the ice-choked Weddell Sea. Source: Planet Labs Inc.

Now they have asked for a management plan to guide its ongoing conservation. This will be drawn up by the UK Antarctic Heritage Trust (UKAHT). It will determine the kinds of restrictions and responsibilities that will be placed on anyone who goes near *Endurance* in the future. Even now a permit is required to visit the ship.

It's noteworthy that the Treaty parties have agreed to publish the exact coordinates of the wreck, at 68°44'21" South, 52°19'47" West. A little vagueness might have been regarded as more appropriate given the way some marine archaeological sites have been looted in the past. "At present, its best protection is its location 3,000m below an ice-covered Weddell Sea," said Amanda Milling, the minister responsible for polar regions at the Foreign, Commonwealth & Development Office (FCDO). "That may not be forever, not least due to climate change and shrinking sea ice...we have commissioned the UKAHT to work with experts to prepare a conservation management plan, and to consider whether additional protection measures are needed. We have already declared it a historic site and Antarctic Treaty members have agreed to increase the protection zone around it from 150m to 500m.

The UKAHT expects to have a management plan ready for consideration by Antarctic Treaty members at a meeting next year.

Royal Navy Icebreaker Provides Support to Ukrainian Antarctic Scientists

By Ben Mitchell, PA, 5 March 2022



HMS Protector crew and Vernadsky Station staff show their joint solidarity. © Royal Navy

The crew of the Royal Navy's icebreaker ship have provided "support and solidarity" to Ukrainian scientists based in Antarctica. Plymouth-based *HMS Protector* called in Vernadsky research station, staffed by 21 scientists from the war-torn country.

The navy crew, who delivered food and supplies, described hearing how the Ukrainians had families trapped by the Russian invasion.

HMS *Protector* Captain Michael Wood said: "During time spent ashore, the team confirmed the welfare of the 21 scientists who had spent the winter at Vernadsky. Welcome supplies of fresh food were passed to the station leader. Many of the station staff reported families stranded under attacks in Kharkiv and Kyiv."

The Ukrainian research base is located on Galindez Island off the west coast of the Antarctic Peninsula. It was originally established as the British Antarctic Survey's Faraday Station but was transferred to Ukraine in early 1996.

Antarctica's Magnetic Link to Ancient Neighbors

British Antarctic Survey (BAS)

For the first time, an international team of scientists has used satellite magnetic data from ESA's Swarm mission, together with aeromagnetic data, to help reveal the mysteries of the geology hidden beneath Antarctica's thick ice sheets and link Antarctica better to its former neighbors.

Not only is Antarctic sub-ice geology important to understand global supercontinent cycles over billions of years that have shaped Earth's evolution, but it is also pivotal to comprehend how the solid Earth itself influences the Antarctic ice sheet above.

The research team from Germany's Kiel University, BAS and National Institute of Oceanography and Applied Geophysics, and Witwatersrand University in South Africa has recently published their findings in the Nature journal *Scientific Reports*.

Their new study shows that satellite and aeromagnetic data combined together provide a key missing link to connect Antarctica's hidden geology with formerly adjacent continents, namely Australia, India and South Africa that formed keystones of a continent called Gondwana.

Thanks to magnetic data from the Swarm mission, along with airborne measurements, scientists are able to link Antarctica to its ancient neighbors with which it has shared a tectonic history that needs piecing together like a puzzle.

The team processed aeromagnetic data from aircraft from over Southern Africa, Australia and Antarctica in a consistent manner with the help of Swarm satellite magnetic data.

Aeromagnetic data do not cover everywhere on Earth, so magnetic models compiled from Swarm data help to fill the blanks, especially over India where aeromagnetic data are still not widely available. Furthermore, satellite data help to homogenize the airborne data, which were acquired over a period of more than 60 years and with varying accuracy and resolution.

Lead author Jörg Ebbing, from Kiel University, explains: "With the available data, we only had pieces of the puzzle. Only when we put them

together with satellite magnetic data, we can see the full picture.” The combined datasets provide a new tool for the international scientific community to study the cryptic sub-ice geology of Antarctica, including its influence on the overlying ice sheets.”

Gondwana was an amalgam of continents that incorporated South America, Africa, Arabia, Madagascar, India, Australia, New Zealand and Antarctica. As the tectonic plates collided in the Precambrian and early Cambrian times (600-500 million years ago), they built mountain ranges comparable to the modern Himalayas and Alps. This supercontinent started to breakup in the Early Jurassic, 180 million years ago, ultimately leaving Antarctica stranded and isolated at the South Pole and covered in ice for around 34 million years.

Using the new magnetic data, the animation illustrates how the tectonic plates have moved over millions of years after the breakup of Gondwana.

Fausto Ferraccioli, Director of Geophysics at the National Institute of Oceanography and Applied Geophysics in Italy, and also affiliated with the British Antarctic Survey says: “We have been trying to piece together the connections between Antarctica and other continents for decades. We knew that magnetic data play a pivotal role, because one can peer beneath the thick Antarctic ice sheets to help extrapolate the geology exposed along the coast into the continent interior.

“But now we can do much better. With the satellite and aeromagnetic data combined, we can look down deeper into the crust. Together with plate reconstructions, we can start building tantalizing new magnetic views of the crust to help connect geological and geophysical studies in widely separated continents. Ancient cratons and orogens in Africa, India, Australia and East Antarctica are now better connected magnetically than ever before.”

Antarctic Glaciers Losing Ice at Fastest Rate in 5,500 Years

by Caroline Brogan, Imperial College London

At the current rate of retreat the vast glaciers, which extend deep into the heart of the ice sheet,

could contribute as much as 3.4 meters to global sea level rise over the next several centuries.

Antarctica is covered by two huge ice masses: the East and West Antarctic Ice Sheets, which feed many individual glaciers. Because of the warming climate, the WAIS has been thinning at accelerated rates over the past few decades. Within the ice sheet, the Thwaites and Pine Island glaciers are particularly vulnerable to [global warming](#) and are already contributing to rises in sea level.



Thwaites glacier, which is nearly the size of Great Britain. Credit: NASA

Now, a new study led by the University of Maine and the British Antarctic Survey, including academics from Imperial College London, has measured the rate of local sea level change—an indirect way to measure ice loss—around these particularly vulnerable glaciers.

They found that the glaciers have begun retreating at a rate not seen in the last 5,500 years. With areas of 192,000 km² (nearly the size of the island of Great Britain) and 162,300 km² respectively, the Thwaites and Pine Island glaciers could cause large rises in global sea level.

Co-author Dr. Dylan Rood of Imperial's Department of Earth Science and Engineering says that they "reveal that although these vulnerable glaciers were relatively stable during the past few millennia, their current rate of retreat is accelerating and already raising global sea level."

"These currently elevated rates of ice melting may signal that those vital arteries from the heart of the West Antarctic Ice Sheet have been ruptured,

leading to accelerating flow into the ocean that is potentially disastrous for future [global sea level](#) in a warming world. Is it too late to stop the bleeding?"

The paper is published in *Nature Geoscience*.

During the mid-Holocene period, over 5,000 years ago, the climate was warmer than today and thus sea levels were higher and glaciers smaller. The researchers wanted to study fluctuations in sea level since the mid-Holocene, so studied the remnants of old Antarctic beaches, which are today elevated above modern sea level.

They examined seashells and penguin bones on these beaches using radiocarbon dating. When heavy glaciers sit on the land, they push down the Earth's surface. After the glaciers' ice melts, the land rebounds so that what once was a beach is now higher than sea level. This explains why the local sea level for this land fell, while globally the water from the melting ice caused global sea levels to rise.

By pinpointing the precise age of these beaches, they could tell when each beach appeared and therefore reconstruct changes in local, or 'relative,' sea level over time. The results showed a steady fall in relative sea level over the last 5,500 years, which the researchers interpret as a result of ice loss just prior to that time. This pattern is consistent with relatively stable glacier behavior with no evidence of large-scale glacier loss or advance.

They also showed that the rate of relative sea-level fall since the mid-Holocene was almost five times smaller than that measured today. The scientists found that the most likely reason for such a large difference is recent rapid ice mass loss.

The researchers also compared their results to existing global models of the dynamics between ice and the Earth's crust. Their data showed that the models did not accurately represent the sea-level rise history of the area during mid- to late-Holocene based on their data.

Although their data do not exclude the possibility of minor fluctuations of the Thwaites and Pine Island glaciers over the past 5,500 years, the researchers concluded that the simplest interpretation of their data is that these glaciers have been relatively stable since the mid-Holocene until recent times—and that the present rate of glacier

retreat that has doubled over the past 30 years is, indeed, unprecedented over the last 5,500 years.

Lead author Professor Brenda Hall of the University of Maine says that "relative sea-level change allows you to see large-scale crustal loading and unloading by ice...glacier readvance, which would result in crustal loading, would slow the rate of relative sea-level fall or potentially even cause submergence of the land below sea level."

Thanks a Krillion: Antarctic Voyage Delivers Breakthrough Science

Australian Antarctic Division

Minister for the Environment Susan Ley said the Australian Antarctic Program research on CSIRO Research Vessel *Investigator* will help protect krill from over-harvesting and would be used directly by international bodies such as the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) in addressing long term impacts on the ecosystem.

"I congratulate the teams, who over eight weeks, have achieved some extraordinary breakthroughs with the deployment of new camera technologies providing insights to the life of krill that we've never had before," Minister Ley said.

"The importance of understanding and protecting krill populations cannot be overstated and at a time when commercial krill fishing is looking to expand into new areas, this research will play a critical role in ensuring sustainable catch limits."

Dr. So Kawaguchi, the voyage's Chief Scientist, said the use of novel technologies enabled pioneering projects to be undertaken: "We anchored three special cameras and echo sounders on a range of different sea beds, where they'll record krill at depths of up to 1500 meters over the next year or so, including when covered by ice during winter. This will give us completely new information."

"For the first time ever, scientists on board were also able to deploy our new camera system designed to provide a 3-dimensional krill's-eye view of their swarms in the Southern Ocean. We found a krill super-swarm that was 3,200 meters long, 300 meters wide, and 100 meters thick, the size of

which I've never encountered before in my career," he added.

More than 80 fin and humpback whales feeding on krill converged on this super-swarm alone. Throughout the voyage, scientists sighted more than 1400 whales and hundreds of seals and penguins.

"Now our challenge is to turn all this data into a reliable estimate of krill biomass in this region," said Dr Kawaguchi.

Dr Tara Martin, Facilities Program Director of the CSIRO Marine National Facility, said it was a record-breaking voyage.

"The voyage took RV *Investigator* further south and further west than ever before.... These research voyages are crucial to help us better understand Australia's vast marine environment and ensure the prosperity of our growing blue economy."

The voyage was supported by the Australian Antarctic Division, Pew, Australian Antarctic Program Partnership and the Antarctic Science Foundation, and by a grant of sea time and science support on RV *Investigator* from the CSIRO Marine National Facility.

Polar Star's 25th Voyage to Antarctica

Posted by Seapower Staff



**U.S. Coast Guard Cutter Polar Star
U.S. COAST GUARD / Petty Officer 3rd Class
Diolanda Caballero**

The 157 crewmembers of the U.S. Coast Guard Cutter *Polar Star* (WAGB 10) arrived at McMurdo Station Feb. 7 following an 86-day transit from its Seattle homeport on Nov. 13. This deployment

marks *Polar Star's* 25th journey to Antarctica supporting Operation Deep Freeze.

Polar Star reached the Ross Sea on Jan. 3 and commenced breaking the 37 miles of ice that extended from the ice pier in Winter Quarters Bay at McMurdo out to open water. *Polar Star* spent four weeks breaking ice and grooming the shipping channel. The crew's efforts were aided by favorable winds and currents and by month's end they had created an open approach for supply vessels *Maersk Peary* and *Ocean Giant* to offload over eight million gallons of fuel and 1,000 cargo containers. Together the ships carry enough fuel, food, and supplies to sustain USAP operations until the next sealift opportunity in the austral summer of 2023.

Polar Star will also partner with the Royal New Zealand Navy's largest ship, *Aotearoa*, in support of resupplying Scott Base.

This year also marks the *Polar Star's* return to Antarctica following the COVID-19 pandemic. In the 2020-2021 season, *Polar Star* conducted a winter Arctic deployment, during which the cutter trekked to the Arctic Circle to project constructive presence in the northern high latitudes under winter conditions and train the next generation of polar sailors.

Research Links Warming to Fish Decline

National Science Foundation, Feb. 23, 2022

A long-term study in the Southern Ocean reveals a correlation among warming waters, decreased sea ice and reduced abundance of Antarctic silverfish. These small fish are important prey for penguins, seals and other marine life.

The study was published in the journal *Communications Biology*. Lead author Andrew Corso of the Virginia Institute of Marine Science says, "This is the first statistically significant relationship reported between sea ice and the long-term abundance of any Antarctic fish species. With continued regional warming, these fish could disappear from the region entirely, triggering major changes in the marine ecosystem."

Co-authors on the study are Deborah Steinberg and Eric Hilton of VIMS, along with Sharon

Stammerjohn at the University of Colorado Boulder.

The study is based on an analysis of more than 7,000 larval fish specimens collected over 25 years (1993–2017) as part of the [NSF-funded Palmer Long-Term Ecological Research program](#). The Palmer LTER is an ongoing investigation of the effects of climate change on the ocean food web along the west coast of the Antarctic Peninsula.

"The West Antarctic Peninsula is one of the fastest-warming areas on Earth, so studies there are important to helping us understand the ecosystem's response to change," says Karla Heidelberg, a program director in NSF's Office of Polar Programs.

Steinberg adds that "the study area is one of the most rapidly warming regions on Earth, with increases in air and water temperatures leading to substantial reductions in sea-ice coverage over the last half century." From 1945 to 2009, the mean winter air temperature in the region rose by 10.8° F (6° C), while the annual duration of sea ice decreased by almost two months.

Antarctic Fishing Conservation Feud Divides US and UK

by Joshua Goodman, Associated Press, June 2022

A diplomatic row is dividing the normally allied U.S. and U.K. governments in response to provocations from Russia over catch limits of the meaty Patagonian toothfish, commonly known as Chilean sea bass, one of the world's highest-fetching wild-caught fish, sold for \$32 a pound at Whole Foods and served up as meaty fillets on the menus of upscale eateries across the U.S. The feud could lead to an import ban on the fish, which U.S. officials insist is being caught unlawfully in violation of rules governed by the Antarctic Treaty.

Russia's obstruction of longstanding conservation efforts, resulting in a unilateral rejection of catch limits for the Patagonian toothfish in a protected region near Antarctica, has triggered a fish fight at the bottom of the world, dividing longtime allies, the U.S. and U.K. governments.

The feud, which has not been previously reported, intensified after the U.K. quietly issued

licenses this spring to fish for the sea bass off the coast of South Georgia, a remote, uninhabited U.K.-controlled Island some 1,400 kilometers east of the Falkland Islands.

As a result, for the first time since governments banded together 40 years ago to protect marine life near the South Pole, deep-sea fishing for the pointy-toothed fish is proceeding this season without any catch limit from the 26-member Commission on the Conservation of Antarctic Marine Living Resources (CCAMLR).

The move essentially transformed overnight one of the world's best-managed fisheries into a France-sized stretch of outlaw ocean — at least in the eyes of U.S. officials threatening to bar U.K. imports from the area.

"In a world beset by conflict, the U.K. is playing a risky game," said Will McCallum, head of oceans at Greenpeace U.K. "The history of Antarctic protection is one of peaceful cooperation for the common good of humanity. Russia's consistent willingness to abuse the process cannot excuse unilateral action by other Members. We trust that countries who have previously imported South Georgia toothfish will not accept the catch of what is now an unregulated fishery."

For decades, the fishery near South Georgia was a poster child for international fisheries cooperation, one that brought together sometimes adversarial powers like Russia, China and the U.S. to protect the Southern Ocean from the sort of fishing free-for-all seen on the high seas.

Last year, as tensions with the West were rising over Ukraine, Russia took the unprecedented step of rejecting the toothfish catch limits proposed by the Antarctic commission's scientists. The move was tantamount to a unilateral veto because of rules, common to many international fisheries pacts, that require all decisions to be made by unanimous agreement.

But critics say the U.K.'s response — issuing licenses without a CCAMLR-approved catch limit — is unlawful under the commission's rules and weakens the Antarctica Treaty established during the Cold War that set aside the continent as a scientific preserve. U.S. officials have also privately told their U.K. counterparts that they would likely

bar imports of any toothfish caught near South Georgia, according to correspondence between U.S. fisheries managers and members of Congress seen by The Associated Press.

The fight underscores how Russia's attempts to undermine the West have extended to even obscure forums normally removed from geopolitical tussles. It also risks reviving Britain's tensions with Argentina, which invaded South Georgia in 1982 during the Falkland Islands war.

But the outcome couldn't be more consequential: With fish stocks across the globe declining due to overfishing, consumers are demanding greater transparency about where the filets on their plates are sourced. Central to that effort is rules-based international fisheries management on the open ocean and environmentally sensitive areas like the polar regions.

"It sets a dangerous precedent," said Evan Bloom, who for 15 years, until his retirement from the State Department in 2020, led the U.S. delegation to the CCAMLR. "What the Russians did clearly violates the spirit of science-based fisheries management," added Bloom, who is now an expert on polar issues at the Wilson Center in Washington. "But that doesn't necessarily mean that the U.K. can act unilaterally."

Three of the four vessels authorized by the U.K. to fish near South Georgia starting May 1 belong to Argos Froyanes, a British-Norwegian company that pioneered techniques credited with dramatically reducing seabird mortality in the south Atlantic.

One of its customers is New York-based Mark Foods, the largest U.S. supplier of sea bass certified by the Marine Stewardship Council, the industry's gold standard for sustainability. CEO Barry Markman declined an interview request but said his company would not import any product deemed illegal by U.S. authorities.

An official from the government of South Georgia and the South Sandwich Islands, which issued the licenses in coordination with the U.K. foreign office, said it took action so as not to give in to obstructionist tactics by Russia that it doesn't expect will end anytime soon.

The fishery is one of the best managed in the world, with catch limits set by South Georgia below even the quota recommended by the Antarctic commission. In addition, all vessels authorized to fish near the island have observers and tamper-proof electronic monitoring equipment on board.

Officials say that closing the fishery would've taken valuable resources away from research and monitoring because about 70% of the island chain's budget comes from the sale of licenses.

But U.S. officials have taken a dim view of the U.K.'s actions. Janet Coit, a senior official at the National Oceanic and Atmospheric Administration, wrote in an April 25 letter obtained by the AP that in the absence of approved protections, any fishing near South Georgia would be of "questionable legality" and have "serious implications" for the Antarctic commission.

She also stated that any shipments of fish harvested in what's known as subarea 48.3 would likely be barred from entering the U.S., a preliminary view she said was shared with the U.K. government and U.S. importers to guide their decision-making.

"We recognize that fish from this subarea has represented a substantial percentage of toothfish imports," according to the letter, which was sent to a bipartisan group of seven House members concerned about the impact of a ban on the seafood industry. "However, we are bound by our obligations under the CCAMLR Convention, applicable conservation measures in force, and relevant U.S. law."

Under U.S. law, fishing conducted in a way that disregards conservation measures, such as catch limits, adopted by international fishery organizations to which the U.S. is a party, is considered illegal. Vessels that engage in such activity can be denied access to U.S. ports and blacklisted within the Antarctic commission framework.

Meanwhile, the U.K. has shown no sign of backing down. Even with no conservation measure in place, it insists it will continue to operate the fishery in the conservative way it always has, basing its decisions on the quota and other guidelines proposed by commission scientists.

“Russia egregiously blocked the agreed catch limits citing spurious scientific concerns not recognized by any other member of the CCAMLR,” the U.K.’s foreign office said in a statement. “The UK will continue to operate the toothfish fishery within the framework agreed by all CCAMLR Members.”

Fifty Years Ago at McMurdo Station

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FOUR RESCUED FROM ICE FLOE

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ANTARCTICA...2 DEC 1972

Three nations combined in a search operation today which climaxed in the rescue of four men from an ice floe in the Ross Sea, near the U.S. Navy’s logistic support base at McMurdo Station, Antarctica.

The three New Zealanders and one American are scientists on a project of the New Zealand Antarctic Research Program working at a remote field camp nearly fifty miles from their main New Zealand scientific station, Scott Base.

The search was mounted Friday evening when Major Peter Fraser, Scott Base Leader, flew to the field camp after the men failed to make radio contact with their headquarters for several days. When he found no trace of the missing men, he immediately alerted the U.S. Navy at McMurdo where Captain Alfred N. Fowler, Commander U.S. Naval Support Force Antarctica ordered a search instituted. Nearly twenty-four hours later the four Canterbury University (Christchurch, New Zealand) research students were spotted by Chief Aerographer’s Mate Alvin C. Boeger, a trained ice observer from the Fleet Weather Facility, Suitland, Maryland, on a small ice floe.

Chief Boeger spotted the men while returning to Christchurch, New Zealand aboard a Royal Air Force C-130 Hercules piloted by Squadron Leader Peter Forrester. They were soon picked up by an Antarctic Development Squadron Six (VXE-6) helicopter piloted by Lieutenant Al Costlow of Sidman, Pa. and LTJG Jeff McComas of Warren,

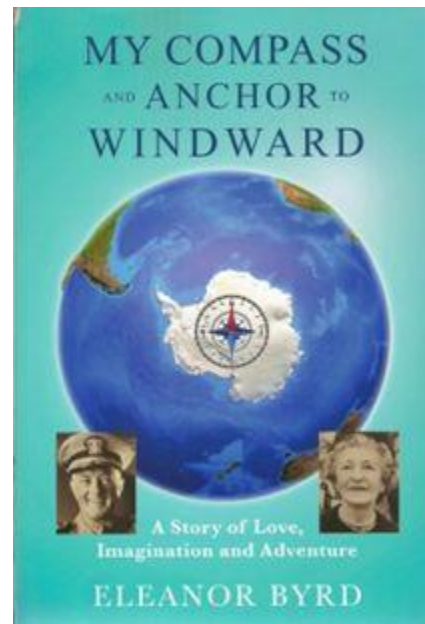
Pa., who sat their craft down on the small piece of floating ice to effect the rescue.

Hercules aircraft of Great Britain and the U.S. Navy as well as a C-141 USAF Starlifter and Navy helicopters combined to total more than 30 hours in the search and rescue mission.

The four men were suffering from exposure and hunger from their five day ordeal, but appeared to be in good condition otherwise. It was not immediately forthcoming what caused them to become separated from their land base at Cape Bird or what had happened to their trimaran from which they collected biological samples, as they were taken by ambulance to McMurdo’s medical ward for treatment and rest.

Book Review: *My Compass and Anchor to Windward* by Eleanor Byrd

Review by Guy G. Guthridge



Eleanor Byrd says her new book *My Compass and Anchor to Windward* (583 pp, 2021, \$25) is “a historical novel as I want the reader to really know my grandparents.” The book is a valuable complement to the biographies by Edwin P. Hoyt (*The Last Explorer*, 1968) and Lisle A. Rose (*Explorer: The Life of Richard E. Byrd*, 2008). In addition to providing perspective on Byrd’s life between expeditions, it explains in detail Marie

Byrd's necessary and critical role throughout Dick's personal and professional life.

The book is more than a reminiscence. Byrd died when Eleanor was 4. Marie lived another 17 years, and the author of course gained insight as well from her mother Bolling Byrd Clarke and other members of the Byrd family. The volume also is a result of archival research and access to the large number of detailed and expressive personal letters between Richard and Marie. Their correspondence is a substantial and useful part of the book.

The letters began early and continued throughout their lives. They met in Winchester, Virginia, where Richard grew up, when both were 8. That first summer, after a month together, they agreed to write each other when Marie went home to Boston. She returned summer after summer. Dick's letters to Marie have been saved, and quotes in the book are his, word for word. Only half of Marie's letters were available; "the rest I took the liberty of writing for her," Eleanor writes.

The details of their backgrounds and personal lives – their at-home lives – that are provided help to explain the base for success in planning and raising money for Byrd's expeditions. The couple were both from prominent families, with prestigious educations and the learned ability to participate in the upper-class formalities of the era. "As for being a gentleman," Dick wrote to Marie when a teenager, "I like knowing how. It opens up people, as there is no off-putting behavior coming at one and therefore can allow doors to open in friendship between countries and so on." Marie, replying from the Sacred Heart Finishing School, wrote, "Our manners have to be perfect in all ways because manners are helpful to the training of character; they correct self-control and attention and consideration of others."

Dickie Byrd growing up was adventurous, and later while he was away Marie proved formidable managing expedition budgets and holding off unscrupulous reporters. Dick's brothers were more conventional than he. As kids, the boys were united when fighting off rival gangs around Winchester, but Tom and Harry walked the path through the woods while Dick was standing on his head up a tree. (Harry became Governor of Virginia and later

a U.S. Senator; Tom, successful in business.) Eleanor Byrd's book is rich with anecdotes that fill in our understanding of who Dick Byrd was when he was not on a pioneering flight or a polar expedition.

Throughout his life, Byrd at home played elaborate tricks with and for his kids and grandkids. This book helps with understanding that Byrd, while meticulous with planning, had a wild or even self-indulgent streak. His biggest mistake, wintering alone at Advance Base during the second Byrd Antarctic Expedition, is more understandable knowing the background Eleanor Byrd lays out for us. His decision to feature that adventure in what many think of as his best book, *Alone*, also is consistent with what's presented in *My Compass*.

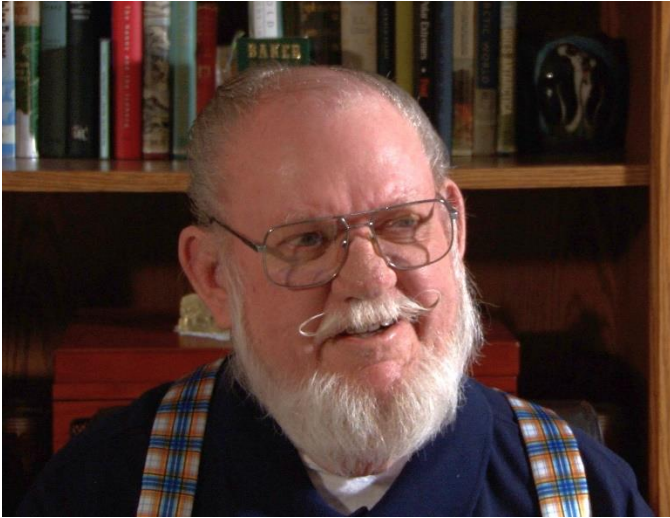
Byrd is a towering figure for Antarcticans. Historian Kenneth Bertrand, noting the huge popularity of BAE 1 and 2, writes that, "As a result, Marie Byrd Land became, in the popular mind, peculiarly American." A roadside historical sign in Winchester states that Byrd is the "father of the Antarctic Peace (sic) Treaty." For Byrd scholar and neophyte alike, *My Compass and Anchor to Windward* is an important and enjoyable volume, with fresh insights into how the U.S. became prominent in Antarctic science and diplomacy.

RMC Billy-Ace Baker USN (Ret.), 1936-2022

by Tom Henderson

Billy-Ace Baker passed away at home from esophageal cancer on July 3, 2022. He was born in Oklahoma City, Oklahoma in 1936 and lived there until he joined the U.S. Navy at age 18. He was trained as a communications technician and started in submarine service before being assigned to winterover with the Seabees at McMurdo Station, Antarctica in 1962. He liked the winterover duty so much, he volunteered to go back in 1966, 1970, and 1974. He subsequently returned to serve in Antarctic summer seasons from 1975-80. His primary duties involved handling message traffic, including official Navy traffic, communications with remote science camps and relaying weather information from U.S. and foreign Antarctic

stations. He also managed the amateur radio phone patches for people at McMurdo.



Billy-Ace Penguin Baker

Billy-Ace was a contributor to the *McMurdo SomeTimes*, a locally produced newsletter for McMurdo personnel. He wrote a regular column of Antarctic news and history, as well as gossip and stories of interest to the McMurdo contingent.

He handled radio communications during the response and recovery after Air New Zealand Flight 901 crashed into Mt. Erebus in 1979, for which he received a Navy Commendation Medal.

In retirement, Billy-Ace was a founding member of the Old Antarctic Explorers Association (OAEA). His dedication to that group is legendary. He edited the group's *Explorers Gazette* newsletter and participated in the Board of Directors until his passing. His newsletters – which often ran 40 pages or more - were chock full of articles, mail from members, OAEA chapters news, obituaries and biennial coverage of the OAEA Reunions.

He was a bit eccentric in charming ways. He legally changed his name to “Billy-Ace Penguin Baker” and appeared at the courthouse for the ceremony in an outfit that closely resembled a penguin. He loved to tell stories, but it was seldom clear how much truth there was in them. It didn't really matter because they were such good stories. His home was virtually an Antarctic museum, filled with an extensive library of Antarctic books, various Antarctic memorabilia, and thousands of toy penguins of every conceivable size and variety.

Billy-Ace was close to his family and doted on his grandchildren. His daughter Kerry and other family and friends were with him in his final hours.

The Antarctic community has suffered a great loss. He will be long remembered.

CDR Maurice "Mo" Gibbs, USN (Ret.), 1934-2022

by Tom Henderson

Longtime Antarctic Society member Maurice Gibbs, of Nantucket, passed away peacefully at home on March 2, 2022 after a brief illness, surrounded by loved ones. He was 88. Much of his 34-year Navy career was spent in Antarctica.

Gibbs was a 12th generation Nantucketer, a direct descendant of one of the island's settlers, Tristram Coffin, and the great-great-grandson of Elisha Bunker, who was killed while whaling off the coast of Peru.



Maurice Gibbs in 2019 after winning the first ever Maurice E. Gibbs Commendation Award from Egan Maritime Institute for his work training individuals through the Auxiliary Coast Guard Boating Safety Classes.

Courtesy of the Egan Maritime Institute

As a youth, Gibbs developed into a talented pitcher, good enough to draw the eye of the Washington Senators at Joe Stripp's Baseball School in Orlando in 1951. But the Korean War draft had placed him number three on the Nantucket list, so he enlisted in the Navy.

Gibbs had no intention of making the Navy a career. “I was only going to do my four years, but

things sort of fell into place," he told Joshua Balling of *Nantucket Today* in 2011. In all, he participated in six expeditions to the bottom of the world, the first in 1955-56 to aid in the establishment of Little America V on the Ross Ice Shelf during Adm. Richard Byrd's last expedition.

"A lot of people don't understand about the conditions. Twice when I was the duty officer, we had major fires. You don't have water, you have to put it out with a powder, Fire is a great danger. If you spilled fuel on clothing, it was like cryogenics. It was so cold it would burn you instantly," Gibbs told *Nantucket Today*. "We had a whole set of rules you had to abide by. If it was below a certain temperature, you couldn't go outside. It didn't happen on my tours, but people were lost down there. It's a different life. The beauty is devastating, but the dangers are too. It can get you."

Gibbs found plenty to keep himself occupied, even, while wintering-over for 13 months in 1966-67. His official assignments varied from expedition to expedition and changed in scope as he rose through the ranks, but largely involved collecting meteorological data to ensure the safety of the Navy and scientific personnel in the area, and also collecting data for scientific analysis.

"My days were very busy. I took a lot of reading material with me. I was studying Russian, reading *War and Peace* and *Dr. Zhivago* in Russian. I spent a lot of my time reading and studying. I also studied English, Churchill's *History of the English-*

Speaking People. That was the only place I'd ever been that I made work for the crew. You need to keep busy down there. It's a mental health thing," he told Joshua Balling.

Gibbs recounted some of his funnier moments to Paul Dalrymple in 1995. "So many things happened that are comical now but were somewhat trying then. One was the Christmas service at Little America V. Since I was the organist for Chaplain Peter Bol, Admiral Byrd came up with the idea that I move the little pump organ outside and we all sing Christmas carols. I borrowed an officer's grey gloves, but after about 2 1/2 carols, I seized up. The fingers simply wouldn't function. Of course, I was in agony, but that was little appreciated at the time. The entry about this in my personal journal isn't printable, even today!

"As a postscript, years later ('66-'67) when wintering, I discovered a mercurial barometer among the piles in McMurdo's hillside of junk that I had packed for shipment to the ice while in Davisville in '56. It made it to the ice, yet 11 years later had not been unpacked. Miraculously, the writing on the shipping document was still legible, and I recognized my own handwriting on the slip. Such is the waste of Uncle Sam. I backloaded it to the States in January '68 when I came back to the ice briefly after wintering."

— (With additional information from Joshua Balling's article on Maurice Gibbs in *Nantucket Today*, July 22, 2011)



The Antarctic Society

www.antarctican.org

August 12-14, 2022 Burlington, VT Gathering Registration

Name (s) _____

Address _____

Email _____ Phone _____

Qty.

_____ Full Registration(s) - includes day programs, Reception on Friday evening, *Spirit of Ethan Allen* sunset dinner cruise on Lake Champlain on Saturday evening and the picnic on Sunday (\$225.00 per person).

_____ Guest ticket(s) for Friday Reception, Saturday *Spirit of Ethan Allen* and picnic (\$90.00).

Guest(s): _____

Total amount enclosed: \$ _____

Mail your check and registration form to:

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

Would you like to tour the Shelburne Museum at 2:00 p.m. on Thursday, Aug. 11? ___ Yes ___ No

Would you like to attend no-host dinner on Thursday evening in Burlington? ___ Yes ___ No

Do you or another of your registrants require handicapped access? ___ Yes ___ No

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



The Antarctic Society

VOLUME 22-23

OCTOBER 2022

No. 1

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IT WAS A SMASHING SUCCESS

A look back at the mid-August Antarctic Society Gathering in Burlington, VT evokes a feeling of enjoyment, camaraderie and time well spent. And, for a group that was well oriented to dealing with the exigencies of cruel nature, the weather could not have been better throughout all three days. I will quickly recount the highlights here, but a far better, fully illustrated, summary of the event can only be experienced on the Society website. There, Tom Henderson has provided the full chronology of the gathering along with pictures provided by several of the participants and videos of many of the presentations.

Participants who arrived by Thursday (August 11) were treated to the nearby Shelburne Museum prefaced by a group orientation by a museum curator. With 39 buildings spread out over 45 acres, it provided a good reason for another visit to Burlington in the future.

The organizing committee did a remarkable job of providing a broad range of relevant presentations. There were twelve over the two days with topics covering Antarctic history, art, tourism, engineering and icebreaker support, current USAP, and a very moving Memorial Film remembering those we've lost over the past several years.

The auction committee also provided a fascinating event, anchored by Jeff Rubin as a very capable (and profitable) auctioneer. Antarctic-themed articles of all kinds were swiftly bought up, with a week at Paul Dalrymple's home in Port Clyde, ME commanding the largest bid of the day. The generosity of bidders (more than \$5,000 raised) assured that financially, the Gathering would be in the black with some working capital to invest in planning for the next gathering.

Social events were exceptional. The Friday evening reception at a lakeside science center provided for great socializing and a spectacular sunset. The following evening was spent aboard the tour boat, *Spirit of Ethan Allen*, with more great food enjoyed on a flat lake and the enduring perfect weather. The Sunday morning picnic at nearby North Beach was the perfect wrap-up to a memorable weekend!

Dick Wolak, Co-Editor

Sexual Harassment Rife in USAP

by Jeff Rubin

"Every woman I knew down there had an assault or harassment experience that had occurred on ice," said one person interviewed (p. 32) in a 274-page report released Aug. 25 that says sexual assault, stalking and sexual harassment are widespread throughout the U.S. Antarctic Program.

Some 3,000 people - contractors, military personnel, scientists - deploy to the continent through USAP each year; about one-third are women.

"I know none of this is news to you, it's just a known fact around station. It's so self-evident that [it's] barely worth speaking out loud. [Sexual assault and sexual harassment] are a fact of life [here], just like the fact that Antarctica is cold and the wind blows." (p. 33)

"I have been told by many people...that I should never go to the South Pole without a partner because I'll be repeatedly harassed because everyone is just looking to hook up with someone for the season. That's also been my experience here: as soon as you are single, if you go to the bar...even [when you're] not at the bar, you're considered fair game. [You're] prey." (p. 34)

"Hell, my very first day at McMurdo I was told to stay clear of Building [X] unless I wanted to be raped." (p. 34)

Interviewees recounted a wide range of women's experiences that included men sitting in a group (including female colleagues) discussing "what brothels they prefer" and why; relentless questions at work about their dating status, sexual preferences, and even "what sexual positions [they] enjoyed;" a male supervisor attempting to break into women's bedrooms using his master keys; and a sexual assault on station during which the assailant slammed the victim's head into a metal cabinet and then attacked her sexually. A male interviewee also reported incidences of being groped by male and female colleagues; other men described hearing about female supervisors sexually harassing their male subordinates. Investigators, however, received far fewer reports of male victims; reports of

harassment of women were much more frequent and severe.

"I left because [I was] sexually assaulted. I didn't report it because, based on everything I'd seen so far, I assumed my company would fire me if I did." (p. 35)

"There was a woman [at McMurdo] who told me she carried a hammer around with her. And she is constantly changing rooms because she is so freaked out." (p. 37)

"I was thoroughly warned before ever spending time in McMurdo. I just make sure I never ever go to a party or bar unless I'm with a group of people I trust." (p. 37)

"People on station fear, and rightfully so, that if they are harassed or assaulted and report it, they will be the ones who will be going home. When things happened on ice, the number one thing I heard was, 'don't report it or you will go home and be blacklisted from the program'...I saw this happen, people who stood up and reported that something had occurred and then they were fired and sent off ice." (p. 47)

"A friend once had a guy choke her while his penis was in his hand, threatening her to call me to have a threesome with them (I had turned the guy down several times over the previous weeks) or he wouldn't stop. She told me but [she] refused to report it. I reported it anyway, but they just kept the guy around for a couple months while figuring out what to do. I avoided public places and took random routes to my dorm so he couldn't follow me." To "remedy" the situation, the interviewee said, the employer "ended up sending him to the South Pole for the rest of the season as a solution." (p. 47)

"Like a lot of people, I started in the [McMurdo] galley. Gender-based harassment is a daily occurrence for anyone who is female...the harassment endured by the stewards was an open secret - the station knows about it but no one's working to change it." (p. 101)

"There are a million examples of guys being obnoxious and inappropriate," Joni Zisman, who quit her job as IT manager at McMurdo, told *Science* ("U.S. Antarctic Program has ignored sexual harassment," Sept. 16, 2022). "But what really pissed me off," Zisman continued, "was that

leadership has spent the past 2 decades laughing it off and retaliating against anybody who has tried to make things better." Zisman is one of four senior employees who left the Antarctic support contractor recently.

Elaine Hood is another. She left in July [Editors' note: actually, it was August] after more than 20 years in corporate communications for a series of lead contractors. "The unwritten rule ever since I started in the 1990s has been to keep your mouth shut...or you will be blacklisted," she told *Science*.

To read the entire final report, go to: [USAP SAHPR Report.pdf \(nsf.gov\)](https://www.usap.gov/SAHPR/SAHPR_Report.pdf).

Next Society Virtual Lecture Dec 6: "The British Graham Land Expedition: Cambridge College Halls in the Far South"



Scott Polar Research Institute <http://www.spri.cam.ac.uk/>

**BGLE Aeroplane and boat "Stella" 1937
Source: Scott Polar Research Institute Freeze Frame
Historic Polar Images**

The Antarctic Society is hosting a Virtual Lecture via Zoom, December 6, 2022, at 6:00 p.m. EST (12:00 PM New Zealand time) by Matt McArthur. Concurrent to Richard Byrd's all singing, all dancing Antarctic expeditions and Lincoln Ellsworth's (Sir Hubert Wilkins') small, tightly focused and well-funded forays, John Rymill led a small team south on a tiny budget. The British Graham Land Expedition achieved more than its contemporaries, whether we address outcomes on a per capita or on an outright basis. USNR-Ret

The BGLE operated efficiently and effectively, their competence precluding the sort of tragedies or misadventures that made other expeditions stick in the popular imagination.

This presentation aims to do its small part in fostering greater awareness of what the heirs of James Wordie and Gino Watkins and the precursors to the FIDS achieved during their two years in the far south.

Matt McArthur's fascination for Antarctica steered his marine biology career ever further south: from Melbourne to Dunedin; and from Dunedin to Scott Base. Two austral summers working as a diver under the sea ice around Ross Island didn't scratch an itch so much as induce a rash and he returns to Antarctica in whatever capacity he can find to fill at every opportunity. Matt began publishing his understanding of Antarctic history through the monthly podcast series "Ice Coffee" a decade ago and sees at least another decade ahead to bring the narrative up to the present day. He lives in Melbourne with his wife from Detroit and their two teenage children from planet Puberty.

Arpad Joseph Toth, 1924-2022

by Lesley C. Arnold



CDR Arpad Joseph Toth, USNR-Ret.
Arpad Joseph Toth, Commander USNR-Ret, passed away peacefully at the age of 97 on Friday, March

4th, 2022, at The American House in Keene, NH, surrounded by family. Arpad was born in Tonawanda, NY, in 1924, to the late Emma (Szely) Toth and Arpad G. Toth who immigrated to the United States from Hungary after WWI. His parents ran a general store in Buffalo, NY, and when his father took a job in Canada, the family lived for a while in Edmonton, Canada. Arpad graduated from Riverside High School in Buffalo, NY, in 1941. After graduation he entered the US Navy officer training program and Naval flight school during WWII. Remaining in the Naval Reserves, he attended the University of Buffalo where he met his wife, Marjorie Lois Toth. At UB, Arpad lettered in billiards and wrestling and was in Sigma Alpha Nu fraternity; he graduated in 1948 with a degree in Education.

Recalled to active duty in 1951 he flew carrier-based planes in the Korean War. Subsequently, he became a landing signal officer on several Navy aircraft carriers while also becoming a flight school instructor teaching pilots to land on carriers. In the 1960s he was part of Operation Deep Freeze in Antarctica as the Operations Officer in charge of Williams Field, McMurdo Sound. Mount Toth, an Antarctic mountain, is named for him in honor of his service. He was honorably discharged from the Navy as a Commander in 1968, having earned the Antarctica Service Medal and the National Defense Service Medal.

While serving in the Navy, Arpad and his family lived in New York, Florida, Virginia, Minnesota, Rhode Island, Maryland, New Zealand, and Massachusetts (where he earned a Master's Degree in Education and Counseling from Boston University). In the 1970's he settled down in southern New Hampshire. As a lifelong learner, he took advantage of Keene State College in subjects as varied as cinema studies and science and was instrumental in helping to set up the college's first Computer Science course in the 1970s. He was a computer science instructor at Keene State for over 10 years.

Always a fitness enthusiast, Arpad swam, golfed, and played handball and squash. In 1996, as a racquetball player, he was ranked #6 in the Head Racquet Sports Nationals for men aged 70+. As a Justice of the Peace for the state of New Hampshire, he officiated many weddings, including five of his

children and grandchildren.

Believing in giving back to the community, he volunteered at the Keene Community Kitchen for many years managing their computer systems, leading book chats and helping veterans. Passionate about civil rights, for over 20 years he wrote letters to the editor at the Keene Sentinel including conversations with "Dunn C. Head." Imploring people to think critically, each letter ended with, "There is still nothing, absolutely nothing, greater than a thinking human being whose nearest evolutionary relative is the chimpanzee." He was a member of the Humanist Association and American Atheists and for many years led a discussion group called The Dissenters.

While living on Wilson Pond in Swanzey, NH, he enjoyed spending time with his grandchildren and great grandchildren. He enjoyed feeding the fish that came to his dock, and the many birds that came to his feeders. A skilled pilot, he flew his Cessna plane out of Dillant-Hopkins Airport into his late 70's.

He had a twinkle in his eye, often a Manhattan in his hand, a Werther's Original for all, and words of wisdom for his friends and family: "Do good work," and "Goodnight and good luck." He is predeceased by his brother Carl Toth and his former wife Marjorie Lois Toth. He is survived by his son Jeffrey A. Toth and wife Christie of Providence, RI; his daughter Lesley C. Arnold of Easthampton, MA; daughter Tracey A. Bowman Kallman and husband Seth of Harrisville, NH; seven grandchildren and fourteen great grandchildren. A celebration of his life took place following a military burial at the Fort Devens Post National Veterans Cemetery in Devens, MA on July 1st, 2022 at 10 am. Any donations in Arpad's honor may be made to Hundred Nights, Inc, PO Box 833, Keene, NH 03431 (hundrednightsinc.org), or to The American Civil Liberties Union (ACLU.org).

Gaining STEAM: Artists and Writers in Antarctica

by Kirsten Carlson, Co-Chair, Antarctic Artists and Writers Collective

This article summarizes a talk delivered at the Society's Gathering in Vermont on 12 August 2022.

Ice is the beginning, and ice is the end of Antarctica. –Stephen Pyne, *Adequate Earth*

Since the 1980s, over 100 artists, writers, composers and performers have gone to the seventh continent, supported by the National Science Foundation (NSF) Antarctic Artists and Writers Program. As a result, thousands of paintings, poems, photographs, stories, sculptures, films, songs and musical compositions have been created and shared with audiences around the world. But it wasn't until 2019, when thirteen participants of the NSF program met and began to collaborate, that 50 years of collective creativity began swirling with all new potential.

In December 2020, we launched the Antarctic Artists and Writers Collective (AAWC). Our mission is to inspire and educate the public about Antarctica and its scientific exploration through collaborations in the arts among participants that have traveled to Antarctica through the NSF. Visit our website (www.aawcollective.com) to explore the work of 75 different artists, view past and future events and take a deep dive into some of our individual projects. Before you leave, don't forget to sign up for our newsletter and follow our social media links so you can stay up to date with us.

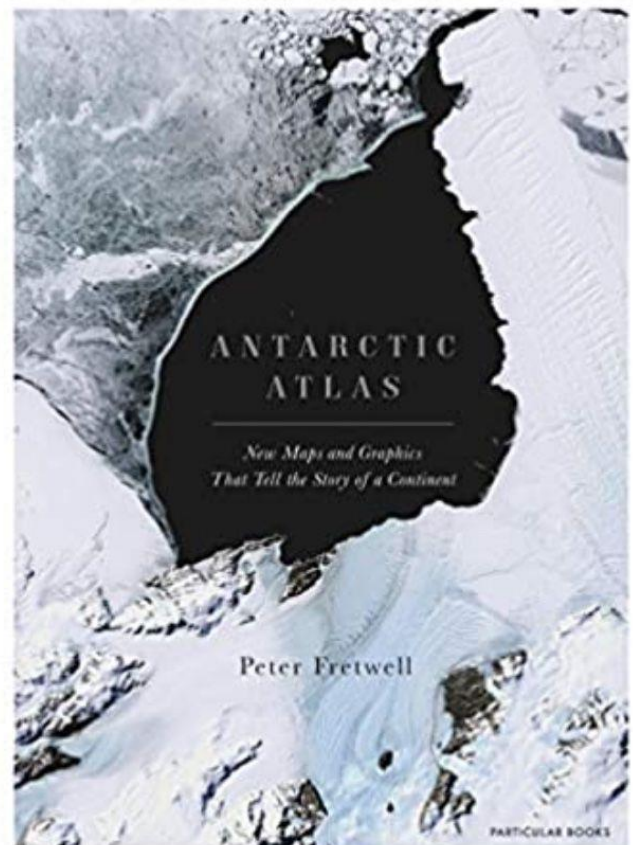
You can also explore our first collaboration from the comfort of your home — *Adequate Earth* (www.aawcollective.com/adequate-earth-exhibition). The online exhibition is organized into four themes: *Visual Dissonance and Artistic Practices* discusses the impact of the perceptual and cognitive challenges of an extreme environment; *Turning Space into Place* investigates how artists deployed to Antarctica reflect on the history of exploration, as well as place-making and community-building strategies; *Exploring the Natural Laboratory* explores how artists relate and communicate the scientific research they encounter on the continent ; and *Stories of Change* discusses how artists, writers, and musicians contribute to communicating the importance of Antarctica. With this exhibition and future events, we are finding creative ways to transport audiences to Antarctica while being able to remain on their own continents.

Other pathways we're exploring include how we can collaborate with The Antarctic Society. And,

developing synergistic collaborations with future participants of the Antarctic Artists and Writers Program. The National Science Foundation is restarting the program, after an almost three-year hiatus, as part of their new education and arts initiative called Polar STEAM (Science, Technology, Engineering, Arts and Mathematics). Collaborations between Antarctic artists, writers, composers and performers are not only gaining steam, they are creating a growing global Antarctic constituency.

***Antarctic Atlas* book review**

by Guy Guthridge



Back in 2020, Particular Books (of Random House, UK) published Peter Fretwell's *Antarctic Atlas: New Maps and Graphics That Tell the Story of a Continent* (208 pages). In August 2022 the 9½x12 inch hardbound volume was new to me when I nailed a copy at an auction during the Society's Gathering in Burlington, Vermont.

I kept turning the pages of this happy buy on the way home to Maryland, because it uses fresh graphics, sprightly text, and lovely photographs to tell a story that is familiar to most Society members. Fretwell is a cartographer and scientist at the British Antarctic Survey.

The volume has 70 sections in nine chapters: geography, ice, land, atmosphere, sea, wildlife, people, exploration, and future. The author gets creative with section titles, like “size matters,” “time machine,” and “international antics.”

Fretwell’s sense of fun comes as early as section 2, which, with a full-page graphic, describes what he identifies as the seven poles. Geographic, geomagnetic, and magnetic are familiar; then he shows us points (they aren’t “poles”) of inaccessibility, isolation, mass, and ignorance, the last “a term coined for the area we know the least about.” The two-page section is insightful and a nice refresher.

A vivid graphic distinguishes ice sheets from ice shelves. I wanted a better demonstration of the difference between land ice and sea ice, because the two types can confuse first-time tourists and others.

Don’t look for footnotes; there aren’t any. A three-page section near the back called “references, data sources, and further reading” is too cavalier for me.

I sensed parochialism. Section 54, “Antarctic skies,” says, “Two types of aircraft dominate the internal flight network: the Basler BT-67 and the de Havilland Twin Otter.” The ski-equipped LC-130, which revolutionized placing big summer camps almost anywhere and enabled otherwise infeasible international projects, gets no mention (but then only the United States has such).

The familiar pieces of pie showing the seven claims of sovereignty from the coast to the South Pole get their showing in section 49, along with the explanation that they are on hold “while the [Antarctic] treaty lasts. Governments often look at the long term in foreign affairs and want to keep their historical claims just in case.” That’s a fair statement in a book published in one of the claiming nations.

“Who lives there?” (section 47) is an uncomfortable construct. Forty narrow wedges or

pie slices, as if they were “claims” all the way to the Pole, are allocated to that number of coastal and inland stations; outer or northern limits correspond to the populations of each. A fat wedge labeled “unclaimed sector” shows no stations even though the huge, multiyear International Thwaites Glacier Collaboration is in it.

Section 4, “A continent of many lands,” crosses a line. It depicts 15 named “Lands,” most of whose designations have been in use for decades or centuries. It assigns to all but four a wedge to the South Pole because, Fretwell states, “the inland extent of each land was never specified.” The misleading graphic has little to no basis in the historical record. Wilkes Land, to pick a place named for an American, commemorates exploration by someone who never went ashore, and the United States Board on Geographic Names carefully describes the feature as “fronting on the Indian Ocean” because Charles Wilkes in a sea voyage “recognized the phenomenon of the continental margin over a distance of 1,500 miles of coast.” Queen Elizabeth Land, a new name that Argentina and Russia formally protested when the United Kingdom designated it “on the Queen’s Diamond Jubilee in 2012,” gets a fat claim-like pie slice.

My anti-claims rant is about just a couple of percent of an innovative and enjoyable book that deserves a place in your lap and on your shelf.

Like Father, Like Daughter: Antarctic Odysseys of Two Generations

by Lisa Crockett

This article summarizes a talk delivered at the Society’s Gathering in Vermont on 12 August 2022.

My father, Freddie Crockett, was a young Harvard student when he heard that Commander Byrd was mounting an expedition to Antarctica. He jumped at the opportunity to leave college in 1927, and train with Arthur Walden for dog handling and sledging at the Chinook Kennels in Wonalancet, NH. Also in training were two of my father’s friends, Eddie Goodale and Norman Vaughan; the three of them would become known on the first Byrd expedition as the “three musketeers.” The

three musketeers, along with Mike Thorne and John O'Brien were selected to accompany Dr. Laurence M. Gould on the 1500-mile sledging trip to explore the geology of the Queen Maud Mountains, and radio weather conditions to Little America in anticipation of the flight to the Pole. In addition to dog handling, Freddie was tasked with being radio operator. As Gould wrote about one of the scientific achievements in *Cold*, Thorne, Crockett, Goodale, and Gould herring-boned on skis to a saddle on Mount Nansen where they observed Beacon sandstone the same rock from Victoria Land described by Ferrar during Scott's *Discovery* expedition, confirming in Gould's words "...the most stupendous fault block mountain system in all the world."



Byrd I Geological Sledge Party 1929
L to R, seated: George Thorne Jr., Freddie Crockett,
Dr. Laurence Gould, Norman Vaughn
Standing: Eddie Goodale, John O'Brien
Credit: *Little America* by RADM Richard E. Byrd USN

My father was an exceptional storyteller, and I grew up listening. Growing up in New England, Dad taught me to have a passion for snow (winter is my favorite season), how to ski icy trails, and how to stay warm. As a kid, I used his sleeping bag from the sledging trip, and would lug all 14 pounds of it to ski huts, and to sleepovers, almost always overheating. When Dad died in 1978, I was in a place similar to where my father was in his early 20's; I had dropped out of college and was determined to find my way to Antarctica, to experience the continent that had played such a

profound part in my father's life. I wrote to Larry Gould, introducing myself as Freddie's daughter and explaining my desire to work in Antarctica. Larry suggested I contact Guy Guthridge, who recommended that I be in touch with the support contractor. With some persistence, I landed a job working in the administrative "chalet" at McMurdo Station, which I did for two austral summers ('80-'81 and '81-'82), and in 1982 and 1984 was hired by Dr. Art DeVries (who first characterized glycoprotein antifreezes in Antarctic fishes) to catch Antarctic toothfish (*Dissostichus mawsoni*) in McMurdo Sound. I resumed my studies so that I could build a career in Antarctic science and went to the University of Maine for graduate study with Dr. Bruce Sidell, who had received his first (of many) NSF grant to investigate metabolic cold adaptation in Antarctic fishes (Palmer Station, 1987-1991). At Palmer I met my husband, Dr. Patrick Hassett, an oceanographer. After landing a job at Ohio University and waiting until our two sons were old enough for me to venture south again, I began in 2008 a collaboration with Dr. Kristin O'Brien in what became three NSF grant cycles to examine physiological limits to elevated temperatures in both red-blooded (with hemoglobin) and white-blooded (lacking hemoglobin - icefishes) Antarctic fishes.

In conclusion, I will paraphrase Larry Gould's words from *Cold* and say that I would prefer to go back to the Antarctic and learn something new about Antarctic fishes than discover three gold mines.

Richard E. Byrd and his legacy

by Guy G. Guthridge

This article summarizes a talk delivered at the Society's Gathering in Vermont on 12 August 2022.

Richard E. Byrd (1888-1957) and his Antarctic expeditions in the 1920s through the 1950s were the catalysts for the present-day U.S. prominence in the Antarctic.

Born into an aristocratic Virginia family, Byrd had a good and sometimes adventurous upbringing, graduated from the U.S. Naval Academy in 1912,

and married Marie Ames, of a prominent Boston family, in 1915. Marie became a vital partner throughout both his personal and his professional life. In the Navy, he promoted aviation in its early years. He figured importantly in establishing the Navy's Bureau of Aeronautics. Development of aviation for practical uses was central to much of his career.

Injured while at the Academy, he was placed on the retired list early and was on and off active duty several times over his life.



Byrd with Franklin D. Roosevelt in 1935

Byrd's first widely celebrated polar achievement, in 1926, was flying a multi-engine plane from Spitsbergen to the North Pole and back. The feat made headlines around the world and earned him the Medal of Honor from the United States Congress. The plane, a Fokker, remains to this day on display at the Ford Museum in Michigan.

Byrd began planning his first Antarctic expedition in 1928; the public was so attentive that he made the cover of *Time Magazine* on 20 August. The 1928-1930 expedition, like the second one in 1933-1935, demonstrated the feasibility of modern operations in Antarctica for both science and operations. It extensively used aircraft and mechanized surface transport. Radio communications were made both within the Antarctic for operational reasons and in live broadcasts from his Antarctic base Little America to audiences throughout the United States.

Byrd moved easily among leaders of institutions, corporations, and governments, raising money and in-kind support from all. Extensive public relations generated good will and enormous interest. "There has been no one quite like him in American life," writes a biographer. "Byrd left Dixie to become in the 1920s and '30s a Boston gentleman and the emblem of American industrial enterprise on the far frontiers of global exploration. His achievements helped shape the last hundred years into the American century."



Byrd alone at Advance Base 1934

The first expedition produced significant scientific achievements and featured a flight from the coast of Antarctica to the South Pole and back. This flight, like the North Pole one, generated headlines, as well as ticker-tape parades back in New York and Congressional promotion to the rank of Rear Admiral. The plane, a Ford Trimotor, is at the Ford Museum. The second expedition produced even more useful scientific observations, and it included his ill-considered winter sojourn alone a hundred miles inland from Little America. Carbon monoxide from the hut's stove sickened him and required rescue, but the experience resulted in what many call Byrd's best book, *Alone*, a best-seller like his two other Antarctic books.

Byrd was key in establishing the Government's United States Antarctic Service expedition just before WW2. He was seminal to what remains the largest Antarctic expedition, Operation Highjump, shortly after the war. His legacy and popularity

were important in promoting U.S. participation in the Antarctic portion of the 1957-1958 International Geophysical Year, which led to strong U.S. advocacy for the Antarctic Treaty, which was signed in 1959, 2 years after Byrd died.

Today's prominent U.S. research program in the Antarctic, and U.S. leadership among the 54 Antarctic Treaty nations, derives in no small measure from Byrd's Antarctic expeditions. In 1975, the Norwegian representative at a ceremony dedicating the new U.S. geodesic dome station at the geographic South Pole stated, "The United States has in many ways been a leading candidate in the Antarctic ever since Admiral Byrd started his expeditions in the late 1920s."

Historic Artefacts Returned

by Jeff Rubin

During a training mission in 1956, Dave Baker found himself far from McMurdo, in the vicinity of Cape Evans, home of Capt. Scott's Hut. Then a young U.S. Navy ensign, Baker was part of a dogsled rescue team that would rescue the aircrew of any downed aircraft.

Peering into the hut through frost-glazed windows, Baker told New Zealand website *Stuff* ("Almost 70 years after being taken as souvenirs, historic artefacts to be returned to Antarctica," Aug. 25, 2022) that his group left the hut's interior untouched because they deemed it a "sacred space."

While searching among the foodstores outside the hut, however, Baker took a wooden box containing three tins of Fry's Pure Concentrated Cocoa as well as another wooden crate marked "Scott's Antarctic Expedition 1910" that originally held Shell Motor Spirits.

For the past six decades, he has used them as props during talks he has given about Antarctica.

But recently Baker decided, as he told *Star News* (Aug. 26), that the artefacts he had taken "needed to go home."

Entrusted to Christchurch-based Antarctic Heritage Trust (AHT), they will be flown to McMurdo and then returned by helo to Scott's Hut.

Lizzie Meek, conservation collections manager for AHT, gave the Antarctic Society virtual

lecture "Ross Sea Heritage Restoration Project Update – Conserving the legacy of the Heroic Age" on Sept. 27.

She has a message for anyone else who "souvenired" items from the Ross Island huts over the years: "We'd love to hear from you and discuss how we can work together to add these important pieces of history back to the sites." Contact her at info@nzaht.org.

Deployments and Science on USCG Polar Icebreakers in the Antarctic

by Martin Weikart

This article summarizes a talk delivered at the Society's Gathering in Vermont on 12 August 2022.



Icebreaker *Northwind* in McMurdo Sound

Since Operation High Jump in 1946-1947, the U.S. Coast Guard and U.S. Navy have operated polar icebreakers in support of United States national interests in Antarctica and the Southern Ocean. In the early years of continuous U.S. presence in Antarctica, they were critical to logistical support in the building of research stations at McMurdo, Wilkes Land, Cape Hallett, Gould Bay (Ellsworth), Marie Byrd Land (Byrd), and Palmer (Antarctic Peninsula). Their icebreaking capabilities have been key to the annual ice escort operations of supply ships in McMurdo Sound and other coastal stations. In the mid-1980's, icebreakers of the *Glacier* and *Wind* Class were replaced by the *Polar* Class. The larger and more powerful Polar class were designed for solo Antarctic deployments. Icebreakers and their assigned

aviation detachments have supported numerous U.S. and international research expeditions and projects in waters that had rarely been previously explored, expanding knowledge in all the natural sciences. U.S. Coast Guard icebreakers supported U.S. State Department Antarctic Treaty inspections for many years. Recently, the role of USCG icebreakers in Antarctic science research has diminished, both in number of projects assigned and areas deployed. A new class of U.S. Coast Guard polar icebreakers is in work, designated as polar security cutters, and these icebreakers will be able to support Antarctic science activities.

Warren M. Zapol, MD, 1942 – 2021

By Dick Wolak

Warren Zapol, long-time Antarctic Society member, died on December 14, 2021 at the age of 79 of complications from lung cancer that had been diagnosed in 2015. His distinguished career was rooted in nine summers in Antarctica where he did ground-breaking research on the diving physiology of Weddell seals. In 2006, Zapol Glacier was named in his honor.



Warren M. Zapol, M.D.

Credit: Massachusetts General Hospital (MGH)

I remember Warren Zapol from my first Antarctic pre-season conference in 1972. I believe it was his first Antarctic venture as well – he was a likeable young physician going to McMurdo for the 1972-73 summer to work with Dr. Art DeVries on various aspects of hemoglobin in Antarctic fishes. I last worked with him 35 years later in 2008 when we were both expedition staff lecturers on a commercial cruise to South Georgia and the Antarctic Peninsula. By then, his accomplishments were many and his stature in the medical profession of the highest order. But, his personality was unchanged – remarkably personable, gracious and intent on infusing those around him with the fascination of his research interests and the wonders of the world. You can see some of this for yourself in the Antarctic Society DVD, “*Antarctica Calling*” that includes Warren as one of its interviewees during a Port Clyde gathering.

Warren Zapol was the emeritus Anesthetist-in-Chief at Massachusetts General Hospital (1994-2008) and the Reginald Jenney Distinguished Professor of Anaesthesia at Harvard Medical School. The Zapol Professorship in Anesthesiology at Harvard Medical School and the Massachusetts General Hospital is named in his honor.

Zapol was born in New York on March 16, 1942. He received his undergraduate education at MIT, graduating in 1962 (at the age of 20) and his MD from the University of Rochester School of Medicine (1966). Following graduation from the University of Rochester, Zapol served in the U.S. Public Health Service from 1967 to 1970. He then began his research at the U.S. National Institutes of Health (NIH) as a Staff Associate of the National Heart, Lung, and Blood Institute. While there, Zapol designed an artificial placenta for premature lambs and performed some of the first long-term extracorporeal membrane oxygenation (ECMO) perfusions in neonates and adults with infant respiratory distress syndrome or acute respiratory distress syndrome (ARDS).

While he first worked at McMurdo on Antarctic fishes, his real interest was learning about Weddell seals. When first hearing of the breath-holding and diving capabilities of the Weddell, his immediate response was “bullshit.” But, he was soon fully

immersed in unraveling the complexities of those capabilities. His thirst for data led him to the design and use of microprocessor-based devices attached to seals to collect real-time feedback of organ and blood changes during deep dives (this, at a time when computers were only at the *Apple II* and *Commodore 64* stage).



Physicians Konrad Falke, Graham Liggins, Warren Zapol, and Jesse Roberts in Antarctica in 1993. (Credit: MIT Technology Review, June 17, 2014)

He led nine Antarctic expeditions to study the diving mechanisms and adaptations of the Weddell seal. Through that research, his team learned how marine mammals avoid the bends and hypoxia (low blood oxygen levels). Zapol's major research efforts included studies of acute respiratory failure in both animals and humans.

He was elected to membership in the (then) Institute of Medicine of the National Academy of Sciences in 2002.

In 2003, Zapol and his former research fellow Claes Frostell received the Inventor of the Year award from the Intellectual Property Owners Association for the development of a system to safely deliver inhaled nitric oxide, a technique now used to save the lives of thousands of babies each year that he pioneered with his MGH team.

“Warren’s discovery and demonstration that nitric oxide is a highly effective therapy for pulmonary hypertension in newborns and in adults is one of the most significant achievements in recent intensive care medicine history,” Dr. Emery N. Brown, a director of the Harvard-MIT Health Sciences and Technology program, said in a statement. From

2008 through 2016, he was appointed by President George W. Bush and in 2012 reappointed by President Barack Obama as an academic representative to the U.S. Arctic Research Commission.

In 2012, he was designated as a Distinguished Scientist by the American Heart Association and in 2016 was inducted as a Fellow by the National Academy of Inventors.

Emperor Penguins Are Protected Under the Endangered Species Act

Under the new listing, federal agencies are required to reduce threats to emperor penguins, which are vulnerable to warming temperatures and melting sea ice caused by climate change.

by Derrick Bryson Taylor, New York Times

Emperor penguins have been listed as a threatened species under the Endangered Species Act because the animals’ sea ice habitat is shrinking, federal officials announced Tuesday. Experts predict that 99 percent of the world’s emperor penguin population will disappear by 2100 without significantly reducing carbon pollution.

The Antarctic sea ice, where the penguins spend much of the year, is under stress. Heat-trapping gases released by humans’ use of fossil fuels is causing the ice to disappear and break apart. That ice is essential to the animals’ livelihood — it is where they breed, raise their chicks and escape predators.

According to the U.S. Geological Survey, “endangered” means a species could face extinction throughout all or a large portion of its range. “Threatened” means a species is likely to become endangered in the near future. There are between 625,000 and 650,000 emperor penguins in the wild, or 270,000 to 280,000 breeding pairs, according to the U.S. Fish and Wildlife Service.

The service's director, Martha Williams, said in a statement that the listing reflected the “growing extinction crisis.”

“Climate change is having a profound impact on species around the world and addressing it is a priority for the Administration,” Ms. Williams said.

“The listing of the emperor penguin serves as an alarm bell but also a call to action.”



Emperor Penguin and Chick
Credit: LCDR William Blackwelder, USN-Ret.

The designation, which comes more than a year after the U.S. Fish and Wildlife Service announced a proposal to protect the penguins, places the animals among a couple dozen species that the federal government considers threatened by climate change. The Endangered Species Act is the world’s strongest environmental law that is intended to prevent extinction and foster the recovery of at-risk species, according to a news release from the Woods Hole Oceanographic Institution, a research facility in Massachusetts. A listing under the act encourages international cooperation on conservation strategies, and, although the species is not found within the United States, federal agencies must now ensure that their projects that emit large

amounts of carbon pollution do not threaten the penguin or its environment.

“Emperor penguins, like many species on earth, face a very uncertain future, which is dependent on people working together to reduce carbon pollution,” Stephanie Jenouvrier, an associate scientist and seabird ecologist at Woods Hole, said in the news release. “We should draw inspiration from the penguins themselves; only together can penguins brave the harshest climate on earth, and only together can we face a difficult climate future.”

It has been more than a decade since the Center for Biological Diversity petitioned the Fish and Wildlife Service to protect the emperor penguin under the Endangered Species Act, the news release said. In 2014, the agency agreed that the animal may be endangered because of climate change but did not take action. Five years later, the center sued the Trump administration for failing to act on the petition.

Emperor penguins are an integral part of the Antarctic food chain, in which they prey upon squid and small fish and are preyed upon by larger predators like the leopard seal and killer whale.

Caring for their young is a task that involves both parents. After laying a single egg, females hunt while males hold it on their feet, covering it in a feathered pouch. After the egg hatches, the parents alternate caring for the chick. Young penguins that do not develop their adult feathers before the sea ice disappears cannot swim in the freezing waters and will die.

Emperor penguins do not fare well on land. They cannot climb icy cliffs and are vulnerable to warming weather and high winds. In 2016, the Antarctic’s second-largest colony of the birds lost more than 10,000 chicks after a period of heavy winds and record-low sea ice before the chicks had grown their feathers.