The Antarctican Society

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ICE LOSS: FROM GUESS TO PROGNOSIS IN 17 YEARS

Digging through an old briefcase, I found pages I'd torn from the 21 July 2000 *Science*. Dorthe Dahl-Jensen (still at the Niels Bohr Institute in Copenhagen) introduces two reports in that issue on mass balance of the Greenland ice sheet, saying (then-) modern techniques "now allow sufficiently precise measurements for a reliable estimate to be made" of mass balance, but noting that Antarctica, with most of the world's ice, is extremely important "for the coming generations of air- and spaceborne remote sensing methods."

What was new from the Antarctic? Some Society members attended a 2001 talk by Richard Alley, Penn State, at the NAS in Washington. Richard said climate has changed a lot in as little as a year and asked the then-unanswered question: Will Antarctic ice sheets melt and flood our coasts?

Sixteen years later, ice sheet data are far advanced compared to what scientists had to work with just that short time ago. Satellite observations of course are a huge part, but getting predictions right "requires measurements that can be made only by going to the ice," states the July 2017 *National Geographic Magazine* in "The Crisis on the Ice." Science knows now that ice disappearing into the sea from Antarctic ice shelves increased twelve-fold from 1994 to 2012. Ice shelves are afloat; calving doesn't raise sea level. But losing an ice shelf (see the Larsen C story inside) hastens loss of grounded ice behind. Helen Fricker of Scripps Institution of Oceanography told the *Geographic*, "I think it's time for us scientists to stop being so cautious" about communicating the risk of sea level rise from Antarctica and Greenland.

We live in a remarkable time, possessing the ability to witness and forecast massive but slow change that a generation ago was unknowable.

Guy Guthridge

20-22 July 2018: Antarctic Gathering in Port Clyde, Maine

We said this in the April issue. Here's a reminder:

Another Antarctic Gathering will take place at Paul Dalrymple's house in Port Clyde, Maine, Friday through Sunday, 20-22 July 2018.

The format will follow that of the 2016 event, which attracted 114 Society members and guests: a Friday evening meal of fish chowder, a Saturday of Garage Theater presentations, and a gala Sunday lobster brunch.

Society members, family, and friends are encouraged to come. Here's what to do: (1) Tell Treasurer Paul Dalrymple or newsletter editor Guy Guthridge you're thinking of coming; see our emails on the front page. (2) You're welcome to tent in Paul's yard, but if you want to stay in a nearby hotel reserve a room soon.

Antarctic tourism update from IAATO

by Amanda Lynnes

Whatever your view on tourists visiting Antarctica, tourism is prominent in the region. Many reading this newsletter are familiar with the sight of a cruise ship or a yacht in Antarctic waters, or have enjoyed being tourists themselves. You may be less familiar with other aspects of Antarctic tourism, including its contribution to science and conservation.

Most commercial tour operators in and around Antarctica are members of the International Association of Antarctica Tour Operators (IAATO), committed to safe, responsible visitor activities that cause no more than minor or transitory impact on the environment. Founded in 1991, IAATO regulates itself,* setting guidelines, procedures, and protocols of which some exceed Antarctic Treaty requirements. These standards have achieved success that may well be unprecedented in the global tourism industry. Of the 120 members, 50 are Operators, companies that actively seek authorization from an authority in an Antarctic Treaty nation to operate in Antarctica.

IAATO believes firsthand travel experiences drive conservation by developing interest, understanding, and a sense of environmental responsibility. Each year, members' educational and travel programs create a corps of ambassadors for protection of Antarctica. Statistics show that most of the travelers come from Antarctic Treaty member nations, so they are paying taxes at home to support their own national science programs.

In the 2016-2017 season, 44,367 visited Antarctica to wonder at its splendor, wildlife, and history. The number of people visiting has been rising in line with global tourism trends since 2011-2012. Antarctic tourism is closely correlated with world economic activity. The majority of visitors are from the United States (33% in 2016-2017), but Chinese visitors have increased markedly in recent years, now behind the USA at 12%, ahead of Australia (10%), Germany (9%), and the United Kingdom (9%).

New executive director

With the number of Antarctic travelers expected to rise, IAATO is taking steps to ensure continued treading softly on the environment while enabling visitors to have a safe, enriching experience. For example, IAATO has teamed with the Scientific Committee on Antarctic Research to develop a science-based conservation plan for the Antarctic Peninsula. Earlier this year, Dr. Damon Stanwell-Smith was appointed IAATO Executive Director. His past environmental monitoring experience, including head of the marine program at the UN Environment World Conservation

Monitoring Center, will benefit the association as it continues to support long-term conservation of Antarctica.

IAATO supports long term monitoring and assessment to detect any changes from on-site human activity or other factors such as climate change. One initiative is the Antarctic Site Inventory (ASI), coordinated by the nonprofit organization Oceanites, Inc. For 20 years, IAATO members have assisted Oceanites with sending out an annual troop of experienced 'penguin counters' to around 150 sites across the Antarctic Peninsula, collecting data that detect possible changes in flora and fauna and helping to determine how best to minimize or avoid human environmental impact. ASI's results are useful to both IAATO and policy makers.

Penguin Lifelines

Another project, which works closely with Oceanites, is Penguin Lifelines, based at the University of Oxford in the UK. IAATO operators carry Penguin Lifelines field staff to sites along the Peninsula and South Georgia. There, they set up time-lapse cameras that monitor penguin and fur seal populations over several years to get a picture of how they might be changing, particularly in response to climate change. Dealing with the amount of data generated by the cameras presents a challenge to the researchers, so Penguin Lifelines uses a clever citizen science platform called Zooniverse that allows the public to help extract data by clicking on individual penguins. To take part, go to https://www.penguinwatch.org

IAATO maintains the most comprehensive database on human activity in Antarctica. Data are analyzed routinely to identify trends and are shared annually with Antarctic Treaty Parties to facilitate discussions on managing tourism.

A further occasional role by IAATO is transport of staff and equipment to research stations or field sites for both government and nongovernment programs across the Southern Ocean and the Antarctic interior. In return, these organizations enhance tour operators' education programs by providing lectures and workshops or inviting visitors to help with field work.

For example, Palmer Station, a United States research hub on the Antarctic Peninsula, provides tours of facilities or sends staff out to talk to visitors on ships several times a season. Given that a third of Antarctic visitors are American taxpayers who are supporting the U.S. Antarctic Program, this is an opportunity for scientists to showcase their work, demonstrating why Antarctic science is important in a global sense and how processes in Antarctica and the Southern Ocean affect us all. The United Kingdom, Argentina, and other nations also invite IAATO operators' passengers to visit their stations.

IAATO members and their guests make annual donations of cash or science equipment for national and nongovernment science programs and conservation. In 2016-2017, this donated amount was over $830,000.

As IAATO's sea based members carry their visitors to wonderful places, their vessels also are vessels of opportunity. For example, field staff and passengers routinely record marine mammal sightings and behavior, sending the information to requesting institutions (e.g., https://happywhale.com). Tourist vessels accumulate depth soundings, often in areas that remain poorly charted; this navigational information is of particular benefit at a time when some government-sponsored surveys may be declining.

Protecting the rich natural and heritage resources of Antarctica and the Southern Ocean requires all communities, including the tourist marveling at the first view of an albatross and the seasoned scientist. They, plus governments, tour companies, and academic institutions, give life and accomplishment to existing formal

documents agreeing that these natural resources should be conserved. This remarkable consensus is characteristic of the polar world and is key to ensuring that these regions are sustainably managed.

Amanda Lynnes alynnes@iaato.org is the Communications and Environmental Officer, International Association of Antarctica Tour Operators.

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*Like all human activities in Antarctica including national programs, tourism is subject to environmental impact assessment by a competent authority, such as a government office, before being given authorization to proceed. IAATO is self-regulatory, but cannot regulate tourism in Antarctica.

Studying Antarctica's positive effects

"There will always be inequity," U.S. President John F. Kennedy said. "Some men are killed in war. Some are wounded. Some are sent to the Antarctic. And, some are stationed in San Francisco."

Most readers of this newsletter, I fancy, would not have come up with such a contrast. We point instead to uncounted numbers who relished their experiences in Antarctica and returned to enriched lives marked by success, sometimes fame.

Antarcticans, though, let's face it, have met folks who didn't care to be there. The experience, for them, was negative.

Those individuals are *not* the targets of a study by Australians "to better understand the positive impacts of Antarctic employment." You can be a part of it.

Kimberly Norris and Samantha Blight, University of Tasmania, have an online survey that "is an opportunity for you to share your experiences and shape the future of personnel deployed to Antarctica in the future. Insight . . . may then inform the development of systems used to recruit, train, and support Antarctic employees."

The survey is definitely 21st Century. In it, you don't check if you're male or female. It's "What gender do you identify with?"

What got me is a paragraph in the instruction titled, "Are there any possible risks from participation in this study?" Here's part of the answer: "By recalling your experiences of working in Antarctica you may experience some emotional discomfort, particularly if you experienced significant challenge during your work there. If at any point in completing the survey you feel uncomfortable in responding, please stop. If participating in the study has caused you distress we recommend you contact researcher Dr. Kimberley Norris, or alternatively, access counselling services and support."

Or, simpler, do as a friend said: "I plan to respond – and then kill myself."

Just kidding.

Take the survey! Samantha Blight tells me, "I'm from the U.S., but live here in Tasmania, and my husband has been to Antarctica several times (and looks to be wintering again this year!). I've seen such changes in him and many of our friends who have been South and note most of this has not been captured in studies. Hopefully this will shed some light on the positive aspects of deployment, across all age ranges and nationalities represented in Antarctica."

Here is the survey: https://surveys.utas.edu.au/index.php/214572?lang=en

"Ice Eagles" – finally!!

by Tom Henderson

My film "Ice Eagles" is finally being released in a few weeks! The result of 3 years of work is now available for order. It is a 2-hour film covering the entire history of U.S. aviation in Antarctica, dedicated to all of those who contributed to making that history.

It begins with the 1928-30 Byrd Antarctic Expedition and carries through the ongoing Operation Deep Freeze. The film uses photos, film clips, and maps from every American expedition to The Ice.

It also includes excerpts from 50 interviews of historians, scientists, military and – most importantly – aviation personnel from all American expeditions dating back to the 1939-41 U.S. Antarctic Research Expedition. A number of those interviewed are Society members.

The current level of scientific research in Antarctica would not be possible without aviation support. That support, in turn, derives from the experiences of all of the aviation teams of the past. Through triumphs and tragedies, aviators learned how to deal with the most hostile flying environment on earth.

Most of the music in "Ice Eagles" is from long-time Society member Valmar Kurol's beautiful new album, "Ross Sea Suites and Other Antarctic Tone Poems." Valmar and his collaborator Michael Stibor generously allowed me to use their music. I encourage you to look into the album at http://rossseasuites.com/video/rossseasuites/

To see more about "Ice Eagles," go to http://gwillow.com and follow the link to the "Ice Eagles" page.

I am proud to present this film and anxious to get feedback from viewers. I hope that it will stand as a historical record of and tribute to all "Ice Eagles."

Forum on the future of Antarctica

by Raymond Arnaudo

The importance of Antarctica to issues of climate change, global science, and environment prompted a dozen experts to discuss challenges aboard the Antarctic cruise liner *Akademik Ioffe*. I joined them.

The forum, 28 February to 9 March 2016 in the Antarctic Peninsula region, reviewed the Antarctic Treaty, its Protocol on Environmental Protection, and the Convention on the Conservation of Antarctic Marine Living Resources – together, the Antarctic Treaty System or ATS. We identified concerns, made recommendations, and agreed to continue as the Future of Antarctica Forum.

We noted that it is important for Antarctic science, management, and diplomacy to focus on problems of climate change, overutilization of marine resources, and the potential stress from tourists, especially along the Antarctic Peninsula. Participants agreed that decisions would be aided by an interdisciplinary, international effort to "distinguish the direct and interactive effects of climate change, fishing, tourism, and national operations on ecosystems in the Antarctic Peninsula region for improved environmental management." Oceanites, the nongovernmental organization that convened the trip, was encouraged to develop a project along these lines. Oceanites also agreed to host more meetings of the Future of Antarctica Forum.

The group, meeting under Chatham House Rules – no attribution by name or affiliation – concluded that emerging challenges require change. The Treaty itself has grown from 12 signatories in 1959 to 53 member nations today, comprising two-thirds of the world's population. Of the 53, 30 maintain Antarctic research programs and are consultative or voting members. Under the Treaty, the *Convention* (i.e., the international agreement) on the Conservation of Antarctic Marine Living Resources has grown from 14 signatories in 1980 to 36 today. Of those 36, 24 (and the European Union) are members of the *Commission* (i.e., the deliberative body) for the Conservation of Antarctic Marine Living Resources.

Warming in the western Antarctic Peninsula was identified as a concern. Average temperature along the Peninsula has risen 5 degrees Fahrenheit in 50 years; ensuring that human activities in this region

don't exacerbate ecosystem stress is crucial. The Forum acknowledged the Oceanites Antarctic Site Inventory project, which has visited 1,700 Antarctic Peninsula area sites and collected data over time at 200 of them to observe change (or stability). The ATS has adopted Site Guidelines for Visitors at 40 of these sites – generally the most visited ones.

The Forum noted that tourist landings from cruise ships had increased from 7,000 in the early 1990s to over 35,000 in 2014 and agreed that on-shore landings had been well monitored (see the IAATO article starting on page 2) and shown no significant impacts. Still, the growing numbers, generally visiting the few areas with good access, need to be monitored.

Fisheries progress

CCAMLR was negotiated in the late 1970s to address fisheries in the Southern Ocean, then unregulated, which had decimated several species. While CCAMLR, which entered into force in 1982, has controlled overfishing, Forum participants urged countries to focus on the CCAMLR principle of "prevention of changes or minimization of the risk of changes in the marine ecosystem which are not potentially reversible over two or three decades."

CCAMLR's use of ecosystem management, as opposed to sustainable yield, in determining harvest levels was unique to international law at the time of its negotiation and remains a model. Fishing in the Southern Ocean reached 500,000 metric tons of krill in 1982. CCAMLR has controlled that; the current catch of krill is more like 200,000 metric tons. Catches of toothfish (Chilean seabass), a prized deep sea fish, peaked at 15,000 metric tons in 1999, but are now below 12,000 metric tons.

Raymond Arnaudo is a retired diplomat and former senior scholar at the American Association for the Advancement of Science. He has a career of experience in international environmental and science policy affairs, U.S. Department of State and resides in Brussels. This article summarizes a paper in the online AAAS publication Science & Diplomacy, *11 April 2017.*

Year of Polar Prediction

Rosemary Nash, Scientific Committee on Antarctic Research (SCAR), reports that a campaign has started to improve prediction of Arctic and Antarctic weather, climate, and ice. The intent is better forecasts in both polar regions and lower latitudes.

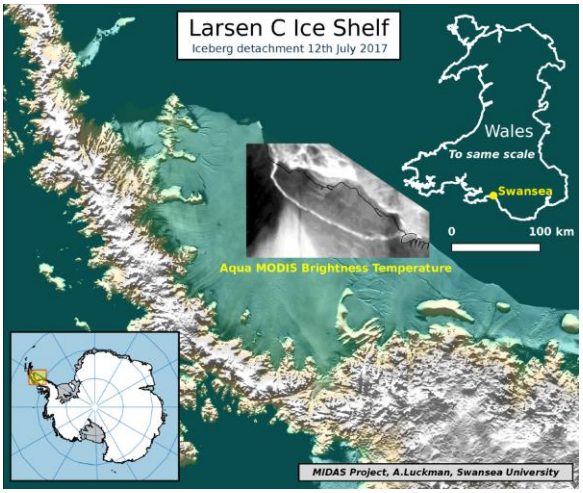
The Year of Polar Prediction (YOPP) will last until mid-2019, covering a full year in both regions. The World Meteorological Organization and Germany's Alfred Wegener Institute are mainstay organizers, but more are involved.

Thomas Jung of the Alfred Wegener Institute chairs the steering committee of a parent enterprise, the Polar Prediction Project. YOPP is needed, he says, because, "The rate and implications of polar environmental change is pushing our scientific knowledge to the limits."

David Bromwich, Byrd Polar Research and Climate Center, Ohio State, heads YOPP's Southern Hemisphere part. He also is chief officer for SCAR's Physical Sciences Group. Here's a link to YOPP Southern Hemisphere plans: http://polarmet.osu.edu/YOPP-SH/

Larsen C Ice Shelf calves big iceberg

Between 10 and 12 July a Delaware-size part of the Larsen C ice shelf calved. The event was expected; a lengthening crack between the new berg and the rest of the shelf had been monitored since 2006. The new iceberg is 5,800 square kilometers (2,240 square miles), 12 percent of the area of the entire Larsen C ice shelf before the calving.



Map of Larsen C, overlaid with NASA MODIS thermal image from July 12 2017, showing the iceberg has calved. Source: Project MIDAS.

Larsen C is halfway down the east (Weddell Sea) side of the Antarctic Peninsula. Larsen B, its smaller sibling to the north, broke up suddenly (and famously) in 2002. Larsen A, smaller and farther north yet, collapsed in 1995. The proto-Larsen Ice Shelf (comprising the parts later called A, B, and C) when named in 1953 embraced 5 degrees of latitude (300 nautical miles).

The significance of the calving is once you lose an ice shelf, which is floating and does not raise sea level, grounded land ice behind is freer to descend into the sea, which *does* raise sea level.

After the 2002 collapse of Larsen B, inland ice flow sped up nearly tenfold.

Once afloat, both top and bottom are exposed to warmth. A 2013 paper in *Science* shows nearly half the melting of Larsen C is basal. Surface melting causes the rest, and in the last half century the Antarctic Peninsula has warmed 5 degrees C.

For the west side of the Peninsula (warmer than the east side), along with much of coastal West Antarctica, a 2014 paper in *The Cryosphere* says ice loss in 2011-2014 was triple that of 2003-2009.

The southward march of ice loss made vivid by the Larsen A-B-C breakouts is why study of ice dynamics is a priority for many Antarctic programs including the U.S. one. Glacier and ice sheet contributions will dominate sea level rise over the next century, and more threshold behavior like that shown by the Larsen collapses "could bring unwelcome surprises," in the words of a 2015 paper in *Nature Communications*.

"We may see significant collapse of West Antarctica in our lifetimes," says Ian Howat of Ohio State in an AGU release dated 28 November 2016.

Virtual Polar Resource Center

Paul Dalrymple's discussion in the April newsletter of where folks might place their polar book collections led Harold W. Borns to tell us how his employer, the University of Maine, handles polar "stuff" that has accumulated on campus in the last hundred years or so.

Books, artifacts, films, air photos, expedition equipment, maps, clothing, field notebooks and personal diaries are spread out, many in staff offices, much in the university's Hudson Museum or library.

A new Virtual Polar Resource Center lists what exists with the purpose of making it available for any use. Material still in offices of professors (some actively being used) can be made available through contact with the owners.

This growing Center opens the door to receive donations, with assurance that they will be well taken care of in the future.

New icebreakers, U.S. and Russian

A lot is going on regarding sorely needed new U.S. polar icebreakers.

The Coast Guard plan is for three new medium icebreakers, which can break ice 8 feet thick, and three heavy icebreakers (21 feet). Today's USCG polar icebreakers are *Polar Star* (heavy), which breaks the McMurdo channel, and *Healy* (medium) centered on Arctic research. The National

Science Foundation has *Nathaniel B. Palmer*, an Antarctic research icebreaker.

USCGC Polar Star at McMurdo's ice pier during the 2015-2016 season. The icebreaker finished opening a channel through the sea ice, which that season was 70 miles long compared to its usual 20 miles, on 17 January.

The U.S. Coast Guard got $15.6-million in 2013 to get started, and "service officials have planned for a significant escalation in the project this year, with $150 million going to planning and design ahead of construction beginning in 2020," according to the 17 May 2017 *Washington Post*.

The Coast Guard said in February 2017 that it awarded five contracts for heavy polar icebreaker design and analysis. By October the Coast Guard plans a draft request for proposals for design and construction, followed by a final RFP in 2018. A single contract for design and construction of the first heavy polar icebreaker is to be made in fiscal 2019, if Congress provides the money.

An 11 July report by the National Academies Committee on Polar Icebreaker Cost Assessment recommends four common-design polar icebreakers of which one would service the Antarctic. *Polar Star*, it says, should be upgraded, because the first new ship won't be ready until 2024. And, all the new icebreakers should be science-ready.

The Coast Guard sponsored the study. Kelly Falkner, who heads NSF's polar office, told *EOS* that the science community should completely control a science-dedicated icebreaker and "we're not at the point where you take what you get."

Nuclear icebreaker Arktika, floated out in St. Petersburg June 2016. Arktika is the lead ship of the Project 22220 series to replace nuclear ships of the previous generation. Photo and caption: RT News, 16 June 2016.

Russia launched *Arktica*, world's biggest, in 2016, to be ready by December. Length is 173.3 meters (569 feet). It's one of three of the class being built in Russia.

Kenneth L. Waldron, 1936-2017, first-winter electrician at Pole Station

Kenneth L. Waldron of North Kingstown, Rhode Island, died 7 April 2017. He was an electrician in the U.S. Navy, serving in the Korean and Vietnamese wars and retiring as utilitiesman master chief.

At South Pole Station over its first (1957) winter Ken, then 19, was the electrician. He was responsible, among many duties, for keeping the camp's two 30kw generators operating – life support for the nine Navy personnel and nine scientists isolated 12 February to 21 October.

As the last plane left, Ken had "a stark realization. Wait a minute—I'm the only electrician here now. And it's funny. If those generators used to miss a beat, I'd wake up. I was the next building over from them, but I could feel them. I could literally feel them in my bunk. And if they missed a beat I could be up and running."

The 18 first winterers (1957) at the just-finished Amundsen-Scott South Pole Station. Ken Waldron is in the front row with his hand up to pull the string that clicked the camera. Photograph provided by Jerry Marty.

At Caterpillar in Peoria before deploying he had learned the critical importance of electrical grounding – and how to do it. But at South Pole "I didn't have any ground because I'm sitting on top of an ice cap. I had to bond everything together. The wind would cause these [building] panels—even though four inches thick—to vibrate enough that we would get static on our communications and some scientific gear. So we had to bond it all back to the generator."

"I had never in all my life—when I was sitting in that class that day [in Peoria], thought I'd ever use what [the instructor] was saying."

Nineteen years later when present to dedicate the geodesic dome station that replaced those original buildings, H. Guyford Stever, director of the National Science Foundation, called attention to the great logistics effort required to support Pole:

"One couldn't go two steps across this station today without realizing that every piece of scientific data, every paper that's written, has a partnership of authors not listed which is very large. It's been the spirit of Antarctica since the beginning."

Ken was an active alumnus of Operation Deep Freeze, attending conferences and reunions and serving as historian of the Old Antarctica Explorers Association. He was a director of the Seabee Museum in Davisville, Rhode Island.

Antarctica's Mount Waldron, 3,100 meters, discovered in 1959 during a Navy photographic flight in the Sentinel Range, is named in Ken's honor.

He is survived by his wife Virginia "Ginger" (Day) Waldron. Donations in Ken's memory can be made to the Seabee Museum and Memorial Park, 21 Iafrate Way, North Kingstown, Rhode Island 02852.

Louise Hutchinson, 1926-2017, first dance at Pole Station

"Writer off today to visit South Pole" was the *Chicago Tribune*'s front-page headline on 30 November 1971, a very early year for women in the U.S. Antarctic Program.

Miss Hutchinson (yes, she was Miss) was a reporter hosted by National Science Foundation to report on Antarctic research.

Her week's tour included research sites in the Dry Valleys and elsewhere, wildlife areas on Ross Island, and McMurdo. But it was at Pole that she made history.

Chicago Tribune reporter Louise Hutchinson enjoys an ice cream cone with Jaspar, a mangabey monkey from West Africa, at Brookfield Zoo in 1960. Hutchinson often wrote animal stories during her early years at the newspaper. (*Chicago Tribune, 24 April 2017)*

"A woman slept at the Amundsen-Scott South Pole Station on December 7 and became the first woman to spend a night at

the bottom of the world," notes the December 1971 New Zealand Antarctic Society newsletter. "Miss Louise Hutchinson, Washington correspondent of the *Chicago Tribune*, stayed overnight by accident—an aircraft which should have picked her up did not arrive. Miss Hutchinson played darts, danced with some of the 57 men at the station, and attended a movie. Then she retired to the only bed in the sick bay."

Your editor was at South Pole Station then and, yes, I danced with Louise. She was not assigned to the sick bay because she was sick. It was the only room that had a lock on the door. The Navy officer in charge was taking no chances.

"Louise Hutchinson shattered gender barriers as a *Chicago Tribune* reporter," writes Bob Goldsborough in the 24 April 2017 *Tribune*, "rising from a neighborhood news beat to cover Elvis Presley's 1957 tour and the aftermath of President John F. Kennedy's assassination."

Louise Ann Hutchinson, 90, born 5 July 1926, died 29 March 2017 in Williamsburg, Virginia. She grew up in Chicago. After college, she worked for radio stations before joining the *Tribune*.

In November 1963 the paper sent her to Washington to cover the aftermath of Kennedy's assassination, with a focus on Jacqueline Kennedy. She joined the Washington bureau in 1966.

In 1970 she was elected president of the Women's National Press Club, which that year voted to admit male journalists and rename itself the Washington Press Club. *Tribune* Washington reporter Bill Kling called Hutchinson's leadership "instrumental" in that decision.

In 1971, in the last of her 10-part Antarctic series, Hutchinson wrote, "The South Pole and the Antarctic are not to be remembered alone as brute scenes of giant glaciers coursing toward frozen seas nor as mountain chains poking through ice as deep as 14,000 feet. The South Pole and the Antarctic are a gut feeling that cannot be conveyed. Remarkable men whose fortitude eludes description labor here."

Parker Emerson Calkin, 1933-2017, Arctic and Antarctic geologist

Parker Calkin died 10 June 2017 in Boulder, Colorado. He was born in Syracuse, New York, 27 April 1933 and grew up there and in Virginia and New Jersey. He graduated from Tufts University with a B.A. in geology in 1955, having spent time in Greenland as a student assistant with the U.S. Weather Bureau. In 1959 Parker received a master's in geology from the University of British Columbia.

Parker began his work in Antarctica while at Ohio State's Byrd Polar Research Center, where his 1963 PhD dissertation was on geomorphology and glacial geology of the Victoria Valley system. Subsequent expeditions resulted in many publications, the Antarctica Service Medal, and the naming of Calkin Glacier in Taylor Valley.

Parker Emerson Calkin, courtesy Daily Camera (21 June 2017) and Legacy.com.

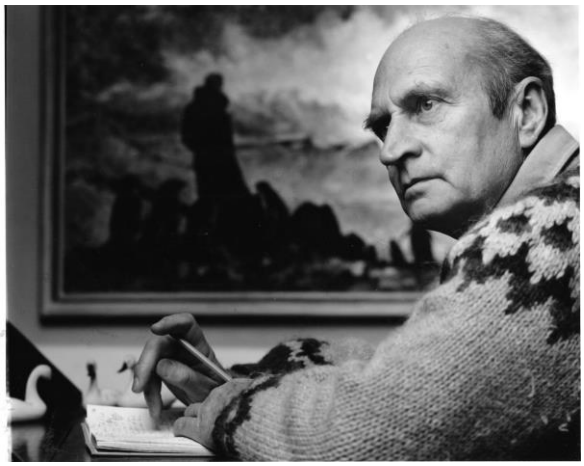
Parker was a professor at SUNY Buffalo from 1965 to 1999. Over his career, he received thirteen National Science Foundation research grants.

Half his 90 or so publications deal with the Arctic or the Antarctic; the other half, with New York state and eastern Great Lakes. Some of his coauthors on the Antarctic papers are Colin Bull, Bob

Nichols, and Bob Rutford, with Parker typically the lead author.

Before he retired he and his wife, Harriet Simons, spent two sabbatical leaves as an affiliate of the Institute of Arctic and Alpine Research in Boulder, Colorado. He continued this association and his research in glacial and Quaternary geology after retirement.

William J. L. Sladen, 1920-2017, a founding member of the Society



William J. L. Sladen, courtesy Fauquier Times, 31 May 2017

A founding member of the Antarctican Society, Dr. William J. L. Sladen, died 29 May 2017 at his home in Warrenton, Virginia. He was 96.

Bill delivered the Society's very first Memorial Lecture, "Penguins and Skuas," at the National Academy of Sciences on 31 March 1964, his second in 1977, on a visit he made to the Soviet Union, "Snow Geese and Détente," and a third in 1996, "Six Decades with the Penguins."

He was a Society director in the 1960s and its president in 1971-1973.

He was known worldwide for long-term behavioral studies of Arctic and Antarctic birds, particularly Adélie penguins and North American native swans.

Bill's 50 years in waterfowl research included work in Alaska, western Europe, and Wrangel Island. He pioneered methods of capture, circumpolar marking, and radio-telemetry. He filmed Adélie penguins extensively, both for science and to reach a wider public. His "Penguin City," first aired by CBS in 1971, documents day-to-day lives of Adélie penguins for a popular audience.

Dr. Sladen moved to Fauquier County, Virginia, in 1990 after retiring from research and teaching at Johns Hopkins University. He founded the research, education and conservation organization Environmental Studies on the Piedmont, just north of Warrenton, Virginia.

The field station was his base for studies of migratory patterns of trumpeter swans and attempts to restore these birds to their traditional East Coast wintering grounds. In the 1980s, Bill and Canadian Bill Lishman trained Canada geese to fly behind ultralight aircraft.

In 1993 a flight of 18 Canada geese, imprinted on ultralight aircraft, left Canada behind two ultralights, landing 4 days later in Warrenton. The work led to "Fly Away Home," a Hollywood film.

Born in England and trained in medicine, Bill Sladen first traveled to Antarctica in 1948 as medical officer and biologist for British researchers at Hope Bay, on the Antarctic Peninsula. He sledged with dogs between study areas and once spent 17 days alone, living in a tent, after a fire destroyed the base hut and killed his companions.

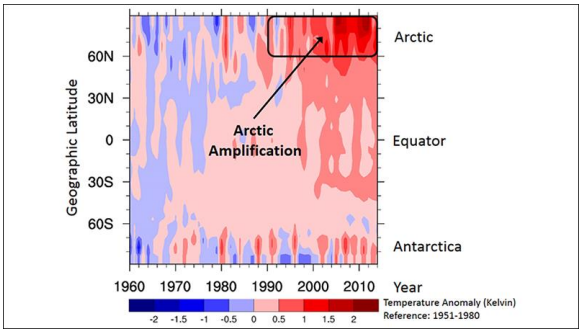
After coming to the United States in 1956, Bill Sladen taught comparative behavior and ecology to graduate students at Johns Hopkins' University. He continued long-term Antarctic ornithological research, largely funded by the National Science Foundation.

He worked extensively with the U.S. Antarctic Research program as part of the International Geophysical Year.

In 1964 he was the first to discover DDT residues in Antarctic penguins and seals, thus helping to demonstrate the global reach of this long-lasting pesticide.

Much of this obituary is drawn from the *Fauquier* [Virginia] *Times*, 31 May 2017. The *Washington Post* carried a lengthy obituary in its 1 June edition.

Our Warming Planet



Our warming planet from Pole to Pole.

The image is from an article in the August 2017 print edition of *EOS* by 12 authors employed at several research institutions in Germany. The article, first published online on 17 January, says the Arctic research community hasn't agreed on what leads to Arctic amplification, so in the 2017 summer the German researchbreaker *Polarstern* would investigate coupling of sea ice, clouds, and aerosol in the transition zone between open ocean and sea ice.

The image, which uses NASA data, shows how the years warmed from 1960 to 2014 compared to the 1951-1980 mean. It indeed illustrates *polar*amplification, not just Arctic, which two authors – Syukuro Manabe and Richard T. Wetherald of the Geophysical Fluid Dynamics Laboratory at Princeton – (now) famously predicted in a paper published January 1975 in the *Journal of the Atmospheric Sciences*. They wrote back then that "the increase of surface temperature in higher latitudes is magnified due to the recession of the snow boundary and the thermal stability of the lower troposphere which limits convective heating to the lowest layer."

Looking at this image, would you not agree that, seen from mid-1974, when Manabe and Wetherald actually wrote their paper, what they wrote was in fact a *prediction*?